

APPENDIX F

**WATER RESOURCES AND FARMLAND
SUPPORTING DOCUMENTATION**

APPENDIX

List of Abbreviations and Acronyms

Ac	acre
COA	Conservation Opportunity Area
CWA	Clean Water Act
FHWA	Federal Highway Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HUC	Hydrologic Unit Code
MSMM	State of Missouri Stream Mitigation Method
MDNR	Missouri Department of Natural Resources
NWI	National Wetland Inventory
NRCS	Natural Resource Conservation Service
NEPA	National Environmental Policy Act
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent
PFO	Palustrine Forested
PSS	Palustrine Scrub-Shrub
PUB	Palustrine Unconsolidated Bottom
SWPPP	Soil and Water Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQC	Water Quality Certification

LAWS AND REGULATIONS

- On January 9, 2001, the U.S. Supreme Court issued a decision, *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers*. The decision reduces the protection of isolated wetlands under Section 404 of the CWA. Prior to the SWANCC decision, the USACE had adopted a regulatory designation of “waters of the U.S.” that afforded federal protection for almost all of the nation’s wetlands. The Supreme Court also concluded that the use of migratory birds to assert jurisdiction over the site exceeded the authority that Congress had granted the USACE under the CWA. The Court interpreted that USACE jurisdiction is restricted to navigable waters, their tributaries, and wetlands that are adjacent to these navigable waterways and tributaries. The decision leaves “isolated” waters/wetlands unprotected by the CWA.

- As a result of the Supreme Court decision on **Rapanos** (June 2006), the agencies (USACE and EPA) jointly issued guidance on the determination of whether a particular water body is subject to CWA section 404 jurisdiction. The Supreme Court decision requires that, in certain circumstances, a “significant nexus” evaluation be conducted to support jurisdictional and non-jurisdictional determinations. The guidance is consistent with the Supreme Court’s decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* regarding the scope of the agencies’ jurisdiction under the CWA. Specifically, this guidance discusses the agencies’ protection of three classes of waters through the following actions:
 - 1) Continuing to regulate “traditionally navigable waters,” including all rivers and other waters that are large enough to be used by boats that transport commerce and any wetlands adjacent to such waters;
 - 2) Continuing to regulate “non-navigable tributaries that are relatively permanent and wetlands that are physically connected to these tributaries”; and
 - 3) Continuing to regulate based on case-by-case determinations for other tributaries and adjacent wetlands that have certain characteristics that significantly affect traditionally navigable waters.

- **Executive Order 11990 Protection of Wetlands** issued in 1977 requires that federal activities (including federally funded projects) as a whole result in no net loss of wetlands.

QUANTITATIVE ANALYSIS

For the DEIS, estimates of stream impacts were quantified using the measure tool in ArcGIS 9.2 to measure along USGS mapped streams. The length was quantified within the corridor lines for each alternate. Also described along with the length of stream was the type of impact, for instance, *culvert*, *culvert extension*, *bridge*, *channel movement*, or a combination. The drawing below illustrates examples of how the impact lengths were determined (Figure 1). The first example, (a), exhibits how a stream was measured when the headwaters begin within the study corridor. This was described as a *channel movement* because it is assumed the channel will be moved into a MoDOT roadside ditch due to the small amount of drainage within the corridor limits. The second, (b), demonstrates how a stream that runs through the study corridor was

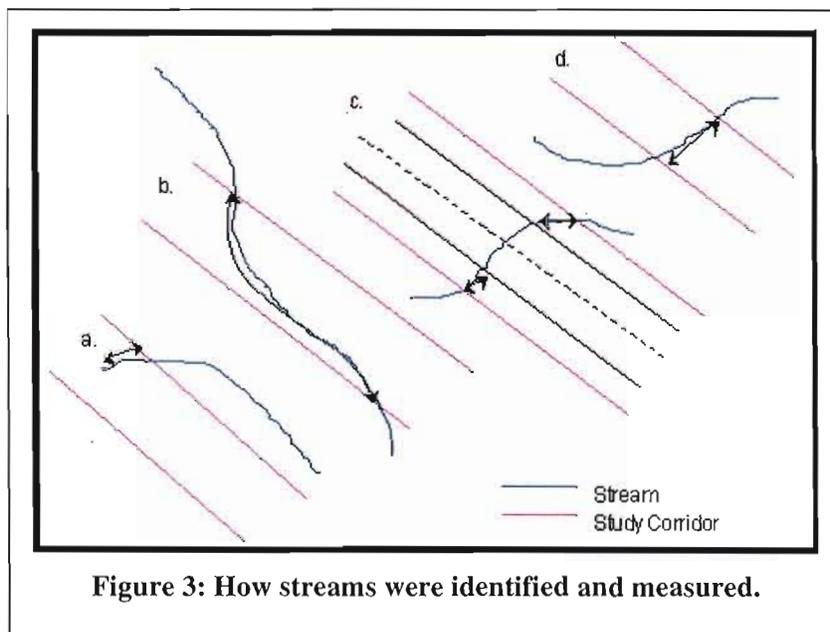


Figure 3: How streams were identified and measured.

measured. This type of stream was described as a *channel movement* because it is assumed that a culvert will be placed relatively perpendicular to the roadway, thereby reducing the length of stream channel. The same method was used to measure the stream on each side of the existing alignment between corridor lines when the alternative was on existing alignment (c). This type of impact was described as a *culvert extension*. Example (d) demonstrates how a simple stream crossing was measured and assumed that the *culvert* would be at the

same or close to the same skew as the stream. Subsequent field reconnaissance was conducted where convenient to confirm mapped resources and identify additional resources.

TYPES OF WETLANDS

Palustrine Wetlands

Palustrine wetlands cover less than 20 acres, lack active wave-formed or bedrock shoreline features, and have water depths at low water of less than six feet. Palustrine wetlands are subsequently classified according to dominant vegetation:

- Palustrine unconsolidated bottom (PUB) are characterized by particles smaller than stone and a vegetative cover less than 30 percent. This classification is typically applied to small “pond-like” wetlands.
- Palustrine emergent wetlands (PEM) are characterized by herbaceous (non-woody)

plants. Emergent wetlands are also known as marshes, meadows, fens, etc.

- Palustrine scrub-shrub (PSS) wetlands are characterized by woody vegetation that is less than 20 feet tall.
- Palustrine forested wetlands (PFO) are characterized by woody vegetation that is 20 feet tall or taller.

Riverine Wetlands

Riverine wetlands are those contained within stream channels that are not dominated by trees, shrubs, or emergent vegetation. The USFWS riverine classification is typically used to describe perennial or intermittent streams/rivers and active (at least seasonally) side channels. This classification is not typically used in describing wetlands; rather these resources are classified as perennial or intermittent streams.

Miscellaneous

How will project impacts to water resources be avoided and/or minimized?

Impacts to water resources can be avoided and/or minimized through implementing MoDOT's SWPPP, placing rock blanket at culvert outlets to minimize velocities and minimizing the channelization of streams, etc. When the new alignment is collocated with the existing facility, impacts are limited to one locality. Design/construction methods used to minimize impacts include steepening the side slopes of the roadway to limit the footprint, compressing the median width, and adjusting the alignment to minimize overall project impacts.

Are there locations in the study corridor where mitigation can occur?

MoDOT currently owns and maintains the MoDOT Mari-Osa Delta Region Mitigation Bank, a wetland and stream mitigation bank. It is located within the Osage/Ozark Ecological Drainage Unit (EDU). This drainage unit serves as the service area for the Bank. The drainage unit is composed of smaller basins, and the Lower Osage River Basin is a component of it. Impacts within the Route 63 corridor (within the same drainage unit/service area) can be debited from the Bank at a ratio of 1:1. Impacts outside the drainage unit (for instance, within the Gasconade or Bourbeuse River drainage units) will have an increased ratio in order to debit from the Bank. The ratio for outside the watershed is typically 2:1. Approximately half of the corridor falls within the service area for the Bank (Figure 2).

MSMM Adverse Impact Worksheet (Preferred)

Adverse Impact Factors for Riverine Systems Worksheet

Stream Type Impacted	Ephemeral 0.1			Intermittent 0.4			Perennial 0.8		
Priority Area	Tertiary 0.1			Secondary 0.4			Primary 0.8		
Existing Condition	Functionally Impaired 0.1			Moderately functional 0.8			Fully Functional 1.6		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.3		
Activity	Clearing 0.05	Utility Crossing/ Bridge Footing 0.15	Below Grade Culvert 0.3	Armor 0.5	Detention 0.75	Morphologic Change 1.5	Impoundment (dam) 2.0	Pipe 2.2	Fill 2.5
Linear Impact	<100' 0	100' - 200' 0.05	201' - 500' 0.1	501' - 1000' 0.2	>1000 linear feet (LF) 0.1 reach 500 LF of impacts (example: scaling factor for 5,280 LF of impacts = 1.1)				

Description/Point to Point Segments	Alt A/4-6	Alt A/4-6	Alt A/4-6	Alt A/4-6	Exist/6-7	Tweak	Tweak	Tweak	Tweak
Segment/Stream No.	S4-S4	S4-S5	S4/10-S6	S10/7b-S2	S10/7b-S3	S1/2-S2	S2/4-S3	S2b-S1	S2b-S2
Stream Type Impacted	0.8	0.8	0.8	0.4	0.8	0.8	0.8	0.8	0.8
Priority Area	0.1	0.1	0.1	0.1	0.8	0.1	0.1	0.1	0.1
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.20	0.10	0.80	0.60	0.10	1.00	0.10	0.20	0.20
Sum of Factors	5.5	5.4	6.1	5.5	6.1	6.3	5.4	5.5	5.5
LF Stream Impacted in Reach	780	460	3,515	3,090	380	5030	280	940	1,040
M x LF	4,290	2,484	21,442	16,995	2,318	31,689	1,512	5,170	5,720

Description/Point to Point Segments	Alt A/7-9	Alt A/9-11	Alt A/9-11	Alt A/9-11					
Segment/Stream No.	S18-S1	S18/19-S2	S19-S3	S23-S1	S23-S2	S23-S3	S23-S4	S23-S5	S24-S1
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Priority Area	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.10	0.20	0.20	0.20	0.20	0.30	0.20	0.20	0.20
Sum of Factors	5.7	5.8	5.8	5.8	5.8	5.9	5.8	5.8	5.8
LF Stream Impacted in Reach	324	810	800	715	854	2,280	790	845	830
M x LF	1847	4698	4640	4147	4953	13452	4582	4901	4814

Description/Point to Point Segments	Alt A/9-11	Alt A/11-15	S39a mod	S39a mod	S39a mod				
Segment/Stream No.	S24-S2	S25-S1	S25-S2	S25-S3	S25-S4	S34-S5	S34-S6	S34-S7	S34-S8
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Priority Area	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.40	0.10	0.20	0.20	0.20	0.20	0.1	0.2	0.4
Sum of Factors	6	5.7	5.8	5.8	5.8	5.8	5.7	5.8	6
LF Stream Impacted in Reach	2,055	1,020	805	1,475	840	1,070	440	903	1910
M x LF	12330	5814	4669	8555	4872	6206	2508	5237	11460

Description/Point to Point Segments	S39a mod	S39a mod	S39a mod	S39a mod	Alt A/11-15				
Segment/Stream No.	S34-S9	S34/S9-S10	S39-S11	S39-S12	S39-S12a	S39-S13	S39-S14	S41-S1	S41-S2
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Priority Area	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.2	0.25	0.2	0.4	0.25	0.20	0.10	0.60	0.20
Sum of Factors	5.8	5.85	5.8	6	5.85	5.8	5.7	6.2	5.8
LF Stream Impacted in Reach	870	1100	570	1700	1,100	950	390	2,750	760
M x LF	5046	6435	3306	10200	6435	5510	2223	17050	4408

Description/Point to Point Segments	Alt A/11-15	Alt A/15-17	Alt A/15-17	Alt Bfar/17-19	Alt Bfar/17-19	Alt Bfar/19-22	Alt Bfar/19-22	Alt Bfar/19-22	Alt Bfar/19-22
Segment/Stream No.	S43-S3	S36/45-S20	S45/36a-S1	S45/36a-S1	S48/36a-S1	S48-S1	S48-S2	S48-S3	S48-S4
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Priority Area	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.20	0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.40
Sum of Factors	5.8	5.1	5	5.1	5.1	5.1	5.1	5.1	5.3
LF Stream Impacted in Reach	815	840	210	870	755	880	1,030	810	2,080
M x LF	4727	4284	1050	4437	3850.5	4488	5253	4131	11024

Description/Point to Point Segments	Alt Bfar/19-22	Alt Bfar/19-22	Alt Bfar/19-22	Exist/22-23	Exist/22-23	Exist/22-23	Exist/22-23	Exist/22-23	Exist/22-23
Segment/Stream No.	S48-S5	S48-S6	S48-S7	S54-S1	S54-S2	S54-S3	S54-S4	S54-S5	S54-S6
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4
Priority Area	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.20	0.20	0.20	0.10	0.20	0.05	0.00	0.10	0.10
Sum of Factors	5.1	5.1	5.1	5	5.1	4.95	5.3	5	5
LF Stream Impacted in Reach	770	795	810	250	600	100	0	395	360
M x LF	3927	4055	4131	1250	3060	495	0	1975	1800

Description/Point to Point Segments	Exist/22-23	Exist/22-23	Exist/22-23	Exist/22-23	Exist/22-23	Exist/24-25	Exist/24-25	Exist/24-25	Exist/24-25
Segment/Stream No.	S54-S7	S54-S8	S54-S9	S54-S10	S55-S11	S61-S1	S61-S2	S61-S3	S61-S4
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Priority Area	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20
Sum of Factors	5	5	5	5	5	5	5	5	5.1
LF Stream Impacted in Reach	360	290	285	420	350	370	310	320	675
M x LF	1800	1450	1425	2100	1750	1850	1550	1600	3443

Description/Point to Point Segments	Exist/24-25	Exist/24-25	Exist/24-25	Exist/24-25	Exist/24-25	Exist/24-25
Segment/Stream No.	S61-S5	S61-S6	S61-S7	S61-S8	S61-S9	S61-S9a
Stream Type Impacted	0.4	0.4	0.4	0.4	0.4	0.4
Priority Area	0.1	0.1	0.1	0.1	0.1	0.1
Existing Condition	1.6	1.6	1.6	1.6	1.6	1.6
Duration	0.3	0.3	0.3	0.3	0.3	0.3
Activity	2.5	2.5	2.5	2.5	2.5	2.5
Linear Impact	0.10	0.10	0.10	0.10	0.20	0.30
Sum of Factors	5	5	5	5	5.1	5.2
LF Stream Impacted in Reach	265	320	323	315	830	1,365
M x LF	1325	1600	1615	1575	4233	7098

Number of Stream Credits Needed: 360,260

Stream Table (Preferred)

#	Description/ Point to Point segments	Segment/Stream No.	Description	Jurisdictional	Stream Type	Fill Type	Width at OHWM (ft)	Depth at OHWM (ft)	Length est. from corridor limits (ft)	Area of Impact (ft ²)	Volume of fill (cy)	Priority Area	Stream Credits Needed	Cost to Mitigate at SSTF (\$35.00/credit ft)
1	Tweak	S1/2-S2	Trib. Maries R.	JD	P	culvert/channel movement			5,030			T	31,689	\$1,109,115
2	Tweak	S2/4-S3	Trib. Maries R.	JD	P	channel movement			280			T	1,512	\$52,920
3	Tweak	S2b-S1	Trib. Osage R.		P	culvert			940			T	5,170	\$180,950
4	Tweak	S2b-S2	Trib. Osage R.		P	culvert			1,040			T	5,720	\$200,200
5	Alt A/4-6	S4-S4	Trib. Maries R.		P	culvert			780			T	4,290	\$150,150
6	Alt A/4-6	S4-S5	Trib. Maries R.		P	channel movement			460			T	2,484	\$86,940
7	Alt A/4-6	S4/10-S6	Trib. Maries R. on CR 512	JD	P	channel movement	4	1	3,515	14,060	14,060	T	21,442	\$750,453
8	Alt A/4-6	S10/7b-S2	Trib. Maries R. on US 63	JD	I	Bridge/channel movement	45	UNK	3,090	139,050	139,050	T	16,995	\$594,825
9	Exist/6-7	S10/7b-S3	Maries R. on US63	JD	P	Bridge	100	4	380	38,000	152,000	P	2,318	\$81,130
10	Alt A/7-9	S18-S1	Secondary Trib. Maries R.		I	culvert			324			P	1,847	\$64,638
11	Alt A/7-9	S18/19-S2	Secondary Trib. Maries R.		I	culvert			810			P	4,598	\$164,430
12	Alt A/7-9	S19-S3	Trib. Maries R.		I	culvert			800			P	4,640	\$162,400
13	Alt A/7-9	S23-S1	Secondary Trib. Deer Creek		I	channel movement			715			P	4,147	\$145,145
14	Alt A/7-9	S23-S2	Trib. Deer Creek		I	culvert			854			P	4,953	\$173,362
15	Alt A/7-9	S23-S3	Deer Creek		I	culvert/channel movement			2,280			P	13,452	\$470,820
16	Alt A/9-11	S23-S4	Secondary Trib. Maries R.		I	culvert			790			P	4,582	\$160,370
17	Alt A/9-11	S23-S5	Secondary Trib. Maries R.		I	culvert			845			P	4,901	\$171,535
18	Alt A/9-11	S24-S1	Trib. Maries R.		I	culvert			830			P	4,814	\$168,490
19	Alt A/9-11	S24-S2	Trib. Maries R.		I	culvert/channel movement			2,055			P	12,330	\$431,550
20	Alt A/11-15	S25-S1	Trib. Maries R.		I	culvert			1,020			P	5,814	\$203,490
21	Alt A/11-15	S25-S2	Trib. Maries R.		I	channel movement			805			P	4,669	\$163,415
22	Alt A/11-15	S25-S3	Trib. Maries R.		I	culvert			1,475			P	8,555	\$299,425
23	Alt A/11-15	S25-S4	Trib. Maries R.		I	culvert			840			P	4,872	\$170,520
24	Alt A/11-15	S34-S5	Trib. School Hollow		I	culvert			1,070			P	6,206	\$217,210
25	S39a mod	S34-S6	Trib. School Hollow		I	channel movement			440			P	2,508	\$87,780
26	S39a mod	S34-S7	Trib. School Hollow		I	culvert			903			P	5,237	\$183,309
27	S39a mod	S34-S8	Trib. School Hollow		I	channel movement			1,910			P	11,460	\$401,100
28	S39a mod	S34-S9	Trib. School Hollow		I	channel movement			870			P	5,046	\$176,610
29	S39a mod	S34/39-S10	Trib. School Hollow		I	culvert			1,100			P	6,435	\$225,225
30	S39a mod	S39-S11	Trib. School Hollow		I	channel movement			570			P	3,306	\$115,710
31	S39a mod	S39-S12	School Hollow		I	culvert			1,700			P	10,200	\$357,000
32	Alt A/11-15	S39-S12a	School Hollow		I	channel movement			1,100			P	6,435	\$225,225
33	Alt A/11-15	S39-S13	Wansing Branch		I	culvert			950			P	5,510	\$192,850
34	Alt A/11-15	S39-S14	Trib. Wansing Branch		I	channel movement			390			P	2,223	\$77,805
35	Alt A/11-15	S41-S1	Secondary Trib. Maries R. a	JD	I	channel movement	5	2	2,750			P	17,050	\$596,750
36	Alt A/11-15	S41-S2	Trib. Maries R.		I	culvert			760			P	4,408	\$154,280
37	Alt A/11-15	S43-S3	Trib. Maries R.		I	culvert			815			P	4,727	\$165,445
38	Alt A/15-17	S36/45-S20	Trib. Crumb Creek		I	culvert			840			T	4,284	\$149,940
39	Alt A/15-17	S45/36a-S1	Trib. Crumb Creek		I	culvert			210			T	1,050	\$36,750
40	Alt Bfar/17-1	S45/36a-S1	Trib. Crumb Creek		I	culvert			870			T	4,437	\$155,295
41	Alt Bfar/17-1	S48/36a-S1	Trib. Crumb Creek		I	culvert			755			T	3,851	\$134,768
42	Alt Bfar/19-2	S48-S1	Daggelt Hollow		I	culvert			880			T	4,488	\$157,080
43	Alt Bfar/19-2	S48-S2	Trib. Indian Creek		I	culvert			1,030			T	5,253	\$183,855
44	Alt Bfar/19-2	S48-S3	Indian Creek		I	culvert			810			T	4,131	\$144,585
45	Alt Bfar/19-2	S48-S4	Trib. Indian Creek		I	culvert			2,080			T	11,024	\$385,840
46	Alt Bfar/19-2	S48-S5	Trib. Irish Creek		I	culvert			770			T	3,927	\$137,445
47	Alt Bfar/19-2	S48-S6	Trib. Irish Creek		I	culvert			795			T	4,055	\$141,908
48	Alt Bfar/19-2	S48-S7	Irish Creek		I	culvert			810			T	4,131	\$144,585
49	Exist/22-23	S54-S1	Trib. Jim Creek		I	culvert extension			250			T	1,250	\$43,750
50	Exist/22-23	S54-S2	Trib. Gasconade River		I	channel movement			600			T	3,060	\$107,100
51	Exist/22-23	S54-S3	Jim Creek		I	channel movement			100			T	495	\$17,325
52	Exist/22-23	S54-S4	Gasconade River	JD	P	None			0			T	0	\$0
53	Exist/22-23	S54-S5	Trib. Spring Creek		I	culvert extension			395			T	1,975	\$69,125
54	Exist/22-23	S54-S6	Trib. Spring Creek		I	culvert extension			360			T	1,800	\$63,000
55	Exist/22-23	S54-S7	Trib. Spring Creek		I	culvert extension			360			T	1,800	\$63,000
56	Exist/22-23	S54-S8	Trib. Spring Creek		I	culvert extension			290			T	1,450	\$50,750
57	Exist/22-23	S54-S9	Trib. Little Spring Creek		I	culvert extension			285			T	1,425	\$49,875
58	Exist/22-23	S54-S10	Trib. Little Spring Creek		I	culvert extension			420			T	2,100	\$73,500
59	Exist/22-23	S55-S11	Little Spring Creek		I	culvert extension			350			T	1,750	\$61,250
60	Exist/24-25	S61-S1	Trib. Bourbeuse Creek		I	culvert extension			370			T	1,850	\$64,750
61	Exist/24-25	S61-S2	Trib. Spring Creek		I	culvert extension			310			T	1,550	\$54,250
62	Exist/24-25	S61-S3	Trib. Spring Creek		I	channel movement			320			T	1,600	\$56,000
63	Exist/24-25	S61-S4	Trib. Spring Creek		I	culvert extension			675			T	3,443	\$120,488
64	Exist/24-25	S61-S5	Trib. Spring Creek		I	culvert extension			265			T	1,325	\$46,375
65	Exist/24-25	S61-S6	Trib. Spring Creek		I	culvert			320			T	1,600	\$56,000
66	Exist/24-25	S61-S7	Trib. Spring Creek		I	culvert			323			T	1,615	\$56,525
67	Exist/24-25	S61-S8	Spring Creek		I	culvert			315			T	1,575	\$55,125
68	Exist/24-25	S61-S9	Trib. Spring Creek		I	culvert extension/channel			830			T	4,233	\$148,155
69	Exist/24-25	S61-S9a	Trib. Spring Creek		I	channel movement			1,365			T	7,098	\$248,430
Total									63,639				360,268	\$12,609,394

Pond Table (Preferred)

#	Description /Point to Point	Pond ID*	Description	JD	100 year floodplain	Size
1	Tweak	S2-P2	Pond		No	0.55
2	Tweak	S2b-P4	Pond		No	0.5
3	Tweak	S2b-P5	Pond on blue line	Yes	No	0.16
4	Tweak	S4-P1	Pond		No	1.32
5	Alt A/4-6	S4-P2	Pond		No	0.13
6	Alt A/4-6	S10-P1	Pond		Yes	0.09
7	Exist/6-7	S12-P1	Pond		No	0.34
8	Exist/6-7	S12-P2	Pond		No	0.09
9	Alt A/7-9	S19-P1	Pond		No	0.07
10	Alt A/7-9	S23-P1	Pond		No	0.8
11	Alt A/7-9	S23-P2	Pond		No	0.16
12	Alt A/9-11	S23-P3	Pond		No	0.09
13	Alt A/9-11	S23-P4	Pond		No	0.14
14	Alt A/9-11	S23-P5	Pond		No	0.14
15	Alt A/9-11	S24-P1	Pond		No	0.16
16	Alt A/11-15	S25-P1	Pond		No	0.16
17	Alt A/11-15	S34-P1	Pond		No	0.5
18	Alt A/11-15	S34-P2	Pond		No	0.18
19	Alt A/11-15	S34-P3	Pond		No	0.15
20	Alt A/11-15	S34-P4	Pond		No	0.15
21	Alt A/11-15	S34-P5	Pond		No	0.09
22	S39a mod	S34-P6	Pond		No	0.16
23	S39a mod	S39a-P1	Pond		No	0.66
24	S39a mod	S39-P7	Pond		No	0.23
25	Alt A/11-15	S39-P8	Pond		No	0.1
26	Alt A/11-15	S39-P9	Pond		No	0.23
27	Alt A/11-15	S43-P10	Pond		No	0.19
28	Alt A/15-17	S45-P1	Pond		No	0.1
29	Alt Bfar/19-22	S48-P1	Pond		No	0.13
30	Alt Bfar/19-22	S48-P2	Pond		No	0.09
31	Exist/22-23	S54-P1	Pond		No	0.1
32	Exist/22-23	S55-P1	Pond		No	0.3
33	Exist/23-24	S57-P1	Pond		No	0.16
34	Exist/23-24	S57-P2	Pond		No	0.1
35	Exist/23-24	S56/60-P3	Pond		No	0.1
36	Exist/23-24	S56/60-P4	Pond		No	0.15
37	Exist/24-25	S61-P1	Pond		No	0.44
38	Exist/24-25	S61-P2	Pond		No	0.3
39	Exist/24-25	S61-P3	Pond		No	0.14
40	Exist/24-25	S61-P4	Pond		No	0.23
41	Exist/24-25	S61-P5	Pond		No	0.15
Total						10.03

Wetlands Table (Preferred)

#	Description/Point to Point	Wetland ID*	Wetland Classification	Size (acres)	100-year floodplain
1	Alt A/4-6	S10-W1	PEMC	0.25	Yes
2	Tweak	S2b-W1	PEMB	0.11	No
3	Exist/22-23	S54-W1	PFO1A	16.35	Yes
4	Exist/22-23	S54-W2	PFO1A	3.26	Yes
5	Exist/24-25	S61-W1	PEMCh	0.1	No
6	Exist/24-25	S61-W2	PEMCh	0.17	No
Total				20.24	

Wetland Table (Alternative 1)

	Description/Point to Point	Wetland ID*	Wetland Classification	Size (acres)	100-year floodplain
1	Alt B/3-7	S5-W2	PFO1A	3	Yes
2	Alt B/3-7	S15-W1	PEMFh	0.16	No
3	Alt B/3-7	S5-W3	R2USA	0.4	Yes
4	Alt B/10-14	S28-W1	PEMCh	0.1	No
5	Alt B/14-16	S36-W1	PEMCh	0.1	No
6	Alt Bnear/20-21	S47-W1	PEMCh	0.09	No
7	Exist/22-23	S54-W1	PFO1A	16.35	Yes
8	Exist/22-23	S54-W2	PFO1A	3.26	Yes
9	Exist/24-25	S61-W2	PEMCh	0.17	No
Total				23.73	

Wetland Table (Alternative 2)

	Description/Point to Point	Wetland ID*	Wetland Classification	Size (acres)	100-year floodplain
1	Exist/5-6	S10-W1	PEMC	0.25	Yes
2	Exist/12-13	S31-W1	PEMCh	0.1	No
3	Alt B/14-16	S36-W1	PEMCh	0.1	No
4	Exist/22-23	S54-W1	PFO1A	16.35	Yes
5	Exist/22-23	S54-W2	PFO1A	3.26	Yes
6	Exist/22-23	S54-S5	Old oxbow	0.4	Yes
Total				20.06	

Pond Table (Alternate 2)

#	Description/ Point to Point	Pond ID*	Description	JD	100 year floodplain	Size
1	Alt A/1-4	S2-P2	Pond		No	0.55
2	Alt A/1-4	S2-P3	Pond		No	0.67
3	Exist/6-7	S12-P1	Pond		No	0.34
4	Exist/6-7	S12-P2	Pond		No	0.09
5	Connector 2	S21C-P1	Pond		No	0.09
6	Connector 2	S21C-P2	Pond		No	0.09
7	Connector 2	S21C-P3	Pond		No	0.17
8	Connector 2	S21C-P4	Pond		No	0.18
9	Connector 2	S21C-P5	Pond		No	0.23
10	Alt A/9-11	S23-P3	Pond		No	0.09
11	Alt A/9-11	S23-P4	Pond		No	0.14
12	Alt A/9-11	S23-P5	Pond		No	0.14
13	Alt A/9-11	S24-P1	Pond		No	0.16
14	Alt B/7-10	S17-P1	Pond		No	0.26
15	Alt B/7-10	S17-P2	Pond		No	0.08
16	Alt B/7-10	20_sel 1-P1	Pond		No	0.34
17	Alt B/7-10	20_sel 1-P2	Pond		No	0.48
18	Exist/12-13	S31-P1	Pond		No	0.15
19	Exist/12-13	S31-P2	Pond		No	0.1
20	Connt5/13-14	C5-P1	Pond		No	0.15
21	Connt5/13-14	C5-P2	Pond		No	0.34
22	Alt B/14-16	S36-P1	Pond		No	0.13
23	Alt B/14-16	S36-P2	Pond		No	0.1
24	Alt B/14-16	S36-P3	Pond		No	0.23
25	Alt B/14-16	S36-P4	Pond		No	0.18
26	Alt B/14-16	S36-P5	Pond		No	0.1
27	Alt B/14-16	S36-P6	Pond		No	0.13
28	Alt B/14-16	S36-P7	Pond		No	0.35
29	Alt B/14-16	S36-P8	Pond		No	0.1
30	Alt B/14-16	S36-P9	Pond		No	0.1
31	Alt B/14-16	S36-P10	Pond		No	0.12
32	Alt B/14-16	S36-P11	Pond		No	0.1
33	Alt B/14-16	S36-P12	Pond		No	0.07
34	Alt B/14-16	S36-P13	Pond		No	0.1
35	Alt B/14-16	S36-P14	Pond		No	0.1
36	Alt Bfar/19-22	S48-P1	Pond		No	0.13
37	Alt Bfar/19-22	S48-P2	Pond		No	0.09
38	Exist/22-23	S54-P1	Pond		No	0.1
39	Exist/22-23	S55-P1	Pond		No	0.3
Total						7.37

Stream Table (Alternate 1)

#	Description/ Point to Point segments	Segment/St ream No.	Description	Jurisdictional	Stream Type	Fill Type	Width at OHWM (ft)	Depth at OHWM (ft)	Length est. from corridor limits (ft)	Area of Impact (ft ²)	Volume of fill (cy)	Priority Area	Stream Credits Needed	Cost to Mitigate at SSTF (\$35,000/crod it)
1	Exist/1-3	S1/2-S2	Trib. Maries R.	JD	P	culvert	5	1	1,030	5,150	5,150	T	5,665	\$199,275
2	Alt B/3-7	S5-S1	Maries R.	JD	P	Bridge			760			P	4,712	\$164,920
3	Alt B/3-7	S15-S1	Trib. Maries R.		I	culvert			502			P	2,912	\$101,906
4	Alt B/7-10	S17-S1	Trib. Bear Creek		I	culvert			1,170			T	6,026	\$210,893
5	Alt B/7-10	S17-S2	Trib. Bear Creek		I	culvert			995			T	5,075	\$177,608
6	Alt B/7-10	S17-S3	Trib. Bear Creek		I	channel movement			560			T	2,856	\$99,960
7	Alt B/7-10	S17-S4	Trib. Bear Creek		I	culvert			870			T	4,437	\$155,295
8	Alt B/7-10	S20_sel_1-S1	Trib. Bear Creek		I	culvert			825			T	4,208	\$147,263
9	Alt B/7-10	S20_sel_1-S2	Trib. Bear Creek		I	culvert			845			T	4,310	\$150,833
10	Alt B/7-10	S20_sel_1-S3	Bexten Brunch		I	culvert			376			T	1,880	\$65,800
11	Alt B/7-10	S20_sel_1-S4	Trib. Buchler Creek		I	culvert			870			T	4,437	\$155,295
12	Alt B/7-10	S20a-S1	Buchter Creek		I	culvert			765			T	3,902	\$136,553
13	Alt B/7-10	S20a-S2	Trib. Buchter Creek		I	culvert			795			T	4,055	\$141,908
14	Alt B/7-10	S20a-S3	Trib. Buchter Creek		I	culvert			790			T	4,029	\$141,015
15	Alt B/7-10	S20a-S4	Trib. Buchter Creek		I	culvert			1,150			T	5,923	\$207,288
16	Alt B/7-10	S20a-S5	Trib. Brush Creek		I	culvert			940			T	4,794	\$167,790
17	Alt B/10-14	S28-S1	Trib. Brush Creek	JD	I	channel movement	5		860			T	4,488	\$157,000
18	Alt B/10-14	S32-S1	Trib. Brush Creek		I	channel movement			150			T	743	\$25,968
19	Alt B/10-14	S32-S2	Trib. Brush Creek		I	culvert			790			T	4,029	\$141,015
20	Alt B/10-14	C5-S1	Reichel Creek		I	culvert			800			T	4,080	\$142,800
21	Alt B/14-16	S36-S1	Trib. Steuber Hollow		I	channel movement			1,700			T	9,010	\$315,350
22	Alt B/14-16	S36-S2	Steuber Hollow		I	culvert			810			T	4,131	\$144,595
23	Alt B/14-16	S36-S3	Trib. Steuber Hollow		I	culvert			820			T	4,182	\$146,370
24	Alt B/14-16	S36-S4	Trib. Steuber Hollow		I	channel movement			815			T	4,157	\$145,478
25	Alt B/14-16	S36-S5	Trib. Steuber Hollow		I	channel movement			310			T	1,550	\$54,250
26	Alt B/14-16	S36-S6	Trib. Steuber Hollow		I	channel movement			670			T	3,417	\$119,595
27	Alt B/14-16	S36-S7	Breeding Hollow		I	culvert			850			T	4,335	\$151,725
28	Alt B/14-16	S36-S8	Trib. Breeding Hollow		I	culvert			770			T	3,927	\$137,445
29	Alt B/14-16	S36-S9	Trib. Cedar Creek		I	culvert			760			T	3,876	\$135,660
30	Alt B/14-16	S36-S10	Trib. Cedar Creek		I	culvert			760			T	3,876	\$135,660
31	Alt B/14-16	S36-S11	Cedar Creek		I	culvert			780			T	3,978	\$139,230
32	Alt B/14-16	S36-S12	Trib. Cedar Creek		I	channel movement			440			T	2,200	\$77,000
33	Alt B/14-16	S36-S13	Trib. Boardman Creek		I	channel movement			1,310			T	6,812	\$238,420
34	Alt B/14-16	S36-S14	Trib. Boardman Creek		I	culvert			650			T	3,315	\$116,025
35	Alt B/14-16	S36-S15	Boardman Creek		I	channel movement			770			T	3,927	\$137,445
36	Alt B/14-16	S36-S16	Trib. Boardman Creek		I	culvert			770			T	3,927	\$137,445
37	Alt B/14-16	S36-S17	Trib. Crumb Creek		I	culvert			1,010			T	5,151	\$180,285
38	Alt B/14-16	S36-S18	Trib. Crumb Creek		I	culvert			1,090			T	5,559	\$194,565
39	Alt B/16-17	S36-S19	Crumb Creek		I	culvert			750			T	3,825	\$133,875
40	Alt B/16-17	S36/45-S20	Trib. Crumb Creek		I	culvert			780			T	3,978	\$139,230
41	Alt Bnear/17-20	S45/36a-S1	Trib. Crumb Creek		I	culvert			780			T	3,978	\$139,230
42	Alt Bnear/17-20	S47-S2	Trib. Crumb Creek		E	culvert			930			T	4,464	\$156,240
43	Alt Bnear/17-20	S47-S3	Trib. Indian Creek		I	channel movement			510			T	2,601	\$91,035
44	Alt Bnear/20-21	S47-S3	Trib. Indian Creek		I	channel movement			580			T	2,958	\$103,530
45	Alt Bnear/20-21	S47-S4	Trib. Indian Creek		I	culvert			360			T	1,900	\$66,500
46	Alt Bnear/20-21	S47-S1	Creek at Rt 42, two culve	JD	I	culvert	4.5	1	1,105			T	5,691	\$199,176
47	Alt Bnear/20-21	S47-S5	Trib. Indian Creek	JD	I	channel movement			950			T	4,845	\$169,575
48	Alt Bnear/20-21	S47-S6	Trib. Indian Creek		I	culvert			1,430			T	7,436	\$260,260
49	Alt Bnear/20-21	S47-S7	Trib. Indian Creek		I	culvert			885			T	4,514	\$157,973
50	Alt Bnear/20-21	S47-S8	Trib. Indian Creek		I	culvert			795			T	4,055	\$141,908
51	Alt Bnear/20-21	S47-S9	Trib. Irish Creek		I	culvert			1,120			T	5,768	\$201,880
52	Alt Bnear/20-21	S47-S10	Trib. Irish Creek		I	culvert			870			T	4,437	\$155,295
53	Alt Bnear/20-21	S47-S11	Trib. Irish Creek		I	channel movement			415			T	2,075	\$72,625
54	Exist/22-23	S54-S1	Trib. Jim Creek		I	culvert extension			250			T	1,250	\$43,750
55	Exist/22-23	S54-S2	Trib. Gasconade River		I	channel movement			600			T	3,060	\$107,100
56	Exist/22-23	S54-S3	Jim Creek		I	channel movement			100			T	495	\$17,325
57	Exist/22-23	S54-S4	Gasconade Rvwr	JD	P	None			0			T	0	\$0
58	Exist/22-23	S54-S5	Trib. Spring Creek		I	culvert extension			395			T	1,975	\$69,125
59	Exist/22-23	S54-S6	Trib. Spring Creek		I	culvert extension			360			T	1,800	\$63,000
60	Exist/22-23	S54-S7	Trib. Spring Creek		I	culvert extension			360			T	1,800	\$63,000
61	Exist/22-23	S54-S8	Trib. Spring Creek		I	culvert extension			290			T	1,450	\$50,750
62	Exist/22-23	S54-S9	Trib. Little Spring Creek		I	culvert extension			285			T	1,425	\$49,875
63	Exist/22-23	S54-S10	Trib. Little Spring Creek		I	culvert extension			420			T	2,100	\$73,500
64	Exist/22-23	S55-S11	Little Spring Creek		I	culvert extension			350			T	1,750	\$61,250
65	Alt A/23-24	S56-S1	Trib. Rocky Branch		I	channel movement			560			T	2,805	\$98,175
66	Alt A/23-24	S56-S2	Rocky Branch		I	channel movement			620			T	3,162	\$110,670
67	Alt A/23-24	S56-S3	Trib. Mill Creek		I	channel movement			440			T	2,200	\$77,000
68	Alt A/23-24	S56-S4	Trib. Mill Creek		I	culvert			865			T	4,514	\$157,973
69	Alt A/23-24	S56-S5	Trib. Mill Creek		I	channel movement			355			T	1,775	\$62,125
70	Exist/24-25	S61-S1	Trib. Bourbeuse Creek		I	culvert extension			370			T	1,850	\$64,750
71	Exist/24-25	S61-S2	Trib. Spring Creek		I	culvert extension			310			T	1,550	\$54,250
72	Exist/24-25	S61-S3	Trib. Spring Creek		I	channel movement			320			T	1,600	\$56,000
73	Exist/24-25	S61-S4	Trib. Spring Creek		I	culvert extension			675			T	3,443	\$120,488
74	Exist/24-25	S61-S5	Trib. Spring Creek		I	culvert extension			265			T	1,325	\$46,375
75	Exist/24-25	S61-S6	Trib. Spring Creek		I	culvert			320			T	1,600	\$56,000
76	Exist/24-25	S61-S7	Trib. Spring Creek		I	culvert			323			T	1,615	\$56,525
77	Exist/24-25	S61-S8	Spring Creek		I	culvert			315			T	1,575	\$55,125
78	Exist/24-25	S61-S9	Trib. Spring Creek		I	culvert extension/channel movement			830			T	4,233	\$148,155
79	Exist/24-25	S61-S9a	Trib. Spring Creek		I	channel movement			1,365			T	7,098	\$248,430
Total									54,581				279,859	\$9,795,060

Stream Table (Alternate 2)

#	Description/ Point segments	Segment/ Stream No.	Description	Juris dictional	Stream Type	Fill Type	Width at OHWM (ft)	Depth at OHWM (ft)	Length est. from corridor limits (ft)	Area of Impact (ft ²)	Volume of fill (cy)	Priority Area	Stream Credits Needed	Cost to Mitigate at SSTF (\$35.00/cre dit)
1	Alt A/1-4	S1/2-S2	Trib. Maries R.	JD	P	culvert	5	1	1,900	9,500	9,500	T	10,830	\$379,050
2	Alt A/1-4	S2/4-S3	Trib. Maries R.	JD	P	channel movement	13	2	1,700	22,100	44,200	T	9,690	\$339,150
3	Alt A/1-4	S2/4-S3a	Trib. Maries R.	JD	P	culvert/channel movement	13	2	2,120	27,560	55,120	T	12,190	\$426,650
4	Conn1/4-5	S2/4-S3	Trib. Maries R.	JD	P	channel movement	13	2	1,500	19,500	39,000	T	8,400	\$294,000
5	Exist/5-6	S10/7b-S2	Trib. Maries R. on US 63	JD	I	Bridge/channel movement	45	UNK	276	12,420	12,420	P	1,573	\$55,062
6	Exist/6-7	S10/7b-S3	Maries R. on US63	JD	P	Bridge	100	4	380	38,000	152,000	P	2,318	\$81,130
7	Conn2/8-9	S21C-S1	Secondary Trib. Deer Creek		I	culvert			640			P	3,712	\$129,920
8	Conn2/8-9	S21C-S2	Trib. Deer Creek		I	channel movement			300			P	1,710	\$59,850
9	Conn2/8-9	S21C-S3	Trib. Deer Creek		I	channel movement			1,285			P	7,582	\$265,353
10	Conn2/8-9	S21C-S4	Deer Creek		I	culvert			975			P	5,655	\$197,925
11	Alt A/9-11	S23-S4	Secondary Trib. Maries R.		I	culvert			790			P	4,582	\$160,370
12	Alt A/9-11	S23-S5	Secondary Trib. Maries R.		I	culvert			845			P	4,901	\$171,535
13	Alt A/9-11	S24-S1	Trib. Maries R.		I	culvert			830			P	4,814	\$166,490
14	Alt A/9-11	S24-S2	Trib. Maries R.		I	culvert/ channel movement			2,055			P	12,330	\$431,550
15	Conn5/13-14	C5-S1	Reichel Creek		I	culvert			925			T	4,718	\$165,113
16	Alt B/14-16	S36-S1	Trib. Steuber Hollow		I	channel movement			1,700			T	9,010	\$315,350
17	Alt B/14-16	S36-S2	Steuber Hollow		I	culvert			810			T	4,131	\$144,585
18	Alt B/14-16	S36-S3	Trib. Steuber Hollow		I	culvert			820			T	4,182	\$146,370
19	Alt B/14-16	S36-S4	Trib. Steuber Hollow		I	channel movement			815			T	4,157	\$145,478
20	Alt B/14-16	S36-S5	Trib. Steuber Hollow		I	channel movement			310			T	1,550	\$54,250
21	Alt B/14-16	S36-S6	Trib. Steuber Hollow		I	channel movement			670			T	3,417	\$119,595
22	Alt B/14-16	S36-S7	Breeding Hollow		I	culvert			850			T	4,335	\$151,725
23	Alt B/14-16	S36-S8	Trib. Breeding Hollow		I	culvert			770			T	3,927	\$137,445
24	Alt B/14-16	S36-S9	Trib. Cedar Creek		I	culvert			760			T	3,876	\$135,660
25	Alt B/14-16	S36-S10	Trib. Cedar Creek		I	culvert			760			T	3,876	\$135,660
26	Alt B/14-16	S36-S11	Cedar Creek		I	culvert			780			T	3,978	\$139,230
27	Alt B/14-16	S36-S12	Trib. Cedar Creek		I	channel movement			440			T	2,200	\$77,000
28	Alt B/14-16	S36-S13	Trib. Boardman Creek		I	channel movement			1,310			T	6,812	\$236,420
29	Alt B/14-16	S36-S14	Trib. Boardman Creek		I	culvert			650			T	3,215	\$116,025
30	Alt B/14-16	S36-S15	Boardman Creek		I	channel movement			770			T	3,927	\$137,445
31	Alt B/14-16	S36-S16	Trib. Boardman Creek		I	culvert			770			T	3,927	\$137,445
32	Alt B/14-16	S36-S17	Trib. Crumb Creek		I	culvert			1,010			T	5,151	\$180,285
33	Alt B/14-16	S36-S18	Trib. Crumb Creek		I	culvert			1,090			T	5,559	\$194,565
34	Conn6/16-19	S36-S19	Crumb Creek		I	culvert			730			T	3,723	\$130,305
35	Conn6/16-19	S36/45-S20	Trib. Crumb Creek		I	culvert			840			T	4,284	\$149,940
36	Conn6/16-19	S45/36a-S1	Trib. Crumb Creek		I	culvert			1,050			T	5,355	\$187,425
37	Conn6/16-19	S48/36a-S1	Trib. Crumb Creek		I	culvert			815			T	4,157	\$145,478
38	Alt Bfar/19-22	S48-S1	Daggett Hollow		I	culvert			880			T	4,488	\$157,080
39	Alt Bfar/19-22	S48-S2	Trib. Indian Creek		I	culvert			1,030			T	5,253	\$183,855
40	Alt Bfar/19-22	S48-S3	Indian Creek		I	culvert			810			T	4,131	\$144,585
41	Alt Bfar/19-22	S48-S4	Trib. Indian Creek		I	culvert			2,080			T	11,024	\$385,840
42	Alt Bfar/19-22	S48-S5	Trib. Irish Creek		I	culvert			770			T	3,927	\$137,445
43	Alt Bfar/19-22	S48-S6	Trib. Irish Creek		I	culvert			795			T	4,055	\$141,908
44	Alt Bfar/19-22	S48-S7	Irish Creek		I	culvert			810			T	4,131	\$144,585
45	Exist/22-23	S54-S1	Trib. Jim Creek		I	culvert extension			250			T	1,250	\$43,750
46	Exist/22-23	S54-S2	Trib. Gasconade River		I	channel movement			600			T	3,060	\$107,100
47	Exist/22-23	S54-S3	Jim Creek		I	channel movement			100			T	495	\$17,325
48	Exist/22-23	S54-S4	Gasconade River	JD	P	None			0			T	0	\$0
49	Exist/22-23	S54-S5	Trib. Spring Creek		I	culvert extension			395			T	1,975	\$69,125
50	Exist/22-23	S54-S6	Trib. Spring Creek		I	culvert extension			360			T	1,800	\$63,000
51	Exist/22-23	S54-S7	Trib. Spring Creek		I	culvert extension			360			T	1,800	\$63,000
52	Exist/22-23	S54-S8	Trib. Spring Creek		I	culvert extension			290			T	1,450	\$50,750
53	Exist/22-23	S54-S9	Trib. Little Spring Creek		I	culvert extension			285			T	1,425	\$49,875
54	Exist/22-23	S54-S10	Trib. Little Spring Creek		I	culvert extension			420			T	2,100	\$73,500
55	Exist/22-23	S55-S11	Little Spring Creek		I	culvert extension			350			T	1,750	\$61,250
Total									45,626				243,966	8,538,800

Missouri
Department
of Transportation



105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102
(573) 751-2551
Fax (573) 751-6555
www.modot.org

Pete K. Rahn, Director

September 18, 2007

Keith O. Davis, ARSS
USDA-NRCS
1911 Boggs Creek Road
Jefferson City, MO 65101

Dear Mr. Davis:

Subject: Environmental Studies
Route 63, Osage, Maries and Phelps Counties
Convert Route 63 to a Four-Lane Facility
Job No. J5P0950
Farmland Conversion Impact Rating

Enclosed, for the above referenced project, is one Farmland Conversion Impact Rating Form (CPA-106), and a map showing the project location. The project proposes to convert the Route 63 corridor to a four-lane facility from the Route 50/63 interchange north of Westphalia in Osage County to just north of Rolla in Phelps County. Included on the CPA-106 form are four acreage figures. One is for the proposed Alternate A, which is mostly west of Route 63. One is for Alternate B, which is primarily to the east. A third figure is for a series of connectors that may run from these alternates to existing Route 63 or to each other. A fourth figure is for new right of way that may be associated with widening along existing route 63. The project will cause the conversion of the recorded amount of acreage.

Please complete the applicable parts II, IV and V of the enclosed form and return it to me. You may make copies as needed. If you have any questions, please feel free to call me at 573-526-6683. Your assistance is greatly appreciated.

Sincerely,

Kevin McHugh
Agricultural/Land Use Specialist

Enclosures

**FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS**

Part I (To be completed by Federal Agency)		3. Date of Land Evaluation Request	9 / 18 / 07	4. Sheet 1 of ____
1. Name of Project Osage, Maries, Phelps Cos. J5P0950		5. Federal Agency Involved Federal Highway Administration		
2. Proposed Land Use Convert to 4-lane facility		6. County and State Osage, Maries, Phelps County, Missouri		
Part II (To be completed by SCS)		1. Date Request Received by SCS	2. Person Completing Form	
3. Does the corridor contain prime, unique, statewide or local important farmland? (if no, the FPPA does not apply - do not complete additional parts of this form.)		Yes _____ No _____	4. Acres Irrigated	Average Farm Size
5. Major Crop(s)	6. Farmable Land in Govt. Jurisdiction Acres: _____ %	7. Amount of Farmland As Defined in FPPA Acres: _____ %		
8. Name of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by SCS		

	Alternative Corridor for Segment _____			
	Corridor A	Corridor B	Connectors	Along Existing
Part III (To be completed by Federal Agency)				
A. Total Acres To Be Converted Directly	2609	2278	496	953
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	2609	2278	496	953

Part IV (To be completed by SCS) Land Evaluation Information	Corridor A	Corridor B	Connectors	Along Existing
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

Part V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Serviced Or Converted (Scale of 0 to 100 Points)

Part VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points	Corridor A	Corridor B	Connectors	Along Existing
1. Area In Nonurban Use	15.00				
2. Perimeter In Nonurban Use	10.00				
3. Percent Of Corridor Being Farmed	20.00				
4. Protection Provided By State And Local Government	20.00				
5. Size Of Present Farm Unit Compared To Average	10.00				
6. Creation Of Nonfarmable Farmland	25.00				
7. Availability Of Farm Support Services	5.00				
8. On-farm Investments	20.00				
9. Effect Of Conversion On Farm Support Services	25.00				
10. Compatibility With Existing Agricultural Use	10.00				
TOTAL CORRIDOR ASSESSMENT POINTS	160.00				

Part VII (To be completed by Federal Agency)	Maximum Points	Corridor A	Corridor B	Connectors	Along Existing
Relative Value Of Farmland (From Part V)	100.00				
Total Corridor Assessment (From Part VI above or a local site assessment)	160.00				
TOTAL POINTS (Total of above 2 lines)	260.00				

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date of Selection	4. Was A Local Site Assessment Used? Yes ___ No ___
-----------------------	---	----------------------	--

5. Reason For Selection

Signature of Person Completing This Part:	DATE
---	------

NOTE: Complete a form for each segment with more than one Alternative Corridor.

US 63 Environmental Study

Soils Map

Prime and statewide importance farmland within a half mile of corridor



Cole Co
Osage Co

Westphalia

Begin Study

Freeburg

Osage Co
Maries Co

Vienna

Legend

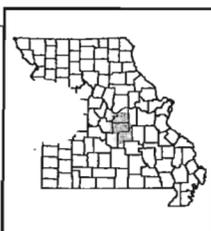
-  Alternate A
-  Alternate B
-  Connectors
-  Possible Existing
-  Farmland of statewide importance
-  Prime Farmland
-  County
-  City Limits



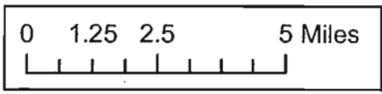
Vichy

Maries Co
Phelps Co

End Study



Rolla



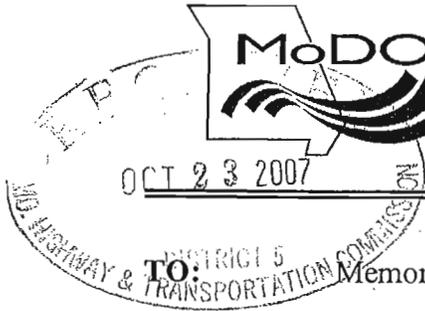


Missouri Department of Transportation

Environmental Section

P.O. Box 270, Jefferson City, MO 65101

Section	Init	Copy	Assigned
DIST ENGINEER			
ASST DIST ENG			
OF - MAIN			
OE - CONST/MILS			
AE - COLUMBIA			
AE - JEFF CITY			
AE - CAMDENTON			
PROJECT MGRS			<input checked="" type="checkbox"/>
DESIGN			<input checked="" type="checkbox"/>
PLANNING			
RIGHT OF WAY			
TRAFFIC			
LEGAL			
PUBLIC AFFAIRS			
GEN SERVICES			
SUPPORT SERV			
HUMAN RES			
BUS & BENEFITS			
INFORMATION SYS			
RISK MANAGEMENT			
CIRCULATE			
COPY ALL			



TO: Memorandum to File

CC: Roger Schwartze - 5

FROM: Kevin McHugh KM
Agricultural/Land Use Specialist-de

DATE: October 23, 2007

SUBJECT: Environmental Studies
Route 63, Osage, Maries and Phelps Counties
Just South of Route 50 to North of Rolla
Conversion to a Four Lane Facility
Job No. J580929 J5P0950
Farmland Conversion Impact Rating

The project referenced above has been rated for farmland conversion impact. The recorded Part V Relative Value of Farmland to be converted totaled 63.1 points for Alternate A, 129.3 points for Alternate B, 113.2 points for the connecting segments, and 109.4 points for widening along existing right of way. The site assessment rating scored 64 points out of a possible 160 for Alternates A and B, 51 points for the connectors, and 52 points for widening along existing. The total conversion impact rating was 127.1 points for Alternate A, 129.3 points for Alternate B, 113.2 points for the connecting segments, and 109.4 points for those portions of the proposed project that propose to widen along existing right of way. These totals are well below the 160-point threshold established for consideration of farmland protection. The completed form is on file for review.

The following relates to the Part VI Site Assessment Criteria. The alignments are not known to be protected from conversion by any State, local government, or private non-profit policy or program. Impacts to on-farm investments will be minimized to the extent possible. After project completion, any remnants of the remaining land of the affected farms that becomes nonfarmable will be dealt with according to the provisions of the law. All farm support services are available to the area and will not be negatively impacted by the project. The project will be fully compatible with existing agriculture.

Attachment

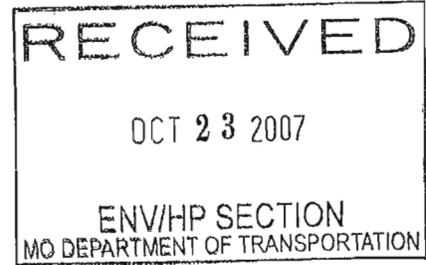


Area Office, 1911 Boggs Creek Road, Jefferson City, Missouri 65101

Phone: 573 761-3105 Ext. 5

October 22, 2007

Mr. Kevin McHugh
Agricultural/Land Use Specialist
Missouri Department of Transportation
105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102



Dear Mr. McHugh,

Attached is the completed CPA-106 form per your request for a Farmland Conversion Impact Rating for road improvements along Highway 63 in Osage, Maries, and Phelps Counties. (Job No. J5P0950).

After you complete the form, please return one copy for our records.

Please feel free to contact me if I can be of further assistance.



Keith Davis
Area Resource Soil Scientist

FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS

I (To be completed by Federal Agency)		3. Date of Land Evaluation Request	9/18 /07	4. Sheet 1 of ___		
1. Name of Project Osage, Maries, Phelps Cos. J5P0950		5. Federal Agency Involved Federal Highway Administration				
2. Proposed Land Use Convert to 4-lane facility		6. County and State Osage, Maries, Phelps County, Missouri				
PART II (To be completed by SCS)		1. Date Request Received by SCS 9/22/07	2. Person Completing Form Keith Davis			
3. Does the corridor contain prime, unique, statewide or local important farmland? (if no, the FPPA does not apply - do not complete additional parts of this form.) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		4. Acres Irrigated	Average Farm Size 268			
5. Major Crop(s) Corn (For index)	6. Farmable Land in Govt. Jurisdiction Acres: 1,152,702 % 99.3	7. Amount of Farmland As Defined in FPPA Acres: 607,364 % 52.3				
8. Name of Land Evaluation System Used Osage, Maries, Phelps	9. Name of Local Site Assessment System NONE	10. Date Land Evaluation Returned by SCS 10/23/07				
Alternative Corridor for Segment ___						
PART III (To be completed by Federal Agency)		Corridor A	Corridor B	Connectors	Along Existing	
A. Total Acres To Be Converted Directly		2609	2278	496	953	
B. Total Acres To Be Converted Indirectly, Or To Receive Services						
C. Total Acres In Corridor		2609	2278	496	953	
PART IV (To be completed by SCS) Land Evaluation Information						
Total Acres Prime And Unique Farmland		182.5	116.4	14	234	
B. Total Acres Statewide And Local Important Farmland		964.2	876.5	219	436	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		.19	.16	.04	.11	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		40	40	40	41	
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Serviced Or Converted (Scale of 0 to 100 Points)		63.1	65.3	62.2	58.4	
PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))		Maximum Points				
1. In Nonurban Use		15.00	12	12	12	
2. Perimeter In Nonurban Use		10.00	9	9	9	
3. Percent Of Corridor Being Farmed		20.00	15	15	15	
4. Protection Provided By State And Local Government		20.00	0	0	0	
5. Size Of Present Farm Unit Compared To Average		10.00	10	10	10	
6. Creation Of Nonfarmable Farmland		25.00	8	0	0	
7. Availability Of Farm Support Services		5.00	5	5	5	
8. On-farm Investments		20.00	5	0	1	
9. Effect Of Conversion On Farm Support Services		25.00	0	0	0	
10. Compatibility With Existing Agricultural Use		10.00	0	0	0	
TOTAL CORRIDOR ASSESSMENT POINTS		160.00	64	64	51	52
PART VII (To be completed by Federal Agency)						
Relative Value Of Farmland (From Part V)		100.00	63.1	65.3	62.2	58.4
Total Corridor Assessment (From Part VI above or a local site assessment)		160.00	64	64	51	51
TOTAL POINTS (Total of above 2 lines)		260.00	127.1	129.3	113.2	109.4
1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date of Selection	4. Was A Local Site Assessment Used? Yes ___ No ___			
5. Reason For Selection						
Signature of Person Completing This Part:					DATE	

NOTE: Complete a form for each segment with more than one Alternative Corridor.

FARMLAND CONVERSION IMPACT RATING
FOR CORRIDOR TYPE PROJECTS

I (To be completed by Federal Agency)		3. Date of Land Evaluation Request	9/18 / 07		4. Sheet 1 of ___
1. Name of Project Osage, Maries, Phelps Cos. J5P0950		5. Federal Agency Involved Federal Highway Administration			
2. Proposed Land Use Convert to 4-lane facility		6. County and State Osage, Maries, Phelps County, Missouri			
PART II (To be completed by SCS)		1. Date Request Received by SCS	2. Person Completing Form		
3. Does the corridor contain prime, unique, statewide or local important farmland? (if no, the FPPA does not apply - do not complete additional parts of this form.)		9/22/07	Keith Davis		
5. Major Crop(s) <i>Corn (For index)</i>		4. Acres Irrigated		Average Farm Size	
6. Farmable Land in Govt. Jurisdiction Acres: 1,152,702 % 99.3		7. Amount of Farmland As Defined in FPPA Acres: 607,364 % 52.3		268	
8. Name of Land Evaluation System Used <i>Osage, Maries, Phelps</i>		9. Name of Local Site Assessment System <i>none</i>		10. Date Land Evaluation Returned by SCS <i>10/23/07</i>	
Alternative Corridor for Segment					
PART III (To be completed by Federal Agency)		Corridor A	Corridor B	Connectors	Along Existing
A. Total Acres To Be Converted Directly		2609	2278	496	953
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor		2609	2278	496	953
PART IV (To be completed by SCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		182.5	116.4	14	234
B. Total Acres Statewide And Local Important Farmland		964.2	876.5	219	436
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		.19	.16	.04	.11
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value		40	40	40	41
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Serviced Or Converted (Scale of 0 to 100 Points)		63.1	65.3	62.2	58.4
PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))		Maximum Points			
1. In Nonurban Use		15.00	12	12	12
2. 1/4 Mile In Nonurban Use		10.00	9	9	9
3. Percent Of Corridor Being Farmed		20.00	15	15	15
4. Protection Provided By State And Local Government		20.00	0	0	0
5. Size Of Present Farm Unit Compared To Average		10.00	10	10	10
6. Creation Of Nonfarmable Farmland		25.00	8	0	0
7. Availability Of Farm Support Services		5.00	5	5	5
8. On-farm Investments		20.00	5	0	1
9. Effect Of Conversion On Farm Support Services		25.00	0	0	0
10. Compatability With Existing Agricultural Use		10.00	0	0	0
TOTAL CORRIDOR ASSESSMENT POINTS		160.00	64	51	52
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100.00	63.1	65.3	62.2
Total Corridor Assessment (From Part VI above or a local site assessment)		160.00	64	51	51
TOTAL POINTS (Total of above 2 lines)		260.00	127.1	113.2	109.4
1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date of Selection	4. Was A Local Site Assessment Used?		
			Yes ___ No ___		
5. Reason For Selection					
Signature of Person Completing This Part:					DATE

NOTE: Complete a form for each segment with more than one Alternative Corridor.