

3.11 Wetlands

Wetlands are transitional areas between aquatic and terrestrial habitats where water occurs at or near the soil surface during the growing season. They provide diverse and sometimes specialized habitats for aquatic and terrestrial wildlife and plants.

Information is provided from the 2008 through 2011 Illinois Natural History Survey (INHS) wetland reports.

Why are wetlands important and what functions do they provide?

Wetlands provide critical ecosystem services such as water filtering, flood control, protection of shorelines and stream banks from erosion, recreational and economic benefits, and also provide vital habitat for many plants and animals.

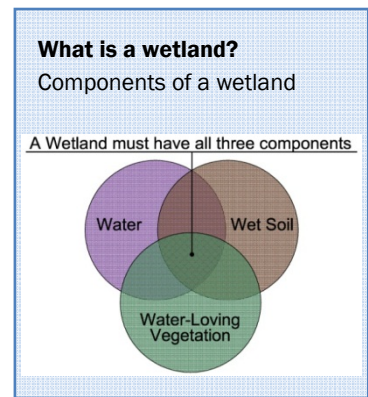
Why are wetlands important to the project?

Wetlands are important on the US 51 project because of the laws protecting wetlands from development. Because wetlands provide important functions, they have been protected by both federal and state laws. Therefore it is important to consider all options to avoid wetlands when possible. Wetlands that cannot be avoided must be replaced by law which can increase overall project costs and potentially more land acquisition.

How are wetlands regulated?

Wetlands are regulated under a number of Federal and state laws and policies. Executive Order 11990 requires a finding in the final environmental impact statement that there is no practicable alternative to construction in wetlands and that the selected alternative includes all practicable measures to minimize harm to wetlands which may result from project use.

Wetlands within the study area are regulated by the St. Louis District of the U.S. Army Corps of Engineers (USACE) and the Illinois EPA under the Clean Water Act. Wetlands are regulated by the USACE and the Illinois EPA through permitting activities prior to the start of project construction. Wetlands are also regulated by the Illinois Department of Natural Resources (IDNR) through the implementing regulations of the Interagency Wetland Policy Act of 1989 (IWPA) which also requires avoidance, minimization, and mitigation of wetland impacts. These regulations also include mandatory mitigation (replacement) ratios of up to 5.5 to 1 replacement for impacted wetlands.



How were wetlands identified?

Illinois Natural History Survey (INHS) botanists and soil scientists conducted a review of county soil survey maps and National Wetland Inventory (NWI) maps to determine the locations of potential wetland sites. The INHS team then surveyed each of these sites to determine the presence of plant species, the soil type, and the presence of water at or near the surface. Areas that met these conditions are considered wetlands and these areas were mapped on aerial photography. Methodologies used follow protocols outlined by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* [U.S. Army Corps of Engineers (USACE) 2010] and the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987)

What types of wetlands are located within the study area?

A total of 339 wetlands sites totaling approximately 838 acres were identified within the 60 mile long corridor. Wetlands near the alternatives are shown in the Volume II Map Book. Most of these wetland sites are associated with streams, rivers, and ponds. Four basic types of wetlands were identified within the corridor: pond, forest, scrub-shrub, and emergent (Table 3.11-1). Figures 3.11-1 and 3.11-2 show that the majority of wetlands by number, within the study area consist of emergent wetlands (43 percent), and the majority of wetlands by area within the study area consists of forest (48 percent).

Figure 3.11-1: Wetland Plant Communities by Percent (Based upon Number of Wetlands)

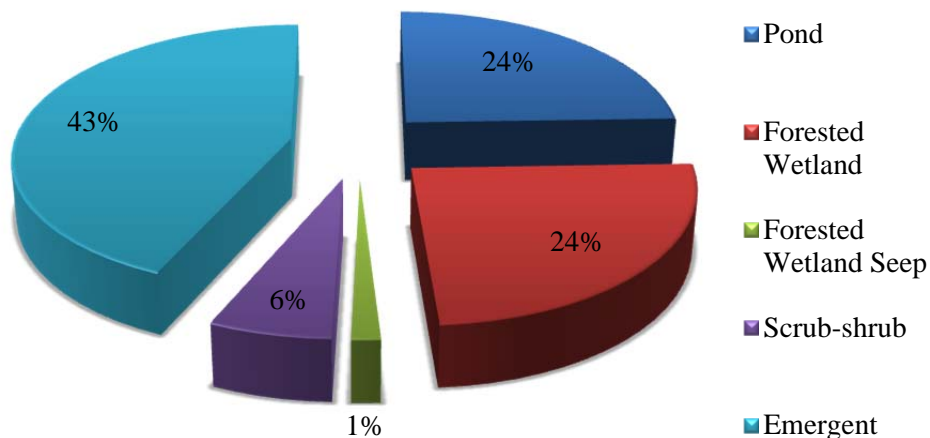
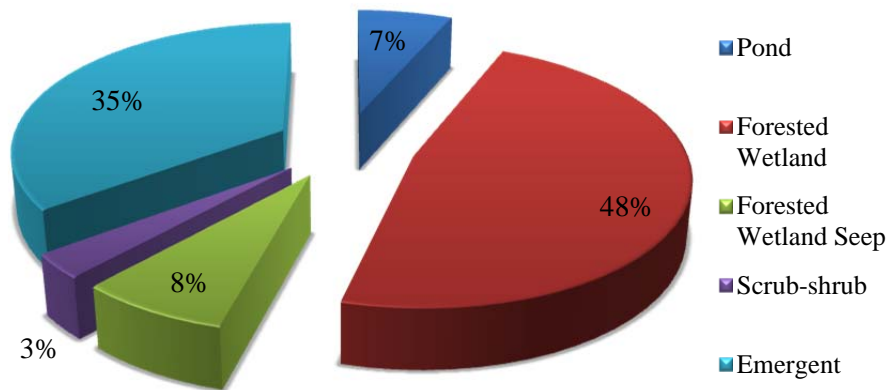


Figure 3.11-2: Wetland Plant Communities by Percent (Based upon Area of Wetlands)¹



Pond Wetland



Forested wetland

¹Total does not equal 100% due to rounding

Table 3.11-1: Description of Plant Community Types

Wetland Type	Description
Pond	These are man-made features usually formed by excavation or the construction of a dam on an upland drainage area. The wetland includes the fringe of vegetation around the margin of the pond inward to a water depth of 6.6 feet. Ponds that do not meet these requirements are not considered wetlands.
Forested Wetland	Areas dominated by woody vegetation that is 20 feet or taller. ¹ Typically dominated by silver maple, green ash, or pin oak.
Forested Wetland Seep	Forested wetland/seeps are identical to forested wetlands but are seasonally inundated or saturated areas that occur in nonriverine settings. A seep is where the groundwater meets the surface. The most common woody vegetation found in forested wetlands/seeps in the study area are green ash, box elder, silver maple, and red maple.
Emergent	Areas dominated by grasses, sedges, rushes and other perennial or annual herbaceous plants where hydric soils are present and water is at or near the soil surface.
Shrub-Scrub Wetlands	Areas dominated by woody vegetation that is less than 20 feet tall and includes true shrubs, young trees, and trees or shrubs that are naturally small. ¹



Emergent Wetland



Scrub-shrub Wetland

Source: ¹ (Cowardin et al., 1979); ² (Nugteren, 1977); ³ (USACE, 2008)

How are wetlands counted?

Wetland communities encountered during the field surveys are assigned numbers. In some cases, an overall wetland area may be assigned more than one number, if the plant community and type differ across the site. Additionally, small localized groupings of wetlands could all be assigned the same number as part of a wetland complex. Once all wetlands are identified, then a total is developed for the overall study area and for each alternative that is being studied.

Why count total number of wetlands and total acres of wetlands?

The total number of wetlands is counted and the total area of wetlands is calculated to be able to compare impacts that may occur from each different alternative. Using the comparison a determination of which alternatives are better than others in regard to wetland impacts is made. By assigning numbers to each wetland, a determination of what types of wetlands are being impacted by each alternative is also completed.

What is the quality of the corridor wetlands?

Floristic Quality

Vegetation in wetlands is an important indicator of wetland quality or level of disturbance. The diversity of a vegetation community is measured by the Floristic Quality Index (FQI) (Taft et al. 1997). The FQI value is obtained from a mathematical formula based on the plant inventory conducted for each site. Areas with FQI values of:

- 0–9.9 are considered to be highly disturbed,
- 10–19.9 are considered to be moderately disturbed with some native characteristics, and
- 20+ are considered to be areas of minimal disturbance and can be considered an environmental asset.

The majority of wetlands within the study area are moderately disturbed as shown in Figure 3.11-3. Of the 339 wetlands identified, 45 are considered to have high FQI value. The majority of high floristic value wetlands are forested wetlands located in the Centralia-Sandoval and Vandalia areas.

Another measure used to determine the level of disturbance or overall quality of a wetland is with the Mean C value. In Illinois all native plants have been given a rating of 0 to 10. In general, species that are common to many different conditions are rated with lower numbers while plants that are more likely to be found in minimally disturbed natural areas are rated higher. The Mean C value

is an overall average of the types of plants in an area and it is considered a better indicator of quality than the FQI. Mean C values over 4 are considered to be higher quality sites with relatively minimal disturbance. In the study area, only one wetland had a Mean C value over 4 (Wetland 247 southwest of Vandalia).

Both the Mean C value and the FQI are used to determine the mitigation ratios under the Illinois Interagency Wetland Policy Act.

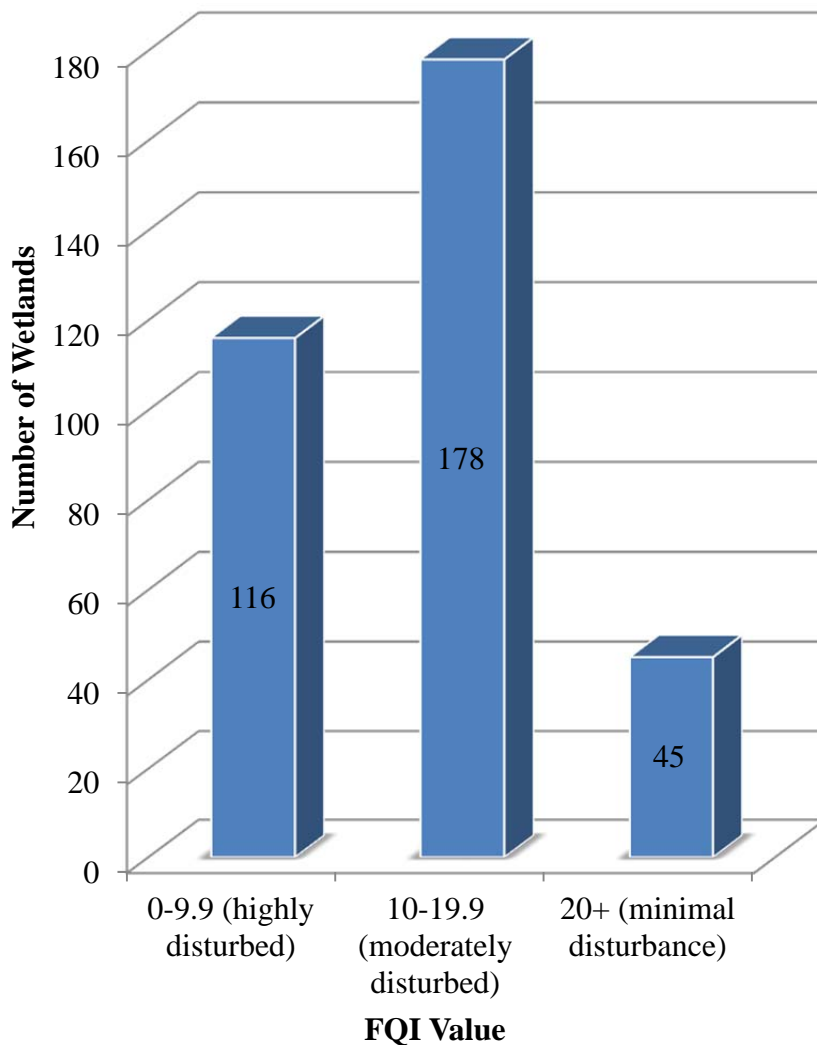
Floristic Quality Assessment

The higher the FQI number, the lower the amount of disturbance that particular site has.

Within the US 51 project, the highest FQI value is 38.6 (Site 127/446) near Vandalia.

Wetland Site 247 had the highest Mean C value of all wetlands in the project study area of 4.1.

Figure 3.11-3: Distribution of Floristic Quality of Wetlands



Are wetlands impacted by the proposed alternatives?

Because the No Build Alternative does not include improvements to US 51 or any alternative, the No Build Alternative does not affect wetlands.

All of the alternatives impact wetlands in the study area. Table 3.11-2 depicts the number and total area of wetlands impacted for the alternatives.

Table 3.11-2: Wetland Impacts by Alternative

Alternative	Total Number of Wetlands Impacted	Total Area of Wetland Impact (acres)
US 51 Build Alternative	38	37.78
Centralia-Sandoval Alternatives		
CS Alt 1	5	0.32
CS Alt 2	9	3.90
Vandalia Alternatives		
V Alt 1	5	1.3
V Alt 2	9	2.61
V Alt 3	11	15.15
V Alt 4	14	4.62
Ramsey Creek Options		
RCOA	3	0.15
RCOB	2	0.09
Ramsey Alternatives		
R Alt 1	4	0.18
R Alt 2	3	0.59

How many acres and what types of wetlands will be impacted by each alternative?

Of the 339 wetlands identified within the study area, the total acres of wetlands impacted range from 39.67 to 57.57 for the alternative combinations.

US 51 Build Alternative

Table 3.11-3 depicts the number and area of wetland impact for the US 51 Build Alternative.

US 51 Build Alternative

The alternative between the larger towns where there is only one remaining alternative is referred to collectively as the US 51 Build Alternative. The US 51 Build Alternative is shown in orange below. Existing US 51 is shown in pink.



The US 51 Build Alternative is compared against the No Build Alternative. The US 51 Build Alternative and the remaining alternatives near the larger towns are described in Chapter 2.3.

Table 3.11-3: Wetland Impacts for US 51 Build Alternative

Wetland Type	Total Number of Wetlands Impacted	Number of High Floristic Quality Wetlands Impacted ¹	Total Area of Wetland Impact (acres)	Area of High Floristic Quality Wetlands Impacted (acres) ¹
Pond-Wetland	4	0	0.29	0
Forested Wetland	17	4	13.00	9.6
Forested Wetland Seep	1	1	6.27	6.27
Emergent	13	1	14.40	0.61
Scrub-shrub	3	1	3.82	3.66
Total	38	7	37.78	20.14

¹ The number and area of high floristic quality wetlands impacted are included in the total number of wetlands and total area of wetland impact calculations.

Centralia-Sandoval Alternatives

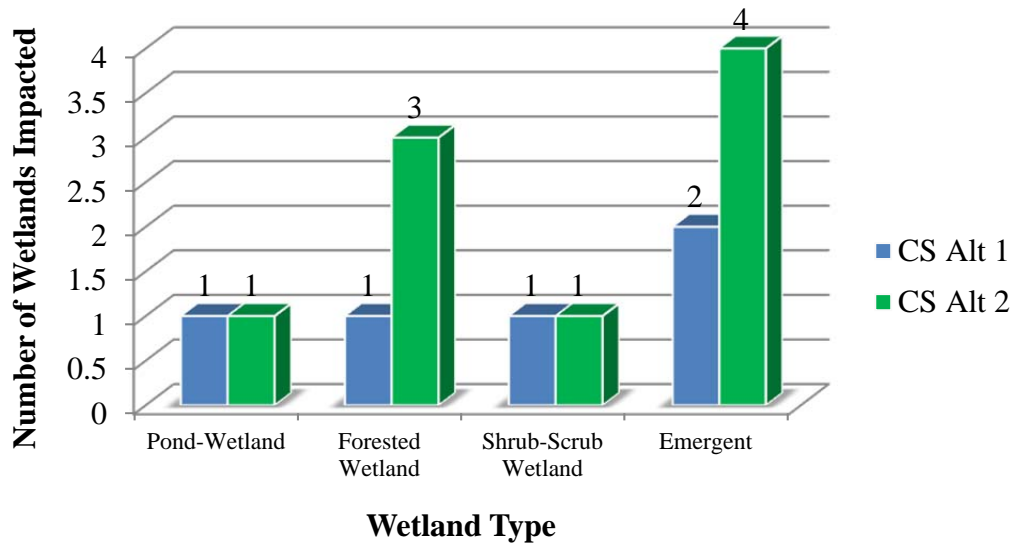
Table 3.11-4 depicts the number and acreage of wetlands impacted by the Centralia-Sandoval alternatives. Figure 3.11-4 shows the wetland impacts by type for the Centralia-Sandoval alternatives. CS Alt 2 impacts four more wetlands than CS Alt 1. CS Alt 2 will impact approximately 3.57 acres more than CS Alt 1. The CS Alt 2 also impacts two high floristic quality wetlands which CS Alt 1 does not.

Table 3.11-4: Wetland Impacts for Centralia-Sandoval Alternatives

Wetland Type	Total Number of Wetlands Impacted		Number of High Floristic Quality Wetlands Impacted ¹		Total Area of Wetland Impact (acres)		Area of High Floristic Quality Wetlands Impacted (acres) ¹	
	CS Alt 1	CS Alt 2	CS Alt 1	CS Alt 2	CS Alt 1	CS Alt 2	CS Alt 1	CS Alt 2
Pond-Wetland	1	1	--	--	0.08	0.02	--	--
Forested Wetland	1	3	--	1	0.19	1.43	--	0.78
Shrub-Scrub Wetland	1	1	--	--	0.03	1.05	--	--
Emergent	2	4	--	1	0.02	1.40	--	0.02
Total	5	9	--	2	0.32	3.90	--	0.80

¹ The number and area of high floristic quality wetlands impacted are included in the total number of wetlands and total area of wetland impact calculations.

Figure 3.11-4: Wetland Impacts by Type Centralia-Sandoval Alternatives



Vandalia Alternatives

Table 3.11-5 depicts the number and acreage of wetlands impacted by the Vandalia alternatives. Figure 3.11-5 shows the wetland impacts by type for the Vandalia alternatives.

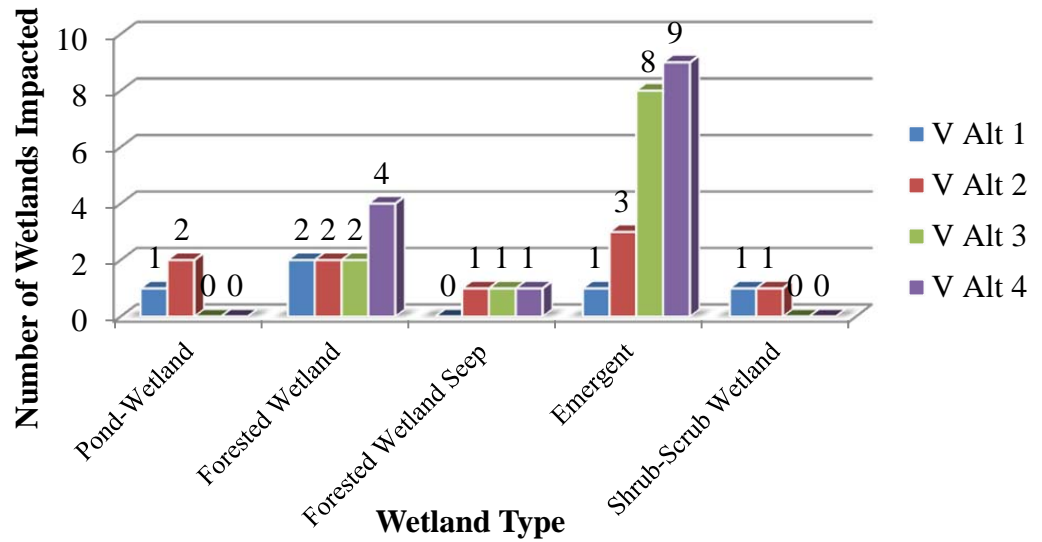
Table 3.11-5: Wetland Impacts for Vandalia Alternatives

Wetland Type	Total Number of Wetlands Impacted (Number of High Floristic Quality Wetlands Impacted) ¹				Total Area of Wetlands Impact (Area of High Floristic Quality Wetlands Impacted) (acres) ¹			
	V Alt 1	V Alt 2	V Alt 3	V Alt 4	V Alt 1	V Alt 2	V Alt 3	V Alt 4
Pond-Wetland	1	2	--	--	0.01	0.45	--	--
Forested Wetland	2	2 (1)	2 (1)	4 (1)	0.15	0.99 (0.14)	3.35 (2.50)	3.16 (0.08)
Forested Wetland Seep/ Seep	--	1 (1)	1 (1)	1 (1)	--	0.02 (0.02)	0.02 (0.02)	0.00001 (0.00001)
Emergent	1	3	8 (1)	9	0.82	0.94	11.78 (0.35)	1.46
Shrub-Scrub Wetland	1	1	--	--	0.32	0.21	--	--
Total	5	9 (2)	11 (3)	14 (2)	1.3	2.61 (0.16)	15.15 (2.87)	4.62 (0.08)

¹ The number and area of high floristic quality wetlands impacted are included in the total number of wetlands and total area of wetland impact calculations.

V Alt 4 impacts more wetlands than the other three alternatives. V Alt 3 impacts more wetland area than the other alternatives. V Alt 1 impacts the least amount of wetlands by number and area of the four alternatives studied.

Figure 3.11-5: Wetland Impacts by Type Vandalia Alternatives



Ramsey Creek Options

Table 3.11-6, Wetland Impacts for Ramsey Creek Options, depicts the number and acreage of wetlands impacted by the Ramsey Creek Options. The Ramsey Creek Options do not impact high floristic quality wetlands.

Table 3.11-6: Wetland Impacts for Ramsey Creek Options

Wetland Type	Total Number of Wetlands Impacted		Total Area of Wetland Impact (acres)	
	RCOA	RCOB	RCOA	RCOB
Pond-Wetland	--	--	--	--
Forested Wetland	2	1	0.12	0.06
Emergent	1	1	0.03	0.03
Shrub-Scrub Wetland	--	--	--	--
Total	3	2	0.15	0.09

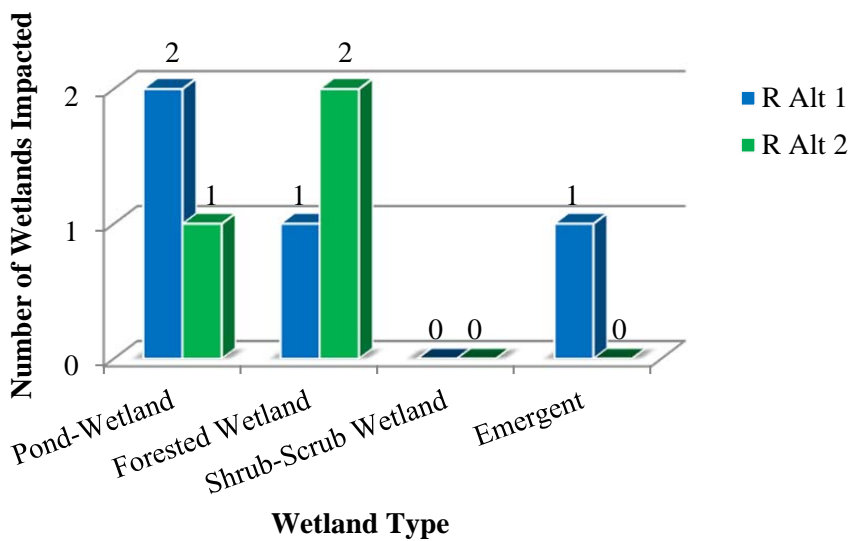
Ramsey Alternatives

Table 3.11-7, Wetland Impacts for the Ramsey alternatives, depicts the number and acreage of wetlands impacted by the Ramsey alternatives. Figure 3.11-6 shows the wetland impacts by type for the Ramsey alternatives. The Ramsey alternatives do not impact high floristic quality wetlands.

Table 3.11-7: Wetland Impacts for the Ramsey Alternatives

Wetland Type	Total Number of Wetlands Impacted		Total Area of Wetland Impact (acres)	
	R Alt 1	R Alt 2	R Alt 1	R Alt 2
Pond-Wetland	2	1	0.09	0.09
Forested Wetland	1	2	0.09	0.50
Shrub-Scrub Wetland	--	--	--	--
Emergent	1	--	0.002	--
Total	4	3	0.18	0.59

Figure 3.11-6: Wetland Impacts by Type Ramsey Alternatives



What design measures are proposed to avoid or minimize impacts to wetlands?

Refinements to the alternatives may reduce the area of wetland impacts. Design and construction measures that are used to avoid and minimize wetland impacts include slightly shifting the location of the roadway, use of retaining walls and steeper side slopes, and bridging wetland areas. For the alternatives that include new roadway, the alignment of the new road can sometimes be shifted away from wetlands. When widening of the existing roadway is proposed, roadway shifts are not usually practical without impacting adjacent property.

Existing wetlands are located within and adjacent to the project alternatives associated with existing right of way, other roads, and streams. Any road widening or construction of new pavement on new alignment would impact wetlands in these locations. Minimization of residential, commercial, and industrial displacements or other potential socioeconomic or environmental impacts make it difficult or impractical to shift the proposed alignments to avoid additional wetland impacts. The proposed alternatives were selected to minimize or avoid wetland impacts whenever practical. Each of the proposed alternatives was screened for wetland resources prior to the further development of each alternative.

What alternatives and design measures were considered to avoid seeps?

Alternatives that avoided seep site #259/141, which would be impacted by the Build Alternative, and the Kaskaskia River bluffs area south of Vandalia were developed and eliminated during the alternative evaluation process. Of these, alternatives that traveled through Vandalia along existing US 51 were eliminated during the alternative evaluation process due to disproportionately high floodplain, wetland, residential, and commercial building impacts. Alternatives that bypassed to the east of Vandalia were also developed. The Kaskaskia River floodplain east of Vandalia is extensive, and alternatives in this location were eliminated during the alternative evaluation process due to disproportionately high longitudinal floodplain impacts. In order to avoid the floodplain impacts, an eastern bypass would have to extend past Bluff City, the nearest community east of Vandalia (approximately 1.9 miles east). Such an alternative was developed but was eliminated during the alternative evaluation process due to failure to satisfy the Purpose and Need. The Purpose and Need calls for a roadway that effectively connects communities in addition to local and commercial centers. Vandalia is the second largest population and employment center within the 65-mile study area. A re-aligned US 51 that far east of the community would not promote connectivity with Vandalia, and would not be used by the traveling public; existing US 51 would provide quicker travel through the area.

Seeps were given special consideration for avoidance, but due to their proximity to the Kaskaskia Floodplain, they are unable to be avoided south of Vandalia. The alternatives were developed and refined to minimize seep impacts. The forested seep

site #259/141 extends on both sides of the Build Alternative therefore, preventing avoidance of site #259/141 in the adjacent area. If the alternative were shifted south of site #259/141, such a shift would result in an alternative that crosses the main stem of the Kaskaskia River in at least four locations due to meanders in the area, and would also result in impacts to a densely forested area along the Kaskaskia River. The forested area has not been surveyed for wetlands by the INHS but appears to be hydrologically connected to forested seep #259/141. If the US 51 Build Alternative were to be shifted north to avoid seep #259/141, the alternative would cross the Kaskaskia River bluffs and associated forested area at the widest point in the floodplain area. Additionally, this forested area has not been surveyed for wetlands by the INHS and may contain high-quality wetlands and/or seeps. Of note, the state-threatened species heart-leaved plantain was identified by the INHS within the Kaskaskia River bluff south of Vandalia within a high-quality wetland. The US 51 Build Alternative was developed to avoid the species and the associated wetlands.

In order to minimize impacts a bridge will be considered in the forested seep #259/141 area. This would reduce the footprint needed for the right-of-way. In the minimized right-of-way area, covered by a bridge, there would still be shading impacts but the area of fill and the disruption of groundwater would be reduced. As with all wetland sites the use of retaining walls and steeper side slopes will be considered to reduce the footprint of the project and its impacts. This may eliminate the V Alt 4 impact at seep #446 which is estimated at 0.00001 acre. In addition new connector roads in any seep areas might be able to be shifted away from the wetlands. This may eliminate or reduce impacts to seeps at sites 374 which is estimated at 0.02 acres at V Alt 2 and V Alt 3 and 528 which was estimated at 0.11 acres at V Alt 2, V Alt 3, and V Alt 4 but has been realigned to avoid the impact. In the area of seep #259/141 a proposed connector road has already been moved out of the seep area. This and other changes to the right-of-way that was needed resulted in a reduction of 2.90 acres of this seep.

How will construction activities affect wetlands?

Wetlands and their functions that occur within the proposed highway right-of-way can be destroyed by earth moving activities such as vegetation removal, draining, and the placement of roadbed materials within the wetland. Construction activities would temporarily or permanently impact wetlands within the project footprint. Temporary effects can result in a short term loss of wetland functions during construction and for up to five years following construction. IDOT does not expect temporary impacts to result in permanent loss of wetlands. Temporarily impacted wetlands will be re-vegetated and wetland hydrology reestablished after construction is completed. Several measures will be taken to avoid and minimize effects to wetlands during construction (see: *What measures are proposed to avoid or minimize impacts to wetlands during construction?*).

Temporary Impacts

Temporary impacts are typically created by grading of side slopes, recreating driveway access, building and reconstruction of waterway crossings, and construction equipment access. Other temporary impacts are caused by underground utility relocation.

Interagency Wetland Policy Act Mitigation Ratios

Degree of Adverse Impact	Location of the Replacement Wetland		
	On-Site	Off-Site	Out-of-Basin
Minimal Alteration	1.0:1	1.5:1	2.0:1
	1.5:1		
Significant Alteration	1.5:1	2.0:1	3.0:1
Destruction	2.5:1	4.0:1	5.5:1

Source: 20 ILCS 830, 1989.

The Interagency Wetland Policy Act ratios apply unless the adversely impacted wetland has one or more of the following situations present:

- The presence of a state or federally listed endangered or threatened species,
- The presence of essential habitat of a state or federally listed endangered or threatened species,
- The presence of an Illinois Natural Area Inventory Site (INAI), and
- Wetlands with a floristic quality index of 20 or greater or mean C-value of 4.0 or greater

What measures are proposed to avoid or minimize impacts to wetlands during construction?

All practical measures will be used to reduce impacts to wetlands during construction. IDOT will protect and preserve wetlands within the project corridor through various ways. The most important way is to identify wetland areas for the construction workers to prevent them from accidentally entering a site with equipment. Identification can be accomplished by fencing off wetlands that are not proposed to be impacted. In addition, wetland areas will be illustrated on plan sheets that the construction contractors use in the field.

How will mitigation for wetland loss be determined?

Mitigation or replacement for wetland impacts will follow the IWPA and Section 404 of the Clean Water Act. In keeping with the “no net loss” policy, the IWPA requires replacement wetlands to be created for all impacts to wetlands regardless of size. The IWPA includes a set of pre-described replacement ratios which must be followed (see sidebar). At a minimum, IDOT must replace every acre of disturbed wetland with one acre of replacement. For every acre of high floristic quality wetland impact, 5.5 acres will be built. Typical replacement ratios are 2.0 acres of new wetland creation for every one acre impacted.

What mitigation is needed to compensate for wetland loss?

Based on the proposed impacts, wetland mitigation ranges from 151.49 to 227.93 acres for the alternative combinations. See Table 3.11-8: Anticipated Wetland Mitigation by Alternative. Tables 3.11- 9 through 3.11-13 summarize the wetland impact and anticipated wetland impact for each wetland.

Before construction can begin, IDOT is required to develop a project specific Wetland Compensation Plan that must have IDNR approval. The Wetland Compensation Plan will be completed prior to construction activities.

Table 3.11- 8: Anticipated Wetland Mitigation by Alternative

Alternative	Total Number of Wetlands Impacted	Total Area of Wetland Mitigation (acres)
US 51 Build Alternative	38	146.06
CS Alt 1	5	0.64
CS Alt 2	9	15.55
V Alt 1	5	4.24
V Alt 2	9	9.38
V Alt 3	11	64.84
V Alt 4	14	15.70
RCOA	3	0.30
RCOB	2	0.19
R Alt 1	4	0.36
R Alt 2	3	1.18

Wetland Bank

A wetland bank is a location where wetland restoration, creation, and/or enhancement is undertaken for the purpose of compensating for unavoidable wetland losses in advance of development actions. Wetland banks can provide the required replacement of impacted wetlands when the creation of new wetlands is not possible in or near the project.

Table 3.11- 9: Anticipated Wetland Mitigation – US 51 Build Alternative

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)	Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)	Map Sheet Number
22	Forested Wetland	14.1	3.0	0.18	0.09	2.0:1	0.17	165
91	Pond-Wetland	11.6	2.3	0.38	0.11	2.0:1	0.22	160
143	Pond-Wetland	13.9	3.0	0.20	0.01	2.0:1	0.02	56
145	Wet Meadow	12.0	2.5	2.49	0.87	2.0:1	1.74	55
146	Shrub-scrub	19.8	2.9	1.41	0.10	2.0:1	0.19	55
151	Wet Meadow	11.6	2.5	0.09	0.09	2.0:1	0.18	53
158	Forested Wetland	15.1	2.9	0.31	0.21	2.0:1	0.42	49
174	Marsh	2.5	0.8	0.06	0.06	2.0:1	0.12	40
177	Forested Wetland	26.1	3.1	2.24	0.23	5.5:1	1.26	37
178	Wet Meadow	9.2	1.9	0.40	0.00	2.0:1	0.00	38
180	Pond-Wetland	10.8	3.0	0.31	0.01	2.0:1	0.02	36
203	Wet Meadow	7.3	2.4	0.21	0.04	2.0:1	0.08	3
206	Pond-Wetland	13.3	3.1	0.16	0.16	2.0:1	0.31	2
208	Forested Wetland	14.8	3.1	0.31	0.31	2.0:1	0.61	2
209	Shrub-scrub	28.4	3.2	4.35	3.66	5.5:1	20.14	1
210	Forested Wetland	10.1	2.4	0.03	0.03	2.0:1	0.06	1
249	Sedge Meadow	20.8	3.8	0.79	0.61	5.5:1	3.35	59
250	Farmed Wetland	12.1	2.5	0.29	0.20	2.0:1	0.40	59
252	Forested Wetland	18.1	3.3	1.26	0.06	2.0:1	0.12	58
339	Forested Wetland	15.4	3.2	7.86	1.57	2.0:1	3.13	11
342	Forested Wetland	29.2	3.7	51.20	5.14	5.5:1	28.27	11
347	Forested Wetland	18.0	3.2	6.78	0.04	2.0:1	0.09	10
348	Forested Wetland	24.6	3.1	64.18	0.59	5.5:1	3.22	10
353	Marsh	12.4	2.2	14.19	0.03	2.0:1	0.06	9

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)	Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)	Map Sheet Number
384	Forested Wetland	28.8	3.3	5.20	3.65	5.5:1	20.07	59
386	Wet Meadow	14.3	2.4	0.98	0.36	2.0:1	0.72	58
388	Forested Wetland	13.5	2.7	0.61	0.47	2.0:1	0.95	58
389	Forested Wetland	8.4	2.4	2.20	0.19	2.0:1	0.37	58
392	Farmed Wetland	9.0	2.3	54.82	11.68	2.0:1	23.35	56
394	Farmed Wetland	8.5	1.9	0.21	0.01	2.0:1	0.01	56
407	Marsh	8.3	1.9	0.20	0.04	2.0:1	0.08	43
487	Farmed Wetland	5.3	1.9	0.93	0.39	2.0:1	0.79	59
522	Forested Wetland	14.0	2.7	0.61	0.02	2.0:1	0.03	1
524	Forested Wetland	13.6	2.7	0.28	0.28	2.0:1	0.56	1
536	Scrub-Shrub Wetland	8.4	2.4	0.16	0.06	2.0:1	0.12	54
539	Forested	18.1	3.5	0.10	0.06	2.0:1	0.12	38
556	Forested Wetland	14.8	2.9	0.08	0.08	2.0:1	0.17	1
259/141	Forested Wetland/Seep	30.7	3.7	25.76	6.27	5.5:1	34.50	56
				Total	37.78	--	146.03	

Bold – High Floristic Quality

Table 3.11- 10: Anticipated Wetland Mitigation – Centralia-Sandoval Alternatives

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)		Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)		Map Sheet Number
					CS Alt 1	CS Alt 2		CS Alt 1	CS Alt 2	
183	Wet Prairie	16.0	2.8	4.21	--	0.22	2.0:1	--	0.43	31
184	Forested Wetland	16.9	3.0	0.31	--	0.01	2.0:1	--	0.02	30
292	Marsh	10.4	2.5	1.33	--	0.36	2.0:1	--	0.72	32
293	Shrub-scrub	17.8	2.7	15.24	--	1.05	4.0:1	--	4.18	32
303	Forested Wetland	21.4	3.0	7.29	--	0.78	5.5:1	--	4.30	30
408	Pond-Wetland	9.5	2.3	0.85	0.08	--	2.0:1	0.16	--	20
412	Wet Meadow	6.2	1.6	0.06	0.00003	--	2.0:1	0.0001	--	17
490	Wet Meadow	4.9	1.8	0.17	0.02	--	2.0:1	0.03	--	19
494	Wet Meadow	11.4	4.7	0.02	--	0.02	5.5:1		0.10	32
495	Wet Meadow	14.4	2.5	5.30	--	0.80	4.0:1		3.21	32
496	Forested Wetland	18.6	3.0	2.28	--	0.64	4.0:1		2.55	32
497	Pond-Wetland	9.7	2.7	0.16	--	0.02	2.0:1		0.05	32
544	Forested Wetland	14.9	2.9	0.54	0.19	--	2.0:1	0.38	--	15
546	Scrub-Shrub Wetland	14.7	2.6	0.47	0.03	--	2.0:1	0.07	--	15
Total					0.32	3.90	--	0.64	15.55	

Bold – High Floristic Quality

Table 3.11- 11: Anticipated Wetland Mitigation – Vandalia Alternatives

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)				Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)				Map Sheet Number
					V Alt 1	V Alt 2	V Alt 3	V Alt 4		V Alt 1	V Alt 2	V Alt 3	V Alt 4	
115	Forested Wetland	14.3	3.2	0.59	--	--	--	0.59	4.0:1	--	--	--	2.35	147
118	Wet Meadow	11.5	2.5	0.76	--	--	--	0.07	2.0:1	--	--	--	0.13	147
119	Forested Wetland	16.7	2.8	7.15	--	--	--	2.48	4.0:1	--	--	--	9.91	147
120	Wet Meadow	6.1	1.8	0.33	--	--	--	0.04	2.0:1	--	--	--	0.08	147
127	Forested Wetland	35.9	3.6	2.45	--	--	--	0.08	5.5:1	--	--	--	0.47	146
219	Forested Wetland	19.1	3.0	1.44	--	0.85	0.85	--	4.0:1	--	3.40	3.40	--	97/122
221	Forested Wetland	22.4	3.0	10.74	--	0.14	2.50	--	5.5:1	--	0.77	13.73	--	97/121
222	Wet Meadow	18.2	3.0	0.04	--	--	0.005	--	2.0:1	--	--	0.01	--	121
223	Wet Meadow	14.5	2.6	1.36	--	--	0.93	--	4.0:1	--	--	3.70	--	121
224	Farmed Wetland	15.9	2.1	15.63	--	--	8.82	--	4.0:1	--	--	35.29	--	121
225	Wet Meadow	13.3	2.6	0.24	--	--	0.004	--	2.0:1	--	--	0.01	--	121
228	Farmed Wetland	8.8	1.8	8.15	--	0.11	0.84	--	4.0:1	--	0.44	3.37	--	92/116
231	Marsh	8.9	2.6	0.34	--	--	--	0.34	2.0:1	--	--	--	0.69	137
235	Wet Meadow	5.7	2.3	0.11	--	--	--	0.11	2.0:1	--	--	--	0.22	145
236	Wet Meadow	8.1	2.5	0.45	--	--	--	0.45	2.0:1	--	--	--	0.89	145
374	Forested Wetland/Seep	23.9	3.0	4.96	--	0.02	0.02	--	5.5:1	--	0.13	0.12	--	97/122
375	Shrub-scrub	19.4	3.0	0.49	--	0.21	--	--	2.0:1	--	0.42	--	--	96
377	Pond - Wetland	13.6	2.7	0.49	--	0.32	--	--	2.0:1	--	0.64	--	--	95
378	Pond - Wetland	7.9	3.0	0.13	--	0.13	--	--	2.0:1	--	0.25	--	--	95
434	Forested Wetland	16.3	3.1	0.36	0.01	--	--	--	2.0:1	0.02	--	--	--	78
435	Shrub-scrub	16.7	2.9	0.32	0.32	--	--	--	2.0:1	0.65	--	--	--	78
436	Pond-Wetland	15.6	3.3	0.22	0.01	--	--	--	2.0:1	0.02	--	--	--	78
437	Forested Wetland	18.1	3.3	0.16	0.14	--	--	--	2.0:1	0.28	--	--	--	78
442	Wet Meadow	14.1	3.2	0.09	--	--	0.01	--	2.0:1	--	--	0.03	--	121
443	Wet Meadow	20.5	3.1	0.69	--	--	0.35	--	5.5:1	--	--	1.92	--	121
444	Wet Meadow	14.4	2.2	0.18	--	--	--	0.18	2.0:1	--	--	--	0.37	147
446	Forested Wetland/seep	38.6	3.6	41.03	--	--	--	0.00001	5.5:1	--	--	--	0.0001	146
460	Farmed Wetland	6.7	1.8	1.74	--	0.02	--	--	2.0:1	--	0.06	--	--	89
474	Farmed Wetland	5.7	2.3	1.41	--	--	--	0.15	2.0:1	--	--	--	0.30	140

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)				Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)				Map Sheet Number
					V Alt 1	V Alt 2	V Alt 3	V Alt 4		V Alt 1	V Alt 2	V Alt 3	V Alt 4	
477	Farmed Wetland	4.4	1.4	8.20	--	--	--	0.01	2.0:1	--	--	--	0.03	142
481	Farmed Wetland	4.6	1.3	13.04	0.82	0.82	0.82	--	4.0:1	3.27	3.27	3.27	--	62/85/109
483	Forested Wetland	17.1	3.0	2.86	--	--	--	0.01	2.0:1	--	--	--	0.02	133
533	Farmed Wetland	3.5	0.9	0.11	--	--	--	0.11	2.0:1	--	--	--	0.23	148
				Total	1.30	2.61	15.15	4.62	--	4.24	9.38	64.84	15.70	

Bold – High Floristic Quality

Table 3.11- 12: Anticipated Wetland Mitigation – Ramsey Creek Options

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)		Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)		Map Sheet Number
					RCOA	RCOB		RCOA	RCOB	
96	Floodplain forest	12.0	2.8	0.06	0.06	0.06	2.0:1	0.12	0.12	157/159
98	Floodplain forest	16.8	2.9	0.97	0.06	--	2.0:1	0.11	--	157
526	Sedge Meadow	10.3	2.7	0.03	0.03	0.03	2.0:1	0.07	0.07	157/159
Total					0.15	0.09	--	0.30	0.19	

Table 3.11- 13: Anticipated Wetland Mitigation – Ramsey Alternatives

Site Number	Wetland Type	FQI	Mean C	Total Area of Wetland (Acres)	Total Area of Wetland Impact (Acres)		Mitigation Ratio	Total Area of Wetland Mitigation Required (Acres)		Map Sheet Number
					R Alt 1	R Alt 2		R Alt 1	R Alt 2	
22	Forested Wetland	14.1	3.0	0.18	0.09	0.09	2.0:1	0.18	0.18	165/170
51	Wet Meadow	9.1	2.4	0.03	0.002	--	2.0:1	0.004	--	161
52	Pond - Wetland	7.8	2.3	0.08	0.004	--	2.0:1	0.01	--	161
61	Forested Wetland	18.2	2.9	1.41	--	0.41	2.0:1	--	0.82	168
90	Pond - Wetland	9.9	2.4	0.29	0.08	0.09	2.0:1	0.17	0.18	160/166
Total					0.18	0.59	--	0.36	1.18	

Where will wetland mitigation occur?

For the US 51 project, it is anticipated that wetland mitigation will occur in the same basin as the impacts and at a certified wetland bank, which will be built, owned, and operated by IDOT and approved by the USACE.

