

Environmental Impact Evaluation

Impact Evaluation

Understanding the travel benefits is one part of a solution, but it is also important to understand how the environment will be affected by a new project, so that steps can be taken to eliminate or reduce potential impacts. The environmental impact evaluation began with the identification of more than 60 important environmental factors in the study area. Some of the natural environment factors included threatened and endangered species, natural areas, nature preserves, seeps and fens, local and state parks, forest preserves, recreational areas and open space and wetlands, floodplains, and other water features (including Class 1, Class A and B and protected streams).

For the built environment, a similar data collection process was initiated. The built environmental data obtained included developments recently opened, currently under construction, planned, proposed, or even still in the concept stage; Kane County farmland in the agricultural conservation easement program, centennial and sesquicentennial farms, landfills and hazardous waste (CERCLIS) sites, historic sites and historic bridges, schools and churches, quarries, and water wells.

IDOT has assembled a very detailed inventory of the best publicly available data relating to the location of sensitive environmental areas throughout the study area. This data was mapped and used by the study engineers to develop conceptual layouts for the arterials and freeways with the goal of avoiding as many environmental issues as possible. The impacts on these factors for each corridor were tabulated, reviewed by environmental specialists, and returned to the designer for further improvement. Through this iterative process, the IDOT was able to minimize the environmental impact.

The Fox River presented one of the key challenges for developing alternatives. In addition to the Fox River being an important environmental issue on its own, the habitat on the banks, in the stream, and nearby – as well as existing land uses – all presented additional cause for sensitivity in selecting river crossing points for the corridors. To begin, the planners mapped all the known natural and built environmental features along the Fox River from Sheridan to Oswego. Next, all potential crossing areas were identified and studied, leading to five locations with the least potential for impacts being selected for review by the regulatory environmental resource agencies. The resource agencies traveled to the locations to see the potential impacts and assess the quality of the environmental features.

The Fox River presented one of the more important challenges because of its environmental issues.



Footprint Length = 8000'	A1	A5	B2, C2	C4	C5E
	W. Millington	E. Millington	W. Yorkville	E. Yorkville	Orchard/Grove
NWI Wetlands	6	1	10	1	1
Floodplains (FEMA)	8	7	7	10	1
Streams - CLASS A & B	10	10	1	10	10
Water Bodies	10	10	7	7	1
Parks / Nature Preserves / Natural Areas				1	10
Open Space, Conservation Areas, Forest Preserves, Parks	10	10	10	6	1
Natural Areas (DOT)	6	10	10	6	1
Special Use					
CERCLIS	10	10	10	1	1
Landfills	10	1	10	10	10
Quarries	10	10	10	10	1
Affected Buildings/Property (Estimated)					
Houses	10	10	9	7	1
Farmstead Areas	3	1	6	10	3
Centennial Farms	10	10	10	1	10
Developments					
Open/Under Construction	10	10	10	10	1
Planned/Proposed/Concept	10	10	10	1	10
Compatibility With Land Use Plans	Medium	Medium	High	Low	Low
Cost (Length of Bridge)	Low	Low	Low	High	Medium
Number of categories above that the corridor has the greatest impact	0	3	1	7	9

Table 3
Indicates the most impacts



The study team assessed over 60 types of environmental issues along an 8000 foot length of roadway at each of the potential river crossings. Table 3 summarizes the findings of the environmental impact evaluation at each of the potential Fox River crossings. In this table, the results are rated by the level of impact; a “1” rating indicates that this corridor has the most impacts for a given environmental factor, while a “10” rating indicates that the corridor has the least impacts. In this table, the two worst rated alternatives – those with the most negative impact at the Fox River crossing – are highlighted in orange. The columns show the rating of each environmental impact for each alternative, and are presented west to east or left to right across the table.

General findings from the potential Fox River crossing environmental impact evaluation include:

- Crossings east of Yorkville (C3, C4, C5W and C5E) are expected to have the greatest impacts on Wetlands and Floodplains.
- The east Yorkville crossing (C3, C4, C5W) has the greatest impact on Streams and Water Bodies. The west Yorkville crossing (B2, B5,C2) crosses a Class B stream.
- Crossings east of Yorkville (C3, C4, C5W and C5E) have greatest impacts on Parks and Natural Areas/Preserves.
- The Orchard Rd crossing (C5E) has the greatest impacts on houses; the east Yorkville crossing (C3, C4, C5W) affects the most centennial farms; and the east Millington (A5) crossing has the most farmstead impacts.
- Crossings east of Yorkville (C3, C4, C5W and C5E) have greatest impacts on developments and worst land use compatibility.
- Crossings east of Yorkville (C3, C4, C5W and C5E) are higher cost.

Key Findings:

- Fox River crossings east of Yorkville (C3, C4, C5W and C5E) are expected to have high overall negative impacts, including open space, natural areas, wetlands and floodplains, and development impacts.
- Fox River crossing west of Yorkville (B2, B5 and C2) has lesser overall environmental impacts, and greater overall compatibility with the natural and built environment.

When performing a similar evaluation for the full length of each new location alternative, similar trends emerge. Arterial road improvement alternatives generally follow existing roadways. These were evaluated and found to produce fewer impacts than freeway alternatives that create new roadway locations. In order to focus on the alternatives that have high impacts, only the freeway alternatives are shown. The website includes more data on the arterial alternatives. Table 4 summarizes the findings of the environmental impact evaluation for each of the potential freeway alternatives. In this table, the results are rated by the level of impact. A “1” rating indicates that this corridor has the most impacts for a given environmental factor, while a “10” rating indicates that the corridor has the least impacts. In this table, the two worst rated alternatives – those with the most impacts – are highlighted in orange. The columns show the rating of each alternative for each environmental impact, and are presented west to east or left to right across the table.

General findings from the environmental impact evaluations of the freeway alternatives include:

- Alternatives east of Yorkville (C3, C4, C5W and C5E) have the worst wetlands impacts. Many alternatives have some floodplain impacts.
- The west Yorkville alternatives (B2, B5, C2) have the greatest impact on streams. The east Yorkville alternatives (C3, C4, C5W) have the greatest impact on water bodies.
- The alternatives east of Yorkville (C3, C4, C5W and C5E) and C2 have the greatest potential impacts on threatened and endangered species sites.
- Alternatives east of Yorkville (C3, C4, C5W and C5E) have the greatest impact on open space, such as parks and natural areas.
- WiKaDuKe (D5) and the Orchard Rd (C5E) alternatives have the greatest impacts on houses and buildings; Alternatives B2 and D5 have the most farmstead impacts.
- Alternatives east of Yorkville (C3, C4, C5W and C5E) and C2 have the greatest potential impacts on new development.
- The west Yorkville crossing alternatives (B2 and B5) have the greatest compatibility with land use plans.
- The east Millington (A5) and B5 alternatives are projected to have the highest construction cost.

Key Findings:

- WiKaDuKe (D5) freeway/expressway alternative has a very high magnitude of displacements.
- The east Yorkville (C3, C4 and C5W) and Orchard/Grove (C5E) alternatives have a high level of natural and built environmental impacts, due to the Fox River, wetland, development, and land use plan compatibility ratings.
- C2 has high rating of threatened and endangered species and development impacts.
- The western alternatives (A1 and A5) are less desirable than the west Yorkville alternatives for land use plan compatibility.

Fox River Crossing Location	A1	A5	B2	B5	C2	C5W	C4	C3	C5E	D5
	W. Millington	E. Millington	W. Yorkville	E. Yorkville	Orchard	None				
Length (miles)	38	46	36	43	33	28	29	32	31	29
NWI Wetlands	7	7	9	8	3	1	1	1	8	10
Floodplains	4	2	4	2	6	2	4	2	1	10
Streams - Class A & B	10	10	7	7	7	10	10	9	10	10
Parks / Nature Preserves / Natural Areas	10	10	10	10	9	6	6	6	1	10
Threatened & Endangered (DOT)	10	10	6	6	1	3	3	3	3	6
Affected Buildings/Property (Estimated)										
Houses	10	10	10	10	10	9	9	9	7	1
Farmstead Areas	7	5	3	4	6	7	10	4	5	1
Developments										
Specific - Known boundaries										
Open/Under Construction	10	10	10	10	2	2	2	2	1	8
Planned/Proposed/Concept	10	10	10	10	5	1	1	1	3	5
Proximity - By Section #										
Open/Under Construction	10	9	10	10	5	5	6	6	1	8
Planned/Proposed/Concept	10	9	9	8	1	1	2	1	2	8
Compatibility with Land Use	5	5	8	8	6	3	3	3	3	3
Cost	2	1	2	1	3	4	3	2	4	6
Number of categories above that the corridor has the greatest impact	2	3	3	3	6	9	7	10	9	3

Indicates the most impacts Table 4