



Illinois Department of Transportation

Eastern Bypass Study

Initial Corridors Screening Report

Illinois Department of Transportation
District Four

March 17, 2011

INTRODUCTION

The Eastern Bypass is proposed as a new limited- or controlled-access highway connecting Interstate 74 in northern Tazewell county to Illinois Route 6 in Peoria county. The Bypass study process is currently in the Corridor Analysis Phase and, to date, fourteen corridors have been identified for consideration.

The purpose of this document is to present the results of the initial analysis conducted to determine which corridors to eliminate and which to study in further detail. This analysis was carried out by the project's Study Team, based in part on comments from the study's Community Advisory Group and the general public about the potential benefits and impacts of the proposed project.

The decision-making process is aided through the use of a "corridor comparison matrix," which organizes data about each corridor's potential benefits and impacts. The benefits portion of the matrix is derived from the study's Purpose and Need analysis; the impacts portion is derived from the corridor impacts analysis. Both of these analyses are documented in a separate reports.

Presented below is an explanation of how the matrix was prepared and how it can be used to compare the corridors' benefits and impacts.

THE CORRIDOR COMPARISON MATRIX

The corridor comparison matrix presents a large amount of information in a format that simplifies the task of comparing the corridor bands and is presented in Appendix A. It is arrayed with the fourteen corridors in columns and the benefits and impacts in rows. Each cell in the matrix shows the amount or number of benefit or impact for each corridor's representative band location. The units of measure vary, depending on the element, and are listed in a column to the right of the main matrix.

Magnitude of Impact

In order to make each corridor's relative magnitude of benefit or impact stand out more clearly, the range of impact for each resource was divided into equal thirds, with each third assigned a color:

- Cells in red are those that are in the bottom third, or worst third, in terms of providing benefits or resulting in negative impacts.
- Cells in green are in the top third, or best, in terms of their benefits or level of impact.
- Cells in yellow represent the middle third in their degree of benefit or impact.

The range of values for each corridor in each analysis category was divided into three and all of the corridors whose values fell into each "third" range were included. Thus some categories may have a 4-4-5 split, while others may be 2-9-3, depending on what the values were that they were

measured against. It is not a top third, middle third and bottom third rating, rather it is recognition of where each category/corridor falls within the extremes of the value ranges.

Degree of Variation

In addition to the color coding for impact magnitude, the benefits and resource categories themselves were sorted by the degree to which they vary in magnitude across all the corridors. This kind of sorting is useful because categories that do not vary greatly between corridors may not be as critical in deciding which corridors to keep and drop as those with a large amount of variation. In other words, if most of the corridors are similar in their benefits or the impact they would have on a certain resource, then that category of benefit or impact is not particularly important in terms of choosing the best corridors. This is not to say that the actual benefit or impact is not important in itself (when compared to the No-Build condition), only that all corridors would have similar effects.

In order to accomplish this sorting, the resource categories were divided into three groups, based on their relative degree of variation: Greatest, Moderate, and Least.

Significance of Impacts

Several of the impact categories concern resources that are protected by state or federal regulations. These “jurisdictional” resources often require permits before they can be affected by a highway project and, as a result, are shown in red text and marked with an asterisk in the matrix. This is in recognition of their importance, relative to categories for which there is no permit requirement.

Aside from the identification of these jurisdictional resources, it is important to note that no attempt was made to weight or otherwise assign a relative value to the benefit or impact categories. Instead, the matrix simply compares the quantified results for each corridor. The relative importance of resources is as much subjective as it is objective, and, therefore, must be determined through discussion and deliberation among the community members and their representatives.

“Reading” the Matrix

Organized as described in the preceding sections, the reviewer can begin with the benefits portion of the matrix, reviewing the “Greatest Variation” grouping and identifying those corridors with the greatest relative benefit for those categories, using the color coding as a guide.

Once one or more “greatest benefit” corridors are selected, they can be further scrutinized by comparing them to the Moderate Variation category. Finally, if one or more corridors appear to be nearly equal in terms of their benefits, then the third or “Least Variation” grouping can be reviewed to see if any of those benefit categories would tip the scale to one or another corridor.

Turning to the Impacts portion of the matrix, the same process can be used:

1. Review the resources in the “Greatest Variation” group, seeking three or four corridors that are predominantly in the low impact (green) range, taking into special account those categories that are under “jurisdictional” authority.
2. Further compare those three or four corridors against the “Moderate Variation” grouping, dropping any that are predominantly negative.
3. Review those that remain against the “Least Variation” grouping to see if those categories might cause a change in the selection.

Because the columns in the benefits and impacts portions of the matrix are aligned, it is relatively simple to compare the “greatest benefit” corridors with the “least impact” corridors. The objective is to find one or more corridors that seem to provide a reasonable balance between benefits and impacts. Multiple iterations of this process may be necessary to identify the best corridor alternatives.

NOTE: While the IDOT study team feels the process described above is a useful way to compare and contrast the benefits and impacts of the proposed Bypass corridors, it is not the only valid process. The reader is free to compare the corridor data using any process that he or she is comfortable with.

SELECTION OF CORRIDORS FOR FURTHER EVALUATION

Using the comparative evaluation matrix and the analysis method described above, the IDOT study team will make a determination which corridors to keep for further evaluation and which to drop from the study. This decision will not be made until the study’s CAG members have reviewed, discussed, and presented their views, and until after these materials and preliminary findings have been presented to the general public at a public meeting.

EASTERN BYPASS STUDY CORRIDOR SCREENING --- BENEFITS AND IMPACTS

March 17, 2011

INITIAL CORRIDOR SCREENING

----- B E N E F I T S -----

		P-1	P-2	P-3	P-4	T-5	T-6	T-7	M-8	M-9	M-10	D-11	D-12	D-13	D-14
Greatest Variation Between Corridors	Support LU Plans	0.0	2.0	5.0	-1.0	0.0	3.0	2.0	0.0	1.0	5.0	-1.0	-2.0	1.0	2.0
	Improved Multi-Modal (Bikes)	36	53	31	89	27	44	68	16	11	27	11	12	15	53
	Support EDC Plans	4	3	2	5	3	1	4	2	2	1	4	3	1	3
	Improved Multi-Modal (Hubs)	0.5	0.4	0.5	0.4	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3
Moderate Variation	Improved Travel Flow	0.027	0.033	0.020	0.031	0.020	0.022	0.020	0.016	0.015	0.019	0.013	0.013	0.013	0.015
Least Variation Between Corridors	Imp Local / Regnl Mobility (PV)	2.9	2.8	3.0	3.3	3.2	2.6	3.2	3.2	3.2	3.1	3.2	3.2	2.9	2.9

Units of Measure

Numerical index (-5 to +5), based on the proportion of each corridor's proximity to planned growth areas (Higher is better.)
 Percentage of each corridor that would benefit non-motorized travel
 Ranking, based on the Economic Development Council for Central Illinois Analysis (lower is better)
 Reduction in travel time (minutes), on a per vehicle basis, between eleven multi-modal hubs (82 total trips) (no-build = 18.8 minutes)
 Reduction in congestion as expressed by the sum of changes in the V/C ratios on 21 representative roads in the study area.
 Average time savings (minutes) per vehicle/trip. (Average time per vehicle/trip for no-build = 27.2 minutes)

----- I M P A C T S -----

		P1	P2	P3	P4	T5	T6	T7	M8	M9	M10	D11	D12	D13	D14
Greatest Variation Between Corridors	Wetlands*	56	30	27	50	58	33	47	57	54	28	55	53	23	40
	Crop Diagonal Severences*	8.9	8.0	10.3	3.8	8.8	7.9	4.4	12.1	10.6	9.7	8.6	8.8	7.3	2.5
	Agricultural*	910	800	1370	581	1150	1030	880	1470	1480	1360	1650	1460	1370	1310
	Residential Relocations	97	61	48	91	70	34	52	63	54	18	47	68	23	86
	Forest	550	530	340	440	390	370	370	250	190	170	220	240	180	270
	Proximity Effects - Institutional	6	11	9	14	3	8	10	7	2	7	1	5	5	11
	Proximity Effects - Residential	852	902	823	1651	799	849	1027	710	492	542	372	592	423	1069
Moderate Variation Between Corridors	Conservation / Park Land**	1	4	4	4	0	3	3	1	0	3	0	1	3	5
	100-Year Floodplains*	78	78	96	73	65	66	75	89	89	89	76	76	76	85
	Institutional Relocations	2	2	1	7	1	1	3	3	1	1	0	2	0	6
	Comm / Industrial Relocations	7	9	11	8	8	10	5	3	9	11	3	2	3	5
	Interchanges	9	8	9	7	9	8	8	9	9	8	10	9	8	12
	Steep Terrain	6.1	7.1	3.7	3.6	5.6	6.5	4.0	3.4	1.4	2.4	4.2	3.9	3.5	2.6
	Proximity Effects - Comm / Indust	29	39	48	67	42	52	46	38	41	51	24	30	31	48
Least Variation Between Corridors	Historic Sites*	0	0	0	0	0	0	0	0	0	0	0	0	2	0
	Stream Crossings*	7	9	9	7	7	9	12	11	6	8	10	7	5	9
	Total New R.O.W. (500 ft wide)	1840	1690	1980	1300	1910	1760	1560	1990	1910	1760	2100	1970	1800	1850
	Community Cohesion / Division	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Proximity Effects - Historic Sites	0	0	0	0	0	0	0	0	0	0	0	0	2	0

Units of Measure

Acres
 Miles
 Acres
 Potential Number Required
 Acres
 Developed Parcels
 Developed Parcels
 Acres
 Acres
 Potential Number Required
 Potential Number Required
 Potential Number Required
 Miles
 Developed Parcels
 Number of Potential Locations
 Potential Number Required
 Acres
 Potential Occurrences
 Developed Parcels

* Categories in red are those requiring permits or are otherwise under the jurisdiction of state or federal agencies.
 + Excluding the Illinois River
 Note: Categories with no color-coding are those where the effect could be either negative or positive.

LEGEND	
Range of Variation	Comparative Benefit/Impact
Greatest Variation	Best
Moderate Variation	Moderate
Least Variation	Worst