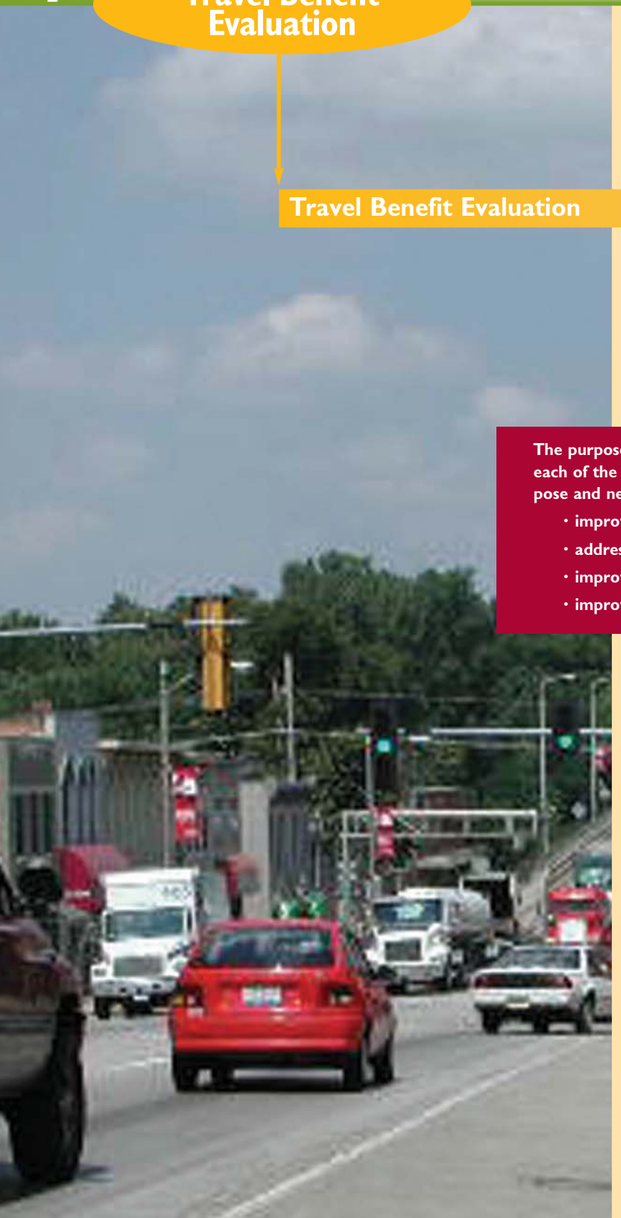
Travel Benefit Evaluation



Travel Benefit Evaluation

The travel benefit evaluation was performed using a computerized regional traffic model that forecasts future traffic conditions for each of the alternatives. This is the same regional traffic model used in Part A of the study to evaluate the transportation system performance. Updated population and employment forecasts for the year 2030 were used as inputs to the regional traffic model. These 2030 population and employment forecasts predict that population and employment will double in the study area between 2000 and 2030.

The purpose of the travel benefit evaluation was to assess how well each of the alternatives would address the four main factors of the purpose and need for improvements:

- **improve regional mobility**
- **address local system deficiencies**
- **improve access from the study area to regional jobs**
- **improve safety**

The traffic performance resulting from the addition of an individual alternative was compared to the traffic performance which would be expected using only the baseline network of roadways found in the year 2030 . This 2030 baseline roadway network is identical to the 2030 baseline network used in Part A of the study and includes the roads that exist today as well as other transportation projects that were already firmly planned by the State and local governments. For example, the 2030 baseline network included the widening of IL 47 to four through lanes in Yorkville, and the construction of a new Eldamain bridge over the Fox River to the west of Yorkville.

What is the Baseline? This is the existing roads and other projects having a commitment to be built by 2030.

Table 1

best performing concepts

Stand-Alone Alternatives

		TRAFFIC MANAGEMENT + TRANSIT ALTERNATIVES		ARTERIAL ALTERNATIVES					FREEWAY ALTERNATIVES				
				West County Line	Dauberman/ Eldamain/ Saratoga	IL 47	Orchard/ Grove/ Brisbin	Wikaduke	West County Line	Recorded Corridor	Recorded South	Powerline - IL56/ W Yorkville Bypass	East Corridor
	2030 Baseline	Tfc Mgt	+ Transit	J1	K2	L3	M4	N5	A1	B5	B2	B2	C5W
					K3	K3				A5			C3, C4, C5E
REGIONAL MOBILITY													
Additional Capacity (Lane Miles)													
Arterials	0	0	0	93	98	75	63	47	--	--	--	--	--
Freeways	0	0	0	--	--	--	--	--	145	142	128	128	93
Regional Travel (Change)													
Miles of Travel	3	2	2	3	3	1	1	1	10	7	8	8	7
Hours of Travel	3	3	2	3	3	2	2	1	7	6	5	4	7
Type of Travel													
Local													
Regional													
ADDRESS LOCAL SYSTEM DEFICIENCIES													
Study Area Travel (Non-US/State Roads)													
Miles of Travel	1	1	1	7	7	3	4	5	7	4	6	5	4
Hours of Travel	1	2	2	3	5	4	4	1	7	3	3	1	4
ACCESS TO REGIONAL JOBS													
Transportation Improvements Only													
<=30 minutes	1	2	2	4	3	5	2	3	5	7	5	6	7
<=40 minutes	1	1	1	2	2	3	2	3	4	6	5	5	7
<=60 minutes	1	1	1	3	3	3	2	3	4	6	5	5	6
<=90 minutes	1	2	1	2	3	2	3	4	4	6	5	6	6
SAFETY													
Crashes													
Regional	3	2	2	3	3	1	1	1	10	7	9	8	7

Freeway/arterial combinations produced the largest improvement in travel conditions.

The results of the evaluation of each individual stand-alone alternative, as compared to the 2030 baseline, or "No-Action" alternative, are presented in Table 1. Table 1 shows how well the various proposed improvements would better the travel conditions in the study area. The ratings are on a "1" to "10" scale, with "10" indicating the concept which performs the best, and "1" indicating the worst performance. The columns in the table cluster the arterial road improvements together as well as the freeway alternatives. The alternatives are also presented with west to east shown as left to right on the table. In the table, the alternatives receiving the two highest rating are highlighted in green for each measure.

General findings from the travel benefits evaluation of the stand alone alternatives show:

Regional Mobility

- Stand-alone arterial road alternatives are expected to make overall traffic conditions the same or worse by increasing total system-wide vehicle miles traveled and vehicle hours traveled. Forecasted traffic for these alternatives is expected to be at or near capacity, despite the presumed improvement. For these alternatives, 65% to 75% of travel on widened arterial roads is expected to be for local trips, meaning the beginning and the end of the trip is in the study area.
- Stand-alone freeways are expected to improve overall traffic conditions, showing large declines in system-wide vehicle miles of travel and vehicle hours of travel. Forecasted traffic is 30,000 to 60,000 vehicles per day on freeways and is about 65% to 75% regional travel, meaning at least one or both ends of the trip fall outside the study area.
- Regional trips, including trucks, are expected to show greater benefit with freeways than arterial road improvements.
- The model shows that traffic management alternatives, transit, and stand alone arterial road alternatives would be less effective than freeways in addressing regional mobility.
- The limited number of Fox River bridge crossings affects regional and local traffic. New freeway alternatives are more likely to add new river crossings and greater lane capacity than arterial alternatives.
- The traffic model shows both a heavy demand for straight south regional traffic at the south end of the study area and travel to and from the southeast.

Local System Deficiencies

- Traffic management and transit alternatives are expected to result in a slight decline in vehicle miles of travel and vehicle hours of travel.
- Stand-alone arterial road and freeway alternatives resulted in similar levels of improvement in study area vehicle miles of travel and vehicle hours of travel.

Job Accessibility

- Traffic benefit and transit alternatives are expected to result in minor improvements in access to regional jobs.
- Stand-alone arterial road alternatives resulted in a moderate improvement in job accessibility.
- Stand-alone freeway alternatives resulted in the most improved levels of job accessibility. However, the west county line (A1) alternative showed the lowest regional job accessibility benefits of the freeway alternatives.

Safety

- Transit and traffic management alternatives are expected to result in little improvement in safety.
- Stand alone arterial road alternatives resulted in a moderate level of safety improvement.
- Stand-alone freeway alternative exhibited the highest improvements in safety.

best performing concepts

Table 2

Arterial and Freeway Combination Alternatives

		ARTERIAL ROAD COMBINATIONS					ARTERIAL ROAD / FREEWAY COMBINATIONS								
		IL 47+Wikaduke		IL 47+Wikaduke +Dauberman/ Eldamain/ Saratoga			IL 47+Wikaduke +Orchard/Grove/ Brisbin		IL 47+Wikaduke +Recorded Corridor			IL 47+Wikaduke+East Corridor			IL 47+Wikaduke +Recorded South		
	Base 2030	L3	N5	L3	N5	K2	L3	N5	M4	L3	N5	B5	L3	N5	C5W	L3	N5	B2
REGIONAL MOBILITY																		
Additional Capacity (Lane Miles) (1)																		
Arterials	0	105		172			168			105			105			105		
Freeways	0	0		0			0			142			92			128		
TOTAL	0	105		172			168			247			197			233		
Regional Travel																		
Miles of Travel	3	1		2			1			7			10			8		
Hours of Travel	3	4		5			4			10			10			7		
ADDRESS LOCAL SYSTEM DEFICIENCIES																		
Study Area Travel (Non-US/State Roads)																		
Miles of Travel	1	7		9			10			10			10			10		
Hours of Travel	1	6		9			7			10			8			7		
ACCESS TO REGIONAL JOBS																		
Transportation Improvements Only																		
<=30 minutes	1	5		7			6			10			10			7		
<=40 minutes	1	5		5			6			9			10			7		
<=60 minutes	1	5		7			6			10			10			8		
<=90 minutes	1	5		7			7			10			10			9		
SAFETY																		
Crashes																		
Regional	3	1		2			2			8			10			9		

(1) Additional Capacity variations account for road closings, intersection/interchange upgrade and change in functional classification
Type of Travel not calculated; reference stand alone alternatives

In addition to the "stand-alone" improvements, a number of combination improvement concepts were evaluated to test the results of a mix of improvement types. All combination improvement scenarios assumed that IL 47 and the proposed WiKaDuKe arterial would be widened to four lanes by the year 2030, and included one of the following additional improvements: arterial road widening of Dauberman/ Eldamain/ Saratoga (Alternative K2), or widening Orchard/ Grove/ Brisbin (M4); or new freeway along the protected corridor (B5), or the east corridor (C5W), or the straight south variation of the recorded corridor (B2). Table 2 shows the results of the travel benefit evaluation for these combinations of improvements.

General findings from the travel benefit evaluation of the combination alternatives include:

- **Regional mobility:** Arterial road improvement combinations are still expected to worsen travel conditions by increasing system-wide vehicle miles of travel, with a slight increase in vehicle hours of travel over the no action alternative. Arterial road combinations still primarily serve local traffic.
- **Regional mobility:** Freeway/arterial road combinations produced the best improvement in overall traffic conditions with the largest declines in system-wide vehicle miles of travel and vehicle hours of travel. Freeway combinations still primarily serve regional travel with the arterial roads serving primarily local travel.
- **Local system deficiencies:** Arterial road and freeway/arterial combinations resulted in similar levels of improvement with declines in vehicle miles of travel and vehicle hours of travel, and performed significantly better than stand-alone arterial road alternatives.
- **Job accessibility:** Freeway/arterial combinations exhibit the best job accessibility improvement of all alternatives.
- **Safety:** Freeway/arterial combinations are expected to produce the largest improvements in safety.
- Combinations of a freeway/arterial road improvements perform best for improving regional mobility, providing better access to jobs, improving local road deficiencies, and improving regional safety.
- In many cases, combinations of multiple arterial road improvements do not perform as well as stand-alone freeway alternatives.