## Congress of the United States Washington, DC 20515

June 11, 2009

The Honorable James L. Oberstar Chairman Committee on Transportation and Infrastructure 2165 Rayburn House Office Building Washington, D.C. 20515

#### Dear Chairman Oberstar:

Thank you for the opportunity to testify before you and the Highways and Transit Subcommittee on April 28, 2009, in support of a funding mechanism for nationally significant mega projects in the next surface transportation authorization.

The Brent Spence Bridge project will improve delivery times, reduce congestion costs resulting from excessive time spent in traffic, and improve national productivity and economic performance.

During the hearing you requested that we provide specific evidence as to how this project, if funded, would reduce travel time and improve productivity. In response to your request and to obtain relevant data from an objective expert source, our offices asked the Texas Transportation Institute (TTI) to assess the potential benefits of the project based upon the considerations that you raised during the hearing.

In response to our request, TTI completed a study of the Brent Spence Bridge Replacement and Revitalization Project. They concluded that rehabilitation of the current bridge and construction of a new parallel bridge would substantially improve delivery times and reduce congestion costs from excessive time spent in traffic.

TTI concluded that with its current eight lanes, congestion attributable to the Brent Spence Bridge costs 3.6 million person-hours of delay each year for passenger cars and 240,000 vehicle-hours of delay for commercial vehicles. If the Brent Spence Bridge Project was completed today with fifteen lanes in service (via the rehabilitated current structure and new bridge), these numbers would drop to 710,000 person-hours of delay for passenger cars and 30,000 vehicle-hours of delay for commercial vehicles per year.

Additionally, with the current eight lanes, TTI estimates that 1.6 million gallons of fuel are wasted during one year. If the project were completed today, this number would fall to just

380,000 gallons annually on the roads affected by the bridge. Further, TTI estimates that without completion of the project, annual fuel wasted would be 5.7 million gallons per year by 2030. With project completion this number would fall to just 2.1 million gallons of wasted fuel annually.

Twenty years after the completion of the project, TTI estimates that the initial investment of 2.5 to 3 billion dollars would result in a total project benefit to commuters, shippers and manufacturers of \$18.9 billion (in 2008 dollars). The complete results of the TTI study are enclosed.

The Brent Spence Bridge is a nationally significant mega project. Completion of the project under the current system would require an allocation of more than the entire highway infrastructure budgets for both Ohio and Kentucky for more than a year. The bridge is a key part of America's mid-west transportation infrastructure and is vital to commerce in Alabama, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Michigan, Ohio, and Tennessee. An estimated \$417 billion of freight (three- percent of GDP) crosses the Brent Spence Bridge every year with an expected increase in real dollars to \$830 billion by 2030. The planned expansion of the Norfolk Southern and CSX railways will bring even more freight to the I-71, I-74 and I-75 corridors that connect to the bridge. Specifically, the proposed CSX facility in North Baltimore, Ohio will serve as a major rail freight hub. Additionally, Norfolk Southern anticipates a spring 2010 opening of the Heartland Corridor from Norfolk, VA to Columbus, Ohio resulting in substantial increases to north-south truck traffic across the Ohio River (to and from the Columbus hub) and in particular across the Brent Spence Bridge. The bottom line is that this is a vitally important commercial corridor, and the aging bridge does not adequately serve current volume and certainly cannot meet increasing demand.

The conclusion is clear. Congress must provide a funding mechanism for projects of national significance in the next surface transportation authorization. As we noted in our testimony, completion of the Woodrow Wilson Bridge project and the potential impact of the Brent Spence Bridge Project, as noted by TTI, are graphic examples of the critical need for Congress to act now in support of such projects.

We look forward to further dialog with you on the Brent Spence Bridge project and, most importantly, on provisions for the funding of projects of national significance in the next surface transportation authorization.

Thank you for your consideration of our request. Please feel free to contact either Aaron Wasserman at 225-2216 or Dan Adelstein 225-3465 if you have any questions

Sincerely,

Steve Driehaus

Member of Congress

Geoff Davis

Member of Congress

#### Enclosure

CC: Congressman John L. Mica, Ranking Member, House Transportation and Infrastructure Committee

Chairman Peter A.DeFazio, Chairman, Subcommittee on Highways and Transit, House Transportation and Infrastructure Committee

Congressman John J. Duncan, Ranking Member, Subcommittee on Highways and

Transit, House Transportation and Infrastructure Committee

Congresswoman Jean Schmidt

Senator Sherrod Brown

Senator Jim Bunning

Senator Mitch McConnell

Senator George Voinovich

#### Congestion Analysis Summary for I-71 and I-75 in vicinity of Brent Spence Bridge

Summary Information for 2030 Summary Information for 2007 Current (Base) Altern C&D Current (Base) Altern C&D

Configuration

Configuration

Analysis Factor - Annual Values

Annual hours of recurring delay	5,827,659	1,883,005	1,479,955	326,692
Annual hours of incident delay Annual hours of total delay	8,881,428	2,353,756	2,434,863	419,037
	14,709,087	4,236,760	3,914,819	745,729

Annual	psgr car de	elay (pe	ers-hr)
Annual	commercia	I delay	(veh-hr)

3,614,903	708,167
239,933	30,049

Annual gallons wasted fuel	5,737,247	2,059,426	1,630,137	378,806
Annual fuel cost (psgr car)	17,211,740	6,178,278	4,890,411	1,136,419
Annual hours of delay (pers-hrs)	14,709,087	4,236,760	3,914,819	745,729
Annual delay cost psgr cars	217,175,008	63,809,731	58,091,486	11,380,247
Annual delay/fuel cost comm veh	101,393,289	22,575,877	25,452,077	3,187,628
Annual congestion cost	335,780,037	92,563,886	88,433,973	15,704,294
Travel Time Index	2.14	1.33	1.39	1.07

Kentucky I-71 and I-75 Current Volumes (2007)

	0 1 (0 1) 0 5 1		Alternative C&D Design			
	the second of th	rrent (Base) Config				
	8-lane	8-lane	Corridor	14-lane	12-lane	Combination of
	close to	away from	(Combination of	close to	away from	(Combination of
Associated Francisco	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor	455.000	100.000		455,000	400,000	
Daily traffic Volume (ADT)	155,000	160,000		155,000	160,000	
Miles	2			2		
Vehicle-Miles of Travel (VMT)	310,000	1,034,400		310,000	1,034,400	
Lanes	8			14		
Daily Traffic per Lane	19,375	20,000		11,071	13,333	
Peak Period VMT	155,000	517,200		155,000	517,200	
Peak Period factor (max 0.5)	0.5			0.5		
Congested Peak Period VMT	155,000	517,200		155,000	517,200	
Directional Factor	0.58			0.58		
Peak Direction VMT	89,900	299,976		89,900	299,976	
Off-Peak Direction VMT	65,100	217,224		65,100	217,224	
Peak Direction speed	50.88			59.00		
	50.88			59.00		
Off-Peak Direction speed	54.53			60.00		
	54.53			60.00		
Freeflow speed	60			60		
Recurring Peak Dir Delay (veh-hr)	269	1,000	*	25	85	
Recurring Off-Peak Dir Delay (veh-h	109	402		-	-	
Recurring delay (veh-hr)	378	1,402		25	85	
Incident factor	2.5	1.25		1.25	1.25	
Incident delay (veh-hr)	944	1,753		32	106	
Daily delay (veh-hr)	1,321	3,155		57	191	
Peak truck percent	0.12	0.12		0.12	0.12	
Passngr car delay (veh-hr)	1,163	2,776		50	168	
Commercial vehicle delay (veh-hr)	159	379		7	23	
Value of time (psgr veh)	16.07	16.07		16.07	16.07	
Value of commercial time	106.08	106.08		106.08	106.08	
Annual psgr car delay (pers-hr)	363,395	867,603		15,713	52,432	
Annual commercial delay (veh-hr)	39,643	94,648		1,714	5,720	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction (mpg)	21.52	21.30		23.55	23.55	
Fuel efficiency off-peak direc (mpg)	22.43	22.30		23.80	23.80	
Freeflow fuel efficiency (mpg)	23.8	23.8		23.8	23.8	
Peak fuel wasted (psgr car)	352	1,302		35	118	
Off-Pk Fuel Wasted (psgr car)	147	540		-	=	
Annual gallons wasted fuel	124,772	460,520	585,292	8,822	29,436	38,258
Annual fuel cost (psgr car)	374,316	1,381,561	1,755,877	26,465	88,309	114,774
Annual hours of delay (pers-hrs)	412,949	985,913	1,398,862	17,856	59,582	77,438
Annual delay cost psgr cars	5,839,765	13,942,380	19,782,145	252,515	842,586	1,095,101
Annual delay/fuel cost comm veh	4,205,344	10,040,217	14,245,562	181,842	606,765	788,607
Annual congestion cost	10,419,426	25,364,159	35,783,584	460,822	1,537,660	1,998,482
Travel Time Index	1.51	1.37	1.40	1.02	1.02	1.02
Incident speed (pk dir)	36.86	41.38		57.80	57.80	
Incident speed (op dir)	44.41	48.00		60.00	60.00	

Kentucky I-71 and I-75 Future Volumes (2030)

	r didre volumes (2					1
		ent (Base) Config		Alternative C&D Design		
	8-lane	8-lane	Corridor	14-lane	12-lane	Corridor
	close to	away from	(Combination of	close to	away from	(Combination of
	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor	040.000	045.000		040,000	045 000	
Daily traffic Volume (ADT)	210,000	215,000		210,000	215,000	
Miles	2	6.465		2		
Vehicle-Miles of Travel (VM		1,389,975		420,000	1,389,975	
Lanes	8	8		14		
Daily Traffic per Lane	26,250	26,875		15,000	17,917	
Peak Period VMT	210,000	694,988		210,000	694,988	
Peak Period factor (max 0.5)	0.5	0.5		0.5		
Congested Peak Period VM	210,000	694,988		210,000	694,988	
Directional Factor	0.58	0.58		0.58		
Peak Direction VMT	121,800	403,093		121,800	403,093	
Off-Peak Direction VMT	88,200	291,895		88,200	291,895	
Peak Direction speed	37.68	36.76		56.50		
	37.68	36.76		56.50		
Off-Peak Direction speed	43.70	42.70		58.00		
	43.70	42.70		58.00	55.77	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (v	1,203	4,247		126	899	
Recurring Off-Peak Dir Dela	548	1,971		51	369	
Recurring delay (veh-hr)	1,751	6,218		176	1,268	
Incident factor	2.5	1.25		1.25	1.25	
Incident delay (veh-hr)	4,378	7,772		221	1,585	
Daily delay (veh-hr)	6,129	13,990		397	2,853	
Peak truck percent	0.12	0.12		0.12	0.12	
Passngr car delay (veh-hr)	5,394	12,311		349	2,511	
Commercial vehicle delay (v	736	1,679		48	342	
Value of time (psgr veh)	16.07	16.07		16.07	16.07	
Value of commercial time	106.08	106.08		106.08	106.08	
Annual psgr car delay (pers-	1,685,549	3,847,139		109,173	784,699	
Annual commercial delay (ve	183,878	419,688		11,910	85,604	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction	18.22	17.99		22.93	22.03	
Fuel efficiency off-peak direct	19.73	19.48		23.30	22.74	
Freeflow fuel efficiency (mpg	23.8	23.8		23.8	23.8	
Peak fuel wasted (psgr car)	1,380	4,813		172	1,198	
Off-Pk Fuel Wasted (psgr ca	674	2,397		70	502	
Annual gallons wasted fuel	513,342	1,802,401	2,315,743	60,468	424,960	485,428
Annual fuel cost (psgr car)	1,540,027	5,407,204	6,947,230	181,405	1,274,879	1,456,284
Annual hours of delay (pers-		4,371,749	6,287,145	124,061	891,703	1,015,764
Annual delay cost psgr cars	27,086,772	61,823,523	88,910,295	1,754,417	12,610,111	14,364,528
Annual delay/fuel cost comm	19,505,786	44,520,491	64,026,277	1,263,394	9,080,821	10,344,215
Annual congestion cost	48,132,584	111,751,218	159,883,802	3,199,216	22,965,811	26,165,027
Travel Time Index	2.75	2.21	2.33	1.11	1.25	1.22
Incident speed (pk dir)	19.52	24.77	2.00	52.66	46.11	
Incident speed (pk dir)	26.02	31.39		55.68	51.25	
aposa (op an)	20.02	01.00		22.00	520	

Brent Spence Bridge Current Volumes (2007)

i	Current Volumes (2	The second secon
	Current (Base)	Alternative C&D
	Configuration	Design
	8-lane	15 lanes
	on	on
	bridge	bridge
Analysis Factor		
Daily traffic Volume (ADT)	160,000	160,000
Miles	100,000	100,000
	160,000	160,000
Vehicle-Miles of Travel (VMT)	8	13
Lanes Daily Traffic per Lane	1	12,308
,	20,000	
Peak Period VMT	80,000	80,000
Peak Period factor (max 0.5)	0.5	0.5
Congested Peak Period VMT	80,000	80,000
Directional Factor	0.58	0.58
Peak Direction VMT	46,400	46,400
Off-Peak Direction VMT	33,600	33,600
Peak Direction speed	50.00	59.00
	50.00	59.00
Off-Peak Direction speed	54.00	60.00
	54.00	60.00
Freeflow speed	60	60
Recurring Peak Dir Delay (veh-hr)	155	13
Recurring Off-Peak Dir Delay (veh-	62	-
Recurring delay (veh-hr)	217	13
Incident factor	2.5	1.25
Incident delay (veh-hr)	542	16
Daily delay (veh-hr)	759	29
Peak truck percent	0.1	0.1
Passngr car delay (veh-hr)	683	27
Commercial vehicle delay (veh-hr)	76	3
Value of time (psgr veh)	16.07	16.07
Value of commercial time	106.08	106.08
Annual psgr car delay (pers-hr)	213,500	8,294
Annual commercial delay (veh-hr)	18,978	737
Fuel cost	3.00	3.00
Fuel efficiency peak direction (mpg	21.30	23.55
Fuel efficiency off-peak direction (mpg	22.30	23.80
Freeflow fuel efficiency (mpg)	23.8	23.8
	206	19
Peak fuel wasted (psgr car) Off-Pk Fuel Wasted (psgr car)	85	19
the same of the sa	72,852	4,657
Annual gallons wasted fuel		
Annual fuel cost (psgr car)	218,555	13,970
Annual hours of delay (pers-hrs)	237,222	9,216
Annual delay cost psgr cars	3,430,945	133,292
Annual delay/fuel cost comm veh	2,013,163	78,212
Annual congestion cost	5,662,663	225,474
Travel Time Index	1.57	1.02
Incident speed (pk dir)	35.29	57.80
Incident speed (op dir)	43.20	60.00

Brent Spence Bridge Future Volumes (2030)

Current (Base)	Alternative
Configuration	C&D Design
8-lane	15 lanes
on	on
bridge	bridge
200,000	200,000
1	1
200,000	200,000
8	13
25,000	15,385
100,000	100,000
0.5	0.5
100,000	100,000
0.58	0.58
58,000	58,000
42,000	42,000
39.50	56.15
39.50	56.15
45.70	57.77
45.70	57.77
60	60
502	66
219	27
721	93
2.5	1.25
1,802	117
2,523	210
2,323	0.1
2,270	189
252	21
16.07	16.07
20120 000 000 100	106.08
106.08	
709,464	59,004
63,063	5,245
3.00	3.00
18.68	22.84
20.23	23.24
23.8	23.8
602	92
281	38
220,661	32,612
661,982	97,837
788,293	65,560
11,401,081	948,192
6,689,769	556,367
18,752,831	1,602,397
2.51	1.13
21.30	51.99
28.64	55.20

Ohio (I-71) Current Volumes (2007)

	0 10 10 10		Alternative C&D Design			
		ent (Base) Conf	•			Corridor
		8-lane	Corridor	8-lane	8-lane	
	The state of the s	away from	(Combination of	close to	away from	(Combination of
	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor	445.000	450,000		445.000	450,000	
Daily traffic Volume (ADT)	115,000	150,000		115,000	150,000	
Miles	2.9	4.85		2.9		
Vehicle-Miles of Travel (VMT)	333,500	727,500		333,500	727,500	
Lanes	8	8		8		
Daily Traffic per Lane	14,375	18,750		14,375	18,750	
Peak Period VMT	166,750	363,750		166,750	363,750	
Peak Period factor (max 0.5)	0.5	0.5		0.5		
Congested Peak Period VMT	166,750	363,750		166,750	363,750	
Directional Factor	0.58	0.6		0.58		
Peak Direction VMT	96,715	218,250		96,715	218,250	
Off-Peak Direction VMT	70,035	145,500		70,035	145,500	
Peak Direction speed	59.00	51.75		59.00		
	59.00	51.75		59.00		
Off-Peak Direction speed	60.00	55.06		60.00		
	60.00	55.06		60.00	55.06	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (veh-hr	27	580		27	580	
Recurring Off-Peak Dir Delay (vel	-	217		-	217	
Recurring delay (veh-hr)	27	797		27	797	
Incident factor	2.5	1.25		2.50	1.25	
Incident delay (veh-hr)	68	997		68	997	
Daily delay (veh-hr)	96	1,794		96	1,794	
Peak truck percent	0.05	0.04		0.05	0.04	
Passngr car delay (veh-hr)	91	1,722		91	1,722	
Commercial vehicle delay (veh-hr	5	72		5	72	
Value of time (psgr veh)	16.07	16.07		16.07	16.07	
Value of commercial time	106.08	106.08		106.08	106.08	
Annual psgr car delay (pers-hr)	28,388	538,207		28,388	538,207	
Annual commercial delay (veh-hr)	1,195	17,940		1,195	17,940	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction (mp	23.55	21.74		23.55	21.74	
Fuel efficiency off-peak direc (mp		22.57		23.80	22.57	
Freeflow fuel efficiency (mpg)	23.8	23.8		23.8	23.8	
Peak fuel wasted (psgr car)	41	835		41	835	
Off-Pk Fuel Wasted (psgr car)	_	321		-	321	
Annual gallons wasted fuel	10,245	289,080	299,325	10,245	289,080	299,325
Annual fuel cost (psgr car)	30,736	867,240	897,976	30,736	867,240	897,976
Annual hours of delay (pers-hrs)	29,882	560,632	590,514	29,882	560,632	590,514
Annual delay cost psgr cars	456,192	8,648,980	9,105,172	456,192	8,648,980	9,105,172
Annual delay/fuel cost comm veh	126,795	1,903,098	2,029,893	126,795	1,903,098	2,029,893
Annual congestion cost	613,724	11,419,318	12,033,042	613,724	11,419,318	12,033,042
Travel Time Index	1.03	1.30	1.21	1.03	1.30	1.21
Incident speed (pk dir)	56.64	44.16		56.64	44.16	
Incident speed (op dir)	60.00	49.93		60.00	49.93	
	00.00	10.00		22.00		

Ohio (I-71) Future Volumes (2030)

				Alternative C&D Design		
		rent (Base) Con				
	8-lane	8-lane	Corridor	8-lane	8-lane	Corridor
	close to	away from	(Combination of	close to	away from	(Combination of
	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor					400.000	
Daily traffic Volume (ADT)	140,000	190,000		140,000	190,000	
Miles	2.9	4.85		2.9		
Vehicle-Miles of Travel (VMT)	406,000	921,500		406,000	921,500	
Lanes	8	8		8		
Daily Traffic per Lane	17,500	23,750		17,500	23,750	
Peak Period VMT	203,000	460,750		203,000	460,750	8
Peak Period factor (max 0.5)	0.5	0.5		0.5		
Congested Peak Period VMT	203,000	460,750		203,000	460,750	
Directional Factor	0.58	0.6		0.58		
Peak Direction VMT	117,740	276,450		117,740	276,450	
Off-Peak Direction VMT	85,260	184,300		85,260	184,300	
Peak Direction speed	53.50	41.38		53.50		
	53.50	41.38		53.50	41.38	
Off-Peak Direction speed	56.13	47.63		56.13	47.63	
1000 0 10 00 0 0 0 0 0 0 0 0 0 0 0 0 0	56.13	47.63		56.13	47.63	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (veh-hr)	238	2,074		238	2,074	1
Recurring Off-Peak Dir Delay (veh-hr)	Total Control	798		98	798	
Recurring delay (veh-hr)	337	2,872		337	2,872	
Incident factor	1.25	1.25		1.25	1.25	
Incident delay (veh-hr)	421	3,590		421	3,590	
Daily delay (veh-hr)	757	6,462		757	6,462	
Peak truck percent	0.05	0.04		0.05	0.04	
Passngr car delay (veh-hr)	719	6,204		719	6,204	
Commercial vehicle delay (veh-hr)	38	258		38	258	1
Value of time (psgr veh)	16.07	16.07		16.07	16.07	
Value of commercial time	106.08	106.08		106.08		
Annual psgr car delay (pers-hr)	224,787	1,938,749		224,787	1,938,749	
Annual commercial delay (veh-hr)	9,465	64,625		9,465	64,625	
Fuel cost	3.00	3.00		3.00	10. 10.	
Fuel efficiency peak direction (mpg)	22.18	19.14		22.18		
Fuel efficiency off-peak direc (mpg)	22.83	20.71		22.83		
Freeflow fuel efficiency (mpg)	23.8	23.8		23.8		
Peak fuel wasted (psgr car)	344	2,712		344	2,712	
Off-Pk Fuel Wasted (psgr car)	144	1,111		144	1,111	
	122,200	955,727	1,077,927	122,200	955,727	1,077,927
Annual gallons wasted fuel	366,600	2,867,180	3,233,780	366,600	2,867,180	3,233,780
Annual fuel cost (psgr car)	236,618	2,007,100	2,256,148	236,618	2,019,530	2,256,148
Annual hours of delay (pers-hrs)			34,768,025	3,612,330	31,155,695	34,768,025
Annual delay cost psgr cars	3,612,330	31,155,695	7,859,434	1,004,018	6,855,416	7,859,434
Annual delay/fuel cost comm veh	1,004,018	6,855,416		4,982,947	40,878,291	45,861,239
Annual congestion cost	4,982,947	40,878,291	45,861,239 1.65	1.22	1.84	1.65
Travel Time Index	1.22	1.84	1.05	47.12		1.05
Incident speed (pk dir)	47.12 51.03	29.81		51.93		
Incident speed (op dir)	51.93	37.86		31.93	37.00	

Ohio (I-75)

Current Vo	olumes (2007)			
8-lane close to bridge	Current (Base) C 8-lane away from bridge	onfiguration Corridor (Combination of close & away)	12-lane close to bridge	Alternative C&D [ 12-lane away from bridge

		rent (Base) Cor	7	12-lane	12-lane
	8-lane	8-lane	Corridor		
	close to	away from	(Combination of	close to	away from
	bridge	bridge	close & away)	bridge	bridge
Analysis Factor				470.000	100,000
Daily traffic Volume (ADT)	170,000	160,000		170,000	160,000
Miles	2.8			2.8	
Vehicle-Miles of Travel (VMT)	476,000	779,200		476,000	779,200
Lanes	8			12	
Daily Traffic per Lane	21,250	20,000		14,167	13,333
Peak Period VMT	238,000	389,600		238,000	389,600
Peak Period factor (max 0.5)	0.5			0.5	
Congested Peak Period VMT	238,000	389,600		238,000	389,600
Directional Factor	0.55			0.55	
Peak Direction VMT	130,900	214,280		130,900	214,280
Off-Peak Direction VMT	107,100	175,320		107,100	175,320
Peak Direction speed	47.13	50.00		59.00	
·	47.13	50.00		59.00	59.00
Off-Peak Direction speed	51.88	54.00		60.00	60.00
particle of the same of the sa	51.88	54.00		60.00	60.00
Freeflow speed	60	60		60	60
Recurring Peak Dir Delay (veh-hr)	596	714		37	61
Recurring Off-Peak Dir Delay (veh-h	280	325		-	-
Recurring delay (veh-hr)	876	1,039		37	61
Incident factor	2.5	1.25		1.25	1.25
Incident delay (veh-hr)	2,189	1,299		46	76
Daily delay (veh-hr)	3,065	2,338		83	136
Peak truck percent	0.05			0.05	0.05
Passngr car delay (veh-hr)	2,911	2,221		79	129
Commercial vehicle delay (veh-hr)	153	117		4	7
Value of time (psgr veh)	16.07			16.07	16.07
Value of commercial time	106.08			106.08	106.08
Annual psgr car delay (pers-hr)	909,835	693,975		24,700	40,433
Annual commercial delay (veh-hr)	38,309	29,220		1,040	1,702
Fuel cost	3.00			3.00	
Fuel efficiency peak direction (mpg)	20.58			23.55	
Fuel efficiency off-peak direc (mpg)	21.77			23.80	
Freeflow fuel efficiency (mpg)	23.8			23.8	
Peak fuel wasted (psgr car)	817	1,004		55	91
(, 0 ,	399	471			-
Off-Pk Fuel Wasted (psgr car)	304,013	368,654	672,667	13,867	22,700
Annual gallons wasted fuel	912,039	1,105,963	2,018,002	41,600	68,099
Annual fuel cost (psgr car)		730,500	1,688,221	26,000	42,561
Annual hours of delay (pers-hrs)	957,721	UN (POICEMENT NOT	25,773,223	396,925	649,756
Annual delay cost psgr cars	14,621,045	11,152,178	Control of the Contro	110,322	180,594
Annual delay/fuel cost comm veh	4,063,801	3,099,658	7,163,459 34,954,684	548,847	898,449
Annual congestion cost	19,596,885	15,357,799		1.02	1.02
Travel Time Index	1.77	1.36	1.52	57.80	
Incident speed (pk dir)	30.67			60.00	
Incident speed (op dir)	38.75	48.00		00.00	00.00

### ınd D (10 Lanes

Design
Corridor
(Combination of close & away)

(

36,566 109,699 68,561 1,046,681 290,917 1,447,297 1.02

Ohio (I-75) Future Volumes (2030)

	0	-t (Dage) Conf	iguration	Alt	ternative C&D [	Docian
		nt (Base) Conf	Corridor		12-lane	Corridor
		8-lane	= = 1 (10)			(Combination of
		away from	(Combination of	Parameter in the	away from	`
	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor				400.000	000 000	
Daily traffic Volume (ADT)	190,000	220,000		190,000	220,000	1
Miles	2.8	4.87		2.8	4.87	
Vehicle-Miles of Travel (VMT)	532,000	1,071,400		532,000	1,071,400	
Lanes	8	8		12	12	
Daily Traffic per Lane	23,750	27,500		15,833	18,333	
Peak Period VMT	266,000	535,700		266,000	535,700	
Peak Period factor (max 0.5)	0.5	0.5		0.5	0.5	
Congested Peak Period VMT	266,000	535,700		266,000	535,700	
Directional Factor	0.55	0.55		0.55	0.55	
Peak Direction VMT	146,300	294,635		146,300	294,635	
Off-Peak Direction VMT	119,700	241,065		119,700	241,065	
Peak Direction speed	41.38	35.85		55.75	52.33	
, can a mooney open	41.38	35.85		55.75	52.33	
Off-Peak Direction speed	47.63	41.25		57.50	56.00	
On a can birection opera	47.63	41.25		57.50	56.00	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (veh-hr)	1,098	3,308		186	719	
Recurring Off-Peak Dir Delay (veh-h	Provide the second	1,826		87	287	
Recurring delay (veh-hr)	1,616	5,134	9	273	1,006	
Incident factor	2.5	1.25		1.25	1.25	4
	4,040	6,418		341	1,258	
Incident delay (veh-hr)	5,656	11,552		613	2,264	
Daily delay (veh-hr)	0.05	0.05		0.05	0.05	
Peak truck percent	// // // // // // // // // // // // //			583	2,151	
Passngr car delay (veh-hr)	5,373	10,974		31	113	
Commercial vehicle delay (veh-hr)	283	578		16.07	16.07	
Value of time (psgr veh)	16.07	16.07		106.08	106.08	
Value of commercial time	106.08	106.08		97. 18 MINOR NO. 100 1		
Annual psgr car delay (pers-hr)	1,679,129	3,429,496		182,102	672,222	
Annual commercial delay (veh-hr)	70,700	144,400		7,667	28,304	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction (mpg)	19.14	17.76		22.74	21.88	
Fuel efficiency off-peak direc (mpg)	20.71	19.11		23.18	22.80	
Freeflow fuel efficiency (mpg)	23.8	23.8		23.8	23.8	
Peak fuel wasted (psgr car)	1,420	3,997		273	1,030	
Off-Pk Fuel Wasted (psgr car)	714	2,360		129	422	777 408
Annual gallons wasted fuel	533,561	1,589,355	2,122,916	100,435	363,024	463,459
Annual fuel cost (psgr car)	1,600,684	4,768,064	6,368,748	301,304	1,089,072	1,390,376
Annual hours of delay (pers-hrs)	1,767,505	3,609,996	5,377,500	191,687	707,602	899,288
Annual delay cost psgr cars	26,983,608	55,112,000	82,095,608	2,926,385	10,802,602	13,728,987
Annual delay/fuel cost comm veh	7,499,875	15,317,934	22,817,809	813,365	3,002,496	3,815,861
Annual congestion cost	36,084,167	75,197,998	111,282,165	4,041,053	14,894,170	18,935,224
Travel Time Index	2.28	2.29	2.29	1.14	1.25	1.22
Incident speed (pk dir)	23.30	23.85		51.22	45.13	
Incident speed (pr dir)	31.42	29.66		54.65	51.69	
moracin opoca (op an)	01.72	20.00				

		From OKI COG	TTI Estimate
		base economic	base configuration
Base economic shipper impacts - from OKI COG		shipper impacts	delay growth
\$684M in 2005\$; \$755M in 2008\$	2005	755	l aciay growth
annual growth in shippers economic effect	2006	775	2 014 910
1.026	2007	795	3,914,819 4,127,686
base config annual delay growth	2008	815 836	4,352,127
1.054	2009 2010	858	4,588,773
15-lane annual delay growth 1.072	2010	880	4,838,286
1.072	2011	903	5,101,366
	2012	926	5,378,751
	2014	950	5,671,219
	2015	975	5,979,589
	2016	1,000	6,304,727
	2017	1,026	6,647,545
	2018	1,052	7,009,003
	2019	1,080	7,390,115
	2020	1,108	7,791,950
	2021	1,136	8,215,635
	2022	1,166	8,662,357
	2023	1,196	9,133,370
	2024	1,227	9,629,994
	2025	1,259	10,153,622
	2026	1,291	10,705,721
	2027	1,324	11,287,841
From OKI COG	2028	1,359	11,901,614
2030 economic shipper impacts	2029	1,394	12,548,760
\$1.3B in 2005\$; \$1.43B in 2008\$	2030	1,430	14,709,087
	2031	1,467	15,508,888
	2032	1,505	16,352,179
	2033	1,544	17,241,323
	2034	1,584	18,178,815
	2035	1,625	19,167,281
	2036	1,667	20,209,496
	2037	1,710	21,308,381
	2038	1,754	22,467,017
	2039	1,800	23,688,653
	2040	1,846	24,976,716

TTI Estimates
Congestion cost (millions of

(20 years)

From OKI COG	TTI Estimate		stimates	2008\$	
15 lana acanomia	15-lane	base economic	15-lane economic		15-lane oadway
15-lane economic			benefit	growth ra	
shipper impacts	delay growth	benefit	benefit	1.055	1.074
				1.000	1.07
	745,729			88	16
	799,391			93	17
	856,914			98	18
	918,576			104	19
	984,676			109	21
	1,055,532			115	22
	1,131,487			122	24
	1,212,908			128	26
	1,300,187			136	28
	1,393,747			143	30
	1,494,040			151	32
	1,601,549			159	34
	1,716,795			168	37
262	1,840,333	262	846	177	40
202	1,972,762	268	868	187	42
	2,114,719	275	890	197	46
	2,266,892	282	913	208	49
	2,430,015	290	937	219	52
	2,604,876	297	961	231	56
	2,792,320	305	986	244	60
	2,993,252	313	1,012	257	65
	3,208,643	321	1,038	271	70
	3,439,534	329	1,065	286	75
	4,236,760	338	1,092	336	93
	4,541,633	346	1,121	354	99
	4,868,444	355	1,150	374	107
	5,218,771	365	1,179	394	115
	5,594,308	374	1,210	416	123
	5,996,868	384	1,241	438 463	132 142
	6,428,396	394	1,273 1,306	488	152
	6,890,976	404 414	1,340	515	163
	7,386,843 7,918,392	425	1,375	543	175
	8,488,190	720	1,570	0.10	
	3,100,100	6,742	21,803	6,596	1,855
divided by 2		3,371	10,901	Total benefit - 2020 to 2039	\$ 4,741

(assume that only half of the total corridor analyzed by OKI will be affected by project)

Congestion A	nalysis Summary	
Congestion Measure	Base	Build
		W 900000
Travel Time Index	2.14	1.33
Annual Person-hours of Delay		
Recurring	5,827,659	1,883,005
Incident	8,881,428	2,353,756
Total	14,709,087	4,236,760
Annual Wasted Fuel (gal)	5,737,247	2,059,426
Annual Congestion Cost (\$mil)	336	93

Economic efficiencies value is from calcs tab. (Between \$10.9 billion and \$11.1 billion. This is derived from OKI COG study; we estimated the change in delay and applied to the base OKI data (\$684 million in congestion value to shippers in 2005) Economic return on the increased efficiencies is \$1.7 billion. The improved efficiencies translate into higher profits (assume 5% profit margin); the profit that gets paid out is income to someone and this component measures the economic impact of that income.

The construction impact is \$1.6 billion. The payroll, materials, etc. This is based on the construction cost spread over 6 years of construction schedule.

Delay and fuel savings are based on change in congestion levels from current case to either of the wider roadways.

20-year totals, millions of 2008 dollars	15 total lanes on
	all bridges
Economic efficiencies	10,901
Economic return on increased efficiencies	1,700
Construction impact	1,600
Delay and fuel benefits	4,741
Total project benefits	18,942
	\$18.9 billion in economic impact

Conditions in 2030	Current	15 total lanes on
	Configuration	all bridges
Congestion Measure		
Travel Time Index	2.14	1.33
Buffer Index	%06	40%
Annual Person-hours of Delay		
Recurring	5,827,659	1,883,005
Incident	8,881,428	2,353,756
Total	14,709,087	4,236,760
Annual Wasted Fuel (gal)	5,737,247	2,059,426
Annual Congestion Cost (\$Million)	336	93

#### Congestion Analysis Summary for I-71 and I-75 in vicinity of Brent Spence Bridge

Summary Information for 2030 Summary Information for 2007 Current (Base) Altern C&D Current (Base) Altern C&D Configuration

Analysis Factor - Annual Values

Annual hours of recurring delay	5,827,659	1,883,005	1,479,955	326,692
Annual hours of incident delay Annual hours of total delay	8,881,428 14,709,087	2,353,756 4,236,760	2,434,863 3,914,819	419,037 745,729
Annual psgr car delay (pers-hr) Annual commercial delay (veh-hr)			3,614,903 239,933	708,167 30,049

Annual gallons wasted fuel	5,737,247	2,059,426	1,630,137	378,806
Annual fuel cost (psgr car)	17,211,740	6,178,278	4,890,411	1,136,419
Annual hours of delay (pers-hrs)	14,709,087	4,236,760	3,914,819	745,729
Annual delay cost psgr cars	217,175,008	63,809,731	58,091,486	11,380,247
Annual delay/fuel cost comm veh	101,393,289	22,575,877	25,452,077	3,187,628
Annual congestion cost	335,780,037	92,563,886	88,433,973	15,704,294
Travel Time Index	2.14	1.33	1.39	1.07

Kentucky I-71 and I-75 Current Volumes (2007)

Analysis Factor   Daily traffic Volume (ADT)   Miles   Sample	
Salane   Salane   Salane   Salane   Corridor   Combination of close to bridge   Salane   Close to bridge   Close to br	
Close to bridge   Saway from bridge   Close to bridge   Close & away from	
Analysis Factor  Daily traffic Volume (ADT) Miles  Vehicle-Miles of Travel (VMT) Lanes  Bayen  Peak Period VMT  Directional Factor  Direction VMT  Direction Speed  Off-Peak Direction speed  Freeflow speed  Freeflow speed  Recurring Peak Dir Delay (veh-hr)  Recurring Off-Peak Dir Delay (veh-hr)  Recurring Off-Peak Dir Delay (veh-hr)  Recurring Off-Peak Direction  Daily traffic Volume (ADT)  155,000  155,000  155,000  10,034,400  10,034,400  10,034,400  11,071  13,333  14  12  11,071  13,333  14  12  155,000  11,071  13,333  14  155,000  157,200  155,000  155,000  157,200  155,000  155,000  155,000  157,200  155,000  155,000  157,200  155,000  157,200  155,000  150,000  150,000  150,000  150,000  150,000  150,000  150,000  150,000  150,000  150,000  150,000  1	
Daily traffic Volume (ADT)	way)
Daily traffic Volume (ADT)         155,000         160,000         155,000         160,000           Milles         2         6.465         2         6.465           Vehicle-Miles of Travel (VMT)         310,000         1,034,400         310,000         1,034,400           Lanes         8         8         14         12           Daily Traffic per Lane         19,375         20,000         11,071         13,333           Peak Period VMT         155,000         517,200         155,000         517,200           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5         0.5           Congested Peak Period VMT         155,000         517,200         155,000         517,200         517,200           Directional Factor         0.58         0.59         0.00         0.59         0.00         0.00         0.00	
Miles         2         6.465         2         6.465           Vehicle-Miles of Travel (VMT)         310,000         1,034,400         310,000         1,034,400           Lanes         8         8         14         12           Daily Traffic per Lane         19,375         20,000         11,071         13,333           Peak Period VMT         155,000         517,200         155,000         517,200           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5           Congested Peak Period VMT         155,000         517,200         155,000         517,200           Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction Speed         50.88         50.00         59.00         59.00           50.88         50.00         59.00         59.00         59.00           Off-Peak Direction speed         54,53         54.00         60.00         60.00         60.00           Freeflow speed         60         60         60         60         60         60         60           Recurring Peak Dir Delay (veh-hr)	
Vehicle-Miles of Travel (VMT)         310,000         1,034,400         310,000         1,034,400           Lanes         8         8         14         12           Daily Traffic per Lane         19,375         20,000         11,071         13,333           Peak Period VMT         155,000         517,200         155,000         517,200           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5           Congested Peak Period VMT         155,000         517,200         155,000         517,200           Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction speed         50.88         50.00         59.00         59.00           50.88         50.00         59.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           67-Peak Direction speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring Off-Peak Dir Delay (veh-hr)         378         1,402 <td></td>	
Baily Traffic per Lane	
Daily Traffic per Lane         19,375         20,000         11,071         13,333           Peak Period VMT         155,000         517,200         155,000         517,200           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5           Congested Peak Period VMT         155,000         517,200         155,000         517,200           Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction speed         50,88         50.00         59.00         59.00           Feak Direction speed         50,88         50.00         59.00         59.00           Off-Peak Direction speed         54,53         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring delay (veh-hr)         378         1,402         25         85           Incident delay (veh-hr)         944         1,753         32	
Peak Period VMT         155,000         517,200         155,000         517,200           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5           Congested Peak Period VMT         155,000         517,200         155,000         517,200           Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction Speed         50.88         50.00         59.00         59.00           Feak Direction speed         54.53         54.00         60.00         60.00           Off-Peak Direction speed         60         60         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106<	
Peak Period factor (max 0.5)         0.5         0.5         0.5           Congested Peak Period VMT         155,000         517,200         155,000         517,200           Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction VMT         65,100         217,224         65,100         217,224           Peak Direction speed         50.88         50.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191 <td></td>	
Congested Peak Period VMT         155,000         517,200         155,000         517,200           Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction VMT         65,100         217,224         65,100         217,224           Peak Direction speed         50.88         50.00         59.00         59.00           50.88         50.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction VMT         65,100         217,224         65,100         217,224           Peak Direction speed         50.88         50.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Freeflow speed Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring Off-Peak Dir Delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Directional Factor         0.58         0.58         0.58         0.58           Peak Direction VMT         89,900         299,976         89,900         299,976           Off-Peak Direction VMT         65,100         217,224         65,100         217,224           Peak Direction speed         50.88         50.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           Off-Peak Direction speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Off-Peak Direction VMT         65,100         217,224         65,100         217,224           Peak Direction speed         50.88         50.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Peak Direction speed         50.88         50.00         59.00         59.00           Off-Peak Direction speed         54.53         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         269         1,000         25         85           Recurring Off-Peak Dir Delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Peak Direction speed       50.88       50.00       59.00       59.00         50.88       50.00       59.00       59.00         0ff-Peak Direction speed       54.53       54.00       60.00       60.00         Freeflow speed       60       60       60       60         Recurring Peak Dir Delay (veh-hr)       269       1,000       25       85         Recurring Off-Peak Dir Delay (veh-hr)       378       1,402       25       85         Incident factor       2.5       1.25       1.25       1.25         Incident delay (veh-hr)       944       1,753       32       106         Daily delay (veh-hr)       1,321       3,155       57       191	
Off-Peak Direction speed       50.88       50.00       59.00       59.00         Off-Peak Direction speed       54.53       54.00       60.00       60.00         Freeflow speed       60       60       60       60         Recurring Peak Dir Delay (veh-hr)       269       1,000       25       85         Recurring Off-Peak Dir Delay (veh-hr)       109       402       -       -       -         Recurring delay (veh-hr)       378       1,402       25       85         Incident factor       2.5       1.25       1.25       1.25         Incident delay (veh-hr)       944       1,753       32       106         Daily delay (veh-hr)       1,321       3,155       57       191	
Off-Peak Direction speed       54.53       54.00       60.00       60.00         Freeflow speed       60       60       60       60         Recurring Peak Dir Delay (veh-hr)       269       1,000       25       85         Recurring Off-Peak Dir Delay (veh-hr)       109       402       -       -       -         Recurring delay (veh-hr)       378       1,402       25       85         Incident factor       2.5       1.25       1.25       1.25         Incident delay (veh-hr)       944       1,753       32       106         Daily delay (veh-hr)       1,321       3,155       57       191	
Freeflow speed 60 60 60 60 60 60 60 60 60 Recurring Peak Dir Delay (veh-hr) 269 1,000 25 85 85 Recurring Off-Peak Dir Delay (veh-hr) 378 1,402 25 85 Incident factor 2.5 1.25 1.25 1.25 Incident delay (veh-hr) 944 1,753 32 106 Daily delay (veh-hr) 1,321 3,155 57 191	
Freeflow speed         60         60         60         60         60         60         60         60         85	
Recurring Peak Dir Delay (veh-hr)       269       1,000       25       85         Recurring Off-Peak Dir Delay (veh-h       109       402       -       -         Recurring delay (veh-hr)       378       1,402       25       85         Incident factor       2.5       1.25       1.25       1.25         Incident delay (veh-hr)       944       1,753       32       106         Daily delay (veh-hr)       1,321       3,155       57       191	
Recurring Off-Peak Dir Delay (veh-h         109         402         -         -           Recurring delay (veh-hr)         378         1,402         25         85           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Recurring delay (veh-hr)     378     1,402     25     85       Incident factor     2.5     1.25     1.25     1.25       Incident delay (veh-hr)     944     1,753     32     106       Daily delay (veh-hr)     1,321     3,155     57     191	
Incident factor         2.5         1.25         1.25           Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Incident delay (veh-hr)         944         1,753         32         106           Daily delay (veh-hr)         1,321         3,155         57         191	
Daily delay (veh-hr) 1,321 3,155 57 191	
Daily dollay (Vol 111)	
Peak truck percent 0.12 0.12 0.12	
Passngr car delay (veh-hr) 1,163 2,776 50 168	
Commercial vehicle delay (veh-hr) 159 379 7 23	
Value of time (psgr veh) 16.07 16.07 16.07	
Value of commercial time 106.08 106.08 106.08	
10.100	
Tunidal Committee and Committe	
100,000	
1 del emoleno y podri direction (mpg)	
r der emoteriey en peak area (mpg)	
Trodicti ladi cinicina) (mpg)	
· can racin matter (peg. can)	
Oll-Fix Fuel Wasted (psgl car)	38,258
	114,774
Annual fuel cost (psgr car) 374,316 1,381,561 1,755,877 26,465 88,309	
Annual hours of delay (pers-hrs) 412,949 985,913 1,398,862 17,856 59,582	77,438 1,095,101
7 fillidal dolay door page data	788,607
Annual delay/fuel cost comm veh 4,205,344 10,040,217 14,245,562 181,842 606,765	/00 DU/
111111111111111111111111111111111111111	
Travel Time Index 1.51 1.37 1.40 1.02 1.02	1,998,482
Incident speed (pk dir) 36.86 41.38 57.80 57.80	
Incident speed (op dir) 44.41 48.00 60.00 60.00	1,998,482

Kentucky I-71 and I-75 Future Volumes (2030)

Selane   Selane   Selane   Selane   Corridor   Corri	1	ruture volumes (2)					
Selane   Selane   Corridor   Combination of bridge   Selane							
Close to bridge   Savay from bridge   Combination of close & away)   Combination of bridge   Combination of close & away   Combination of close & Com					0.00		-
Dridge   Dridge   Close & away   Dridge   Dridge   Close & away							(20) 19(4) 19(4) 00(6)
Analysis Factor Daily traffic Volume (ADT) Miles  2 10,000 215,000 Miles  2 6,465  2 7,100  2 1,399,975  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,177  2 1,100  2 1,100  2 1,291,170  2 1,100  2 1,291,170  2 1,100  3 1,389,975  4 1,100  4 1,291,177  4 1,100  4 1,291,177  4 1,100  4 1,291,177  4 1,100  4 1,291,177  4 1,100  4 1,291,177  4 1,100  4 1,291,177  4 1,100  4 1,291,177  4 1,100		- All Control of the	The state of the s			and the second s	A CONTRACTOR OF THE CONTRACTOR
Daily traffic Volume (ADT) Miles  2		bridge	bridge	close & away)	bridge	bridge	close & away)
Vehicle-Miles of Travel (VM	Analysis Factor						
Vehicle-Miles of Travel (VM Lanes	Daily traffic Volume (ADT)	210,000	215,000		210,000		
Lanes	Miles	2	6.465		2		
Daily Traffic per Lane	Vehicle-Miles of Travel (VM	420,000	1,389,975		420,000		
Peak Period VMT         210,000         694,988         210,000         694,988           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5         0.5         0.5         0.5         0.5         0.5         0.5         0.5         0.5         0.58         210,000         694,988         210,000         694,988         0.58 <td< td=""><td>Lanes</td><td>8</td><td>8</td><td></td><td>14</td><td></td><td></td></td<>	Lanes	8	8		14		
Peak Period factor (max 0.5   0.5	Daily Traffic per Lane	26,250	26,875		15,000		
Congested Peak Period VM Directional Factor   0.58	Peak Period VMT	210,000	694,988		210,000	694,988	
Directional Factor	Peak Period factor (max 0.5	0.5	0.5		0.5	0.5	
Direction   Factor   121,800   403,093   121,800   403,093   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   403,093   121,800   121	Congested Peak Period VM	210,000	694,988		210,000	694,988	
Off-Peak Direction VMT         88,200         291,895         88,200         291,895           Peak Direction speed         37.68         36.76         56.50         52.92           Off-Peak Direction speed         43.70         42.70         58.00         55.77           Freeflow speed         60         60         60         60         60           Recurring Peak Dir Delay (v         1,203         4,247         126         899           Recurring Glelay (veh-hr)         1,751         6,218         176         1,268           Incident factor         2,5         1,25         1,25         1,25         1,25           Incident delay (veh-hr)         4,378         7,772         221         1,585         1,585           Daily delay (veh-hr)         6,129         13,990         397         2,853         1           Peak truck percent         0,12	•		0.58		0.58	0.58	
Off-Peak Direction VMT         88,200         291,895         88,200         291,895           Peak Direction speed         37.68         36.76         56.50         52.92           Off-Peak Direction speed         43.70         42.70         58.00         55.77           Freeflow speed         60         60         60         60         60           Recurring Off-Peak Dir Delay (v         1,203         4,247         126         899           Recurring delay (veh-hr)         1,751         6,218         176         1,268           Incident factor         2,5         1,25         1,25         1,25           Incident delay (veh-hr)         4,378         7,772         221         1,585           Daily delay (veh-hr)         6,129         13,990         397         2,853           Peak truck percent         0.12         0.12         0.12         0.12         0.12           Passngr car delay (veh-hr)         5,394         12,311         349         2,511           Commercial vehicle delay (v         736         1,679         48         342           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Fuel cost         3.00 <td< td=""><td>Peak Direction VMT</td><td>121,800</td><td>403,093</td><td></td><td>121,800</td><td>403,093</td><td></td></td<>	Peak Direction VMT	121,800	403,093		121,800	403,093	
Peak Direction speed         37.68         36.76         56.50         52.92           Off-Peak Direction speed         43.70         42.70         58.00         55.77           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (v         1,203         4,247         126         899           Recurring Off-Peak Dir Dela         548         1,971         51         369           Recurring delay (veh-hr)         1,751         6,218         176         1,268           Incident factor         2.5         1,25         1,25         1,25           Incident delay (veh-hr)         6,129         13,990         397         2,853           Peak Iruck percent         0.12         0.12         0.12         0.12           Passngr car delay (veh-hr)         5,394         12,311         349         2,511           Commercial vehicle delay (v         736         1,679         48         342           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of time (psgr veh)         16.07         16.07         16.07 <td>Off-Peak Direction VMT</td> <td></td> <td></td> <td></td> <td>88,200</td> <td>291,895</td> <td></td>	Off-Peak Direction VMT				88,200	291,895	
Off-Peak Direction speed         37.68         36.76         56.50         52.92           Off-Peak Direction speed         43.70         42.70         58.00         55.77           Freeflow speed         60         60         60         60         60         899           Recurring Off-Peak Dir Delay (v         1,203         4,247         126         899           Recurring delay (veh-hr)         1,751         6,218         1,76         1,288           Incident factor         2.5         1,25         1,25         1,25           Incident delay (veh-hr)         6,129         13,990         397         2,853           Daily delay (veh-hr)         6,129         13,990         397         2,853           Peak truck percent         0.12         0.12         0.12         0.12           Passingr car delay (veh-hr)         5,394         12,311         349         2,511           Commercial vehicle delay (v         736         1,679         48         342           Value of time (psgr veh)         16.07         16.07         16.07         16.08           Annual psgr car delay (pers-Anual commercial delay (vehicle for speak direction for psak direction for p	St.				56.50	52.92	
Off-Peak Direction speed         43.70         42.70         58.00         55.77           Freeflow speed         60         60         60         60         60         60           Recurring Peak Dir Delay (v         1,203         4,247         126         899         Recurring Off-Peak Dir Dela         548         1,971         51         369         Recurring delay (veh-hr)         1,751         6,218         176         1,268         1,268         1,265         1,225         1,225         1,		1000 000000	36.76		56.50	52.92	
Preeflow speed	Off-Peak Direction speed						
Freeflow speed   60   60   60   80   80   80   80   80	om round in some rope of				58.00	55.77	
Recurring Peak Dir Delay (v         1,203         4,247         126         899           Recurring Off-Peak Dir Dela         548         1,971         51         369           Recurring delay (veh-hr)         1,751         6,218         176         1,268           Incident factor         2.5         1,25         1,25         1,25           Incident delay (veh-hr)         6,129         13,990         397         2,853           Peak truck percent         0.12         0.12         0.12         0.12           Peak truck percent         0.12         0.12         0.12         0.12           Peak truck percent delay (veh-hr)         5,994         12,311         349         2,511           Commercial vehicle delay (v         736         1,679         48         342           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08         106.08           Annual psgr car delay (pers-Annual commercial delay (vt         183,878         419,688         11,910         85,604           Fuel efficiency peak directio         18.22         17.99         22.93         22.03           Fuel efficiency off-peak di	Freeflow speed	V200000000 F100					
Recurring Off-Peak Dir Dela   548   1,971   51   369   Recurring delay (yeh-hr)   1,751   6,218   176   1,268   1.25	The second secon	7.11.000			126	899	
Recurring delay (veh-hr)							
Incident factor							
Incident delay (veh-hr)							
Daily delay (veh-hr)	THE PARTY OF THE P						
Peak truck percent         0.12 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Passngr car delay (veh-hr) Commercial vehicle delay (v Value of time (psgr veh) Value of time (pser) Value of time (pser) Value of time (pser) Val				ž.			
Commercial vehicle delay (v Value of time (psgr veh) 16.07 16.08 106.08	•						
Value of time (psgr veh) Value of commercial time Annual psgr car delay (pers- Annual commercial delay (vertical time) Annual elay (vertical time) Annual fuel cost (psgr car) Annual fuel cost (psgr car) Annual delay (pers- Annual delay (pers- Annual delay (psgr car) Ann							
Value of commercial time         106.08							
Annual psgr car delay (pers- Annual psgr car delay (pers- Annual commercial delay (viiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii							
Annual commercial delay (ve. 183,878 419,688 3.00 3.00 3.00 3.00 3.00 5.00 3.00 3.00							
Fuel cost 3.00 3.00 3.00 3.00   Fuel efficiency peak direction 18.22 17.99 22.93 22.03   Fuel efficiency off-peak direction 19.73 19.48 23.30 22.74   Freeflow fuel efficiency (mpg 23.8 23.8 23.8 23.8   Peak fuel wasted (psgr car) 1,380 4,813 172 1,198   Off-Pk Fuel Wasted (psgr car) 674 2,397 70 502   Annual gallons wasted fuel 513,342 1,802,401 2,315,743 60,468 424,960 485,428   Annual fuel cost (psgr car) 1,540,027 5,407,204 6,947,230 181,405 1,274,879 1,456,284   Annual hours of delay (pers-Annual delay cost psgr cars 27,086,772 61,823,523 88,910,295 1,754,417 12,610,111 14,364,528   Annual delay/fuel cost comn 19,505,786 44,520,491 64,026,277 1,263,394 9,080,821 10,344,215   Annual congestion cost 48,132,584 111,751,218 159,883,802 3,199,216 22,965,811 26,165,027   Travel Time Index 2.75 2.21 2.33 1.11 1.25 1.22   Incident speed (pk dir) 19.52 24.77 52.66 46.11							
Fuel efficiency peak direction Fuel efficiency off-peak direction Fuel efficiency of peak direction for 19.48  23.8  23.8  23.8  23.8  23.8  23.8  24.8  60,468  424,960  485,428  Annual fuel cost (psgr car) 1,274,879  1,456,284  Annual delay cost psgr cars Annual delay (pers- Annual delay cost psgr cars 27,086,772  61,823,523  88,910,295  1,754,417  12,610,111  14,364,528  Annual delay/fuel cost comn Annual delay/fuel cost comn 19,505,786  44,520,491  64,026,277  1,263,394  9,080,821  10,344,215  Annual congestion cost 48,132,584  111,751,218  159,883,802  3,199,216  22,965,811  26,165,027  Fuel Fuel Masted (psgr car) Annual delay of the peak of the part of							
Fuel efficiency off-peak dired Freeflow fuel efficiency (mpc Peak fuel wasted (psgr car)							
Freeflow fuel efficiency (mpg Peak fuel wasted (psgr car) 1,380 4,813 172 1,198 170 502 1,380 485,428 1,802,401 2,315,743 60,468 424,960 485,428 1,540,027 5,407,204 6,947,230 181,405 1,274,879 1,456,284 1,915,397 4,371,749 6,287,145 124,061 891,703 1,015,764 1,915,397 4,371,749 6,287,145 124,061 891,703 1,015,764 1,915,397 4,371,749 6,287,145 124,061 891,703 1,015,764 1,364,528 1,364							
Peak fuel wasted (psgr car)       1,380       4,813       172       1,198         Off-Pk Fuel Wasted (psgr car)       674       2,397       70       502         Annual gallons wasted fuel       513,342       1,802,401       2,315,743       60,468       424,960       485,428         Annual fuel cost (psgr car)       1,540,027       5,407,204       6,947,230       181,405       1,274,879       1,456,284         Annual hours of delay (pers-Annual delay cost psgr cars       27,086,772       61,823,523       88,910,295       1,754,417       12,610,111       14,364,528         Annual delay/fuel cost commal congestion cost       19,505,786       44,520,491       64,026,277       1,263,394       9,080,821       10,344,215         Annual congestion cost       48,132,584       111,751,218       159,883,802       3,199,216       22,965,811       26,165,027         Travel Time Index       2.75       2.21       2.33       1.11       1.25       1.22         Incident speed (pk dir)       19.52       24.77       52.66       46.11							
Off-Pk Fuel Wasted (psgr ca Annual gallons wasted fuel Annual fuel cost (psgr car) Annual hours of delay (pers- Annual delay cost psgr cars Annual delay/fuel cost comn Annual congestion cost Travel Time Index Incident speed (pk dir)  674 2,397 70 502 485,428 424,960 485							
Annual gallons wasted fuel Annual fuel cost (psgr car) Annual fuel cost (psgr car) Annual hours of delay (pers- Annual delay cost psgr cars Annual delay/fuel cost comn Annual congestion cost Travel Time Index Incident speed (pk dir)  513,342 1,802,401 2,315,743 60,468 424,960 485,428 4							
Annual fuel cost (psgr car) Annual hours of delay (pers- Annual delay cost psgr cars Annual delay cost psgr cars Annual delay cost psgr cars Annual delay/fuel cost comn Annual congestion cost Travel Time Index 1,540,027 1,5407,204 6,947,230 181,405 1,274,879 1,456,284 6,947,230 181,405 1,274,879 1,456,284 124,061 891,703 1,015,764 17,54,417 12,610,111 14,364,528 17,54,417 12,63,394 9,080,821 10,344,215 159,883,802 3,199,216 22,965,811 26,165,027 1,263,394 1,111 1,25 1,222 1,221 1,231 1,24,671 1,251 1,263,394 1,274,879 1,456,284 1,015,764 1,274,879 1,456,284 1,015,764 1,274,879 1,456,284 1,015,764 1,274,879 1,456,284 1,015,764 1,274,879 1,456,284 1,015,764 1,261,011 1,261,011 1,263,394 1,015,764 1,263,394 1,261,011 1,263,394 1,274,879 1,456,284 1,015,764 1,261,011 1,		28,200, 200		2 245 742			185 128
Annual hours of delay (pers- Annual delay cost psgr cars Annual delay/fuel cost comn Annual congestion cost Travel Time Index Incident speed (pk dir)  Annual hours of delay (pers- 1,915,397 4,371,749 6,287,145 124,061 891,703 1,015,764 12,610,111 14,364,528 1,754,417 12,610,111 14,364,528 1,754,417 12,610,111 14,364,528 1,263,394 9,080,821 10,344,215 26,165,027 1,263,394 11,751,218 159,883,802 3,199,216 22,965,811 1,25 1,22 1,22 1,23 1,11 1,25 1,22					100000 x 2000 100		
Annual delay cost psgr cars Annual delay/fuel cost comn Annual delay/fuel cost comn Annual congestion cost Travel Time Index Incident speed (pk dir)  27,086,772 61,823,523 88,910,295 1,754,417 12,610,111 14,364,528 11,754,417 12,610,111 14,364,528 11,754,417 12,610,111 14,364,528 11,754,417 12,610,111 14,364,528 11,754,417 12,610,111 14,364,528 11,263,394 9,080,821 10,344,215 26,165,027 1,263,394 11,751,218 159,883,802 1,11 1,25 1,22 1,22 1,23 1,24 1,25 1,26 1,26 1,26 1,26 1,26 1,26 1,26 1,26					The same of the sa		
Annual delay/fuel cost comm 19,505,786 44,520,491 64,026,277 1,263,394 9,080,821 10,344,215 Annual congestion cost 48,132,584 111,751,218 159,883,802 3,199,216 22,965,811 26,165,027 Travel Time Index 2.75 2.21 2.33 1.11 1.25 1.22 Incident speed (pk dir) 19.52 24.77 52.66 46.11							
Annual congestion cost 48,132,584 111,751,218 159,883,802 3,199,216 22,965,811 26,165,027 Travel Time Index 2.75 2.21 2.33 1.11 1.25 1.22 Incident speed (pk dir) 19.52 24.77 52.66 46.11							
Travel Time Index 2.75 2.21 2.33 1.11 1.25 1.22 Incident speed (pk dir) 19.52 24.77 52.66 46.11		Or Division in New York Co. Co., No. 10			and the second second second second		
Incident speed (pk dir) 19.52 24.77 52.66 46.11	ū				The state of the s		The second secon
ENGINEER CONTRACT TO SERVICE STATE S							1.22
incident speed (op dir) 26.02 31.39 55.08 51.25							
	incident speed (op dir)	26.02	31.39		55.68	51.25	

Brent Spence Bridge Current Volumes (2007)

	Current (Base)	Alternative C&D
	Configuration	Design
	8-lane	15 lanes
	on	on
	bridge	bridge
Analysis Factor	aage	
Daily traffic Volume (ADT)	160,000	160,000
Miles	1	1
Vehicle-Miles of Travel (VMT)	160,000	160,000
Lanes	. 8	13
Daily Traffic per Lane	20,000	12,308
Peak Period VMT	80,000	80,000
Peak Period factor (max 0.5)	0.5	0.5
Congested Peak Period VMT	80,000	80,000
Directional Factor	0.58	0.58
Peak Direction VMT	46,400	46,400
Off-Peak Direction VMT	33,600	33,600
Peak Direction speed	50.00	59.00
	50.00	59.00
Off-Peak Direction speed	54.00	60.00
	54.00	60.00
Freeflow speed	60	60
Recurring Peak Dir Delay (veh-hr)	155	13
Recurring Off-Peak Dir Delay (veh-	62	-
Recurring delay (veh-hr)	217	13
Incident factor	2.5	1.25
Incident delay (veh-hr)	542	16
Daily delay (veh-hr)	759	29
Peak truck percent	0.1	0.1
Passngr car delay (veh-hr)	683	27
Commercial vehicle delay (veh-hr)	76	3
Value of time (psgr veh)	16.07	16.07
Value of commercial time	106.08	106.08
Annual psgr car delay (pers-hr)	213,500	8,294
Annual commercial delay (veh-hr)	18,978	737
Fuel cost	3.00	3.00
Fuel efficiency peak direction (mpg	21.30	23.55
Fuel efficiency off-peak direc (mpg	22.30	23.80
Freeflow fuel efficiency (mpg)	23.8	23.8
Peak fuel wasted (psgr car)	206	19
Off-Pk Fuel Wasted (psgr car)	85	
Annual gallons wasted fuel	72,852	4,657
Annual fuel cost (psgr car)	218,555	13,970
Annual hours of delay (pers-hrs)	237,222	9,216
Annual delay cost psgr cars	3,430,945	133,292
Annual delay/fuel cost comm veh	2,013,163	78,212
Annual congestion cost	5,662,663	225,474
Travel Time Index	1.57	1.02
Incident speed (pk dir)	35.29	57.80
Incident speed (op dir)	43.20	60.00

Brent Spence Bridge Future Volumes (2030)

Current (Base)	Alternative
Configuration	C&D Design
8-lane	15 lanes
on	on
bridge	bridge
200,000	200,000
200 000	200,000
200,000 8	200,000
25,000	15,385
100,000	100,000
	107 000 000
0.5	0.5
100,000	100,000
0.58	0.58
58,000	58,000
42,000	42,000
39.50	56.15
39.50	56.15
45.70	57.77
45.70	57.77
60	60
502	66
219	27
721	93
2.5	1.25
1,802	117
2,523	210
0.1	0.1
2,270	189
252	21
16.07	16.07
106.08	106.08
709,464	59,004
63,063	5,245
3.00	3.00
18.68	22.84
20.23	23.24
23.8	23.8
	23.6 92
602	
281	38
220,661	32,612
661,982	97,837
788,293	65,560
11,401,081	948,192
6,689,769	556,367
18,752,831	1,602,397
2.51	1.13
21.30	51.99
28.64	55.20

Ohio (I-71) Current Volumes (2007)

	Current volumes	3 (2001)				
	Curre	ent (Base) Conf	iguration		ternative C&D [	
	8-lane	8-lane	Corridor		8-lane	Corridor
	close to	away from	(Combination of	close to	away from	(Combination of
	bridge	oridge	close & away)	bridge	bridge	close & away)
Analysis Factor						
Daily traffic Volume (ADT)	115,000	150,000		115,000	150,000	
Miles	2.9	4.85		2.9	4.85	
Vehicle-Miles of Travel (VMT)	333,500	727,500		333,500	727,500	
Lanes	8	8		8	8	
Daily Traffic per Lane	14,375	18,750		14,375	18,750	
		363,750		166,750	363,750	
Peak Period VMT	166,750			0.5	0.5	
Peak Period factor (max 0.5)	0.5	0.5			363,750	
Congested Peak Period VMT	166,750	363,750		166,750		
Directional Factor	0.58	0.6	9	0.58	0.6	
Peak Direction VMT	96,715	218,250		96,715	218,250	
Off-Peak Direction VMT	70,035	145,500		70,035	145,500	
Peak Direction speed	59.00	51.75		59.00	51.75	
	59.00	51.75		59.00	51.75	
Off-Peak Direction speed	60.00	55.06		60.00	55.06	
-	60.00	55.06		60.00	55.06	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (veh-hr	27	580		27	580	
Recurring Off-Peak Dir Delay (vel		217		-	217	
Recurring delay (veh-hr)	27	797		27	797	
Incident factor	2.5	1.25		2.50	1.25	
Incident delay (veh-hr)	68	997		68	997	
Daily delay (veh-hr)	96	1,794		96	1,794	
	0.05	0.04		0.05	0.04	
Peak truck percent	91	1,722		91	1,722	
Passngr car delay (veh-hr)	100.00	72		5	72	
Commercial vehicle delay (veh-hr		16.07		16.07	16.07	
Value of time (psgr veh)	16.07			106.08	106.08	
Value of commercial time	106.08	106.08				
Annual psgr car delay (pers-hr)	28,388	538,207		28,388	538,207	
Annual commercial delay (veh-hr)		17,940		1,195	17,940	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction (mp		21.74		23.55	21.74	
Fuel efficiency off-peak direc (mp		22.57		23.80	22.57	
Freeflow fuel efficiency (mpg)	23.8	23.8		23.8	23.8	
Peak fuel wasted (psgr car)	41	835		41	835	
Off-Pk Fuel Wasted (psgr car)	-	321		-	321	
Annual gallons wasted fuel	10,245	289,080	299,325	10,245	289,080	299,325
Annual fuel cost (psgr car)	30,736	867,240	897,976	30,736	867,240	897,976
Annual hours of delay (pers-hrs)	29,882	560,632	590,514	29,882	560,632	590,514
Annual delay cost psgr cars	456,192	8,648,980	9,105,172	456,192	8,648,980	9,105,172
Annual delay/fuel cost comm veh		1,903,098	2,029,893	126,795	1,903,098	2,029,893
Annual congestion cost	613,724	11,419,318	12,033,042	613,724	11,419,318	12,033,042
Travel Time Index	1.03	1.30	1.21	1.03	1.30	1.21
Incident speed (pk dir)	56.64	44.16	1.21	56.64	44.16	
Incident speed (pk dir)	60.00	49.93		60.00	49.93	
modent speed (op dii)	00.00	10.00		23.00	.3100	

Ohio (I-71) Future Volumes (2030)

Ì						
			r	Δ.14		Vacion
		rent (Base) Con			ernative C&D D	
	8-lane	8-lane	Corridor	8-lane	8-lane	Corridor
	close to	away from	(Combination of		away from	(Combination of
	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor				4.40.000	400.000	
Daily traffic Volume (ADT)	140,000	190,000		140,000	190,000	
Miles	2.9	4.85		2.9	4.85	
Vehicle-Miles of Travel (VMT)	406,000	921,500		406,000	921,500	
Lanes	8	8		8	8	
Daily Traffic per Lane	17,500	23,750		17,500	23,750	
Peak Period VMT	203,000	460,750		203,000	460,750	
Peak Period factor (max 0.5)	0.5	0.5		0.5	0.5	
Congested Peak Period VMT	203,000	460,750		203,000	460,750	
Directional Factor	0.58	0.6		0.58	0.6	
Peak Direction VMT	117,740	276,450		117,740	276,450	
Off-Peak Direction VMT	85,260	184,300		85,260	184,300	
Peak Direction speed	53.50	41.38		53.50	41.38	
	53.50	41.38		53.50	41.38	
Off-Peak Direction speed	56.13	47.63		56.13	47.63	
	56.13	47.63		56.13	47.63	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (veh-hr)	238	2,074		238	2,074	
Recurring Off-Peak Dir Delay (veh-hr)	98	798		98	798	
Recurring delay (veh-hr)	337	2,872		337	2,872	
Incident factor	1.25	1.25		1.25	1.25	
Incident delay (veh-hr)	421	3,590		421	3,590	
Daily delay (veh-hr)	757	6,462		757	6,462	
Peak truck percent	0.05	0.04		0.05	0.04	
Passngr car delay (veh-hr)	719	6,204		719	6,204	
Commercial vehicle delay (veh-hr)	38	258		38	258	
Value of time (psgr veh)	16.07	16.07		16.07	16.07	
Value of commercial time	106.08	106.08		106.08	106.08	
Annual psgr car delay (pers-hr)	224,787	1,938,749		224,787	1,938,749	
Annual commercial delay (veh-hr)	9,465	64,625		9,465	64,625	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction (mpg)	22.18	19.14		22.18	19.14	
Fuel efficiency off-peak direc (mpg)	22.83	20.71		22.83	20.71	
Freeflow fuel efficiency (mpg)	23.8	23.8		23.8	23.8	
Peak fuel wasted (psgr car)	344	2,712		344	2,712	
Off-Pk Fuel Wasted (psgr car)	144	1,111		144	1,111	
Annual gallons wasted fuel	122,200	955,727	1,077,927	122,200	955,727	1,077,927
Annual fuel cost (psgr car)	366,600	2,867,180	3,233,780	366,600	2,867,180	3,233,780
Annual hours of delay (pers-hrs)	236,618	2,019,530	2,256,148	236,618	2,019,530	2,256,148
Annual delay cost psgr cars	3,612,330	31,155,695	34,768,025	3,612,330	31,155,695	34,768,025
Annual delay/fuel cost comm veh	1,004,018	6,855,416	7,859,434	1,004,018	6,855,416	7,859,434
Annual congestion cost	4,982,947	40,878,291	45,861,239	4,982,947	40,878,291	45,861,239
Travel Time Index	1.22	1.84	1.65	1.22	1.84	1.65
Incident speed (pk dir)	47.12			47.12	29.81	
Incident speed (pr dir)	51.93			51.93	37.86	
	200	21.00				

Ohio (I-75) Current Volumes (2007)

Current (Base) Configuration (Combination of close to away from bridge   12-lane close to bridge   12-lane away from bridge   12-lane close to bridge   12-lane away from bridge   12-lane away from bridge   12-lane away from bridge   12-lane close to bridge   12-lane close to bridge   12-lane close to bridge   12-lane away from bridge   12-lane close to bridge   12-lane close to bridge   12-lane away from bridge   12-lane close to bridge   12-lane close to bridge   12-lane away from bridge   12-lane close to the floor   12-lane close to the flo
Salane close to pridge   Salane close to pridge close to pridge   Salane close to pridge
Analysis Factor Daily traffic Volume (ADT) Miles
Analysis Factor Daily traffic Volume (ADT) Miles Daily traffic Volume (ADT) Miles 170,000 160,000 170,000 160,000 170
Analysis Factor Daily traffic Volume (ADT) Daily traffic Volume (ADT) Miles  2.8 4.87  Vehicle-Miles of Travel (VMT) Lanes  8 8 8 12 12 12 Daily Traffic per Lane 21,250 20,000 Peak Period VMT 238,000 389,600 Peak Period VMT 238,000 Directional Factor Deily Deily Cyteh-Pring Off-Peak Dir Delay (veh-hr) Recurring Off-Peak Dir Delay (veh-hr) Recurring Off-Peak Dir Delay (veh-hr) Peak Truck (veh-hr) Daily delay (veh-hr) Passngr car delay (veh-hr) Value of time (psgr veh) Valva (28,400 179,200 476,000 779,200 779,200
Daily traffic Volume (ADT)         170,000         160,000         170,000         160,000           Miles         2.8         4.87         2.8         4.87           Vehicle-Miles of Travel (VMT)         476,000         779,200         476,000         779,200           Lanes         8         8         12         12           Daily Traffic per Lane         21,250         20,000         14,167         13,333           Peak Period VMT         238,000         389,600         238,000         389,600           Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Congested Peak Period VMT         130,900         214,280         130,900         234,000         389,600           Direction VMT         130,900         214,280         130,900         214,280         107,100         175,320         107,100         175,320         107,100         175,320         107,100         175,320         107,100         175,320         59.00         59.00         59.00         59.00         59.00         59.00         59.00         59.00         59.00         59.00         60.00         60.00
Miles         2.8         4.87         2.8         4.87           Vehicle-Miles of Travel (VMT)         476,000         779,200         476,000         779,200           Lanes         8         12         12         12           Daily Traffic per Lane         21,250         20,000         14,167         13,333           Peak Period VMT         238,000         389,600         238,000         389,600           Peak Period Textor         0.5         0.5         0.5         0.5           Congested Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction speed         47.13         50.00         59.00         59.00           Peak Direction speed         51.88         54.00         60.00         60.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714<
Vehicle-Miles of Travel (VMT)         476,000         779,200         476,000         779,200           Lanes         8         8         12         12           Daily Traffic per Lane         21,250         20,000         14,167         13,333           Peak Period VMT         238,000         389,600         238,000         389,600           Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Off-Peak Direction speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25<
Lanes         8         8         12         12           Daily Traffic per Lane         21,250         20,000         14,167         13,333           Peak Period VMT         238,000         389,600         238,000         389,600           Peak Period VMT         238,000         389,600         238,000         389,600           Congested Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25
Daily Traffic per Lane         21,250         20,000         14,167         13,333           Peak Period VMT         238,000         389,600         238,000         389,600           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5           Congested Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction Speed         47,13         50.00         59.00         59.00           Peak Direction speed         47,13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1,25         1,25
Peak Period VMT         238,000         389,600         238,000         389,600           Peak Period factor (max 0.5)         0.5         0.5         0.5         0.5           Congested Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring Off-Peak Dir Delay (veh-hr)         876         1,039         37         61           Incident delay (veh-hr)         2,189         1,299         46         76           Incident delay (veh-hr)         3,065         2,338
Peak Period factor (max 0.5)         0.5         0.5         0.5           Congested Peak Period VMT         238,000         389,600         238,000         389,600           Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00         60.00           Freeflow speed         60         60         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714         37         61         61           Recurring delay (veh-hr)         876         1,039         37         61         10 <td< td=""></td<>
Directional Factor         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Off-Peak Direction speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129
Directional Factor         0.55         0.55         0.55         0.55           Peak Direction VMT         130,900         214,280         130,900         214,280           Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Off-Peak Direction speed         60         60         60.00         60.00           Freeflow speed         60         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1,25         1,25         1,25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passingr car delay (veh-hr)         153         117         4
Off-Peak Direction VMT         107,100         175,320         107,100         175,320           Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60         60           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         38,309         29,220 <t< td=""></t<>
Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring Off-Peak Dir Delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700
Peak Direction speed         47.13         50.00         59.00         59.00           Off-Peak Direction speed         51.88         54.00         60.00         60.00           Freeflow speed         60         60         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring Off-Peak Dir Delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700
Off-Peak Direction speed 51.88 54.00 60.00 60.00 60.00
Freeflow speed         51.88         54.00         60.00         60.00           Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring Off-Peak Dir Delay (veh-hr)         280         325         -         -         -           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220
Freeflow speed 60 60 60 60.00  Recurring Peak Dir Delay (veh-hr) 596 714 37 61  Recurring Off-Peak Dir Delay (veh-hr) 876 1,039 37 61  Incident factor 2.5 1.25 1.25 1.25 1.25  Incident delay (veh-hr) 3,065 2,338 83 136  Peak truck percent 0.05 0.05  Passngr car delay (veh-hr) 2,911 2,221 79 129  Commercial vehicle delay (veh-hr) 153 117 4 7  Value of time (psgr veh) 16.07 16.07  Value of commercial time 106.08 106.08  Annual psgr car delay (veh-hr) 909,835 693,975 24,700 40,433  Annual commercial delay (veh-hr) 38,309 29,220 1,040
Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring Off-Peak Dir Delay (veh-hr)         280         325         -         -         -           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Recurring Peak Dir Delay (veh-hr)         596         714         37         61           Recurring Off-Peak Dir Delay (veh-hr)         280         325         -         -           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Recurring Off-Peak Dir Delay (veh-hr)         280         325         -         -           Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Recurring delay (veh-hr)         876         1,039         37         61           Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Incident factor         2.5         1.25         1.25         1.25           Incident delay (veh-hr)         2,189         1,299         46         76           Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Daily delay (veh-hr)         3,065         2,338         83         136           Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Peak truck percent         0.05         0.05         0.05         0.05           Passngr car delay (veh-hr)         2,911         2,221         79         129           Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Passngr car delay (veh-hr)       2,911       2,221       79       129         Commercial vehicle delay (veh-hr)       153       117       4       7         Value of time (psgr veh)       16.07       16.07       16.07       16.07         Value of commercial time       106.08       106.08       106.08       106.08         Annual psgr car delay (pers-hr)       909,835       693,975       24,700       40,433         Annual commercial delay (veh-hr)       38,309       29,220       1,040       1,702
Commercial vehicle delay (veh-hr)         153         117         4         7           Value of time (psgr veh)         16.07         16.07         16.07         16.07           Value of commercial time         106.08         106.08         106.08         106.08           Annual psgr car delay (pers-hr)         909,835         693,975         24,700         40,433           Annual commercial delay (veh-hr)         38,309         29,220         1,040         1,702
Value of time (psgr veh)       16.07       16.07       16.07       16.07         Value of commercial time       106.08       106.08       106.08       106.08         Annual psgr car delay (pers-hr)       909,835       693,975       24,700       40,433         Annual commercial delay (veh-hr)       38,309       29,220       1,040       1,702
Value of commercial time       106.08       106.08       106.08         Annual psgr car delay (pers-hr)       909,835       693,975       24,700       40,433         Annual commercial delay (veh-hr)       38,309       29,220       1,040       1,702
Annual psgr car delay (pers-hr)       909,835       693,975       24,700       40,433         Annual commercial delay (veh-hr)       38,309       29,220       1,040       1,702
Annual commercial delay (veh-hr) 38,309 29,220 1,040 1,702
A MARKET THANKS THANKS A CONTROL OF THE CONTROL OF
Fuel cost 3.00 3.00 3.00 3.00
Fuel efficiency peak direction (mpg) 20.58 21.30 23.55 23.55
Fuel efficiency off-peak direc (mpg) 21.77 22.30 23.80 23.80
Freeflow fuel efficiency (mpg) 23.8 23.8 23.8
Peak fuel wasted (psgr car) 817 1,004 55 91
Off-Pk Fuel Wasted (psgr car) 399 471
Annual gallons wasted fuel 304,013 368,654 672,667 13,867 22,700
Annual fuel cost (psgr car) 912,039 1,105,963 2,018,002 41,600 68,099
Annual hours of delay (pers-hrs) 957,721 730,500 1,688,221 26,000 42,561
Annual delay cost psgr cars 14,621,045 11,152,178 25,773,223 396,925 649,756
Annual delay/fuel cost comm veh 4,063,801 3,099,658 7,163,459 110,322 180,594
Annual congestion cost 19,596,885 15,357,799 34,954,684 548,847 898,449
Travel Time Index 1.77 1.36 1.52 1.02 1.02
Incident speed (pk dir) 30.67 41.38 57.80 57.80
Incident speed (op dir) 38.75 48.00 60.00 60.00

Design Corridor (Combination of close & away)

> 36,566 109,699 68,561 1,046,681 290,917 1,447,297 1.02

Ohio (I-75) Future Volumes (2030)

	Future volumes (	2000)				
	Curre	nt (Bass) Conf	iguration	Δ1	ternative C&D I	Design
	The state of the s	nt (Base) Conf		12-lane	12-lane	Corridor
		8-lane	Corridor			(Combination of
		away from	(Combination of	close to	away from	
	bridge	bridge	close & away)	bridge	bridge	close & away)
Analysis Factor	400 000	000 000		400,000	220,000	
Daily traffic Volume (ADT)	190,000	220,000		190,000	220,000	
Miles	2.8	4.87		2.8	4.87	
Vehicle-Miles of Travel (VMT)	532,000	1,071,400		532,000	1,071,400	
Lanes	8	8		12	12	
Daily Traffic per Lane	23,750	27,500		15,833	18,333	
Peak Period VMT	266,000	535,700		266,000	535,700	
Peak Period factor (max 0.5)	0.5	0.5		0.5	0.5	
Congested Peak Period VMT	266,000	535,700		266,000	535,700	
Directional Factor	0.55	0.55		0.55	0.55	
Peak Direction VMT	146,300	294,635		146,300	294,635	
Off-Peak Direction VMT	119,700	241,065		119,700	241,065	
Peak Direction speed	41.38	35.85		55.75	52.33	
	41.38	35.85		55.75	52.33	
Off-Peak Direction speed	47.63	41.25		57.50	56.00	
	47.63	41.25		57.50	56.00	
Freeflow speed	60	60		60	60	
Recurring Peak Dir Delay (veh-hr)	1,098	3,308		186	719	
Recurring Off-Peak Dir Delay (veh-h	518	1,826		87	287	
Recurring delay (veh-hr)	1,616	5,134		273	1,006	
Incident factor	2.5	1.25		1.25	1.25	
Incident delay (veh-hr)	4,040	6,418		341	1,258	
Daily delay (veh-hr)	5,656	11,552		613	2,264	
Peak truck percent	0.05	0.05		0.05	0.05	
Passngr car delay (veh-hr)	5,373	10,974		583	2,151	
Commercial vehicle delay (veh-hr)	283	578		31	113	
Value of time (psgr veh)	16.07	16.07		16.07	16.07	
Value of commercial time	106.08	106.08		106.08	106.08	
Annual psgr car delay (pers-hr)	1,679,129	3,429,496		182,102	672,222	
Annual commercial delay (veh-hr)	70,700	144,400		7,667	28,304	
Fuel cost	3.00	3.00		3.00	3.00	
Fuel efficiency peak direction (mpg)	19.14	17.76		22.74	21.88	
Fuel efficiency off-peak direc (mpg)	20.71	19.11		23.18	22.80	
Freeflow fuel efficiency (mpg)	23.8	23.8	4	23.8	23.8	
Peak fuel wasted (psgr car)	1,420	3,997		273	1,030	
Off-Pk Fuel Wasted (psgr car)	714	2,360		129	422	
Annual gallons wasted fuel	533,561	1,589,355	2,122,916	100,435	363,024	463,459
Annual fuel cost (psgr car)	1,600,684	4,768,064	6,368,748	301,304	1,089,072	1,390,376
Annual hours of delay (pers-hrs)	1,767,505	3,609,996	5,377,500		707,602	899,288
Annual delay cost psgr cars	26,983,608	55,112,000	82,095,608	2,926,385	10,802,602	13,728,987
Annual delay/fuel cost comm veh	7,499,875	15,317,934	22,817,809		3,002,496	3,815,861
Annual congestion cost	36,084,167	75,197,998	111,282,165		14,894,170	18,935,224
Travel Time Index	2.28	2.29	2.29		1.25	1.22
Incident speed (pk dir)	23.30	23.85		51.22	45.13	1900 40 0
Incident speed (pk dir)	31.42	29.66		54.65	51.69	
moraem speed (op dii)	01.42	20.00		000	2.700	

From OKI COG	TTI Estimate
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		base economic	base configuration
Base economic shipper impacts - from OKI COG		shipper impacts	delay growth
\$684M in 2005\$; \$755M in 2008\$	2005	755	g.c.m.
annual growth in shippers economic effect	2006	775	
1.026	2007	795	3,914,819
base config annual delay growth	2008	815	4,127,686
1.054	2009	836	4,352,127
15-lane annual delay growth	2010	858	4,588,773
1.072	2011	880	4,838,286
	2012	903	5,101,366
	2013	926	5,378,751
	2014	950	5,671,219
	2015	975	5,979,589
	2016	1,000	6,304,727
	2017	1,026	6,647,545
	2018	1,052	7,009,003
	2019	1,080	7,390,115
	2020	1,108	7,791,950
	2021	1,136	8,215,635
	2021	1,166	8,662,357
	2022	1,196	9,133,370
	2023	1,227	9,629,994
	2025	1,259	10,153,622
	2026	1,291	10,705,721
	2027	1,324	11,287,841
From OKI COG	2028	1,359	11,901,614
2030 economic shipper impacts	2029	1,394	12,548,760
\$1.3B in 2005\$; \$1.43B in 2008\$	2030	1,430	14,709,087
	2031	1,467	15,508,888
	2032	1,505	16,352,179
	2033	1,544	17,241,323
	2034	1,584	18,178,815
	2035	1,625	19,167,281
	2036	1,667	20,209,496
	2037	1,710	21,308,381
	2038	1,754	22,467,017
	2039	1,800 1,846	23,688,653 24,976,716
	2040	1,040	24,970,710

TTI Estimates
Congestion cost (millions of

From OKI COG	TTI Estimate		timates	2008	
	48.	base .	15-lane	base	15-lane
15-lane economic	15-lane	economic	economic		roadway
shipper impacts	delay growth	benefit	benefit	growth	
				1.055	1.074
				00	40
	745,729			88	16
	799,391			93	17
	856,914			98 104	18 19
	918,576			109	21
	984,676			115	22
	1,055,532			122	24
	1,131,487			128	26
	1,212,908				
	1,300,187			136	28
	1,393,747			143	30
	1,494,040			151	32
	1,601,549			159	34
	1,716,795			168	37
262	1,840,333	262	846	177	40
	1,972,762	268	868	187	42
	2,114,719	275	890	197	46
	2,266,892	282	913	208	49
	2,430,015	290	937	219	52
	2,604,876	297	961	231	56
	2,792,320	305	986	244	60
	2,993,252	313	1,012	257	65
	3,208,643	321	1,038	271	70
	3,439,534	329	1,065	286	75
	4,236,760	338	1,092	336	93
	4,541,633	346	1,121	354	99 107
	4,868,444	355	1,150	374 394	115
	5,218,771 5,594,308	365 374	1,179 1,210	416	123
	5,996,868	384	1,241	438	132
	6,428,396	394	1,273	463	142
	6,890,976	404	1,306	488	152
	7,386,843	414	1,340	515	163
	7,918,392	425	1,375	543	175
	8,488,190		.,		
	,,,	6,742	21,803	6,596	1,855
divided by 2		3,371	10,901	Total benefit - 2020 to 2039	\$ 4,741
(assume that onl	y half of the total corridor	analyzed by OK	I will be	(20 years)	

(assume that only half of the total corridor analyzed by OKI will be affected by project)

Congestion A	nalysis Summary	
Congestion Measure	Base	Build
Travel Time Index	2.14	1.33
Annual Person-hours of Delay		
Recurring	5,827,659	1,883,005
Incident	8,881,428	2,353,756
Total	14,709,087	4,236,760
Annual Wasted Fuel (gal)	5,737,247	2,059,426
Annual Congestion Cost (\$mil)	336	93

Economic efficiencies value is from calcs tab. (Between \$10.9 billion and \$11.1 billion. This is derived from OKI COG study; we estimated the change in delay and applied to the base OKI data (\$684 million in congestion value to shippers in 2005) Economic return on the increased efficiencies is \$1.7 billion. The improved efficiencies translate into higher profits (assume 5% profit margin); the profit that gets paid out is income to someone and this component measures the economic impact of that income.

The construction impact is \$1.6 billion. The payroll, materials, etc. This is based on the construction cost spread over 6 years of construction schedule.

Delay and fuel savings are based on change in congestion levels from current case to either of the wider roadways.

20-year totals, millions of 2008 dollars	15 total lanes on
	all bridges
Economic efficiencies	10,901
Economic return on increased efficiencies	1,700
Construction impact	1,600
Delay and fuel benefits	4,741
Total project benefits	18,942
	\$18.9 billion in economic impact

Conditions in 2030	Current	15 total lanes on
	Configuration	all bridges
Congestion Measure		
Travel Time Index	2.14	1.33
Buffer Index	%06	40%
Annual Person-hours of Delay		
Recurring	5,827,659	1,883,005
Incident	8,881,428	2,353,756
Total	14,709,087	4,236,760
Annual Wasted Fuel (gal)	5,737,247	2,059,426
Annual Congestion Cost (\$Million)	336	93