Appendix B
I-69 PDAT User Guide and Outputs

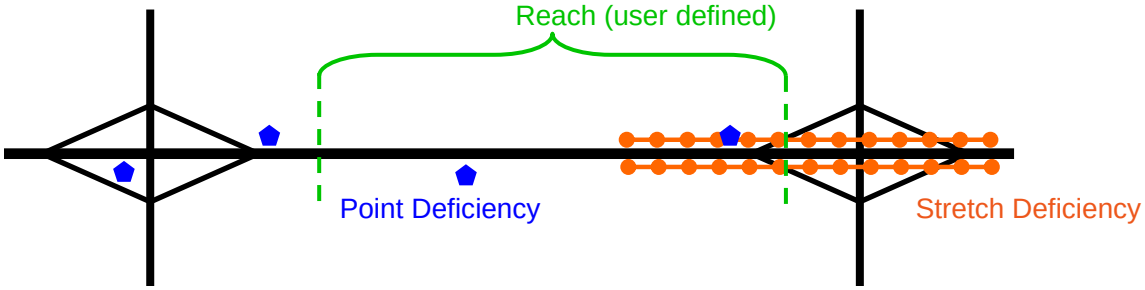
OVERVIEW

The I-69 PDAT (Project Development Analysis Tool) workbook is designed to provide KYTC staff an interactive tool to define projects and estimate costs based on existing deficiencies along the I-69 corridor. Users have the ability to define project reaches, select deficiencies to fix or omit, designate funding categories, and review cost summary data.

INTRODUCTION

Deficiencies, identified as part of the I-69 Strategic Corridor Planning Study, are separated into two distinct types: point features and stretches. Point features occur at a specific location which would logically be addressed as a part of a single project; costs are typically lump-sum values. Deficiency stretches are features which occur over a longer length of the corridor; costs are based on per-mile rates.

Reaches are the milepoint boundaries for a project. The user has the ability to define reaches along each parkway and to change them throughout the process. All the deficiencies falling within the milepoint limits of a reach will be included in the cost to fix that reach.



Point Deficiencies

Narrow Structures
Low Overpasses
Ramp Tapers
Guardrail End Treatments
Interchange Spacing
Toll Interchanges

Stretch Deficiencies

Shoulder Widths
Cross Slopes
Median Widths

Each deficiency displays whether it is one of the 13 potential FHWA design exceptions or a design variance based on AASHTO/KYTC standards. Each deficiency can also be identified as a funding/priority category:

- I-69 Priority Improvements are necessary for interstate compliance[1]; these deficiencies should be addressed unless a design exception is permitted in select cases;
- 3R Improvements are recommended to be addressed as a component of routine route maintenance; and
- 4R Improvements are recommended to be addressed in major reconstruction projects, scheduled whenever adjacent features/areas require replacement.

An additional "Recommended Fix" column allows the user to select if a given deficiency should be included in the User Select Build Scenario (the set of features included in the current build package, based on user-input recommendations). For comparison, the Full Build Scenario cost estimates are provided throughout the summary information. An additional option in this column allows the user to track which project components have already been constructed; these items are not included in further cost estimates.

Based on the Phase II Strategic Planning Study, a final column also presents the priority category for each deficiency. The following categories were developed:

- Priority 1 – Substantive improvements to address capacity or safety issues along the parkways regardless of I-69 designation
- Priority 2 – Regulatory improvements to bring deficiencies into interstate compliance, with the exception of granted FHWA DE
- Priority 3 – Regulatory improvements to address remaining noncompliant features, including previously exempted DE with the exception of systems interchanges
- Priority 4 – Systems interchanges

Following these inputs by the user, the model provides a set of summary cost tables. These tables include:

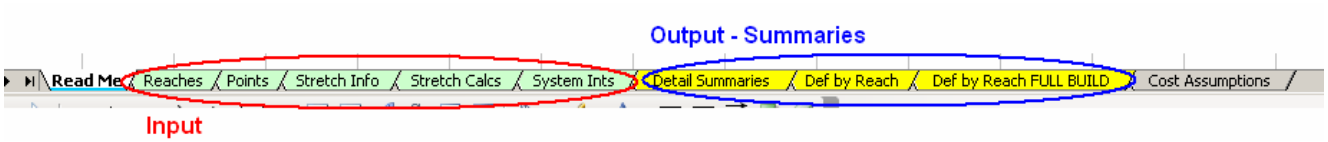
- Summary of Parkway by County for the User Selected Build Scenario
- Summary of Parkway by Deficiency Type for both the User Selected and Full Build Scenarios
- Summary of Parkway by Funding Category for both the User Selected and Full Build Scenarios
- Summary of Parkway by Priority Category for both the User Selected and Full Build Scenarios
- Summary of Reach by Deficiency Type for both User Selected and Full Build Scenarios

WORKBOOK COMPONENTS

The tool is divided into two primary sections. The first five green tabs contain input fields where the user can define reaches and select deficiencies for inclusion. The

[1] Compliance based on 2005 AASHTO publication *A Policy on Design Standards: Interstate System*

remaining three yellow tabs provide cost summary outputs for both the Full Build and User Select Build Scenarios. Additional supporting information is contained in any following tabs. User input cells are indicated by a green fill.



The REACHES tab provides the user an opportunity to set project reaches, defined by milepoints along each parkway. The Breathitt and Ford Parkways are separate entities; a single reach cannot include portions of both parkways. The tool is set up to divide the entire length of each parkway into reaches. Up to 22 reaches per parkway can be defined and named, ordered sequentially by increasing milepoint designations. A quick summary of costs for the User Select Build Scenario is presented on this tab as well.

Study Area Boundaries:

Ford/Western KY Parkway
MP 0.0 (I-24) to
MP 38.332 (Breathitt)

Breathitt/Pennyrile Parkway
MP 34.271 (Ford) to
MP 76.258 (KY 425)

The POINTS tab lists each identified point-type deficiency located within the study limits along the two parkways. Each row references a location, a length, the AASHTO requirement for the particular feature, whether it is a potential design exception or not, a funding category, the associated cost, and which project reach the point feature falls within. The user may select if any point feature will be included or omitted by selecting Yes/No in the "Recommended Fix" column. If a point deficiency has already been corrected, selecting Completed in this column will cause this feature to be removed from all cost estimates.

	A	B	C	D	E	F
1	Direction	Parkway	County	MP	Def Type	Existing Length (ft)
2	SB	ETB	Hopkins	35.5	Sort Ascending	50
3	SB	ETB	Hopkins	37	Sort Descending	50
4	NB	ETB	Hopkins	37.07		0
5	NB	ETB	Hopkins	37.07	(All)	0
6	SB	ETB	Hopkins	37.07	(Top 10...)	0
7	SB	ETB	Hopkins	37.07	(Custom...)	0
8	SB	ETB	Hopkins	39.794	Brush-block bridge	1000
9	NB	ETB	Hopkins	42.418	Interchange - Toll Config	192
10	NB	ETB	Hopkins	42.418	Interchange Spacing	0
11	NB	ETB	Hopkins	42.418	Narrow bridge	0
12	SB	ETB	Hopkins	42.418	Narrow Brush-block bridge	192
13	SB	ETB	Hopkins	42.418	Overpass Vertical Clearance	0
14	SB	ETB	Hopkins	42.418	Ramp Accel	0
15	NB	ETB	Hopkins	43.438	Ramp Decel	159
16	SB	ETB	Hopkins	43.438	Type 3 GR	159
17		ETB	Hopkins	43.674	Type 7 GR	SSD = 595 ft
18	NB	ETB	Hopkins	44.337	Vertical curve	0 [2]
					Ramp Accel	
					(Blanks)	
					(NonBlanks)	

For faster data manipulation, the AutoFilter command may be used by clicking the arrow in the corner of the "Deficiency Type" column header box in the POINTS tab. This brings down a drop list; highlighting a single deficiency type will show all of that type of deficiencies. For example, selecting "Vertical Curve" will show only the vertical curve entries. Select "(All)" from the drop list to again view all entries.

It is important to note that the recommended fix option for each deficiency is independent of every other deficiency. The user should be cognizant of this when selecting features to be fixed and make selections accordingly. For instance, selecting to widen a shoulder would impact any guardrail falling within the area, so the user must include these in the select build scenario.

The STRETCH INFO tab defines the stretch-type features located on each parkway, providing the actual ranges where the deficiencies occur. AASHTO requirements, the potential for a design exception, and the total cost for the deficiency type by parkway are provided on this page as well. The funding category is set by the user for each stretch deficiency on this page.

Though pavement rehabilitation is not explicitly required by AASHTO standards, a rehabilitation cost estimate is provided on this tab based on 2006 KYTC construction costs to provide a more accurate investment scenario. Standard linear guardrail rehabilitation (excluding the replacement of deficient end treatment types) is included in this cost.

The STRETCH CALCS tab performs the calculations to distribute the stretch features between reaches. It shows lengths and costs for each of the stretch deficiencies. This page allows the user to select if a feature will or will not be costed for each reach by selecting Yes/No/Completed in the "Recommended Fix" column. Location-specific stretch recommendations should be updated if reach boundaries are changed.

The SYSTEMS INTS tab provides summary graphics and information about each of the two systems interchanges. Due to the complexity and magnitude of these two locations, they are not included in the cost estimates for either parkway but are pulled out as stand-alone entities. A cell for each interchange lets the user determine if the system should be included in the select build scenario.

The DETAIL SUMMARIES tab provides multiple cost summary tables. In most cases, a User Selected Build Scenario (orange) summary and a Full Build Scenario (blue) summary are provided for comparison. On this page, costs are shown at a parkway level by deficiency type, by county, and by priority/funding category.

The remaining two output tabs, DEF BY REACH and DEF BY REACH FULL BUILD provide more detailed cost data for each reach for the User Selected and Full Build Scenarios, respectively. These tables present the cost to fix each deficiency type within a given reach. For example, $4,000 may be required in Reach ABC to widen the narrow structures falling within that milepoint range.

The COST ASSUMPTIONS tab provides an overview of the dollar values assigned to fix certain deficiency types. Bridge widening, vertical realignment, ramp taper lengthening, vertical clearance, and interchange reconstruction costs were determined on a case-by-case basis are therefore shown only in the list on the POINTS tab. Additional details on the costing methodology may be found in the Design Exceptions notebook. All costs given are in 2007 dollars.

Tables B.1 and B.2

Defined reaches for Breathitt and Ford Parkways, WSA recommendations

Reaches on ETB

BMP	EMP	Reach Name	County	Total Point Cost	Total Stretch Cost	Total Reach Cost
34.271	36.52	B1	Hopkins	$ 3,500	$ 3,530,930	**$ 3,534,430**
36.52	37.62	Exit 37	Hopkins	$ 3,430,500	$ 1,727,000	**$ 5,157,500**
37.62	39.244	B2	Hopkins	$ -	$ 2,549,680	**$ 2,549,680**
39.244	40.344	Exit 40	Hopkins	$ 676,000	$ 1,727,000	**$ 2,403,000**
40.344	41.868	B3	Hopkins	$ -	$ 2,392,680	**$ 2,392,680**
41.868	43.27	Exit 42	Hopkins	$ 532,000	$ 2,201,140	**$ 2,733,140**
43.27	44.671	Exit 44	Hopkins	$ 330,000	$ 2,199,570	**$ 2,529,570**
44.671	45.771	Exit 45	Hopkins	$ 670,000	$ 1,727,000	**$ 2,397,000**
45.771	48.429	B4	Hopkins	$ -	$ 4,007,860	**$ 4,007,860**
48.429	49.529	Exit 49	Hopkins	$ 105,000	$ 1,650,000	**$ 1,755,000**
49.529	53.52	B5	Hopkins	$ 400,000	$ 5,986,500	**$ 6,386,500**
53.52	54.62	Exit 54	Hopkins	$ 245,500	$ 1,650,000	**$ 1,895,500**
54.62	55.003	B6	Hopkins	$ 9,000	$ 574,500	**$ 583,500**
55.003	62.807	B7	Webster	$ 286,000	$ 11,706,000	**$ 11,992,000**
62.807	63.187	Exit 63	Webster	$ -	$ 570,000	**$ 570,000**
63.187	65.305	B8	Webster	$ 104,000	$ 3,177,000	**$ 3,281,000**
65.305	67.813	B9	Henderson	$ 40,000	$ 3,762,000	**$ 3,802,000**
67.813	68.913	Exit 68	Henderson	$ 100,000	$ 1,650,000	**$ 1,750,000**
68.913	75.634	B10	Henderson	$ 40,000	$ 10,081,500	**$ 10,121,500**
75.634	76.258	Exit 76	Henderson	$ 160,000	$ 936,000	**$ 1,096,000**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
	76.258				**TOTAL**	**$ 70,937,860**

Reaches on WKY

BMP	EMP	Reach Name	County	Total Point Cost	Total Stretch Cost	Total Reach Cost
0	0.551	Exit 1	Lyon	$ 1,000	$ 826,500	**$ 827,500**
0.551	3.152	W1	Lyon	$ 2,000	$ 3,901,500	**$ 3,903,500**
3.152	4.252	Exit 4	Lyon	$ 729,000	$ 1,650,000	**$ 2,379,000**
4.252	5.61	W2	Lyon	$ 15,000	$ 2,037,000	**$ 2,052,000**
5.61	9.855	W3	Caldwell	$ 75,500	$ 6,367,500	**$ 6,443,000**
9.855	11.021	W4	Caldwell	$ 14,000	$ 1,667,380	**$ 1,681,380**
11.021	12.57	Exit 12	Caldwell	$ 2,359,000	$ 2,215,070	**$ 4,574,070**
12.57	13.67	Exit 13	Caldwell	$ 850,000	$ 1,573,000	**$ 2,423,000**
13.67	21.764	W5	Caldwell	$ 835,000	$ 11,574,420	**$ 12,409,420**
21.764	23.885	W6	Hopkins	$ 86,000	$ 3,033,030	**$ 3,119,030**
23.885	24.985	Exit 24	Hopkins	$ 805,000	$ 1,573,000	**$ 2,378,000**
24.985	38.332	W7	Hopkins	$ 690,000	$ 19,086,210	**$ 19,776,210**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
				$ -	$ -	**$ -**
	38.332				**TOTAL**	**$ 61,966,110**

Table B.3 - Cost Summary by Deficiency Type

	User Select Build Scenario			Full Build Scenario		
Def Type	**ETB**	**WKY**	**Grand Total**	**ETB**	**WKY**	**Grand Total**
Brush-block bridge	$ 200,000	$ 86,000	**$ 286,000**	$ 200,000	$ 86,000	**$ 286,000**
Interchange Config	$ -	$ -	**$ -**	$ 17,270,000	$ 10,650,000	**$ 27,920,000**
Narrow bridge	$ 494,000	$ -	**$ 494,000**	$ 494,000	$ -	**$ 494,000**
Narrow Brush-block bridge	$ 254,000	$ 737,000	**$ 991,000**	$ 254,000	$ 737,000	**$ 991,000**
Overpass Vertical Clearance	$ 1,070,000	$ 4,175,000	**$ 5,245,000**	$ 1,070,000	$ 4,175,000	**$ 5,245,000**
Ramp Accel	$ 2,953,000	$ 672,000	**$ 3,625,000**	$ 2,953,000	$ 672,000	**$ 3,625,000**
Ramp Decel	$ 2,083,000	$ 680,000	**$ 2,763,000**	$ 2,083,000	$ 680,000	**$ 2,763,000**
Type 7 GR	$ 66,500	$ 101,500	**$ 168,000**	$ 66,500	$ 101,500	**$ 168,000**
Vertical curve	$ -	$ -	**$ -**	$ 1,075,000	$ 625,000	**$ 1,700,000**
Type 3 GR	$ 11,000	$ 10,000	**$ 21,000**	$ 11,000	$ 10,000	**$ 21,000**
10 ft graded outer shoulder	$ 825,860	$ -	**$ 825,860**	$ 825,860	$ -	**$ 825,860**
3 ft paved inner shoulder	$ 2,939,090	$ 689,850	**$ 3,628,940**	$ 2,939,090	$ 689,850	**$ 3,628,940**
Cross Slope / Superelevation	$ -	$ -	**$ -**	$ -	$ -	**$ -**
Ditch Foreslope	$ -	$ -	**$ -**	$ 3,736,843	$ 3,095,420	**$ 6,832,263**
Interchange Spacing	$ -	$ -	**$ -**	$ 600,000	$ 2,600,000	**$ 3,200,000**
Pavement Rehabilitation	$ 60,041,410	$ 54,814,760	**$ 114,856,170**	$ 60,041,410	$ 54,814,760	**$ 114,856,170**
Median Width	$ -	$ -	**$ -**	$ -	$ 4,001,019	**$ 4,001,019**
Grand Total	**$ 70,937,860**	**$ 61,966,110**	**$ 132,903,970**	**$ 93,619,703**	**$ 82,937,549**	**$ 176,557,252**

Systems Interchanges	**$ 7,260,000**
Select Build Final Total	**$ 140,163,970**

Systems Interchanges	**$129,900,000**
Full Build Final Total	**$306,457,252**

Table B.4 - Cost Summary by County

	User Select Build Scenario			
County	ETB	WKY	Systems	Grand Total
Lyon		$ 9,162,000	$ 7,260,000	$ 16,422,000
Caldwell		$ 27,530,870		$ 27,530,870
Hopkins	$ 38,325,360	$ 25,273,240	$ -	$ 63,598,600
Webster	$ 15,843,000			$ 15,843,000
Henderson	$ 16,769,500			$ 16,769,500
Grand Total	$ 70,937,860	$ 61,966,110	$ 7,260,000	$ 140,163,970

Results only valid if reaches are broken at county lines.

Table B.5 - Cost Summary by Funding Category

	User Select Build Scenario			Full Build Scenario		
Funding Category	ETB	WKY	Grand Total	ETB	WKY	Grand Total
3R	$ 64,083,860	$ 55,702,110	$ 119,785,970	$ 64,083,860	$ 59,703,129	$ 123,786,989
4R	$ 5,036,000	$ 1,352,000	$ 6,388,000	$ 16,867,843	$ 5,072,420	$ 21,940,263
I-69 Priority	$ 1,818,000	$ 4,912,000	$ 6,730,000	$ 12,668,000	$ 18,162,000	$ 30,830,000
Grand Total	$ 70,937,860	$ 61,966,110	$ 132,903,970	$ 93,619,703	$ 82,937,549	$ 176,557,252

Systems Interchanges	$ 7,260,000	Systems Interchanges	$129,900,000
Select Build Final Total	$ 140,163,970	Full Build Final Total	$306,457,252

Table B.6 - Cost Summary by Priority Level

	User Select Build Scenario			Full Build Scenario		
Priority	**ETB**	**WKY**	**Grand Total**	**ETB**	**WKY**	**Grand Total**
1	$60,118,910	$54,926,260	**$115,045,170**	$60,118,910	$54,926,260	**$115,045,170**
2	$10,324,950	$7,039,850	**$17,364,800**	$10,324,950	$7,039,850	**$17,364,800**
3	$494,000	$0	**$494,000**	$23,175,843	$20,971,439	**$44,147,282**
Grand Total	**$70,937,860**	**$61,966,110**	**$132,903,970**	**$93,619,703**	**$82,937,549**	**$176,557,252**

Systems Interchanges (4)	**$**	**7,260,000**	**Systems Interchanges (4)**	**$129,900,000**
Select Build Final Total	**$**	**140,163,970**	**Full Build Final Total**	**$306,457,252**

Table B.7

Cost Summary by Reach and Deficiency Type for User Select Build Scenario

*Costs do not include system interchanges

Def Type	Reach	Range		Type 7 GR	Ramp Accel	Ramp Decel	Narrow bridge	Vertical curve	Overpass Vertical Clearance	Type 3 GR	Brush-block bridge	Narrow Brush-block bridge	Interchange Config	10 ft graded outer shoulder	3 ft paved inner shoulder	Cross Slope / Superelevation	Ditch Foreslope	Median Width	Pavement Rehabilitation	Interchange Spacing	TOTAL
Edward T Breathitt Parkway	B1	34.27	36.52	$3,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$157,430	$157,430	$0	$0	$0	$3,216,070	$0	$ 3,534,430
	Exit 37	36.52	37.62	$3,500	$1,762,000	$1,665,000	$0	$0	$0	$0	$0	$0	$0	$77,000	$77,000	$0	$0	$0	$1,573,000	$0	$ 5,157,500
	B2	37.62	39.24	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$113,680	$113,680	$0	$0	$0	$2,322,320	$0	$ 2,549,680
	Exit 40	39.24	40.34	$0	$676,000	$0	$0	$0	$0	$0	$0	$0	$0	$77,000	$77,000	$0	$0	$0	$1,573,000	$0	$ 2,403,000
	B3	40.34	41.87	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$106,680	$106,680	$0	$0	$0	$2,179,320	$0	$ 2,392,680
	Exit 42	41.87	43.27	$0	$150,000	$112,000	$270,000	$0	$0	$0	$0	$0	$0	$98,140	$98,140	$0	$0	$0	$2,004,860	$0	$ 2,733,140
	Exit 44	43.27	44.67	$0	$50,000	$56,000	$224,000	$0	$0	$0	$0	$0	$0	$98,070	$98,070	$0	$0	$0	$2,003,430	$0	$ 2,529,570
	Exit 45	44.67	45.77	$0	$0	$0	$0	$0	$670,000	$0	$0	$0	$0	$77,000	$77,000	$0	$0	$0	$1,573,000	$0	$ 2,397,000
	B4	45.77	48.43	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,860	$186,060	$0	$0	$0	$3,800,940	$0	$ 4,007,860
	Exit 49	48.43	49.53	$0	$55,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$77,000	$0	$0	$0	$1,573,000	$0	$ 1,755,000
	B5	49.53	53.52	$0	$0	$0	$0	$0	$400,000	$0	$0	$0	$0	$0	$279,370	$0	$0	$0	$5,707,130	$0	$ 6,386,500
	Exit 54	53.52	54.62	$3,500	$100,000	$100,000	$0	$0	$0	$2,000	$40,000	$0	$0	$0	$77,000	$0	$0	$0	$1,573,000	$0	$ 1,895,500
	B6	54.62	55	$7,000	$0	$0	$0	$0	$0	$2,000	$0	$0	$0	$0	$26,810	$0	$0	$0	$547,690	$0	$ 583,500
	B7	55	62.81	$49,000	$0	$0	$0	$0	$0	$7,000	$80,000	$150,000	$0	$0	$546,280	$0	$0	$0	$11,159,720	$0	$ 11,992,000
	Exit 63	62.81	63.19	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$26,600	$0	$0	$0	$543,400	$0	$ 570,000
	B8	63.19	65.31	$0	$0	$0	$0	$0	$0	$0	$0	$104,000	$0	$0	$148,260	$0	$0	$0	$3,028,740	$0	$ 3,281,000
	B9	65.31	67.81	$0	$0	$0	$0	$0	$0	$0	$40,000	$0	$0	$0	$175,560	$0	$0	$0	$3,586,440	$0	$ 3,802,000
	Exit 68	67.81	68.91	$0	$50,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$77,000	$0	$0	$0	$1,573,000	$0	$ 1,750,000
	B10	68.91	75.63	$0	$0	$0	$0	$0	$0	$0	$40,000	$0	$0	$0	$470,470	$0	$0	$0	$9,611,030	$0	$ 10,121,500
	Exit 76	75.63	76.26	$0	$110,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$43,680	$0	$0	$0	$892,320	$0	$ 1,096,000
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	TOTAL			$ 66,500	$ 2,953,000	$ 2,083,000	$ 494,000	$ -	$ 1,070,000	$11,000	$200,000	$ 254,000	$ -	$825,860	$ 2,939,090	$ -	$ -	$ -	$60,041,410	$ -	$ 70,937,860
Western KY Parkway	Exit 1	0	0.551	$0	$0	$0	$0	$0	$0	$1,000	$0	$0	$0	$0	$38,570	$0	$0	$0	$787,930	$0	$ 827,500
	W1	0.551	3.152	$0	$0	$0	$0	$0	$0	$2,000	$0	$0	$0	$0	$182,070	$0	$0	$0	$3,719,430	$0	$ 3,903,500
	Exit 4	3.152	4.252	$0	$100,000	$580,000	$0	$0	$0	$3,000	$46,000	$0	$0	$0	$77,000	$0	$0	$0	$1,573,000	$0	$ 2,379,000
	W2	4.252	5.61	$14,000	$0	$0	$0	$0	$0	$1,000	$0	$0	$0	$0	$95,060	$0	$0	$0	$1,941,940	$0	$ 2,052,000
	W3	5.61	9.855	$73,500	$0	$0	$0	$0	$0	$2,000	$0	$0	$0	$0	$297,150	$0	$0	$0	$6,070,350	$0	$ 6,443,000
	W4	9.855	11.02	$14,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,667,380	$0	$ 1,681,380
	Exit 12	11.02	12.57	$0	$572,000	$100,000	$0	$0	$1,120,000	$0	$0	$567,000	$0	$0	$0	$0	$0	$0	$2,215,070	$0	$ 4,574,070
	Exit 13	12.57	13.67	$0	$0	$0	$0	$0	$850,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,573,000	$0	$ 2,423,000
	W5	13.67	21.76	$0	$0	$0	$0	$0	$750,000	$1,000	$0	$84,000	$0	$0	$0	$0	$0	$0	$11,574,420	$0	$ 12,409,420
	W6	21.76	23.89	$0	$0	$0	$0	$0	$0	$0	$0	$86,000	$0	$0	$0	$0	$0	$0	$3,033,030	$0	$ 3,119,030
	Exit 24	23.89	24.99	$0	$0	$0	$0	$0	$765,000	$0	$40,000	$0	$0	$0	$0	$0	$0	$0	$1,573,000	$0	$ 2,378,000
	W7	24.99	38.33	$0	$0	$0	$0	$0	$690,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$19,086,210	$0	$ 19,776,210
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0		$ -
	TOTAL			$101,500	$ 672,000	$ 680,000	$ -	$ -	$ 4,175,000	$10,000	$ 86,000	$ 737,000	$ -	$ -	$ 689,850	$ -	$ -	$ -	$54,814,760	$ -	$ 61,966,110
TOTAL - Both Parkways				$168,000	$ 3,625,000	$ 2,763,000	$ 494,000	$ -	$ 5,245,000	$21,000	$286,000	$ 991,000	$ -	$825,860	$ 3,628,940	$ -	$ -	$ -	$ 114,856,170	$ -	$ 132,903,970

Table B.8

Cost Summary by Reach and Deficiency Type for Full Build Scenaric

*Costs do not include system interchanges

	Reach	Range	Def Type	Type 7 GR	Ramp Accel	Ramp Decel	Narrow bridge	Vertical curve	Overpass Vertical Clearance	Type 3 GR	Brush-block bridge	Narrow Brush-block bridge	Interchange Config	10 ft graded outer shoulder	3 ft paved inner shoulder	Cross Slope / Superelevation	Ditch Foreslope	Median Width	Pavement Rehabilitation	Interchange Spacing	TOTAL
Edward T Breathitt Parkway	B1	34.27	36.52	$3,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$157,430	$157,430	$0	$200,161	$0	$3,216,070	$0	$ 3,734,591
	Exit 37	36.52	37.62	$3,500	$1,762,000	$1,665,000	$0	$0	$0	$0	$0	$0	$7,020,000	$77,000	$77,000	$0	$97,900	$0	$1,573,000	$0	$ 12,275,400
	B2	37.62	39.24	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$113,680	$113,680	$0	$144,536	$0	$2,322,320	$0	$ 2,694,216
	Exit 40	39.24	40.34	$0	$676,000	$0	$0	$0	$0	$0	$0	$0	$0	$77,000	$77,000	$0	$97,900	$0	$1,573,000	$0	$ 2,500,900
	B3	40.34	41.87	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$106,680	$106,680	$0	$135,636	$0	$2,179,320	$0	$ 2,528,316
	Exit 42	41.87	43.27	$0	$150,000	$112,000	$270,000	$0	$0	$0	$0	$0	$0	$98,140	$98,140	$0	$124,778	$0	$2,004,860	$0	$ 2,857,918
	Exit 44	43.27	44.67	$0	$50,000	$56,000	$224,000	$450,000	$0	$0	$0	$0	$0	$98,070	$98,070	$0	$124,689	$0	$2,003,430	$600,000	$ 3,704,259
	Exit 45	44.67	45.77	$0	$0	$0	$0	$525,000	$670,000	$0	$0	$0	$0	$77,000	$77,000	$0	$97,900	$0	$1,573,000	$0	$ 3,019,900
	B4	45.77	48.43	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$20,860	$186,060	$0	$236,562	$0	$3,800,940	$0	$ 4,244,422
	Exit 49	48.43	49.53	$0	$55,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$77,000	$0	$97,900	$0	$1,573,000	$0	$ 1,852,900
	B5	49.53	53.52	$0	$0	$0	$0	$0	$400,000	$0	$0	$0	$0	$0	$279,370	$0	$355,199	$0	$5,707,130	$0	$ 6,741,699
	Exit 54	53.52	54.62	$3,500	$100,000	$100,000	$0	$0	$0	$2,000	$40,000	$0	$0	$0	$77,000	$0	$97,900	$0	$1,573,000	$0	$ 1,993,400
	B6	54.62	55	$7,000	$0	$0	$0	$0	$0	$2,000	$0	$0	$0	$0	$26,810	$0	$34,087	$0	$547,690	$0	$ 617,587
	B7	55	62.81	$49,000	$0	$0	$0	$0	$0	$7,000	$80,000	$150,000	$10,250,000	$0	$546,280	$0	$694,556	$0	$11,159,720	$0	$ 22,936,556
	Exit 63	62.81	63.19	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$26,600	$0	$33,820	$0	$543,400	$0	$ 603,820
	B8	63.19	65.31	$0	$0	$0	$0	$0	$0	$0	$0	$104,000	$0	$0	$148,260	$0	$188,502	$0	$3,028,740	$0	$ 3,469,502
	B9	65.31	67.81	$0	$0	$0	$0	$0	$0	$0	$40,000	$0	$0	$0	$175,560	$0	$223,212	$0	$3,586,440	$0	$ 4,025,212
	Exit 68	67.81	68.91	$0	$50,000	$50,000	$0	$100,000	$0	$0	$0	$0	$0	$0	$77,000	$0	$97,900	$0	$1,573,000	$0	$ 1,947,900
	B10	68.91	75.63	$0	$0	$0	$0	$0	$0	$0	$40,000	$0	$0	$0	$470,470	$0	$598,169	$0	$9,611,030	$0	$ 10,719,669
	Exit 76	75.63	76.26	$0	$110,000	$50,000	$0	$0	$0	$0	$0	$0	$0	$0	$43,680	$0	$55,536	$0	$892,320	$0	$ 1,151,536
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	TOTAL			**$66,500**	**$2,953,000**	**$2,083,000**	**$494,000**	**$1,075,000**	**$1,070,000**	**$11,000**	**$200,000**	**$254,000**	**$17,270,000**	**$825,860**	**$2,939,090**	**$0**	**$3,736,843**	**$0**	**$60,041,410**	**$600,000**	**$93,619,703**
Western KY Parkway	Exit 1	0	0.551	$0	$0	$0	$0	$0	$0	$1,000	$0	$0	$0	$0	$38,570	$0	$0	$0	$787,930	$0	$ 827,500
	W1	0.551	3.152	$0	$0	$0	$0	$0	$0	$2,000	$0	$0	$0	$0	$182,070	$0	$0	$0	$3,719,430	$0	$ 3,903,500
	Exit 4	3.152	4.252	$0	$100,000	$580,000	$0	$0	$0	$3,000	$46,000	$0	$0	$0	$77,000	$0	$62,300	$0	$1,573,000	$0	$ 2,441,300
	W2	4.252	5.61	$14,000	$0	$0	$0	$0	$0	$1,000	$0	$0	$0	$0	$95,060	$0	$120,862	$0	$1,941,940	$0	$ 2,172,862
	W3	5.61	9.855	$73,500	$0	$0	$0	$0	$0	$2,000	$0	$0	$0	$0	$297,150	$0	$377,805	$0	$6,070,350	$0	$ 6,820,805
	W4	9.855	11.02	$14,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$103,774	$163,823	$1,667,380	$0	$ 1,948,977
	Exit 12	11.02	12.57	$0	$572,000	$100,000	$0	$225,000	$1,120,000	$0	$0	$567,000	$0	$0	$0	$0	$137,861	$217,635	$2,215,070	$2,600,000	$ 7,754,566
	Exit 13	12.57	13.67	$0	$0	$0	$0	$0	$850,000	$0	$0	$0	$0	$0	$0	$0	$97,900	$154,550	$1,573,000	$0	$ 2,675,450
	W5	13.67	21.76	$0	$0	$0	$0	$100,000	$750,000	$1,000	$0	$84,000	$0	$0	$0	$0	$720,366	$1,137,207	$11,574,420	$0	$ 14,366,993
	W6	21.76	23.89	$0	$0	$0	$0	$0	$0	$0	$0	$86,000	$0	$0	$0	$0	$188,769	$298,001	$3,033,030	$0	$ 3,605,800
	Exit 24	23.89	24.99	$0	$0	$0	$0	$0	$765,000	$0	$40,000	$0	$10,650,000	$0	$0	$0	$97,900	$154,550	$1,573,000	$0	$ 13,280,450
	W7	24.99	38.33	$0	$0	$0	$0	$300,000	$690,000	$0	$0	$0	$0	$0	$0	$0	$1,187,883	$1,875,254	$19,086,210	$0	$ 23,139,347
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	0	0	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$ -
	TOTAL			**$101,500**	**$672,000**	**$680,000**	**$0**	**$625,000**	**$4,175,000**	**$10,000**	**$86,000**	**$737,000**	**$10,650,000**	**$0**	**$689,850**	**$0**	**$3,095,420**	**$4,001,019**	**$54,814,760**	**$2,600,000**	**$82,937,549**
TOTAL - Both Parkways				**$168,000**	**$ 3,625,000**	**$ 2,763,000**	**$494,000**	**$ 1,700,000**	**$ 5,245,000**	**$21,000**	**$286,000**	**$ 991,000**	**$ 27,920,000**	**$825,860**	**$ 3,628,940**	**$ -**	**$ 6,832,263**	**$ 4,001,019**	**$ 114,856,170**	**$ 3,200,000**	**$ 176,557,252**