

Cost Estimates

Introduction

The programming costs for this project were developed to provide a conceptual level estimate at 2005 construction dollars. These numbers do not include any inflation. With the exception of the section through Olathe, it is generally assumed that the project will be able to be constructed using conventional means without large amounts of temporary pavements or retaining walls. However, the section through Olathe does account for the increased cost associated with assumed retaining walls and a freeway section similar to what is used in Wichita for the Kellogg/US-54 project.

Constructible Sections

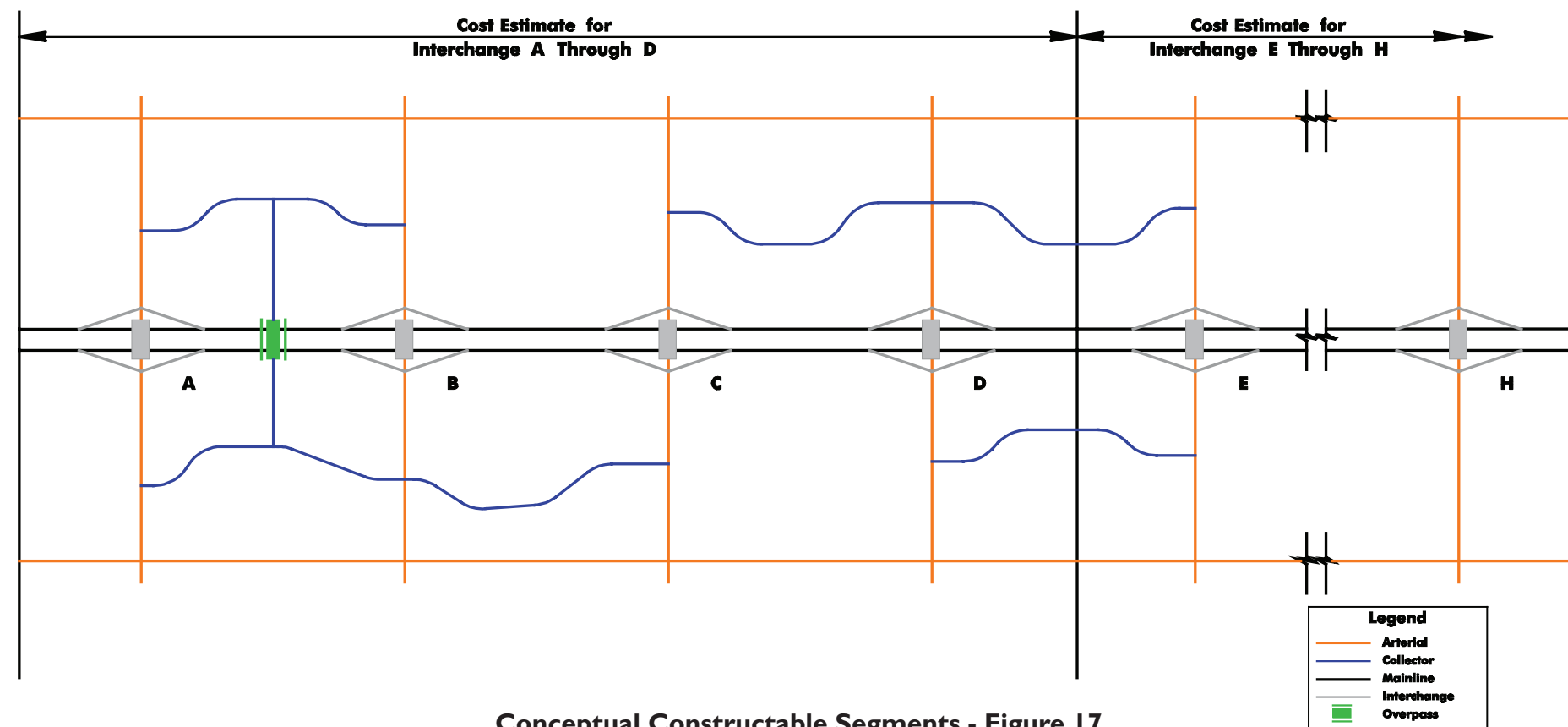
The cost estimate is broken down into constructible sections within each segment. These sections go from one complete interchange to another complete interchange. Therefore the cost includes the interchange and approximately one-half mile of freeway on each side of the interchange including the freeway through the interchange as noted by figure 17. This approach was chosen because it allows for projects that could be completed independently of each other.

Per Mile Breakdown

Each type of roadway was developed by a per-mile basis. The cost of pavement, earthwork, drainage, intersections, interchanges, etc were added up for the one mile section of each of the three roadway types. These totals for the one mile stretch were then compared to current projects being constructed around the metro area. The length of each roadway was measured and the per-mile costs applied to each one within each section. The result is an estimate of the cost of construction.

This method averages together all of the roadways of that type. It does not take into account specific construction complications for one individual piece of roadway, but assumes that those difficulties will be averaged out over the entire length of the project. It is not the intention of this cost estimate to be used in the planning of each individual section of street or highway, it is intended, rather, to be a guide for macro level project budgeting purposes.

The figure below includes those roads and interchanges included in the cost estimates.



Cost estimates do not include preliminary engineering, right-of-way, or construction engineering.

Conceptual Constructible Segments - Figure 17

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Segment Costs

The following costs are representative of the cost for **constructing** the freeway for the entire length of the study corridor.

	Freeway (Mainline, Interchanges, and Overpasses)	Street Network (Arterials and Collectors)	Total
Segment 1			
223rd Street to I83rd Street	\$ 88,600,000	\$ 53,680,000	\$142,280,000
I75th Street to I-35	\$ 41,000,000	\$ 26,880,000	\$ 67,880,000
I-35 / K-7 Interchange	\$110,000,000	\$ 0	\$111,000,000
I-35 to Spruce Street	\$111,850,000	\$ 12,720,000	\$124,570,000
I27th to K-10	\$ 57,750,000	\$ 21,280,000	\$ 79,030,000
K-10 / K-7 Interchange	\$150,000,000	\$ 0	\$150,000,000
Segment 1 Total	\$559,200,000	\$114,560,000	\$673,760,000
Segment 2			
K-10 to 83rd Street	\$ 48,250,000	\$ 45,040,000	\$ 93,290,000
75th Street to the Kansas River	\$110,500,000	\$ 52,160,000	\$162,660,000
Kansas River Bridge	\$ 11,400,000	\$ 0	\$ 11,400,000
Kansas River Bridge to Kansas Avenue	\$ 40,750,000	\$ 20,800,000	\$ 61,550,000
I-70 / K-7 Interchange	\$109,150,000	\$ 22,640,000	\$131,790,000
I30th Street to US-24/40	\$ 6,000,000	\$ 10,640,000	\$ 16,640,000
Segment 2 Total	\$326,050,000	\$151,280,000	\$477,330,000
Segment 3			
US-24/40 to Fairmont	\$ 91,250,000	\$ 46,250,000	\$137,730,000
Marxen to Mary Street	\$ 39,750,000	\$ 16,000,000	\$ 55,750,000
Segment 3 Total	\$131,000,000	\$ 62,480,000	\$193,000,000
Total Project Cost of Construction	\$1,016,250,000	\$328,320,000	\$1,344,570,000

K-7 Freeway and local Street Network - Segment I

Segment	Quantity	Unit	Unit Cost	Total
223rd Street to I83rd Street				
Mainline (4 lanes)	5.2	Mile	\$ 5,500,000	\$28,600,000
Interchanges	5	Each	\$15,000,000	\$50,000,000
Overpasses	2	Each	\$ 5,000,000	\$10,000,000
Collectors	12.2	Mile	\$ 2,400,000	\$29,280,000
Arterials	6.1	Mile	\$ 4,000,000	\$24,400,000
				<u>\$142,280,000</u>
I75th Street to I-35				
Mainline	2.8	Mile	\$ 7,500,000	\$21,000,000
Interchanges	1	Each	\$10,000,000	\$10,000,000
Overpasses	2	Each	\$ 5,000,000	\$10,000,000
Collectors	5.2	Mile	\$ 2,400,000	\$12,480,000
Arterials	3.6	Mile	\$ 4,000,000	\$14,400,000
				<u>\$67,880,000</u>
I-35 / K-7 Interchange				
I-35 Interchange	1	Each	\$110,000,000	\$110,000,000
I-35 to Spruce Street				
Mainline	1.9	Mile	\$ 7,500,000	\$14,250,000
Urban Mainline	1.6	Mile	\$36,000,000	\$57,600,000
Interchanges	2	Each	\$10,000,000	\$20,000,000
Overpasses	4	Each	\$ 5,000,000	\$20,000,000
Collectors	2.8	Mile	\$ 2,400,000	\$ 6,120,000
Arterials	1.5	Mile	\$ 4,000,000	\$ 6,200,000
				<u>\$124,570,000</u>
I27th Street to K-10				
Mainline	3.7	Mile	\$ 7,500,000	\$27,750,000
Interchanges	3	Each	\$10,000,000	\$30,000,000
Overpasses	0	Each	\$ 5,000,000	\$ 0
Collectors	4.2	Mile	\$ 2,400,000	\$10,080,000
Arterials	2.8	Mile	\$ 4,000,000	\$11,200,000
				<u>\$79,030,000</u>
K-10 / K-7 Interchange*				
K-10 Interchange (from K-10 study)				\$150,000,000
				<u>\$673,760,000</u>
Segment I Total				\$673,760,000

*Includes all improvements for the interchange:
College Boulevard to Prairie Star Parkway on K-7
and Clare Road to Lone Elm on K-10.

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Construction Cost Estimate - Segment 2

Segment	Quantity	Unit	Unit Cost	Total
K-10 to 83rd Street*				
Mainline	3.1	Mile	\$ 7,500,000	\$23,250,000
Interchanges	2	Each	\$10,000,000	\$20,000,000
Overpasses	1	Each	\$ 5,000,000	\$ 5,000,000
Collectors	7.1	Mile	\$ 2,400,000	\$17,040,000
Arterials	7	Mile	\$ 4,000,000	\$28,000,000
<i>*Does not include K-10 interchange</i>				\$93,290,000
75th Street to the Kansas River				
Mainline	5.4	Mile	\$ 7,500,000	\$40,500,000
Interchanges	5	Each	\$10,000,000	\$50,000,000
Overpasses	4	Each	\$ 5,000,000	\$20,000,000
Collectors	13.9	Mile	\$ 2,400,000	\$33,360,000
Arterials	4.7	Mile	\$ 4,000,000	\$18,800,000
				\$162,660,000
Kansas River Bridge				\$11,400,000
Kansas River Bridge to Kansas Ave.				
Mainline	2.1	Mile	\$ 7,500,000	\$15,750,000
Interchanges	2	Each	\$10,000,000	\$20,000,000
Overpasses	1	Each	\$ 5,000,000	\$ 5,000,000
Collectors	2.5	Mile	\$ 2,400,000	\$ 6,560,000
Arterials	3.7	Mile	\$ 4,000,000	\$14,800,000
				\$69,510,000
I-70 / K-7 Interchange**				
Mainline	1.3	Mile	\$7,500,000	\$ 9,750,000
Interchanges	1	Each	\$99,400,000	\$99,400,000
Overpasses	8.6	Mile	\$2,400,000	\$20,640,000
Arterials	0.5	Mile	\$4,000,000	\$20,000,000
<i>**Includes Kansas Avenue interchange and I30th Street interchange</i>				\$129,790,000
I30th Street to US 24/40***				
Mainline	0.8	Mile	\$ 7,500,000	\$ 6,000,000
Interchanges	0	Each	\$10,000,000	\$ 0
Overpasses	0	Each	\$ 5,000,000	\$ 0
Collectors	3.6	Mile	\$2,400,000	\$ 8,640,000
Arterials	0.5	Mile	\$4,000,000	\$ 2,000,000
<i>***Does not include US-24 interchange</i>				\$16,640,000
Segment 2 Total				\$477,330,000

Construction Cost Estimate - Segment 3

Segment	Quantity	Unit	Unit Cost	Total
US 24/40 to Fairmont				
Mainline	5.5	Mile	\$ 7,500,000	\$41,250,000
Interchanges	5	Each	\$10,000,000	\$50,000,000
Overpasses	0	Each	\$ 5,000,000	\$ 0
Collectors	11.7	Mile	\$ 2,400,000	\$28,080,000
Arterials	4.6	Mile	\$ 4,000,000	\$18,400,000
				\$137,730,000
Marxen to Mary Street				
Mainline	3.3	Mile	\$ 7,500,000	\$24,750,000
Interchanges	1	Each	\$10,000,000	\$10,000,000
Overpasses	1	Each	\$ 5,000,000	\$ 5,000,000
Collectors	5.5	Mile	\$ 2,400,000	\$13,200,000
Arterials	0.7	Mile	\$ 4,000,000	\$ 2,800,000
				\$55,750,000
Segment 3 Total				\$193,480,000