

Honolulu High-Capacity Transit Corridor Project

Project Proposed for Entry into Preliminary Engineering

Background

On December 22, 2006 the Honolulu City Council selected a fixed-guideway alternative from Kapolei to the University of Hawai'i at Mānoa and Waikīkī as the Locally Preferred Alternative (LPA) for the Honolulu High-Capacity Transit Corridor Project. The City Ordinance defining the LPA identified a specific alignment for the majority of the corridor but left options open in two locations. At the western end of the corridor the LPA selection identified two alignments (described in the Alternatives Analysis Report as Section I – Saratoga Avenue/North-South Road and Kamokila Boulevard), with the notation “as determined by the city administration before or during preliminary engineering.” In the center of the corridor the LPA selection also identified two alignments (described in the Alternatives Analysis Report as Section III – Salt Lake Boulevard and Aolele Street), with the notation “as determined by the city administration before or during preliminary engineering.”

The LPA selection was made with recognition of the fact that currently identified revenue sources, including revenues from the 0.5 percent General Excise Tax surcharge in place from January 1, 2007 through December 31, 2022, and a reasonable expectation of funds available from Section 5309 New Starts, would not be sufficient to fund the capital cost of the project. Thus a financially feasible first project, or Minimum Operable Segment, needed to be chosen. The City Council, on February 27, 2007, selected East Kapolei to Ala Moana Center, via Salt Lake Boulevard as the first project to be implemented.

This first project, East Kapolei to Ala Moana Center, via Salt Lake Boulevard, is the City's proposed “New Start” project; the project seeking entry into preliminary engineering.

Following selection of the first project, the city administration began discussions with FTA concerning alternatives to be included in the NEPA EIS. These discussions resulted in the decision that the EIS should examine both the New Start project, East Kapolei to Ala Moana Center, via Salt Lake Boulevard, and anticipated future extensions. Thus the EIS alternatives include, in addition to the New Start project alignment, alignment extensions from Kapolei to East Kapolei via Saratoga Avenue and North-South Road; past Honolulu International Airport via Aolele Street; and from Ala Moana Center to the University of Hawai'i at Mānoa and to Waikīkī.

The following table shows the various alignments and design alternatives by section described in the *Final Capital Costing Memorandum* and identifies which are included in the LPA, in the alternatives to be studied in the EIS and in the New Start project. The LPA includes one alignment section, Kamokila Boulevard/Farrington Highway in Section I, which is not being carried further, in the EIS or as an anticipated future extension of the New Start project. As noted on the table, the New Start project includes only a portion of the Saratoga Avenue/North-South Road alignment in Section I and only a portion of the Nimitz Highway/Halekauwila Street/Kapi'olani Boulevard alignment in Section V. Attached are two tables which show the section-by-section costs of the East Kapolei to Ala Moana Center project, including the partial portions of Sections I and V and the relevant systemwide costs in Section VI. The first table shows costs in 2006 dollars, consistent with the *Final Capital Costing Memorandum*; the section

table shows cost updated to 2007 dollars. Also included, in 2007 dollars, are the “Main” and “Inflation” worksheets from the SCC workbook.

Also, please note that two alternate design options are under consideration for the Saratoga Avenue/North-South Road alignment of Section I. One, designated as Alt 5 below, includes both aerial structure and at-grade guideway; the other, designated as Alt 6 below, includes only aerial structure, resulting in a fully exclusive right-of-way for the full length of the corridor. The attached cost tables include the option with both aerial and at-grade guideway. An alternate cost estimate for the New Start project, assuming a fully exclusive right-of-way, is under preparation.

Section	Alignments Being Considered	Alternatives	LPA	EIS	New Start Project
I. Kapolei to Ft Weaver Road	Kamokila Blvd / Farrington Hwy	Alt 1	yes	no	no
		Alt 2			
	Kapolei Pkwy / North-South Rd	Alt 3			
		Alt 4			
	Saratoga Ave / North-South Rd	Alt 5	yes	yes	partial
		Alt 6	alternate	alternate	alternate
	Geiger Rd / Ft Weaver Rd	Alt 7			
		Alt 8			
II. Ft Waever Rr to Aloha Stadium	Farrington Hwy / Kamehameha Hwy	Alt 1	yes	yes	yes
III. Aloha Stadium to Middle Street	Salt Lake Blvd	Alt 1			
		Alt 2	yes	yes	yes
	Mauka of the Airport Viaduct	Alt 3			
		Alt 4			
	Makai of the Airport Viaduct	Alt 5			
	Aolele Street	Alt 6	yes	yes	no
IV. Middle Street to Iwilei	North King Street	Alt 1			
		Alt 2			
	Dillingham Blvd	Alt 3	yes	yes	yes
V. Middle Street to Iwilei	Beretania St / South King Street	Alt 9			
		Alt 10			
	Hotel Street / Kawaiaha'o St / Kapi'olani Blvd	Alt 1			
		Alt 2			
		Alt 4			
	King St Tunnel / Waimanu St / Kapi'olani Blvd	Alt 4			
		Alt 5			
	Nimitz Hwy / Queen St / Kapi'olani Blvd	Alt 5			
		Alt 6			
	Nimitz Hwy / Halekauwila St / Kapi'olani Blvd	Alt 7			
Alt 8		yes	yes	partial	
Waikīkī Branch	Alt 11	yes	yes	no	

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			Preliminary - Not Final (2006\$ with Contingency)	Preliminary - Not Final (2006\$ with Contingency)
			Sections & Alignments Section 1	Sections & Alignments Section 2
Description			Saratoga Ave/North-South Rd from UHWO-Makai Station	Fort Weaver Rd to Aloha Stadium
			Alt 5	1
			5	1
			At-grade/elevated	At-grade/elevated
10.00	GUIDEWAY & TRACK ELEMENTS			
10.01	Guideway: At-grade Exclusive Right-of-way		\$2,068,368	\$0
10.04	Guideway: Aerial structure		\$98,768,007	\$265,825,986
10.06	Guideway: Underground cut & cover		\$0	\$19,347,000
10.08	Guideway: Retained cut or fill		\$7,420,200	\$9,893,600
10.09	Track: Direct fixation		\$8,750,025	\$22,999,950
10.11	Track: Ballasted		\$3,165,612	\$753,000
10.12	Track: Special (switches, turnouts)		\$2,969,460	\$4,633,684
	SUBTOTAL GUIDEWAY & TRACK		\$123,141,672	\$323,453,220
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (#underground stations/#aerial platforms/#at grade platforms)			
20.01	At-grade station, stop, shelter, mall, terminal, platform		\$3,195,536	\$3,195,536
20.02	Aerial station, stop, shelter, mall, terminal, platform		\$11,881,180	\$23,762,360
20.07	Elevators, escalators		\$6,504,240	\$13,008,480
	SUBTOTAL COST STATIONS, STOPS, TERMINALS, INTERMODAL		\$21,580,956	\$39,966,376
30.00	YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			
30.01	Administration Building: Office, sales, storage, revenue counting		\$0	\$0
30.03	Heavy Maintenance Facility		\$0	\$0
30.04	Storage Building & Yard		"IN 30.02"	"IN 30.02"
	SUBTOTAL COST YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)		\$0	\$0
40.00	SITWORK & SPECIAL CONDITIONS			
40.01	Demolition, Clearing, Earthwork1		\$2,474,018	\$7,463,018
40.02	Site Utilities, Utility Relocation		\$12,515,940	\$17,431,423
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		\$237,355	\$3,250,635
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		\$750,000	\$2,500,000
40.06	Site Development: Roads, walks, plazas, parking lots, landscape work		\$33,108,422	\$97,763,818
	SUBTOTAL COST SITWORK & SPECIAL CONDITIONS		\$49,085,735	\$128,408,894
50.00	SYSTEMS			
50.01	Train control and signals		\$6,468,246	\$8,466,612
50.02	Traffic signals and crossing protection		\$0	\$8,073,364
50.03	Traction power supply: substations		\$6,561,844	\$11,483,227
50.04	Traction power distribution: catenary and third rail		\$4,957,065	\$8,535,150
50.05	Communications		\$5,761,431	\$10,636,626
50.06	Fare collection system and equipment		\$899,136	\$1,498,560
50.07	Central Control		\$0	\$0
	SUBTOTAL COST SYSTEMS		\$24,647,722	\$48,693,539
	SUBTOTAL CONSTRUCTION COSTS		\$218,456,085	\$540,522,029
	CONTINGENCY (WEIGHTED AVERAGE)		\$56,211,753	\$140,129,715
	SUBTOTAL CONSTRUCTION COSTS WITH CONTINGENCY		\$274,667,838	\$680,651,744
	FEE/RISK		in items above	in items above
	ADJUSTMENT FOR CASUAL OVERTIME (2.5% OF DIRECT LABOR)		\$1,802,508	\$4,466,777
	SUBTOTAL CONSTRUCTION COSTS		\$276,470,345	\$685,118,521
	HAWAII STATE EXCISE 4.70%		\$12,994,106	\$32,200,570
	TOTAL CONSTRUCTION COSTS		\$289,464,451	\$717,319,091

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis <small>20-Mile Alignment (UHWO-Makai to Ala Moana)</small>			Preliminary - Not Final (2006\$ with Contingency)	Preliminary - Not Final (2006\$ with Contingency)
			Sections & Alignments Section 1	Sections & Alignments Section 2
Description			Saratoga Ave/North-South Rd from UHWO-Makai Station	Fort Weaver Rd to Aloha Stadium
			Alt 5	1
			5	1
			At-grade/elevated	At-grade/elevated
60.00	ROW, LAND, EXISTING IMPROVEMENTS (acres)			
60.01	Purchase or lease of real property		\$0	\$3,320,000
60.02	Relocation of existing households and businesses		\$0	\$400,000
	SUBTOTAL COST ROW, LAND, EXISTING IMPROVEMENTS (acres)		\$0	\$3,720,000
	CONTINGENCY & ENGINEERING (40%+10%)		50%	\$0
	TOTAL ROW COSTS		\$0	\$5,580,000
70.00	VEHICLES			
70.01	Light Rail		IN SECTION 6	IN SECTION 6
70.06	Non-revenue vehicles		IN SECTION 6	IN SECTION 6
70.07	Spare parts (10% of LRV's)		IN SECTION 6	IN SECTION 6
	SUBTOTAL VEHICLE COST		\$0	\$0
	CONTINGENCY & ENGINEERING STAFF(10%+14%)		24%	\$0
	TOTAL VEHICLE COSTS		\$0	\$0
80.00	SOFT COSTS			
80.01	Preliminary Engineering	3.0%	\$8,683,934	\$21,519,573
80.02	Final Design	4.5%	\$13,025,900	\$32,279,359
80.03	Project Management for Design and Construction	5.5%	\$15,920,545	\$39,452,550
80.04	Construction Administration & Management	10.0%	\$28,946,445	\$71,731,909
80.05	Insurance-Professional liability	1.50%	\$4,341,967	\$10,759,786
80.06	Legal, Permits, Review Fees by other agencies, cities, etc	1.50%	\$4,341,967	\$10,759,786
80.07	Survey, Testing, Investigation, Inspection	0.50%	\$1,447,322	\$3,586,595
80.08	Agency: Force Account Work (2%3,4)	3.5%	\$10,131,256	\$25,106,168
	SUBTOTAL SOFT COSTS		30%	\$86,839,335
90.00	CONTINGENCY (Project Reserve) (10 thru 90)		6.0%	\$22,578,227
110.00	Total Construction (10+20+30+40+50) (2006\$)		\$289,464,451	\$717,319,091
	OTHER PROJECT COST (60+70+80+90+100) (2006\$)		\$109,417,563	\$277,061,417
	TOTAL PROJECT COST (10+20+30+40+50+60+70+80+90+100) (2006\$)		\$398,882,014	\$994,380,508
	Route foot length		19,269'	35,574'
	Construction Cost per Route Foot (2006\$)		\$15,100	\$20,200
	Construction Cost per Route Mile (2006\$)		\$79,728,000	\$106,656,000

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			20-Mile Alignment	
			Preliminary - Not Final (2006\$ with Contingency)	Preliminary - Not Final (2006\$ with Contingency)
			Sections & Alignments Section 3	Sections & Alignments Section 4
			Salt Lake Blvd/Dillingham Blvd section 3 alt 2 15 Elevated	Dillingham Blvd 18 Elevated
Description				
10.00	GUIDEWAY & TRACK ELEMENTS			
10.01	Guideway: At-grade Exclusive Right-of-way		\$0	\$0
10.04	Guideway: Aerial structure		\$203,521,800	\$71,662,950
10.06	Guideway: Underground cut & cover		\$0	\$0
10.08	Guideway: Retained cut or fill		\$0	\$0
10.09	Track: Direct fixation		\$16,856,100	\$5,935,275
10.11	Track: Ballasted		\$0	\$0
10.12	Track: Special (switches, turnouts)		\$1,914,822	\$2,872,233
	SUBTOTAL GUIDEWAY & TRACK		\$222,292,722	\$80,470,458
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (#underground stations/#aerial platforms/#at grade platforms)			
20.01	At-grade station, stop, shelter, mall, terminal, platform		\$0	\$0
20.02	Aerial station, stop, shelter, mall, terminal, platform		\$11,737,180	\$17,821,770
20.07	Elevators, escalators		\$6,504,240	\$9,756,360
	SUBTOTAL COST STATIONS, STOPS, TERMINALS, INTERMODAL		\$18,241,420	\$27,578,130
30.00	YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			
30.01	Administration Building: Office, sales, storage, revenue counting		\$0	\$0
30.03	Heavy Maintenance Facility		\$0	\$0
30.04	Storage Building & Yard		"IN 30.02"	"IN 30.02"
	SUBTOTAL COST YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)		\$0	\$0
40.00	SITWORK & SPECIAL CONDITIONS			
40.01	Demolition, Clearing, Earthwork1		\$5,169,204	\$1,820,151
40.02	Site Utilities, Utility Relocation		\$18,860,936	\$72,140,805
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		\$154,290	\$2,313,240
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		\$2,500,000	\$2,500,000
40.06	Site Development: Roads, walks, plazas, parking lots, landscape work		\$16,974,210	\$5,931,451
	SUBTOTAL COST SITWORK & SPECIAL CONDITIONS		\$43,658,640	\$84,705,647
50.00	SYSTEMS			
50.01	Train control and signals		\$5,943,336	\$2,092,734
50.02	Traffic signals and crossing protection		\$5,151,512	\$2,835,328
50.03	Traction power supply: substations		\$8,202,305	\$3,280,922
50.04	Traction power distribution: catenary and third rail		\$5,618,700	\$1,978,425
50.05	Communications		\$7,466,628	\$2,629,107
50.06	Fare collection system and equipment		\$599,424	\$899,136
50.07	Central Control		\$0	\$0
	SUBTOTAL COST SYSTEMS		\$32,981,905	\$13,715,652
	SUBTOTAL CONSTRUCTION COSTS		\$317,174,687	\$206,469,887
	CONTINGENCY (WEIGHTED AVERAGE)		\$81,962,115	\$59,494,891
	SUBTOTAL CONSTRUCTION COSTS WITH CONTINGENCY		\$399,136,802	\$265,964,778
	FEE/RISK		in items above	in items above
	ADJUSTMENT FOR CASUAL OVERTIME (2.5% OF DIRECT LABOR)		\$2,619,335	\$1,745,394
	SUBTOTAL CONSTRUCTION COSTS		\$401,756,137	\$267,710,172
	HAWAII STATE EXCISE 4.70%		\$18,882,538	\$12,582,378
	TOTAL CONSTRUCTION COSTS		\$420,638,675	\$280,292,550

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			20-Mile Alignment	
			Preliminary - Not Final (2006\$ with Contingency)	Preliminary - Not Final (2006\$ with Contingency)
			Sections & Alignments Section 3	Sections & Alignments Section 4
			Salt Lake Blvd/Dillingham Blvd section 3 alt 2 15 Elevated	Dillingham Blvd 18 Elevated
Description				
60.00	ROW, LAND, EXISTING IMPROVEMENTS (acres)			
60.01	Purchase or lease of real property		\$4,720,000	\$6,540,000
60.02	Relocation of existing households and businesses		\$0	\$0
	SUBTOTAL COST ROW, LAND, EXISTING IMPROVEMENTS (acres)		\$4,720,000	\$6,540,000
	CONTINGENCY & ENGINEERING (40%+10%)	50%	\$2,360,000	\$3,270,000
	TOTAL ROW COSTS		\$7,080,000	\$9,810,000
70.00	VEHICLES			
70.01	Light Rail		IN SECTION 6	IN SECTION 6
70.06	Non-revenue vehicles		IN SECTION 6	IN SECTION 6
70.07	Spare parts (10% of LRV's)		IN SECTION 6	IN SECTION 6
	SUBTOTAL VEHICLE COST		\$0	\$0
	CONTINGENCY & ENGINEERING STAFF(10%+14%)	24%	\$0	\$0
	TOTAL VEHICLE COSTS		\$0	\$0
80.00	SOFT COSTS			
80.01	Preliminary Engineering	3.0%	\$12,619,160	\$8,408,777
80.02	Final Design	4.5%	\$18,928,740	\$12,613,165
80.03	Project Management for Design and Construction	5.5%	\$23,135,127	\$15,416,090
80.04	Construction Administration & Management	10.0%	\$42,063,868	\$28,029,255
80.05	Insurance-Professional liability	1.50%	\$6,309,580	\$4,204,388
80.06	Legal, Permits, Review Fees by other agencies, cities, etc	1.50%	\$6,309,580	\$4,204,388
80.07	Survey, Testing, Investigation, Inspection	0.50%	\$2,103,193	\$1,401,463
80.08	Agency: Force Account Work (2%3,4)	3.5%	\$14,722,354	\$9,810,239
	SUBTOTAL SOFT COSTS	30%	\$126,191,603	\$84,087,765
90.00	CONTINGENCY (Project Reserve) (10 thru 90)	6.0%	\$33,234,617	\$22,451,419
110.00	Total Construction (10+20+30+40+50) (2006\$)		\$420,638,675	\$280,292,550
	OTHER PROJECT COST (60+70+80+90+100) (2006\$)		\$166,506,219	\$116,349,184
	TOTAL PROJECT COST (10+20+30+40+50+60+70+80+90+100) (2006\$)		\$587,144,895	\$396,641,734
	Route foot length		28,501'	9,702'
	Construction Cost per Route Foot (2006\$)		\$14,800	\$28,900
	Construction Cost per Route Mile (2006\$)		\$78,144,000	\$152,592,000

**Honolulu High-Capacity Transit Corridor Project
Fixed Guideway Alternatives
Summary Cost Comparison of Alternative Analysis**

20-Mile Alignment (UHWO-Makai to Ala Moana)

		Preliminary - Not Final (2006\$ with Contingency)		Preliminary - Not Final (2006\$ with Contingency)	
		Sections & Alignments Section 5		Sections & Alignments Section 6	
		Dillingham/Nimitz Hwy/Halekauwila St/Kapiolani Blvd to Ala Moana Sta		Systemwide	
Description		25		Alt 11	
		Elevated		Elevated	
10.00	GUIDEWAY & TRACK ELEMENTS				
10.01	Guideway: At-grade Exclusive Right-of-way		\$0		\$0
10.04	Guideway: Aerial structure		\$118,816,510		\$0
10.06	Guideway: Underground cut & cover		\$0		\$0
10.08	Guideway: Retained cut or fill		\$0		\$0
10.09	Track: Direct fixation		\$9,803,700		\$0
10.11	Track: Ballasted		\$0		\$0
10.12	Track: Special (switches, turnouts)		\$4,836,153		\$0
SUBTOTAL GUIDEWAY & TRACK			\$133,456,363		\$0
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (#underground stations/#aerial platforms/#at grade platforms)				
20.01	At-grade station, stop, shelter, mall, terminal, platform		\$0		\$0
20.02	Aerial station, stop, shelter, mall, terminal, platform		\$31,044,098		\$0
20.07	Elevators, escalators		\$14,693,811		\$0
SUBTOTAL COST STATIONS, STOPS, TERMINALS, INTERMODAL			\$45,737,909		\$0
30.00	YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)				
30.01	Administration Building: Office, sales, storage, revenue counting		\$0		\$14,758,888
30.03	Heavy Maintenance Facility		\$0		\$66,456,265
30.04	Storage Building & Yard		"IN 30.02"		"IN 30.02"
SUBTOTAL COST YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			\$0		\$81,215,153
40.00	SITWORK & SPECIAL CONDITIONS				
40.01	Demolition, Clearing, Earthwork1		\$3,006,468		\$0
40.02	Site Utilities, Utility Relocation		\$126,787,082		\$0
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		\$0		\$0
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		\$750,000		\$0
40.06	Site Development: Roads, walks, plazas, parking lots, landscape work		\$5,293,361		\$0
SUBTOTAL COST SITWORK & SPECIAL CONDITIONS			\$135,836,911		\$0
50.00	SYSTEMS				
50.01	Train control and signals		\$3,456,712		\$0
50.02	Traffic signals and crossing protection		\$6,336,226		\$0
50.03	Traction power supply: substations		\$4,921,383		\$0
50.04	Traction power distribution: catenary and third rail		\$3,267,900		\$0
50.05	Communications		\$4,342,676		\$0
50.06	Fare collection system and equipment		\$1,498,560		\$0
50.07	Central Control		\$0		\$8,529,933
SUBTOTAL COST SYSTEMS			\$23,823,457		\$8,529,933
SUBTOTAL CONSTRUCTION COSTS			\$338,854,640		\$89,745,086
CONTINGENCY (WEIGHTED AVERAGE)			\$97,768,015		\$22,436,272
SUBTOTAL CONSTRUCTION COSTS WITH CONTINGENCY			\$436,622,655		\$112,181,358
FEE/RISK				in items above	in items above
ADJUSTMENT FOR CASUAL OVERTIME (2.5% OF DIRECT LABOR)			\$2,865,336		\$736,190
SUBTOTAL CONSTRUCTION COSTS			\$439,487,991		\$112,917,548
HAWAII STATE EXCISE 4.70%			\$20,655,936		\$5,307,125
TOTAL CONSTRUCTION COSTS			\$460,143,927		\$118,224,673

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis <small>20-Mile Alignment (UHWO-Makai to Ala Moana)</small>			Preliminary - Not Final (2006\$ with Contingency)	Preliminary - Not Final (2006\$ with Contingency)
			Sections & Alignments Section 5	Sections & Alignments Section 6
Description			Dillingham/Nimitz Hwy/Halekauwila St/Kapiolani Blvd to Ala Moana Sta	Systemwide
			25	Alt 11 26
			Elevated	Elevated
60.00	ROW, LAND, EXISTING IMPROVEMENTS (acres)			
60.01	Purchase or lease of real property		\$31,800,000	\$0
60.02	Relocation of existing households and businesses		\$1,300,000	\$0
	SUBTOTAL COST ROW, LAND, EXISTING IMPROVEMENTS (acres)		\$33,100,000	\$0
	CONTINGENCY & ENGINEERING (40%+10%)		50%	\$16,550,000
	TOTAL ROW COSTS		\$49,650,000	\$0
70.00	VEHICLES			
70.01	Light Rail		IN SECTION 6	\$162,804,312
70.06	Non-revenue vehicles		IN SECTION 6	\$4,203,149
70.07	Spare parts (10% of LRV's)		IN SECTION 6	\$16,280,418
	SUBTOTAL VEHICLE COST		\$0	\$183,287,879
	CONTINGENCY & ENGINEERING STAFF(10%+14%)		24%	\$0
	TOTAL VEHICLE COSTS		\$0	\$227,276,970
80.00	SOFT COSTS			
80.01	Preliminary Engineering	3.0%	\$13,804,318	\$3,546,740
80.02	Final Design	4.5%	\$20,706,477	\$5,320,110
80.03	Project Management for Design and Construction	5.5%	\$25,307,916	\$6,502,357
80.04	Construction Administration & Management	10.0%	\$46,014,393	\$11,822,467
80.05	Insurance-Professional liability	1.50%	\$6,902,159	\$1,773,370
80.06	Legal, Permits, Review Fees by other agencies, cities, etc	1.50%	\$6,902,159	\$1,773,370
80.07	Survey, Testing, Investigation, Inspection	0.50%	\$2,300,720	\$591,123
80.08	Agency: Force Account Work (2%3,4)	3.5%	\$16,105,037	\$4,137,864
	SUBTOTAL SOFT COSTS		30%	\$138,043,178
90.00	CONTINGENCY (Project Reserve) (10 thru 90)		6.0%	\$38,870,226
110.00	Total Construction (10+20+30+40+50) (2006\$)		\$460,143,927	\$118,224,673
	OTHER PROJECT COST (60+70+80+90+100) (2006\$)		\$226,563,404	\$285,602,515
	TOTAL PROJECT COST (10+20+30+40+50+60+70+80+90+100) (2006\$)		\$686,707,331	\$403,827,187
	Route foot length		14,524'	105,600'
	Construction Cost per Route Foot (2006\$)		\$31,700	\$1,120
	Construction Cost per Route Mile (2006\$)		\$167,376,000	\$5,911,234

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			Preliminary - Not Final (2007\$ with Contingency)	Preliminary - Not Final (2007\$ with Contingency)
			Sections & Alignments Section 1	Sections & Alignments Section 2
			Saratoga Ave/North-South Rd from UHWO-Makai Station	Fort Weaver Rd to Aloha Stadium
			Alt 5	1
Description			At-grade/elevated	At-grade/elevated
10.00	GUIDEWAY & TRACK ELEMENTS			
10.01	Guideway: At-grade Exclusive Right-of-way		\$2,320,608	\$0
10.04	Guideway: Aerial structure		\$100,350,471	\$270,085,058
10.06	Guideway: Underground cut & cover		\$0	\$25,524,000
10.08	Guideway: Retained cut or fill		\$9,190,800	\$12,254,400
10.09	Track: Direct fixation		\$9,320,397	\$24,499,206
10.11	Track: Ballasted		\$3,354,792	\$798,000
10.12	Track: Special (switches, turnouts)		\$3,147,939	\$4,911,913
SUBTOTAL GUIDEWAY & TRACK			\$127,685,007	\$338,072,577
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (#underground stations/#aerial platforms/#at grade platforms)			
20.01	At-grade station, stop, shelter, mall, terminal, platform		\$3,416,598	\$3,416,598
20.02	Aerial station, stop, shelter, mall, terminal, platform		\$13,038,672	\$26,077,344
20.07	Elevators, escalators		\$6,812,012	\$13,624,024
SUBTOTAL COST STATIONS, STOPS, TERMINALS, INTERMODAL			\$23,267,282	\$43,117,966
30.00	YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			
30.01	Administration Building: Office, sales, storage, revenue counting		\$0	\$0
30.03	Heavy Maintenance Facility		\$0	\$0
30.04	Storage Building & Yard		"IN 30.02"	"IN 30.02"
SUBTOTAL COST YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			\$0	\$0
40.00	SITework & SPECIAL CONDITIONS			
40.01	Demolition, Clearing, Earthwork1		\$2,562,736	\$7,821,958
40.02	Site Utilities, Utility Relocation		\$13,102,414	\$18,813,770
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		\$351,542	\$4,814,454
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		\$750,000	\$2,500,000
40.06	Site Development: Roads, walks, plazas, parking lots, landscape work		\$33,908,868	\$102,131,467
SUBTOTAL COST SITework & SPECIAL CONDITIONS			\$50,675,560	\$136,081,649
50.00	SYSTEMS			
50.01	Train control and signals		\$6,822,111	\$8,929,074
50.02	Traffic signals and crossing protection		\$0	\$8,516,474
50.03	Traction power supply: substations		\$6,922,772	\$12,114,851
50.04	Traction power distribution: catenary and third rail		\$4,957,065	\$8,535,150
50.05	Communications		\$6,050,466	\$11,170,236
50.06	Fare collection system and equipment		\$996,021	\$1,660,035
50.07	Central Control		\$0	\$0
SUBTOTAL COST SYSTEMS			\$25,748,435	\$50,925,820
SUBTOTAL CONSTRUCTION COSTS			\$227,376,284	\$568,198,012
CONTINGENCY (WEIGHTED AVERAGE)			\$58,520,740	\$147,996,921
SUBTOTAL CONSTRUCTION COSTS WITH CONTINGENCY			\$285,897,024	\$716,194,933
FEE/RISK			in items above	in items above
ADJUSTMENT FOR CASUAL OVERTIME (2.5% OF DIRECT LABOR)			\$1,876,199	\$4,700,029
SUBTOTAL CONSTRUCTION COSTS			\$287,773,223	\$720,894,962
HAWAII STATE EXCISE 4.70%			\$13,525,341	\$33,882,063
TOTAL CONSTRUCTION COSTS			\$301,298,564	\$754,777,026

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			Preliminary - Not Final (2007\$ with Contingency)	Preliminary - Not Final (2007\$ with Contingency)
			Sections & Alignments Section 1	Sections & Alignments Section 2
			Saratoga Ave/North-South Rd from UHWO-Makai Station	Fort Weaver Rd to Aloha Stadium
			Alt 5	1
Description			5	1
			At-grade/elevated	At-grade/elevated
60.00	ROW, LAND, EXISTING IMPROVEMENTS (acres)			
60.01	Purchase or lease of real property		\$0	\$3,640,000
60.02	Relocation of existing households and businesses		\$0	\$400,000
	SUBTOTAL COST ROW, LAND, EXISTING IMPROVEMENTS (acres)		\$0	\$4,040,000
	CONTINGENCY & ENGINEERING (40%+10%)		50%	\$0
	TOTAL ROW COSTS		\$0	\$6,060,000
70.00	VEHICLES			
70.01	Light Rail		IN SECTION 6	IN SECTION 6
70.06	Non-revenue vehicles		IN SECTION 6	IN SECTION 6
70.07	Spare parts (10% of LRV's)		IN SECTION 6	IN SECTION 6
	SUBTOTAL VEHICLE COST		\$0	\$0
	CONTINGENCY & ENGINEERING STAFF(10%+14%)		24%	\$0
	TOTAL VEHICLE COSTS		\$0	\$0
80.00	SOFT COSTS			
80.01	Preliminary Engineering	3.0%	\$9,038,957	\$22,643,311
80.02	Final Design	4.5%	\$13,558,435	\$33,964,966
80.03	Project Management for Design and Construction	5.5%	\$16,571,421	\$41,512,736
80.04	Construction Administration & Management	10.0%	\$30,129,856	\$75,477,703
80.05	Insurance-Professional liability	1.50%	\$4,519,478	\$11,321,655
80.06	Legal, Permits, Review Fees by other agencies, cities, etc	1.50%	\$4,519,478	\$11,321,655
80.07	Survey, Testing, Investigation, Inspection	0.50%	\$1,506,493	\$3,773,885
80.08	Agency: Force Account Work (2%3,4)	3.5%	\$10,545,450	\$26,417,196
	SUBTOTAL SOFT COSTS		30%	\$90,389,568
90.00	CONTINGENCY (Project Reserve) (10 thru 90)		6.0%	\$23,501,288
110.00	Total Construction (10+20+30+40+50) (2006\$)		\$301,298,564	\$754,777,026
	OTHER PROJECT COST (60+70+80+90+100) (2006\$)		\$113,890,856	\$291,729,316
	TOTAL PROJECT COST (10+20+30+40+50+60+70+80+90+100) (2006\$)		\$415,189,420	\$1,046,506,341
	Route foot length		19,269'	35,574'
	Construction Cost per Route Foot (2006\$)		\$15,700	\$21,300
	Construction Cost per Route Mile (2006\$)		\$82,896,000	\$112,464,000

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			20-Mile Alignment	
			Preliminary - Not Final (2007\$ with Contingency)	Preliminary - Not Final (2007\$ with Contingency)
			Sections & Alignments Section 3	Sections & Alignments Section 4
			Salt Lake Blvd/Dillingham Blvd section 3 alt 2 15 Elevated	Dillingham Blvd 18 Elevated
Description				
10.00	GUIDEWAY & TRACK ELEMENTS			
10.01	Guideway: At-grade Exclusive Right-of-way		\$0	\$0
10.04	Guideway: Aerial structure		\$207,092,796	\$72,920,349
10.06	Guideway: Underground cut & cover		\$0	\$0
10.08	Guideway: Retained cut or fill		\$0	\$0
10.09	Track: Direct fixation		\$17,954,868	\$6,322,167
10.11	Track: Ballasted		\$0	\$0
10.12	Track: Special (switches, turnouts)		\$2,029,832	\$3,044,748
	SUBTOTAL GUIDEWAY & TRACK		\$227,077,496	\$82,287,264
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (#underground stations/#aerial platforms/#at grade platforms)			
20.01	At-grade station, stop, shelter, mall, terminal, platform		\$0	\$0
20.02	Aerial station, stop, shelter, mall, terminal, platform		\$12,875,521	\$19,558,008
20.07	Elevators, escalators		\$6,812,012	\$10,218,018
	SUBTOTAL COST STATIONS, STOPS, TERMINALS, INTERMODAL		\$19,687,533	\$29,776,026
30.00	YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			
30.01	Administration Building: Office, sales, storage, revenue counting		\$0	\$0
30.03	Heavy Maintenance Facility		\$0	\$0
30.04	Storage Building & Yard		"IN 30.02"	"IN 30.02"
	SUBTOTAL COST YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)		\$0	\$0
40.00	SITWORK & SPECIAL CONDITIONS			
40.01	Demolition, Clearing, Earthwork1		\$5,418,924	\$1,908,081
40.02	Site Utilities, Utility Relocation		\$19,700,208	\$74,401,313
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		\$228,516	\$3,426,096
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		\$2,500,000	\$2,500,000
40.06	Site Development: Roads, walks, plazas, parking lots, landscape work		\$18,522,758	\$6,741,733
	SUBTOTAL COST SITWORK & SPECIAL CONDITIONS		\$46,370,406	\$88,977,223
50.00	SYSTEMS			
50.01	Train control and signals		\$6,267,972	\$2,207,043
50.02	Traffic signals and crossing protection		\$5,434,252	\$2,990,948
50.03	Traction power supply: substations		\$8,653,465	\$3,461,386
50.04	Traction power distribution: catenary and third rail		\$5,618,700	\$1,978,425
50.05	Communications		\$7,841,208	\$2,761,002
50.06	Fare collection system and equipment		\$664,014	\$996,021
50.07	Central Control		\$0	\$0
	SUBTOTAL COST SYSTEMS		\$34,479,611	\$14,394,825
	SUBTOTAL CONSTRUCTION COSTS		\$327,615,046	\$215,435,338
	CONTINGENCY (WEIGHTED AVERAGE)		\$84,688,526	\$62,082,384
	SUBTOTAL CONSTRUCTION COSTS WITH CONTINGENCY		\$412,303,572	\$277,517,722
	FEE/RISK			
	ADJUSTMENT FOR CASUAL OVERTIME (2.5% OF DIRECT LABOR)		\$2,705,742	\$1,821,210
	SUBTOTAL CONSTRUCTION COSTS		\$415,009,314	\$279,338,932
	HAWAII STATE EXCISE 4.70%		\$19,505,438	\$13,128,930
	TOTAL CONSTRUCTION COSTS		\$434,514,752	\$292,467,861

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			20-Mile Alignment	
			Preliminary - Not Final (2007\$ with Contingency)	Preliminary - Not Final (2007\$ with Contingency)
			Sections & Alignments Section 3	Sections & Alignments Section 4
			Salt Lake Blvd/Dillingham Blvd section 3 alt 2 15 Elevated	Dillingham Blvd 18 Elevated
Description				
60.00	ROW, LAND, EXISTING IMPROVEMENTS (acres)			
60.01	Purchase or lease of real property		\$5,000,000	\$6,540,000
60.02	Relocation of existing households and businesses		\$0	\$0
	SUBTOTAL COST ROW, LAND, EXISTING IMPROVEMENTS (acres)		\$5,000,000	\$6,540,000
	CONTINGENCY & ENGINEERING (40%+10%)	50%	\$2,500,000	\$3,270,000
	TOTAL ROW COSTS		\$7,500,000	\$9,810,000
70.00	VEHICLES			
70.01	Light Rail		IN SECTION 6	IN SECTION 6
70.06	Non-revenue vehicles		IN SECTION 6	IN SECTION 6
70.07	Spare parts (10% of LRV's)		IN SECTION 6	IN SECTION 6
	SUBTOTAL VEHICLE COST		\$0	\$0
	CONTINGENCY & ENGINEERING STAFF(10%+14%)	24%	\$0	\$0
	TOTAL VEHICLE COSTS		\$0	\$0
80.00	SOFT COSTS			
80.01	Preliminary Engineering	3.0%	\$13,035,443	\$8,774,036
80.02	Final Design	4.5%	\$19,553,164	\$13,161,054
80.03	Project Management for Design and Construction	5.5%	\$23,898,311	\$16,085,732
80.04	Construction Administration & Management	10.0%	\$43,451,475	\$29,246,786
80.05	Insurance-Professional liability	1.50%	\$6,517,721	\$4,387,018
80.06	Legal, Permits, Review Fees by other agencies, cities, etc	1.50%	\$6,517,721	\$4,387,018
80.07	Survey, Testing, Investigation, Inspection	0.50%	\$2,172,574	\$1,462,339
80.08	Agency: Force Account Work (2%3,4)	3.5%	\$15,208,016	\$10,236,375
	SUBTOTAL SOFT COSTS	30%	\$130,354,426	\$87,740,358
90.00	CONTINGENCY (Project Reserve) (10 thru 90)	6.0%	\$34,342,151	\$23,401,093
110.00	Total Construction (10+20+30+40+50) (2006\$)		\$434,514,752	\$292,467,861
	OTHER PROJECT COST (60+70+80+90+100) (2006\$)		\$172,196,576	\$120,951,452
	TOTAL PROJECT COST (10+20+30+40+50+60+70+80+90+100) (2006\$)		\$606,711,329	\$413,419,313
	Route foot length		9,052'	23,653'
	Construction Cost per Route Foot (2006\$)		\$48,100	\$12,400
	Construction Cost per Route Mile (2006\$)		\$253,968,000	\$65,472,000

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis 20-Mile Alignment (UHWO-Makai to Ala Moana)			Preliminary - Not Final (2007\$ with Contingency)	Preliminary - Not Final (2007 with Contingency)
			Sections & Alignments Section 5	Sections & Alignments Section 6
			Dillingham/Nimitz Hwy/Halekauwila St/Kapiolani Blvd to Ala Moana Sta	Systemwide
			25	Alt 11 26
Description			Elevated	Elevated
10.00	GUIDEWAY & TRACK ELEMENTS			
10.01	Guideway: At-grade Exclusive Right-of-way		\$0	\$0
10.04	Guideway: Aerial structure		\$123,938,740	\$0
10.06	Guideway: Underground cut & cover		\$0	\$0
10.08	Guideway: Retained cut or fill		\$0	\$0
10.09	Track: Direct fixation		\$10,442,756	\$0
10.11	Track: Ballasted		\$0	\$0
10.12	Track: Special (switches, turnouts)		\$5,126,538	\$0
SUBTOTAL GUIDEWAY & TRACK			\$139,508,034	\$0
20.00	STATIONS, STOPS, TERMINALS, INTERMODAL (#underground stations/#aerial platforms/#at grade platforms)			
20.01	At-grade station, stop, shelter, mall, terminal, platform		\$0	\$0
20.02	Aerial station, stop, shelter, mall, terminal, platform		\$34,063,363	\$0
20.07	Elevators, escalators		\$15,389,280	\$0
SUBTOTAL COST STATIONS, STOPS, TERMINALS, INTERMODAL			\$49,452,643	\$0
30.00	YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			
30.01	Administration Building: Office, sales, storage, revenue counting		\$0	\$15,280,157
30.03	Heavy Maintenance Facility		\$0	\$68,354,927
30.04	Storage Building & Yard		"IN 30.02"	"IN 30.02"
SUBTOTAL COST YARDS, SHOPS, ADMIN/SUPPORT FACILITIES (acres)			\$0	\$83,635,084
40.00	SITWORK & SPECIAL CONDITIONS			
40.01	Demolition, Clearing, Earthwork1		\$3,151,708	\$0
40.02	Site Utilities, Utility Relocation		\$130,749,733	\$0
40.03	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		\$0	\$0
40.04	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		\$750,000	\$0
40.06	Site Development: Roads, walks, plazas, parking lots, landscape work		\$5,915,024	\$0
SUBTOTAL COST SITWORK & SPECIAL CONDITIONS			\$140,566,465	\$0
50.00	SYSTEMS			
50.01	Train control and signals		\$3,645,524	\$0
50.02	Traffic signals and crossing protection		\$6,683,996	\$0
50.03	Traction power supply: substations		\$5,192,079	\$0
50.04	Traction power distribution: catenary and third rail		\$3,267,900	\$0
50.05	Communications		\$4,560,536	\$0
50.06	Fare collection system and equipment		\$1,660,035	\$0
50.07	Central Control		\$0	\$8,606,386
SUBTOTAL COST SYSTEMS			\$25,010,070	\$8,606,386
SUBTOTAL CONSTRUCTION COSTS			\$354,537,212	\$92,241,470
CONTINGENCY (WEIGHTED AVERAGE)			\$102,099,447	\$23,060,368
SUBTOTAL CONSTRUCTION COSTS WITH CONTINGENCY			\$456,636,659	\$115,301,838
FEE/RISK				
ADJUSTMENT FOR CASUAL OVERTIME (2.5% OF DIRECT LABOR)			\$2,996,678	\$756,668
SUBTOTAL CONSTRUCTION COSTS			\$459,633,337	\$116,058,506
HAWAII STATE EXCISE 4.70%			\$21,602,767	\$5,454,750
TOTAL CONSTRUCTION COSTS			\$481,236,104	\$121,513,256

Honolulu High-Capacity Transit Corridor Project Fixed Guideway Alternatives Summary Cost Comparison of Alternative Analysis <small>20-Mile Alignment (UHWO-Makai to Ala Moana)</small>			Preliminary - Not Final (2007\$ with Contingency)	Preliminary - Not Final (2007 with Contingency)	
			Sections & Alignments Section 5	Sections & Alignments Section 6	
Description			Dillingham/Nimitz Hwy/Halekauwila St/Kapiolani Blvd to Ala Moana Sta	Systemwide	
			25	Alt 11 26	
			Elevated	Elevated	
60.00	ROW, LAND, EXISTING IMPROVEMENTS (acres)				
	60.01	Purchase or lease of real property	\$39,960,000	\$0	
	60.02	Relocation of existing households and businesses	\$700,000	\$0	
	SUBTOTAL COST ROW, LAND, EXISTING IMPROVEMENTS (acres)		\$40,660,000	\$0	
	CONTINGENCY & ENGINEERING (40%+10%)		50%	\$20,330,000	\$0
	TOTAL ROW COSTS		\$60,990,000	\$0	
70.00	VEHICLES				
	70.01	Light Rail	IN SECTION 6	\$179,491,752	
	70.06	Non-revenue vehicles	IN SECTION 6	\$4,203,149	
	70.07	Spare parts (10% of LRV's)	IN SECTION 6	\$17,949,162	
	SUBTOTAL VEHICLE COST		\$0	\$201,644,063	
	CONTINGENCY & ENGINEERING STAFF(10%+14%)		24%	\$0	\$48,394,575
	TOTAL VEHICLE COSTS		\$0	\$250,038,638	
80.00	SOFT COSTS				
	80.01	Preliminary Engineering	3.0%	\$14,437,083	\$3,645,398
	80.02	Final Design	4.5%	\$21,655,625	\$5,468,097
	80.03	Project Management for Design and Construction	5.5%	\$26,467,986	\$6,683,229
	80.04	Construction Administration & Management	10.0%	\$48,123,610	\$12,151,326
	80.05	Insurance-Professional liability	1.50%	\$7,218,542	\$1,822,699
	80.06	Legal, Permits, Review Fees by other agencies, cities, etc	1.50%	\$7,218,542	\$1,822,699
	80.07	Survey, Testing, Investigation, Inspection	0.50%	\$2,406,181	\$607,566
	80.08	Agency: Force Account Work (2%3,4)	3.5%	\$16,843,264	\$4,252,964
	SUBTOTAL SOFT COSTS		30%	\$144,370,831	\$36,453,977
90.00	CONTINGENCY (Project Reserve) (10 thru 90)		6.0%	\$41,195,816	\$24,480,352
110.00	Total Construction (10+20+30+40+50) (2006\$)		\$481,236,104	\$121,513,256	
	OTHER PROJECT COST (60+70+80+90+100) (2006\$)		\$246,556,647	\$310,972,967	
	TOTAL PROJECT COST (10+20+30+40+50+60+70+80+90+100) (2006\$)		\$727,792,751	\$432,486,223	
	Route foot length		ok		
	Construction Cost per Route Foot (2006\$)		#VALUE!		
	Construction Cost per Route Mile (2006\$)		#VALUE!		

MAIN WORKSHEET-BUILD ALTERNATIVE

(Rev.8, June 2, 2006)

City and County of Honolulu
 East Kapolei to Ala Moana Center Fixed Guideway Project
 Phase

Today's Date **4/1/07**
 Yr of Base Year \$ 2007
 Yr of Revenue Ops 2018

	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)
10 GUIDEWAY & TRACK ELEMENTS (route miles)	19.53	974,413	246,115	1,220,528	\$ 62,487	51%	34%	1,533,385
10.01 Guideway: At-grade exclusive right-of-way	1.19	2,460	615	3,075	\$ 2,575			3,863
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)		0	0	0				0
10.03 Guideway: At-grade in mixed traffic		0	0	0				0
10.04 Guideway: Aerial structure	17.79	826,911	206,728	1,033,639	\$ 58,105			1,298,591
10.05 Guideway: Built-up fill		0	0	0				0
10.06 Guideway: Underground cut & cover	0.28	25,115	8,790	33,905	\$ 119,347			42,596
10.07 Guideway: Underground tunnel		0	0	0				0
10.08 Guideway: Retained cut or fill	0.27	22,766	5,691	28,457	\$ 107,324			35,752
10.09 Track: Direct fixation		73,172	18,293	91,465				114,911
10.10 Track: Embedded		0	0	0				0
10.11 Track: Ballasted		4,404	1,101	5,506				6,917
10.12 Track: Special (switches, turnouts)		19,584	4,896	24,480				30,755
10.13 Track: Vibration and noise dampening		0	0	0				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	19	177,414	44,354	221,768	\$ 11,672	9%	6%	284,860
20.01 At-grade station, stop, shelter, mall, terminal, platform	2	7,253	1,813	9,066	\$ 4,533			11,645
20.02 Aerial station, stop, shelter, mall, terminal, platform	17	113,426	28,356	141,782	\$ 8,340			182,119
20.03 Underground station, stop, shelter, mall, terminal, platform		0	0	0				0
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.		0	0	0				0
20.05 Joint development		0	0	0				0
20.06 Automobile parking multi-story structure		0	0	0				0
20.07 Elevators, escalators		56,736	14,184	70,920				91,096
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	19.53	88,141	22,035	110,176	\$ 5,641	5%	3%	129,614
30.01 Administration Building: Office, sales, storage, revenue counting		16,103	4,026	20,129				23,681
30.02 Light Maintenance Facility		0	0	0				0
30.03 Heavy Maintenance Facility		72,037	18,009	90,047				105,934
30.04 Storage or Maintenance of Way Building		0	0	0				0
30.05 Yard and Yard Track		0	0	0				0
40 SITEWORK & SPECIAL CONDITIONS	19.53	473,184	147,827	621,011	\$ 31,794	26%	17%	761,365
40.01 Demolition, Clearing, Earthwork		20,624	7,218	27,842				34,134
40.02 Site Utilities, Utility Relocation		257,009	89,953	346,962				425,379
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		8,752	3,063	11,815				14,486
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks		8,920	3,122	12,042				14,764
40.05 Site structures including retaining walls, sound walls		0	0	0				0
40.06 Pedestrian / bike access and accommodation, landscaping		177,879	44,470	222,349				272,602
40.07 Automobile, bus, van accessways including roads, parking lots		0	0	0				0
40.08 Temporary Facilities and other indirect costs during construction		0	0	0				0
50 SYSTEMS	19.53	169,860	42,465	212,325	\$ 10,870	9%	6%	272,272
50.01 Train control and signals		29,727	7,432	37,159				47,650
50.02 Traffic signals and crossing protection		25,323	6,331	31,653				40,590
50.03 Traction power supply: substations		38,792	9,698	48,490				62,181
50.04 Traction power distribution: catenary and third rail		25,984	6,496	32,480				41,650
50.05 Communications		34,555	8,639	43,194				55,389
50.06 Fare collection system and equipment		6,409	1,602	8,011				10,273
50.07 Central Control		9,070	2,268	11,338				14,539
Construction Subtotal (10 - 50)	19.53	1,883,012	502,795	2,385,808	\$ 122,145	100%	66%	2,981,497
60 ROW, LAND, EXISTING IMPROVEMENTS	19.53	60,257	24,103	84,360	\$ 4,319		2%	103,744
60.01 Purchase or lease of real estate		59,079	23,631	82,710				101,715
60.02 Relocation of existing households and businesses		1,179	471	1,650				2,029
70 VEHICLES (number)	66	227,308	22,731	250,039	\$ 3,788		7%	317,086
70.01 Light Rail	66	202,336	20,234	222,570	\$ 3,372			282,251
70.02 Heavy Rail		0	0	0				0
70.03 Commuter Rail		0	0	0				0
70.04 Bus		0	0	0				0
70.05 Other		0	0	0				0
70.06 Non-revenue vehicles	0	4,738	474	5,212				6,609
70.07 Spare parts	0	20,234	2,023	22,257				28,225
80 PROFESSIONAL SERVICES	19.53	564,904	150,839	715,742	\$ 36,644	30%	20%	870,901
80.01 Preliminary Engineering		56,490	15,084	71,574				87,090
80.02 Final Design		84,736	22,626	107,361				130,635
80.03 Project Management for Design and Construction		103,566	27,654	131,219				159,665
80.04 Construction Administration & Management		188,301	50,280	238,581				290,300
80.05 Insurance		28,245	7,542	35,787				43,545
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		28,245	7,542	35,787				43,545
80.07 Surveys, Testing, Investigation, Inspection		9,415	2,514	11,929				14,515
80.08 Start up		65,905	17,598	83,503				101,605
Subtotal (10 - 80)	19.53	2,735,481	700,467	3,435,948	\$ 175,909		94%	4,273,227
90 UNALLOCATED CONTINGENCY				206,157			5.66%	257,252
Subtotal (10 - 90)	19.53			3,642,105	\$ 186,463		100%	4,530,479
100 FINANCE CHARGES				0			0%	0
Total Project Cost (10 - 100)	19.53			3,642,105	\$ 186,463		100%	4,530,479
Allocated Contingency as % of Base Yr Dollars w/o Cont.				25.61%				
Unallocated Contingency as % of Subtotal (10 - 80)				6.00%				
YOE Construction Cost per Mile (X000)								\$152,642
YOE Total Project Cost per Mile Not Including Vehicles (X000)								\$215,711
YOE Total Project Cost per Mile (X000)								\$231,945

INFLATION WORKSHEET

(Rev.8, June 2, 2006)

City and County of Honolulu

Today's Date **4/1/07**

East Kapolei to Ala Moana Center Fixed Guideway Project

Yr of Base Year \$ 2007

Phase

Yr of Revenue Ops 2018

Below, show all project costs in the year in which they occurred or are planned to occur through the completion of the project or the fulfillment of the New Starts funding commitment, whichever is expected to occur later in time.

BASE YEAR DOLLARS (X\$000)	Base Yr Dollars	Double-Check Total	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
10 GUIDEWAY & TRACK ELEMENTS (route miles)	1,220,528	1,220,528							10,991	131,889	144,034	183,079	183,079	183,079	128,125	128,125	122,053	6,073	
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	221,768	221,768								11,088	22,177	22,177	33,265	33,265	33,265	33,265	22,177	11,088	
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	110,176	110,176								22,035	44,070	44,070							
40 SITEWORK & SPECIAL CONDITIONS	621,011	621,011							31,051	93,152	93,152	93,152	93,152	93,152	62,101	62,101			
50 SYSTEMS	212,325	212,325								21,233	31,849	42,465	31,849	31,849	21,233	21,233	21,233	10,616	
60 ROW, LAND, EXISTING IMPROVEMENTS	84,360	84,360							4,218	8,436	12,654	16,872	16,872	8,436	8,436	4,218	4,218		
70 VEHICLES (number)	250,039	250,039							5,001	7,501	25,004	37,506	37,506	50,008	37,506	25,004	25,004		
80 PROFESSIONAL SERVICES	715,742	715,742					15,000	32,000	60,361	107,361	107,361	71,574	71,574	71,574	57,259	35,787	14,315		
90 UNALLOCATED CONTINGENCY	206,157	206,157							4,416	22,482	27,611	32,433	31,160	29,959	22,119	20,393	14,001	1,582	
100 FINANCE CHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Cost (10 - 100)	3,642,105	3,642,105	0	0	0	0	15,000	32,000	116,038	403,945	497,296	532,712	509,073	501,322	394,976	351,598	244,472	43,674	0

Inflation Rate		0.00000	0.00000	0.00000	0.00000	0.00000	0.05000	0.04250	0.03500	0.03250	0.03000	0.03000	0.03000	0.03000	0.03000	0.03000	0.03000	0.03000	0.03000
Compounded Inflation Factor		1.00000	1.00000	1.00000	1.00000	1.00000	1.05000	1.09463	1.13294	1.16976	1.20485	1.24100	1.27823	1.31657	1.35607	1.39675	1.43865	1.48181	
YEAR OF EXPENDITURE DOLLARS (X\$000)	YOE Dollars	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	1,533,385	0	0	0	0	0	0	12,031	149,422	168,485	220,583	227,200	234,016	168,686	173,747	170,477	8,736	0	0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	284,860	0	0	0	0	0	0	0	12,562	25,941	26,720	41,282	42,520	43,796	45,110	30,975	15,952	0	0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	129,614	0	0	0	0	0	0	0	24,964	51,552	53,098	0	0	0	0	0	0	0	0
40 SITEWORK & SPECIAL CONDITIONS	761,365	0	0	0	0	0	0	33,989	105,535	108,965	112,234	115,601	119,069	81,761	84,213	0	0	0	0
50 SYSTEMS	272,272	0	0	0	0	0	0	0	24,837	38,373	52,699	40,710	41,931	28,793	29,657	15,273	0	0	0
60 ROW, LAND, EXISTING IMPROVEMENTS	103,744	0	0	0	0	0	0	4,617	9,557	14,802	20,328	20,938	10,783	11,107	5,720	5,891	0	0	0
70 VEHICLES (number)	317,086	0	0	0	0	0	0	5,474	8,498	29,248	45,189	46,545	63,921	49,379	33,907	34,924	0	0	0
80 PROFESSIONAL SERVICES	870,901	0	0	0	0	15,000	33,600	66,073	121,634	125,587	86,236	88,823	91,488	94,233	77,648	49,986	20,594	0	0
90 UNALLOCATED CONTINGENCY	257,252	0	0	0	0	0	0	4,834	25,471	32,298	39,077	38,669	38,295	29,122	27,654	19,556	2,276	0	0
100 FINANCE CHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Cost (10 - 100)	4,530,479	0	0	0	0	15,000	33,600	127,018	457,644	581,715	641,838	631,757	640,802	520,014	476,792	341,467	62,832	0	0