	A
1	**MAIN WORKSHEET - BUILD ALTERNATIVE**
2	City and County of Honolulu
3	Honolulu Rail Transit Project, East Kapolei to Ala Moana Center via Airport
4	Preliminary Engineering
5	
6	
7	**10 GUIDEWAY & TRACK ELEMENTS (route miles)**
8	10.01
9	10.02
10	10.03
11	10.04
12	10.05
13	10.06
14	10.07
15	10.08
16	10.09
17	10.10
18	10.11
19	10.12
20	10.13
21	**20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)**
22	20.01
23	20.02
24	20.03
25	20.04
26	20.05
27	20.06
28	20.07
29	**30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS**
30	30.01
31	30.02
32	30.03
33	30.04
34	30.05
35	**40 SITEWORK & SPECIAL CONDITIONS**
36	40.01
37	40.02
38	40.03
39	40.04
40	40.05
41	40.06
42	40.07
43	40.08
44	**50 SYSTEMS**
45	50.01
46	50.02
47	50.03

	B	C	D	E	F	G	H	I
1								
2								Today's Date
3								Yr of Base Year $
4								Yr of Revenue Ops
5								
6		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
7		**20.09**	1,126,982	281,746	**1,408,728**	**$ 70,108**	**49%**	**32%**
8	Guideway: At-grade exclusive right-of-way				0			
9	Guideway: At-grade semi-exclusive (allows cross-traffic)				0			
10	Guideway: At-grade in mixed traffic				0			
11	Guideway: Aerial structure	19.75	988,466	247,116	1,235,582	$ 62,561		
12	Guideway: Built-up fill				0			
13	Guideway: Underground cut & cover				0			
14	Guideway: Underground tunnel				0			
15	Guideway: Retained cut or fill	0.34	5,527	1,382	6,909	$ 20,098		
16	Track: Direct fixation		123,329	30,832	154,162			
17	Track: Embedded				0			
18	Track: Ballasted				0			
19	Track: Special (switches, turnouts)		9,660	2,415	12,075			
20	Track: Vibration and noise dampening				0			
21		**21**	244,504	61,126	**305,630**	**$ 14,554**	**11%**	**7%**
22	At-grade station, stop, shelter, mall, terminal, platform				0			
23	Aerial station, stop, shelter, mall, terminal, platform	21	186,269	46,567	232,836	$ 11,087		
24	Underground station, stop, shelter, mall, terminal, platform				0			
25	Other stations, landings, terminals: Intermodal, ferry, trolley, etc.				0			
26	Joint development				0			
27	Automobile parking multi-story structure				0			
28	Elevators, escalators		58,236	14,559	72,795			
29		20.09	97,280	24,320	**121,600**	**$ 6,052**	**4%**	**3%**
30	Administration Building: Office, sales, storage, revenue counting		16,665	4,166	20,831			
31	Light Maintenance Facility				0			
32	Heavy Maintenance Facility		80,615	20,154	100,769			
33	Storage or Maintenance of Way Building				0			
34	Yard and Yard Track				0			
35		20.09	575,617	181,639	**757,256**	**$ 37,686**	**27%**	**17%**
36	Demolition, Clearing, Earthwork		25,630	8,970	34,600			
37	Site Utilities, Utility Relocation		331,739	116,109	447,848			
38	Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		10,139	3,549	13,687			
39	Environmental mitigation, e.g. wetlands, historic/archeologic, parks		9,835	3,442	13,278			
40	Site structures including retaining walls, sound walls				0			
41	Pedestrian / bike access and accommodation, landscaping				0			
42	Automobile, bus, van accessways including roads, parking lots		198,275	49,569	247,843			
43	Temporary Facilities and other indirect costs during construction				0			
44		20.09	203,330	50,833	**254,163**	**$ 12,649**	**9%**	**6%**
45	Train control and signals		34,610	8,652	43,262			
46	Traffic signals and crossing protection		24,225	6,056	30,281			
47	Traction power supply: substations		41,990	10,497	52,487			

	J	K
1	#REF!	
2	**01/06/10**	
3	FY 2009	
4	FY 2019	
5		
6	YOE Dollars Total (X000)	
7	**1,677,817**	1.191015459
8	0	
9	0	
10	0	
11	1,471,598	
12	0	
13	0	
14	0	
15	8,228	
16	183,609	
17	0	
18	0	
19	14,382	
20	0	
21	**389,152**	1.27327642
22	0	
23	296,464	
24	0	
25	0	
26	0	
27	0	
28	92,688	
29	**138,499**	1.138976774
30	23,726	
31	0	
32	114,773	
33	0	
34	0	
35	**895,470**	1.182518469
36	40,915	
37	529,589	
38	16,186	
39	15,701	
40	0	
41	0	
42	293,079	
43	0	
44	**311,215**	1.224469921
45	52,974	
46	37,079	
47	64,269	

	A	
48		50.04
49		50.05
50		50.06
51		50.07
52	**Construction Subtotal (10-50)**	
53	**60 ROW, LAND, EXISTING IMPROVEMENTS**	
54		60.01
55		60.02
56	**70 VEHICLES (number)**	
57		70.01
58		70.02
59		70.03
60		70.04
61		70.05
62		70.06
63		70.07
64	**80 PROFESSIONAL SERVICES (applies to Cats. 10-50)**	
65		80.01
66		80.02
67		80.03
68		80.04
69		80.05
70		80.06
71		80.07
72		80.08
73	**Subtotal (10 - 80)**	
74	**90 UNALLOCATED CONTINGENCY**	
75	**Subtotal (10 - 90)**	
76	**100 FINANCE CHARGES**	
77	**Total Project Cost (10 - 100)**	
78	Allocated Contingency as % of Base Yr Dollars w/o Contingency	
79	Unallocated Contingency as % of Base Yr Dollars w/o Contingency	
80	Total Contingency as % of Base Yr Dollars w/o Contingency	
81	Unallocated Contingency as % of Subtotal (10 - 80)	
82	YOE Construction Cost per Mile (X000)	
83	YOE Total Project Cost per Mile Not Including Vehicles (X000)	
84	YOE Total Project Cost per Mile (X000)	

	B	C	D	E	F	G	H	I
48	Traction power distribution: catenary and third rail		68,478	17,119	85,597			
49	Communications		20,811	5,203	26,013			
50	Fare collection system and equipment		4,361	1,090	5,452			
51	Central Control		8,856	2,214	11,070			
52		20.09	2,247,714	599,663	**2,847,377**	**$ 141,705**	**100%**	**64%**
53		20.09	85,634	42,817	**128,452**	**$ 6,393**		**3%**
54	Purchase or lease of real estate		83,264	41,632	124,897			
55	Relocation of existing households and businesses		2,370	1,185	3,555			
56		**76**	275,239	66,058	**341,297**	**$ 4,491**		**8%**
57	Light Rail				0			
58	Heavy Rail	76	245,675	58,963	304,638	$ 4,008		
59	Commuter Rail				0			
60	Bus				0			
61	Other				0			
62	Non-revenue vehicles		4,996	1,199	6,195			
63	Spare parts		24,568	5,896	30,464			
64		20.09	589,972	157,398	**747,370**	**$ 37,194**	**26%**	**17%**
65	Preliminary Engineering		17,752	4,736	22,488			
66	Final Design		99,334	26,501	125,836			
67	Project Management for Design and Construction		97,623	26,045	123,668			
68	Construction Administration & Management		220,743	58,892	279,635			
69	Professional Liability and other Non-Construction Insurance		33,111	8,834	41,945			
70	Legal; Permits; Review Fees by other agencies, cities, etc.		33,111	8,834	41,945			
71	Surveys, Testing, Investigation, Inspection		11,037	2,945	13,982			
72	Start up		77,260	20,612	97,872			
73		20.09	3,198,560	865,936	**4,064,496**	**$ 202,277**		**91%**
74					**153,620**			**3%**
75		20.09			**4,218,116**	**$ 209,922**		**95%**
76					**244,434**			**5%**
77		20.09			**4,462,550**	**$ 222,086**		**100%**
78					27.07%			
79					4.80%			
80					31.88%			
81					3.78%			
82								
83								
84								

	J	K
48	104,811	
49	31,852	
50	6,676	
51	13,554	
52	**3,412,153**	
53	**128,635**	1.001427917
54	125,075	
55	3,560	
56	**398,825**	1.168557604
57	0	
58	355,987	
59	0	
60	0	
61	0	
62	7,239	
63	35,599	
64	**933,589**	1.249165411
65	28,091	
66	157,190	
67	154,481	
68	349,310	
69	52,397	
70	52,397	
71	17,466	
72	122,259	
73	**4,873,201**	
74	**184,186**	1.198968221
75	**5,057,387**	
76	**290,294**	1.18761832
77	**5,347,681**	1.198346536
78		
79		
80		
81		
82	$169,812	
83	$246,288	
84	$266,137	

Cell: J3
Comment: Year of Base Year Dollars should match the year in "Today's Date."

Cell: J6
Comment: YOE Dollars automatically arrive from Inflation Worksheet.

Cell: D8
Comment: For all cells, round to the nearest 1,000 before inserting costs!

Cell: J8
Comment: YOE costs for individual line items within a Category are derived as a percentage of the YOE cost of the Category.

Cell: I19
Comment: Preparing for bid:

For each separate contract package generate a Main Worksheet and an Inflation Worksheet.

In the Special Conditions of the Contract, require the construction contractor to update these worksheets and submit them with the monthly pay application.

This should make it easy to track costs in the SCC format throughout construction, and make it easy to submit the final costs to FTA at contract closeout and at the two-year post-rev ops date required by the Before and After Study.

Cell: F76
Comment: Enter finance charges on Inflation Worksheet.

	A	B	C
1	**INFLATION WORKSHEET**		
2	City and County of Honolulu		
3	Honolulu Rail Transit Project, East Kapolei to Ala Moana Center via Airport		
4	Preliminary Engineering		
5			
6			
7	**BASE YEAR DOLLARS (X$000)**		Base Yr Dollars
8	10 GUIDEWAY & TRACK ELEMENTS		1,408,728
9	20 STATIONS, STOPS, TERMINALS, INTERMODAL		305,630
10	#REF!		121,600
11	#REF!		757,256
12	#REF!		254,163
13	#REF!		128,452
14	70 VEHICLES		341,297
15	#REF!		747,370
16	#REF!		153,620
17	#REF!		244,434
18	**Total Project Cost (10 - 100)**		4,462,550
19			
20	**Inflation Rate**		
21	**Compounded Inflation Factor**		
22			
23	**YEAR OF EXPENDITURE DOLLARS (X$000)**		YOE Dollars
24	10 GUIDEWAY & TRACK ELEMENTS		1,677,817
25	20 STATIONS, STOPS, TERMINALS, INTERMODAL		389,152
26	30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS		138,499
27	40 SITEWORK & SPECIAL CONDITIONS		895,470
28	50 SYSTEMS		311,215
29	60 ROW, LAND, EXISTING IMPROVEMENTS		128,635
30	70 VEHICLES		398,825
31	80 PROFESSIONAL SERVICES (applies to Cats. 10-50)		933,589
32	90 UNALLOCATED CONTINGENCY		184,186
33	100 FINANCE CHARGES		290,294
34	**Total Project Cost (10 - 100)**		5,347,681
35			
36	**Inflation Rate**		
37	10 GUIDEWAY & TRACK ELEMENTS		
38	20 STATIONS, STOPS, TERMINALS, INTERMODAL		
39	30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS		
40	40 SITEWORK & SPECIAL CONDITIONS		
41	50 SYSTEMS		
42	60 ROW, LAND, EXISTING IMPROVEMENTS		
43	70 VEHICLES		
44	80 PROFESSIONAL SERVICES (applies to Cats. 10-50)		
45	90 UNALLOCATED CONTINGENCY		

	D	E	F	G	H	I	J	K	L	M	N	O
1					#REF!						#REF!	
2				Today's Date	**1/6/10**					Today's Date	**1/6/10**	
3				Yr of Base Year $	FY 2009					Yr of Base Year $	FY 2009	
4				Yr of Revenue Ops	FY 2019					Yr of Revenue Ops	FY 2019	
5												
6												
7	Double-Check Total	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
8	1,408,728	0	0	0	0	0	0	0	0	0	0	25,573
9	305,630	0	0	0	0	0	0	0	0	0	0	0
10	121,600	0	0	0	0	0	0	0	0	0	0	6,404
11	757,256	0	0	0	0	0	0	0	0	0	0	9,701
12	254,163	0	0	0	0	0	0	0	0	0	0	0
13	128,452	0	0	0	0	0	0	0	0	0	0	50,367
14	341,297	0	0	0	0	0	0	0	0	0	0	0
15	747,370	0	0	0	0	0	0	0	0	0	0	76,548
16	153,620	0	0	0	0	0	0	0	0	0	0	6,372
17	244,434	0	0	0	0	0	0	0	0			
18	4,462,550	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**174,965**
19												
20		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	#DIV/0!	#DIV/0!	#DIV/0!
21		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.03087
22												
23		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
24		0	0	0	0	0	0	0	0	0	0	26,559
25		0	0	0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0	0	6,651
27		0	0	0	0	0	0	0	0	0	0	10,087
28		0	0	0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0	0	50,367
30		0	0	0	0	0	0	0	0	0	0	0
31		0	0	0	0	0	0	0	0	0	0	80,134
32		0	0	0	0	0	0	0	0	0	0	6,569
33		0	0	0	0	0	0	0				
34		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**180,366**
35												
36												
37												1.03854
38												1.03851
39												1.03855
40												1.03983
41												1.03431
42												1.00000
43												1.03048
44												1.04684
45												1.00832

	P	Q
1		
2		
3		
4		
5		
6		
7	2011	2012
8	139,316	209,371
9	1,429	27,241
10	29,589	29,670
11	55,125	190,572
12	28,651	29,373
13	44,528	33,556
14	14,839	4,946
15	121,354	93,497
16	16,435	23,366
17		505
18	**451,266**	**642,097**
19		
20	0.04253	0.04373
21	1.07471	1.12171
22		
23	2011	2012
24	150,261	235,477
25	1,541	30,560
26	31,915	33,301
27	59,604	215,321
28	30,650	32,501
29	44,602	33,666
30	15,757	5,413
31	132,988	107,260
32	17,663	26,211
33		535
34	**484,981**	**720,244**
35		
36		
37	1.03854	1.04276
38	1.03851	1.04018
39	1.03855	1.04060
40	1.03983	1.04497
41	1.03431	1.03431
42	1.00164	1.00164
43	1.03048	1.03048
44	1.04684	1.04684
45	1.03502	1.04834

	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1													
2													
3													
4													
5													
6													
7	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
8	385,842	317,641	219,064	102,664	9,257	0	0	0	0	0	0	0	0
9	48,459	34,094	38,973	63,002	57,096	35,337	0	0	0	0	0	0	0
10	29,589	26,347	0	0	0	0	0	0	0	0	0	0	0
11	285,959	132,670	39,901	29,381	11,262	2,686	0	0	0	0	0	0	0
12	29,293	29,293	29,373	29,293	29,293	29,293	20,304	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	29,678	148,390	143,444	0	0	0	0	0	0	0	0	0	0
15	100,572	85,078	68,503	61,290	54,383	52,461	33,683	0	0	0	0	0	0
16	34,371	29,235	20,382	10,796	6,096	4,527	2,040	0	0	0	0	0	0
17	5,642	22,974	39,688	46,029	45,498	45,632	38,467					0	0
18	**949,405**	**825,720**	**599,327**	**342,454**	**212,885**	**169,936**	**94,494**	**0**	**0**	**0**	**0**	**0**	**0**
19													
20	0.04852	0.02854	0.02928	0.04640	0.02956	0.03238	0.01833	0.02800	0.02800	0.02800	0.02800	0.02800	0.02800
21	1.17613	1.20970	1.24513	1.30290	1.34142	1.38485	1.41023	1.44972	1.49031	1.53204	1.57494	1.61903	1.66437
22													
23	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
24	453,058	387,351	277,436	135,031	12,644	0	0	0	0	0	0	0	0
25	56,615	41,366	49,108	82,441	77,591	49,930	0	0	0	0	0	0	0
26	34,619	32,013	0	0	0	0	0	0	0	0	0	0	0
27	337,963	163,042	50,989	39,041	15,560	3,863	0	0	0	0	0	0	0
28	33,557	34,708	35,997	37,131	38,405	39,760	28,506	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0
30	33,466	172,428	171,761	0	0	0	0	0	0	0	0	0	0
31	120,780	106,958	90,155	84,439	78,434	79,205	53,236	0	0	0	0	0	0
32	40,444	35,447	25,529	14,290	8,415	6,530	3,089	0	0	0	0	0	0
33	6,125	25,563	45,266	53,811	54,519	56,048	48,428					0	0
34	**1,116,627**	**998,877**	**746,240**	**446,183**	**285,568**	**235,336**	**133,259**	**0**	**0**	**0**	**0**	**0**	**0**
35													
36													
37	1.04403	1.03854	1.03854	1.03854	1.03854	1.03982	1.03854						
38	1.04143	1.03851	1.03851	1.03851	1.03851	1.03976	1.03851						
39	1.04241	1.03855	1.03855	1.03855	1.03855	1.04036	1.03855						
40	1.04602	1.03983	1.03983	1.03983	1.03983	1.04088	1.03983						
41	1.03530	1.03431	1.03431	1.03431	1.03431	1.03530	1.03431						
42	1.00164	1.00164	1.00164	1.00164	1.00164	1.00164	1.00164						
43	1.03048	1.03048	1.03048	1.03048	1.03048	1.03048	1.03048						
44	1.04684	1.04684	1.04684	1.04684	1.04684	1.04684	1.04684						
45	1.04880	1.03736	1.03716	1.03611	1.03093	1.02824	1.02380						

	A	B	C
46	100 FINANCE CHARGES		
47	**Total Project Cost (10 - 100)**		
48			
49	**Compounded Inflation Factor**		
50	10 GUIDEWAY & TRACK ELEMENTS		
51	20 STATIONS, STOPS, TERMINALS, INTERMODAL		
52	30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS		
53	40 SITEWORK & SPECIAL CONDITIONS		
54	50 SYSTEMS		
55	60 ROW, LAND, EXISTING IMPROVEMENTS		
56	70 VEHICLES		
57	80 PROFESSIONAL SERVICES (applies to Cats. 10-50)		
58	90 UNALLOCATED CONTINGENCY		
59	100 FINANCE CHARGES		
60	**Total Project Cost (10 - 100)**		

	D	E	F	G	H	I	J	K	L	M	N	O
46												1.01500
47												1.03087
48												
49												
50												1.03854
51												1.03851
52												1.03855
53												1.03983
54												1.03431
55												1.00000
56												1.03048
57												1.04684
58												1.03087
59												1.01500
60												1.03087

	P	Q
46	1.02000	1.02300
47	1.04253	1.04373
48		
49		
50	1.07857	1.12469
51	1.07850	1.12184
52	1.07859	1.12238
53	1.08124	1.12986
54	1.06980	1.10651
55	1.00164	1.00329
56	1.06189	1.09426
57	1.09587	1.14720
58	1.07471	1.12175
59	1.03530	1.05911
60	1.07471	1.12171

	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
46	1.02500	1.02500	1.02500	1.02500	1.02500	1.02500	1.02500						
47	1.04852	1.02854	1.02928	1.04640	1.02956	1.03238	1.01833						
48													
49													
50	1.17421	1.21946	1.26646	1.31527	1.36596	1.42035	1.47509						
51	1.16832	1.21331	1.26003	1.30855	1.35895	1.41298	1.46739						
52	1.16998	1.21508	1.26192	1.31057	1.36109	1.41602	1.47061						
53	1.18186	1.22893	1.27788	1.32877	1.38170	1.43818	1.49546						
54	1.14557	1.18488	1.22553	1.26758	1.31108	1.35736	1.40393						
55	1.00493	1.00658	1.00824	1.00989	1.01155	1.01321	1.01488						
56	1.12762	1.16199	1.19741	1.23391	1.27153	1.31029	1.35023						
57	1.20093	1.25718	1.31606	1.37771	1.44223	1.50979	1.58050						
58	1.17667	1.21248	1.25255	1.32368	1.38033	1.44234	1.51409						
59	1.08559	1.11273	1.14055	1.16906	1.19829	1.22825	1.25895						
60	1.17613	1.20970	1.24513	1.30290	1.34142	1.38485	1.41023						

Cell: E20
Comment: In Line 20 for each year insert the rate of inflation that you believe to be correct. FTA reviews these rates for reasonableness.

Cell: E24
Comment: For past years, enter the actual dollars spent in each year. The dollars will inflate when converted to the current base year.

Cell: E33
Comment: Enter Finance Charges on this line.