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Appendix 13.0-C  
Beach Nourishment Performance Tables

**Table 13-C1. Beach nourishment performance assuming a replenishment of approximately 80,000 cubic yards occurs every 10 years for beach nourishment alone, Alternative 6, Alternative 11a, and Alternative 18.**

Years	Beach Nourish. Alone		Alt 6 – Spur jetty		Alt 11 - Breakwater		Alt 18 – Breakwater/Spur	
	% Remaining	Volume (cy)	% Remaining	Volume (cy)	% Remaining	Volume (cy)	% Remaining	Volume (cy)
1*	75.07%	225197	81.57%	244718	81.01%	243015	86.26%	258792
2	64.31%	192929	73.37%	220117	72.82%	218467	80.27%	240820
5*	44.99%	134960	56.80%	170412	56.98%	170951	67.94%	203829
10	27.31%	81933	39.56%	118675	41.75%	125251	54.18%	162541
10	53.98%	161933	66.23%	198675	68.42%	205251	80.85%	242541
11	44.97%	134900	58.89%	176668	61.25%	183757	75.13%	225379
12	39.90%	119708	54.44%	163327	57.14%	171406	71.60%	214805
15	28.91%	86723	44.00%	131993	47.87%	143610	63.17%	189519
20	16.06%	48169	31.05%	93159	37.10%	111312	52.47%	157424
20	42.72%	128169	57.72%	173159	63.77%	191312	79.14%	237424
21	34.20%	102597	50.86%	152579	57.09%	171273	73.79%	221380
22	29.54%	88620	46.82%	140446	53.38%	160150	70.59%	211772
25	19.42%	58247	37.26%	111770	45.01%	135041	62.89%	188678
30	7.35%	22057	25.14%	75420	35.08%	105237	52.90%	158709
30	34.02%	102057	51.81%	155420	61.75%	185237	79.57%	238709
31	25.59%	76784	45.05%	135158	55.17%	165517	74.31%	222942
32	21.02%	63067	41.10%	123301	51.56%	154672	71.19%	213575
35	11.10%	33287	31.75%	95259	43.40%	130197	63.68%	191028
40	-0.78%	0	19.84%	59508	33.66%	100994	53.85%	161555
40	25.89%	77665	46.50%	139508	60.33%	180994	80.52%	241555
41	17.49%	52463	39.77%	119319	53.78%	161349	75.28%	225844
42	12.94%	38806	35.84%	107524	50.19%	150565	72.17%	216521
45	3.05%	9154	26.54%	79606	42.07%	126218	64.68%	194050
50	-8.79%	0	14.64%	43919	32.36%	97088	54.86%	164567

\* = Partial Salient formed at year 1, and Full Salient formed at year 5. Gray rows indicate dredging/nourishment (80,000 cy).

**Table 13-C2. Beach nourishment performance assuming a replenishment of approximately 80,000 cubic yards occurs every 10 years for beach nourishment alone, Alternative 23, Alternative 25, and Alternative 26.**

Years	Beach Nourish. Alone		Alt 23 – Seg. Breakwater 2		Alt 25 – Seg. Breakwater 4		Alt 26 – Seg. Breakwater 5	
	% Remaining	Volume (cy)	% Remaining	Volume (cy)	% Remaining	Volume (cy)	% Remaining	Volume (cy)
1*	75.07%	225197	83.38%	250146	88.05%	264151	87.49%	262470
2	64.31%	192929	76.02%	228057	82.83%	248498	82.05%	246141
5*	44.99%	134960	60.93%	182796	72.03%	216099	70.82%	212474
10	27.31%	81933	44.75%	134252	59.54%	178610	58.03%	174077
10	53.98%	161933	71.42%	214252	86.20%	258610	84.69%	254077
11	44.97%	134900	64.67%	194002	81.09%	243259	79.40%	238197
12	39.90%	119708	60.54%	181615	77.87%	233619	76.11%	228321
15	28.91%	86723	50.75%	152240	70.07%	210220	68.17%	204518
20	16.06%	48169	38.49%	115469	59.90%	179709	57.95%	173859
20	42.72%	128169	65.16%	195469	86.57%	259709	84.62%	253859
21	34.20%	102597	58.86%	176567	81.74%	245234	79.65%	238945
22	29.54%	88620	55.11%	165330	78.79%	236359	76.64%	229907
25	19.42%	58247	46.17%	138509	71.57%	214719	69.34%	208026
30	7.35%	22057	34.72%	104155	61.98%	185943	59.75%	179252
30	34.02%	102057	61.39%	184155	88.65%	265943	86.42%	259252
31	25.59%	76784	55.19%	165565	83.90%	251694	81.53%	244583
32	21.02%	63067	51.53%	154599	81.00%	243014	78.59%	235759
35	11.10%	33287	42.80%	128397	73.94%	221812	71.45%	214358
40	-0.78%	0	31.54%	94625	64.47%	193406	62.00%	186005
40	25.89%	77665	58.21%	174625	91.14%	273406	88.67%	266005
41	17.49%	52463	52.03%	156104	86.40%	259192	83.79%	251379
42	12.94%	38806	48.40%	145196	83.51%	250538	80.86%	242588
45	3.05%	9154	39.70%	119108	76.45%	229362	73.74%	221234
50	-8.79%	0	28.46%	85382	66.96%	200876	64.28%	192827

\* = Partial Salient formed at year 1, and Full Salient formed at year 5. Gray rows indicate dredging/nourishment (80,000 cy).

**Table 13-C3. Required beach replenishment time frames to ensure minimal amount of beach for storm damage protection. Beach is replenished to 100% (300,000 cubic yards) when only 30% (approximately) of the original nourishment remains. Re-nourishment is included in Year 50 to return the beach to 100% independent of the amount of material remaining. All of the final alternatives are presented (including Alternative 23 and beach nourishment alone, for comparative purposes).**

Alternative	Years after initial fill	Volume required (cubic yards)
Beach Nourishment Alone	Year 9	209,461
	Year 18	209,461
	Year 27	209,461
	Year 36	209,461
	Year 45	209,461
	Year 50	149,569
Alt. 6 – Spur Jetty	Year 14	210,903
	Year 28	210,903
	Year 42	210,903
	Year 50	163,380
Alt. 11a - Breakwater	Year 15	208,908
	Year 30	208,908
	Year 45	208,908
	Year 50	134,022
Alt. 18 – Breakwater and Spur Jetty	Year 22	204,915
	Year 44	204,915
	Year 50	112,044
Alt. 23 – Segmented Breakwaters, Configuration 3	Year 17	211,253
	Year 34	211,253
	Year 50	205,643
Alt. 25 – Segmented Breakwaters, Configuration 4	Year 31	209,981
	Year 50	167,436
Alt. 26 – Segmented Breakwaters, Configuration 5	Year 30	210,898
	Year 50	176,127

**Table 13-C4. Estimated downdrift impacts and nourishment requirements for Alternative 9 (T-Head groins). Assumes no replenishment in T-Head groin field, and based on 100,000 cubic yards of material for neighboring beaches.**

<b>Year after instillation of Alt. 9</b>	<b>Volume required on downdrift beaches (cubic yards)</b>
Year 6	Approx. 100,000
Year 12	Approx. 100,000
Year 18	Approx. 100,000
Year 24	Approx. 100,000
Year 30	Approx. 100,000
Year 36	Approx. 100,000
Year 42	Approx. 100,000
Year 48	Approx. 100,000
Year 50	Approx. 100,000