

cannot be preserved or adaptively used in their present form. Additional structural studies will be necessary to determine the final proposal for at least two structures. If the cell house on Alcatraz has deteriorated to such an extent that it is not feasible to stabilize and preserve it, removal may be required. Similarly, if sufficient historic fabric and structural integrity is not present to allow restoration of the 1909 Cliff House, it may be removed and replaced with a modern structure. If it appears that either of these buildings should be removed, the public will be made aware of the situation and the National Park Service will consult with the state historic preservation officer and the Advisory Council on Historic Preservation, in full compliance with the National Historic Preservation Act of 1966, to determine the final solution and all possible techniques for mitigating the loss of historic resources.

Protection and Preservation of Historic Scenes

Historic scenes at Alcatraz and the Fort Mason piers will be somewhat modified by landscaping. However, historical values will be protected by making only modest use of landscaping that could screen or change the scene and use of historical gardens when possible. Removal of unsightly conditions and deteriorated structures will improve the scene around historic structures throughout the park, especially when temporary military structures are removed from the three forts in the Marin Headlands and from Fort Mason and when nonhistoric structures and rubble are removed from Alcatraz. Demolition and construction activities will disrupt the historic scene by introducing noise, machinery, and dust, but these effects will be temporary and local in nature.

Preservation of Archeological Resources

The plan will preserve known archeological sites, including three native American sites at Fort Mason and a site near the Cliff House. Construction activities proposed near these sites will be carefully designed to avoid archeological resources, but an archeologist will be onsite during the construction period to ensure that no impacts on important archeological resources will result. All other archeological resources throughout the park will be protected in compliance with applicable federal legislation. All lands not adequately surveyed for archeological and historical archeological resources will be surveyed prior to the implementation of any project involving land disturbance. The National Park Service procedures for archeological clearance will document determinations of no effect on archeological resources and will pinpoint projects where caution or monitoring is necessary. Any project which is found to involve adverse or potential adverse effects will be submitted for consultation under the procedures of the Advisory Council on Historic Preservation.

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TABLE 17. PROPOSED MANAGEMENT OF HISTORIC STRUCTURES

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Alcatraz	AL-3	Lighthouse	X			1
	AL-14	Guard tower	X			1
	AL-22	Guardhouse	X		X	1
	AL-64	Barracks, casemates	X	X	X	1
	AL-68	Prison	X			1
	AL-76	Commandant's quarters/ warden's house	X			1
	AL-77	Guardhouse, apts.	X		X	1
	AL-89	Prison, salvage storehouse/ electrical shop	X		X	1
	AL-201	Stockade, exercise yard	X			1
	AL-202	Fortification arch & bombproof	X			1
	AL-203	Fortification arch & magazine	X			1
	AL-204	Fortification arch & magazines	X			1
	AL-205	Fortification wall	X			1
	AL-206	Fortification wall	X			1
	AL-207	Fortifications and tunnel			X	1
	AL-208	North Caponier & fortifications			X	1
	AL-209	Fortifications under indust. bldg.	X		X	1
	AL-210	Parade ground	X			1
	AL-211	Wharf dock			X	1
	AL-227	Road from wharf to NW end of island	X			1
	AL-228	Road from guardhouse to top of island	X			1
	AL-221*	Ruins of officers' qtrs. #7 & gardens	X			1
	AL-222*	Ruins of officers' qtrs. #8 & gardens	X			1

Key: P = preservation 1 = on register
 AR = adaptive restoration 2 = nominated to register
 R = restoration 3 = being nominated

*indicates new number of structures that did not have a number

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Alcatraz	AL-223*	Ruins of officers' qtrs. #9 & garden	X			1
	AL-224*	South Battery	X			1
	AL-225*	Citadel retaining wall & steps	X		X	1
	AL-229*	Three-Gun Battery	X			1
Aquatic Park	AP-1	Bathhouse		X		2
	AP-2	West restroom	X			2
	AP-4	Municipal pier	X			2
	AP-11	East restroom	X			2
	AP-16	Amphitheater	X			2
	AP-18	Seawall	X			2
	AP-19	West speaker tower	X			2
	AP-20	East speaker tower	X			2
	AP-21	Haslett Warehouse		X		1
	SS-1	<u>C.A. Thayer Schooner</u>	X			1
	SS-2	<u>Schooner Wapama</u>	X			1
	SS-3	<u>Ferry Eureka</u>	X			1
	SS-4	<u>Scow Schooner Alma</u>	X			1
	SS-5	<u>Tugboat Hercules</u>	X			1
	SS-6	<u>Balclutha</u>	X			1
Fort Mason						
Fort Mason	FM-1	McDowell Hall		X		1
	FM-2	Officers' qtrs. #2	X			1
	FM-3	Officers' qtrs. #3	X			1
	FM-4	Officers' qtrs. #4	X			1
	FM-9	NCO quarters	X			1
	FM-12	Entrance gate, Van Ness and Bay	X			1
	FM-14	Tennis court		X		1
	FM-15	Searchlight shelter	X			1
	FM-16	Pier 4	X			1
	FM-17	Waiting room, Pier 4	X			1
	FM-23	Mine casement	X			1
	FM-32	Laundry	X			1
	FM-33	Officers' qtrs.	X			1
	FM-34	Officers' qtrs.	X			1
	FM-35	Officers' qtrs.	X			1
	FM-36	Officers' qtrs.	X			1
	FM-37	Officers' qtrs.	X			1
	FM-38	Officers' qtrs.	X			1
	FM-39	Officers' qtrs.	X			1

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Fort Mason	FM-40	Waiting station	X			1
	FM-41	Officers' qtrs.		X		1
	FM-42	Officers' qtrs.		X		1
	FM-43	Officers' qtrs.		X		1
	FM-44	Officers' qtrs.		X		1
	FM-46	Officers' qtrs.		X		1
	FM-47	Officers' qtrs.		X		1
	FM-48	Officers' qtrs.		X		1
	FM-49	Officers' qtrs.		X		1
	FM-101	Post headqtrs.		X		1
	FM-201	Admin. offices		X		1
	FM-204	NCO qtrs.		X		1
	FM-205	Flagstaff	X			1
	FM-230	Chapel		X		1
	FM-231	NCO qtrs.		X		1
	FM-232	NCO qtrs.		X		1
	FM-234	NCO qtrs.		X		1
	FM-235	NCO qtrs.		X		1
	FM-238	NCO qtrs.		X		1
	FM-239	NCO qtrs.		X		1
	FM-240	Barracks		X		1
	FM-241	Transient BOQ		X		1
	FM-242	Battery Burnham	X			1
	FM-250	1898 magazine	X			1
	FM-300	Railroad tunnel	X			1
	FM-301	Gate to piers	X			1
	FM-302	Provost marshal's office			X	1
	FM-303	Guard station		X		1
	FM-308	Repair shops		X		1
	FM-310	Storehouse D		X		1
	FM-312	Storehouse C		X		1
	FM-314	Storehouse B		X		1
	FM-315	Storehouse A		X		1
	FM-316	Pier #1	X			1
	FM-317	Pier #1 shed		X		1
	FM-318	Pier #2	X			1
	FM-319	Pier #2 shed		X		1
	FM-320	Pier #3	X			1
	FM-321	Pier #3 shed		X		1
	FM-322	Battery charging station		X		1
	FM-323	Parade ground		X		1
	FM-324*	MacArthur Ave.		X		1
	FM-325*	McDowell Ave.		X		1
	FM-326*	Franklin St.		X		1
	FM-327*	Van Ness retaining wall		X		1

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Fort Mason	FM-328*	Retaining wall dock area		X		1
	FM-329*	East & West Batteries Beltline railroad tracks through Aquatic Park, Fort Mason & Marina Green	X			1
				X		1
Presidio (Permit to NPS)						
	PE-1600	Old mine casemate	X			1
	PE-1601	New mine casemate	X			1
	PE-1621	Battery Chamberlain			X	1
	PE-1630	Battery Crosby & fire control station for Battery Chamberlain		X		1
	PE-1640	Magazine	X			1
	PE-1643	Magazine	X			1
	PE-1644	Radio hut	X			1
	PE-1646	Magazine	X			1
	PE-1647	Battery Godfrey	X			1
	PE-1651	Battery Boutelle	X			1
	PE-1658	Battery Marcus Miller	X			1
	PE-1660	Battery Marcus Miller	X			1
	PE-1662	Fire control station	X			1
	PE-1663	Fire control station	X			1
	PE-1664	Fire control station	X			1
Cliff House	SH-1	Cliff House		X		3
	SH-3	Sutro Baths ruins		X		3
	SH-6	Tunnel	X			3
	SH-7	Well house Sutro Heights		X		3
	SH-8	Base end station	X			3
	SH-9	Parapet	X			3
	SH-10	Parapet stairway	X			3
	SH-11	Rocks & steps	X			3
	SH-14	Marine exchange lookout		X		3
	SH-15	USS San Francisco memorial		X		3
	SH-23	Railroad remains	X			3
	SH-24	Sutro Heights Park grounds		X		3

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
	SH-25	Fire control station	X			3
	SH-26	Fire control station	X			3
Ocean Beach						
	OB-1	Seawall	X			3
Fort Miley						
	FI-1	Battery James Chester #3	X			3
	FI-2	Battery James Chester #1 and #2	X			3
	FI-3	Powerhouse, Battery Chester	X			3
	FI-4	Battery Construction #243	X			3
	FI-5	Flagpole	X			3
	FI-6	Base end station, 2 connected units	X			3
	FI-7	Searchlight station	X			3
	FI-304	Ordnance storehouse		X		3
	FI-329	Battery Livingston & observation station		X		3
	FI-330	Battery Springer #3 and #4		X		3
	FI-350*	Fire control station	X			3
	FI-351*	Fire control station	X			3
	FI-352*	Fire control station	X			3
Fort Funston						
	FF-200	Nike missile battery	X			3
	FF-201	Nike missile battery	X			3
	FF-202	Nike missile battery	X			3
	FF-206	Nike missile warhead bldg.		X		3
	FF-250*	Fire control station	X			3
	FF-251*	Fire control station	X			3
	FF-252*	Fire control station	X			3
	FF-480	Battery Bluff (Pamona Mounts)		X		3
	FF-493	Magazine, AA Battery	X			3

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
	FF-494	Casemated concrete structure	X			3
	FF-495	AA Battery #3		X		3
	FF-497	Plotting room, Battery Davis	X			3
	FF-499	Battery Davis	X			3

Fort Baker

FB-268	Fort Baker-Fort Barry tunnel	X				1
FB-272	Sentry station		X			1
FB-407	Mine storehouse		X			1
FB-408	Unknown structure	X				1
FB-409	Mine powerhouse	X				1
FB-410	Mine explosives magazine	X				1
FB-411	Mine explosives magazine	X				1
FB-412	Mine loading rooms	X				1
FB-415	Mine wharf		X			1
FB-433	Fire control station	X				1
FB-434	Fire control station	X				1
FB-522	Hospital stewards' quarters		X			1
FB-523	NCO qtrs.	X				1
FB-527	NCO qtrs.	X				1
FB-529	NCO qtrs.	X				1
FB-530	NCO qtrs.	X				1
FB-531	NCO qtrs.	X				1
FB-533	Hospital	X				1
FB-557	Bakery	X				1
FB-559	Quartermaster & subsistence storehouse	X				1
FB-561	Wagon shed	X				1
FB-571	Battery George Yates	X				1
FB-573	Battery Duncan	X				1
FB-575	Battery Cavallo	X		X		1
FB-600	Parade ground	X				1
FB-601	Enlisted men's barracks	X				1
FB-602	Enlisted men's barracks	X				1
FB-603	Post headquarters	X				1
FB-604	Commanding officer's qtrs.	X				1
FB-605	Officers' qtrs.	X				1
FB-606	Officers' qtrs.	X				1

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Fort Baker						
	FB-615	Guardhouse		X		1
	FB-623	Post exchange & gymnasium		X		1
	FB-629	Officers' qtrs.		X		1
	FB-631	Officers' qtrs.		X		1
	FB-636	Enlisted men's barracks		X		1
	FB-637	Commissary storehouse		X		1
	FB-644	Blacksmith shop		X		1
	FB-645	Carpenter & paint shop		X		1
	FB-648	Flagstaff	X			1
	FB-666	Ordnance storehouse		X		1
	FB-670	Mine cable tank building		X		1
	FB-671	Pumphouse		X		1
	FB-700*	Battery Kirby (incl. Gravelly Beach Battery)	X			1
	FB-701*	Battery Gravelly	X			1
	FB-702*	Battery Kirby Beach	X			1
	FB-703*	Battery Orlando Wagner		X		1
	FB-704*	Ridge Battery	X			1
	FB-705*	Battery Spencer	X			1
	FB-706*	Fire control station above Battery Wagner		X		1
	FB-707*	Fire control station above Battery Wagner	X			1
	FB-708*	East Road	X			1
	FB-709*	Murray Circle	X			1
	FB-710*	Conzelman Road	X			1
	FB-711*	Moore Road	X			1
	FB-770	Casemate	X			1
Fort Barry						
	FA-773	Battery Construction #129		X		1
	FA-830	Departmental rifle range	X			1
	FA-831	Departmental pistol range	X			1
	FA-905	Balloon hangar	X			1
	FA-911	Batteries Rathbone & McIndoe	X			1
	FA-934	Officers' qtrs.		X		1

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Fort Barry						
	FA-936	Commanding officer's qtrs.	X			1
	FA-937	Officers' qtrs.	X			1
	FA-939	Officers' qtrs.	X			1
	FA-940	Post headquarters	X			1
	FA-941	Post hospital	X			1
	FA-942	Hospital stewards' qtrs.	X			1
	FA-944	Barracks	X			1
	FA-945	Barracks	X			1
	FA-952	Gymnasium & post exchange	X			1
	FA-955	NCO qtrs.	X			1
	FA-956	NCO qtrs.	X			1
	FA-960	Quartermaster & subsistence storehouse	X			1
	FA-961	Ordnance storehouse	X			1
	FA-962	Bakery	X			1
	FA-963	Air defense missile site, San Francisco 88L	X			1
	FA-966	San Francisco 88L	X			1
	FA-967	San Francisco 88L	X			1
	FA-969	San Francisco 88L	X			1
	FA-971	San Francisco 88L	X			1
	FA-976	San Francisco 88L	X			1
	FA-985	Fire Control Station Wallace	X			1
	FA-989	Fire Control Station Wallace	X			1
	FA-991	Magazine	X			1
	FA-993	Storeroom	X			1
	FA-999	Battery Wallace	X			1
	FA-1351	Battery O'Rourke	X			1
	FA-1353	Firing booth, Battery Alexander	X			1
	FA-1354	Batteries Guthrie & Smith	X			1
	FA-1355	Firing booth, Battery Alexander	X			1
	FA-1356	Battery Alexander	X			1
	FA-1357	Searchlight shelter	X			1
	FA-1362	Fire control station	X			1
	FA-1363	Fire control station	X			1
	FA-1364	Battery Mendell	X			1
	FA-1365	Mining casemate	X			1

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
	FA-1375*	Fire control station	X			1
	FA-1376*	Fire control station	X			1
	FA-1377*	Fire control station	X			1
	FA-1378*	Fire control station	X			1
	FA-1379*	Double fire control station	X			1
	FA-1380*	Antiaircraft Battery #2 (ruins only)	X			1
	FA-1381*	Antiaircraft weapon emplacement	X			1
	FA-1382	Searchlight shelter	X			1

If and when the Coast Guard transfers the structures at the Point Bonita light station to the National Park Service, their historical value and potential for public use will be carefully evaluated.

Fort Cronkhite

FC-1008	Plotting room, Battery Townsley	X	1
FC-1014	Battery Townsley	X	1
FC-1049	Mess hall	X	1
FC-1050	Administration bldg.	X	1
FC-1054	Barracks	X	1
FC-1055	Barracks	X	1
FC-1056	Barracks	X	1
FC-1057	Barracks	X	1
FC-1058	Barracks	X	1
FC-1059	Barracks	X	1
FC-1060	Administration bldg.	X	1
FC-1061	Barracks	X	1
FC-1062	Barracks	X	1
FC-1063	Barracks	X	1
FC-1064	Barracks	X	1
FC-1065	Barracks	X	1
FC-1066	Recreation bldg.	X	1
FC-1067	Mess hall	X	1
FC-1068	Administration bldg.	X	1
FC-1069	Administration bldg.	X	1
FC-1070	Mess hall	X	1
FC-1071	Recreation bldg.	X	1

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
	FC-1100	Nike missile battery		X		1
	FC-1101	Nike missile battery		X		1
	FC-1106	Missile assembly shop		X		1
	FC-1107	Missile assembly shop		X		1
	FC-1109	Nike missile warhead bldg.		X		1
	FC-1130	Townsley reserve magazine		X		1
	FC-1194	Nike missile tracking tower		X		1
	FC-1197	Nike missile tracking tower		X		1
	FC-1200*	Antiaircraft battery #1		X		1
	FC-1201*	Fire control station		X		1
	FC-1202*	Fire control station		X		1
	FC-1203*	Fire control station		X		1
	FC-1204*	Fire control station		X		1
	FC-1205*	Fire control station		X		1
	FC-1206*	Fire control station		X		1

Mount Tamalpais

MT-200*	Fire control station, Hill 640	X	2
MT-201*	Fire control station, Hill 640	X	2
MT-202*	Fire control station, Hill 640	X	2
MT-203*	Fire control station, Hill 640	X	2
MT-204*	Fire control station, Hill 640	X	2
MT-205*	Radar set SCR 296, Frank Valley	X	2
MT-206*	Fire control station, Frank Valley	X	2
MT-207*	Fire control station, Frank Valley	X	2
MT-208*	Fire control station, Frank Valley	X	2
MT-209*	Fire control station	X	2

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Olema Valley						
	OV-1.1	Rancho Bolinas house	X			2
	OV-1.4	Rancho Bolinas creamery	X			2
	OV-1.5	Rancho Bolinas barn	X			2
	OV-1.6	Rancho Bolinas buggy shed	X			2
	OV-5.1	Randall Ranch house	X			2
	OV-6.1	Giacomini Ranch house	X			2
	OV-6.5	Giacomini Ranch shed	X			2
	OV-6.6	Giacomini Ranch loafing barn	X			2
	OV-6.7	Giacomini Ranch main barn	X			2
	OV-6.8	Giacomini Ranch bunkhouse	X			2
	OV-6.11	Giacomini Ranch storage shed	X			2
	OV-9.1	Old Lupton Ranch house	X			2
	OV-9.2	Old Lupton Ranch barn	X			2
	OV-9.3	Old Lupton Ranch creamery	X			2
	OV-9.4	Old Lupton Ranch water tank	X			2
	OV-12.1	Stewart Ranch house	X			2
	OV-12.12	Stewart Ranch barn, west	X			2
	OV-15.5	Truttman Ranch dairy shed	X			2
	OV-15.6	Truttman Ranch calf shed	X			2
	OV-15.10	Truttman Ranch dairy shed	X			2
	OV-15.11	Truttman Ranch dairy shed	X			2
	OV-15.14	Truttman Ranch dairy shed	X			2
	OV-15.16	Truttman Ranch bunkhouse	X			2
	OV-15.19	Truttman Ranch horse barn	X			2
	OV-15.20	Truttman Ranch hay barn	X			2
	OV-16	Copper mine	X			3
	OV-17	Copper mine	X			3

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Point Reyes						
	PR-12	Lighthouse stairway & cable track	X			2
	PR-14	Lighthouse lower water shed and cistern	X			2
	PR-16	Lighthouse powerhouse	X			2
	PR-17	Lighthouse multipurpose garage bldg.	X			2
	PR-19	Lighthouse water shed & cistern	X			2
	PR-21	Lighthouse original pumphouse	X			2
	PR-22	Lighthouse pumphouse	X			2
	PR-25	Lighthouse		X		2
	PR-110	Olema lime kilns	X			1
	PR-116	Lifeboat station water tank	X			2
	PR-117	Lifeboat station water tank	X			2
	PR-118	Lifeboat station garage	X			3
	PR-119	Lifeboat station pumphouse	X			2
	PR-120	Lifeboat station stone-faced wall	X			2
	PR-121	Lifeboat station water tank	X			2
	PR-122	Lifeboat station water tank	X			2
	PR-123	Lifeboat station fire pumphouse	X			2
	PR-124	Lifeboat station rock wall	X			2
	PR-125	Lifeboat station & dock	X			2
	PR-126	Three-stall garage	X			2
	PR-159	Lifeboat station qtrs.	X			2
	PR-180	Pierce Ranch house	X			3
	PR-181	Pierce Ranch washroom	X			3
	PR-182	Pierce Ranch north bunkhouse		X		3
	PR-183	Pierce Ranch schoolhouse	X			3
	PR-184	Pierce Ranch outhouse	X			3
	PR-185	Pierce Ranch open-front shed	X			3
	PR-186	Pierce Ranch west bunkhouse		X		3
	PR-187	Pierce Ranch west garage	X			3

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Point Reyes						
	PR-188	Pierce Ranch calf shed	X			3
	PR-189	Pierce Ranch hay barn	X			3
	PR-190	Pierce Ranch new dairy house	X			3
	PR-191	Pierce Ranch old horse barn	X			3
	PR-192	Pierce Ranch old garage	X			3
	PR-193	Pierce Ranch old wagon shed	X			3
	PR-194	Pierce Ranch chicken house A	X			3
	PR-195	Pierce Ranch chicken house B	X			3
	PR-196	Pierce Ranch old creamery	X			3
	PR-197	Pierce Ranch garage	X			3
	PR-198	Pierce Ranch corral fences	X			3
	PR-199	Pierce Ranch tank house	X			3
	PR-200	Pierce Ranch lath house	X			3
	PR-201	Pierce Ranch road to Tomales Bay	X			3
	PR-202	Pierce Ranch road to Lower Ranch	X			3
	PR-203	Pierce Ranch entrance road	X			3
	PR-204	Pierce Ranch cattle guard	X			3
	PR-226	Texeira Ranch house	X			2
	PR-227	Texeira Ranch loafing barn	X			2
	PR-228	Texeira Ranch barn	X			2
	PR-240	Lifesaving station (Great Beach) compass station	X			3
	PR-241	Lifesaving station lookout station	X			3
	PR-242	Lifesaving station storage bldg.	X			3
	PR-243	Lifesaving station old pumphouse	X			3
	PR-244	Lifesaving station small shed	X			3
	PR-251	Home Ranch house	X			3
	PR-252	Home Ranch barn & silo	X			3
	PR-253	Home Ranch storage shed	X			3
	PR-254	Home Ranch pig shed	X			3
	PR-255	Home Ranch freezer shed	X			3
	PR-256	Home Ranch residence	X			3

<u>Area</u>	<u>Structure No.</u>	<u>Name</u>	<u>P</u>	<u>AR</u>	<u>R</u>	<u>National Register</u>
Point Reyes						
	PR-257	Home Ranch shop	X			3
	PR-258	Home Ranch hospital barn	X			3
	PR-259	Home Ranch heifer barn	X			3
	PR-260	Home Ranch old hog shed & storage shed	X			3
	PR-261	Home Ranch water tank	X			3
	PR-262	Home Ranch storage shed	X			3
	PR-263	Home Ranch garage	X			3
	PR-264	Home Ranch pumphouse	X			3
	PR-265	Home Ranch granary	X			3
	PR-266	Home Ranch horse barn	X			3
	PR-267	Home Ranch road	X			3
Fort Point						
	FP-96	DeRussy's & Elliot's seawalls		X		1
	FP-99	Fort Point		X		1
	FP-941	Battery East	X			1
	FP-979	Mine storage		X		1
	FP-983	Engineer storehouse		X		1
	FP-984	Torpedo mine wharf	X			1
	FP-985	Loading room	X			1
	FP-986	Loading road	X			1
	FP-987	Mine explosives room		X		1
	FP-989	Engineer plumbing shop		X		1
	FP-991	Lighthouse	X			1
	FP-1001	Andrews road	X			1

Summary

No known adverse impacts will result from the proposal based upon historical resource studies, archeological research studies, and an archeological overview completed for the area. No significant historic structures will be unavoidably adversely affected, and no known historic or prehistoric archeological sites will be disturbed. National Park Service clearance procedures will be implemented as appropriate to document no effect and monitor projects. Since some actions are not yet specific as to structure or location, such actions must be further defined before the extent of impacts can be fully determined. Procedures of the Advisory Council on Historic Preservation and National Park Service management policies will be used to analyze possible impacts of all proposed actions on cultural

resources. Since detailed plans for preservation, restoration, and adaptive use of resources are still being developed, any significant changes in the proposals could change the potential effects upon cultural resources. If significant changes in proposals occur, or if a proposal is deemed infeasible following further study, and an adverse effect results from another course of action, the state historic preservation officer and the Advisory Council on Historic Preservation will be consulted prior to undertaking the new action.

The National Park Service has consulted with the state historic preservation officer. The two agencies have formulated a proposal for a programmatic memorandum of agreement and are now waiting for approval of the proposal and a subsequent ratified agreement from the Advisory Council on Historic Preservation. This agreement will be appended to this document.

IMPACTS ON VEGETATION AND SOILS

Impacts on vegetation and soils can be broadly grouped into several general categories: those caused by construction and demolition, increases in visitor use and changes in visitor activities, and changes in resource management programs. Soils and vegetation have been grouped for impact analysis because they are closely related resources and are affected by similar actions. Any disturbance or restoration of the surface--whether by construction, visitors, or changes in management--will affect both vegetation and soils.

Construction and Demolition Disturbance

General. The adaptive use of existing structures will minimize the need to construct new facilities to serve visitors and therefore will also minimize surface disturbance of vegetation and soils. Most new disturbance will be on a small scale, primarily for walk-in or hike-in camps and picnic areas, or for facility expansion within an existing developed area. The following general impacts will result wherever construction and demolition take place.

General impacts on vegetation and soils as a result of construction include removal of all vegetation on the construction site and disturbance of surface soils. Grading, digging for foundations, and cutting and filling for road construction will alter soil profiles, increase the potential for erosion caused by surface runoff from exposed soils, and reduce soil fertility by burying productive top soils and exposing subsurface soils. Structures and other impermeable surfaces that cover soils will change the moisture conditions of soils and potentially alter the physical, chemical, and biological conditions by compacting the soils, decreasing oxygen content, and adding chemicals through leaching and runoff from paved surfaces. Sites that are covered by asphalt or structures

will not revegetate, but areas surrounding the facility will revegetate to varying degrees by natural succession or will be replanted with native or cultivated vegetation. Soils and vegetation in areas adjacent to construction sites may also be affected by heavy machinery movement and materials storage, which could compact soils and disturb any vegetation growing nearby.

Wherever soils and vegetation are disturbed, exotic and weedy species will have a competitive advantage over native and recreationally desirable species. Therefore, some effort will usually be needed to revegetate areas surrounding developments so that pest species, such as thistles, do not become established. Planting and sometimes irrigation will be required to establish a new vegetative cover.

Nonhistoric structures that have no planned visitor uses and paved surfaces that are no longer needed will be removed in several areas of the park. Demolition and removal of structures will initially have many of the same effects on vegetation and soils as construction. Surrounding soils will be compacted by heavy machinery, plants surrounding the structure will be removed, and exposed surfaces will have a high erosion potential from runoff. Following structure removal, most areas will be restored with native plants or cultivated landscaping, which will stabilize soils and increase the amount of native, naturalized, or manicured vegetation in the area.

Acreages of construction disturbances and restoration are summarized in table 18.

Alcatraz. There are no natural soils or vegetation on Alcatraz. All of the vegetation on the island is exotic, the remains of former military and prison gardens, and will not be significantly affected. Landscaping of approximately 15 acres of the island with a mixture of native coastal plants and cultivated species will enhance the historic scene and create a park atmosphere.

Aquatic Park. Restoration and landscaping of several segments of former roadways will increase the area of cultivated vegetation (grass and trees) by 2 acres.

Fort Mason. Grading for restoration of the Fort Mason grounds will temporarily disturb soils and some existing vegetation (primarily grass and weeds), but the site has already been extensively disturbed in the past and these effects will be minimal. Approximately 21 acres that were developed in the past will be landscaped to create a park atmosphere.

Crissy Field. There are no natural soils or vegetation at Crissy Field--it is composed of fill and has been intensively developed in the past. Therefore, while earth movement will be required to

create a new shoreline and for berthing, landscaping, and possible creation of a lagoon, there will be no adverse effects on soils or vegetation. About 25 acres that were developed will be restored to a mixture of natural appearing coastal communities, manicured landscaping, and shoreline.

Cliff House. The only effects on soils and vegetation in this developed area will occur at Sutro Baths. The development of this new park will involve limited earth movement to provide for walkways and landscaping. The area has already been extensively trampled and eroded, so disturbance of natural vegetation and soils will be minimal. The construction of walkways will reduce vegetation trampling by encouraging visitors to stay on the paths and will allow recovery of the area by natural vegetation and landscaping. Approximately 11 acres will be restored, either by recovery of natural vegetation or through plantings.

Fort Baker. The proposals for Fort Baker will not affect existing vegetation. All modifications (building removal, provisions for new uses) will occur in existing facilities or disturbed areas. The provision of open picnic/play space along the waterfront will increase manicured landscaping by 6 acres.

Rodeo Valley. Vegetation and soils will be minimally affected by construction and demolition activities because most such activities will be confined to previously disturbed areas. Some disturbance of the native northern coastal scrub vegetation will occur in areas immediately surrounding developments. Where structures or parking are to be removed, a total of 20 acres will be restored by planting native and naturalized vegetation or by allowing natural succession to proceed. The spread of thistle and broom in the Marin Headlands, currently a resource management problem for the area, could be aggravated wherever the surface is disturbed by building demolition and grading.

Muir Woods. The relocation of administration offices and maintenance facilities and the creation of a new parking area will disturb approximately 4 acres of grassland and broad-leaved evergreen forest. However, by moving these facilities from the redwood grove into an area of more typical vegetation, pavement and buildings can be removed from an outstanding biological resource. The removal of facilities and impermeable surfaces will allow rehabilitation and extension of the grove by restoring natural soil moisture conditions and by replanting redwood and Douglas-fir in the areas now occupied by parking and structures.

Stinson Beach. Until the alignment of the new entrance road to Stinson Beach is determined, effects on vegetation and soils cannot adequately be assessed. Because the new alignment will generally follow a service road that is lined with exotic vegetation, little or no effect on native vegetation will result.

Bear Valley. Development of the Bear Valley information center and expansion of the picnic area will disturb a total of about 2 acres or less of grassland and broad-leaved evergreen forest. Vegetation loss will be minimal and confined to a previously developed area.

Other Areas. Development of new camps and picnic areas throughout the park will require some clearing of understory species. In most cases, trees and shrubs will remain to provide screening between sites, shade, and landscaping. It is estimated that vegetation will be disturbed on approximately one-half the area covered by the new campgrounds and picnic areas. Vegetation lost as a result of camp and picnic area construction will be relatively low because most sites are walk-in or hike-in areas that will not require access roads. Vehicle parking is either provided in existing developed areas at some distance from the site or along an existing roadside that will require widening for parking.

Some realignments in the existing trail system may result from more detailed studies and could require additional vegetation loss.

Special Status Species. Any disturbance, whether caused by construction, demolition, or change in use, has the potential to affect special status plant species (threatened, endangered, rare, or candidates for such status) if they are found in an area to be affected. A list of special status plant species known to occur in GGNRA/Point Reyes has been compiled by the U.S. Fish and Wildlife Service and is found in the Appendix. Based upon present knowledge of the general locations of these species, the plan proposals could disturb special status plants or their habitat. Therefore, all new construction or provisions for new activities will be preceded by a site-specific survey of special status plants to confirm that there will be no effect on special status species when such plants are known to occur in the vicinity of the project site. The U.S. Fish and Wildlife Service has provided a map of the distribution of these species to aid in that determination. If any overlap is found, activity and project locations will be adjusted to avoid these species and to prevent disruption of their habitat. Any impact from recreational activity to special status plants will be avoided by redirecting visitor use from known habitat areas. Site specific plant surveys will be required for at least the following plan projects or activities to make sure that there will be no impact on special status species:

park development of Crissy Field (*Presidio clarkia*)

expansion of picnic area and use at Baker Beach (San Francisco owlclover, Raven's manzanita, coast rockcress, *Presidio clarkia*)

landscaping at Sutro Baths and Cliff House (dune tansy)

additional visitor use of Fort Funston (Laural Hill manzanita, two-fork clover)

any development in Marin Headlands and Muir Woods (Tiburon buckwheat)

site rehabilitation of Fort Cronkhite (dune tansy)

relocation of Muir Woods facilities (San Francisco wallflower, Presidio clarkia)

environmental education center at Rancho Bolinas (coast dichondra)

increased use and improvements at Bear Valley (California bottlebrush grass)

increased interpretive use of Pierce Point Ranch (Point Reyes blennosperma, Point Reyes Indian paintbrush, swamp harebell)

increased use through lighthouse interpretive programs (San Francisco owlclover)

trail construction throughout GGNRA/Point Reyes

The National Park Service will consult with the U.S. Fish and Wildlife Service, both formally and informally, on a project-by-project basis in compliance with section 7 of the Endangered Species Act whenever a project could affect a species that is on or proposed for addition to the threatened or endangered species list.

TABLE 18. SUMMARY OF VEGETATION CHANGES CAUSED BY CONSTRUCTION AND DEMOLITION

<u>Area</u>	<u>Acreage Disturbed</u>	<u>Vegetation Type</u>	<u>Acreage Restored</u>	<u>Vegetation Type</u>
<u>Developed Area</u>				
Alcatraz	0	-	15	Gardens, native coastal species
Aquatic Park	0	-	2	Lawn and trees
Fort Mason	0	-	21	Lawn and trees
Crissy Field	0	-	25	Manicured and native landscaping
Cliff House	0	-	11	Manicured and native landscaping
Fort Baker	0	-	6	Lawn and trees
Rodeo Valley	0	-	20	Coastal scrub, lawn and trees
Muir Woods	4	Grassland, broad-leaved evergreen forest	1	Redwood, Douglas-fir forest
Stinson Beach	1	Exotic trees	0	-
Bear Valley	3	Grassland, broad-leaved evergreen forest	0	-
<u>Dispersed Developments</u>				
Baker Beach (picnic, day camp)	2	Pine/cypress, shrub	0	-
East Fort Miley (picnic and play)	0	-	2	Lawn and trees
West Fort Miley (picnic, day camp)	2	Pine/cypress, shrub	0	-

<u>Area</u>	<u>Acreage Disturbed</u>	<u>Vegetation Type</u>	<u>Acreage Restored</u>	<u>Vegetation Type</u>
Fort Funston (picnic, environ. (ed.)	3	Grasses, ground covers	0	-
Oakwood Valley (picnic, child- ren's farm)	4	Coastal scrub	0	-
Tennessee Valley (equestrian co-op)	0	-	0	-
Muir Beach (picnic)	2	Riparian	0	-
Point Bonita (camp)	2	Coastal scrub	0	-
Gerbode Preserve (camp)	1	Coastal scrub, exotic trees	0	-
Tennessee Valley (camp)	2	Coastal scrub, exotic trees	0	-
Morses Gulch (camp)	2	Redwood, broad- leaved evergreen forest, grassland	0	-
McKinnan Gulch Mine (camp)	2	Orchard, grassland	0	-
Five Brooks (camp)	2	Broad-leaved ever- green forest, grassland	0	-
Bolinas Ridge (camp)	2	Redwood, Douglas- fir forest	0	-
Truttmann Ranch (camp)	4	Grassland, broad- leaved evergreen forest	0	-
Home Ranch Creek (camp)	1	Broad-leaved ever- green forest	0	-
Muddy Hollow Ranch (camp)	1	Grassland	0	-
Totals	40		103	

Increases in Visitor Use and Changes in Visitor Activities

Visitor use impacts on vegetation and soils, while more difficult to quantify than construction impacts, are important considerations since increasing visitor use levels and new activities are proposed. The distance visitors will wander from trails or developments, and therefore the radiating impacts on vegetation and soils, will vary with the attractiveness of views and features found off trails and the suitability of the terrain and vegetation for cross-country travel. The following general effects can be expected to varying degrees around camps, activity areas, and trails.

Trampling by people and horses will reduce plant mass and plant vigor by breaking plants at or below the surface. Visitors may eventually trample and remove vegetation between and around campsites and picnic areas. Vegetation reproduction will be reduced and possibly eliminated in some areas. Change in vegetation composition and a shift toward earlier successional stages, species more resistant to trampling, and weedy species may result. Areas disturbed by visitor use will constantly provide footholds for exotic or pest species such as thistles. The potential for man-caused fires, which are temporarily destructive to vegetation, will increase.

The loss of soil-binding plant cover will result in increased soil erosion by wind and water around camps and along trails. Approximately 145 miles of trails in GGNRA and 144 miles in Point Reyes National Seashore could experience increased erosion. These effects will be pronounced in dune areas where sandy soils are exposed and blowouts could result. Erosion, channeling, and trail width will increase as more people utilize trails. Soil compaction, which increases soil density, alters soil structure, and cuts off air and water to plant roots, will be increased by foot and horse traffic.

Soil compaction and potential damage to vegetation and soils will be most pronounced in wet areas, along streams and bodies of water, where soils are moist and pliable. For this reason, almost all visitor activities are planned for upland areas, while stream courses and water bodies will receive special protection as areas of biotic sensitivity in the management zoning plan.

The denuded soils of high visitor use areas will not have a vegetative cover that would otherwise contribute organic material to the soil. Soil development will be prevented or greatly slowed by the lack of vegetation and the interruption of the normal decomposition processes.

These effects of visitor use will be additive throughout the visitor season. Monitoring of the effects of visitor use on vegetation and soils is planned so that unacceptable resource degradation can be

detected and corrected by a number of management techniques. These could include modifying use levels, rotating use areas, adding patrols, signing, reseeding, or even installing physical barriers where fragile resources could be threatened. Facility designs will take into account possible effects on resources and the potential for erosion. Adverse impacts will be controlled through maintenance of appropriate gradients, surfaces, and drainage structures, and of course by locating new facilities in areas that have been previously disturbed or that are not sensitive to visitor use.

An increase in numbers of visitors to beach areas could hinder or reverse erosion-control efforts or could initiate dune erosion by disturbing dune vegetation. Additional study will be done in most beach areas to determine what management action should be taken to control erosion. Some loss of dune vegetation and a potential increase in erosion can be expected at heavily used beaches at Ocean Beach, Point Reyes, and Stinson Beach.

The continued and possibly increased use of horses in Rodeo, Tennessee, Frank, and Olema valleys has the potential to denude vegetation along 64 miles of riding trails, to compact soils, and to increase erosion. Accelerated loss of soils could result. To mitigate soil loss, trails that are steep or improperly drained will gradually be shifted to more suitable locations.

Large special events will be staged at Fort Mason, Aquatic Park, the Fort Baker parade grounds, and the rifle range in Rodeo Valley. Intensive use of these sites for special events will not affect vegetation or soils because they all have mowed lawn areas that can be irrigated to promote rapid recovery following events. Other more natural areas will be considered for special events, but the conditions of the site, possible impacts on vegetation and soils, and the merits of the event will be reviewed before events will be held in these more sensitive areas.

The potential for fire and short-term loss of vegetation will increase slightly during special events. While fire hazard on the mowed rifle range will be low, the surrounding area, depending on climatic conditions and the moisture content of the vegetation, could be susceptible to fire. The potential for fire danger will be considered when permits for special events are issued, and necessary precautions to reduce fire danger will be taken, such as educating all visitors of the hazard, enforcing smoking and fire restrictions, and stationing fire-fighting equipment and staff at the event site.

Known and suspected distributions of threatened and endangered species, both candidates and listed, have been mapped by the U.S. Fish and Wildlife Service. This map will aid the park in efforts to monitor and avoid impacts on special status plants as a result of increasing levels of visitor use.

Resource Management

The resource management objectives that affect vegetation and soils are very general and will require further definition of methods and site-specific actions in the resource management plan before actual impacts on vegetation and soils can be determined.

The plan protects fragile and unique vegetation types (such as dunal, riparian, and redwood communities) and special status species (rare, threatened, endangered, or candidates for such status) both by avoiding development and use of areas where valuable vegetation is found and by actively protecting such areas through the land management zoning plan. Because critical and unique vegetation areas were defined by the information base prior to the development of planning alternatives, sensitive areas were avoided.

A reevaluation of all grazing operations and the production of a grazing plan will eliminate overgrazing and the use of unsuitable range sites. As a result, erosion and the amount of exposed and erodible soils in the northern units will be reduced. Following the development of a grazing management plan, grazing will continue to be used as a vegetation management tool to maintain the pastoral quality of the landscape and to control shrub invasion. A mix of vegetation communities with increased species diversity and an expansion of kinds of habitat available for wildlife will result. Elimination of overgrazing will increase range grass cover in denuded areas as grazing pressure is decreased. The opportunity for thistle invasion, which is prompted by overgrazing and disturbances that expose soil, will be reduced.

The relocation of horse grazing operations in Frank Valley to a confined 50- to 75-acre irrigated pasture will allow recovery of the surrounding nonirrigated vegetation to a more natural, ungrazed condition. Shrubby species could increase as a result of discontinuation of grazing.

At present, fire is not used or proposed for use as a vegetation management tool in GGNRA, even though some of the objectives for resources management (maintenance of a pastoral scene, restoration of grasslands) could be achieved by the use of fire. Until more information allows preparation of a detailed fire management plan that could include use of prescribed burns to maintain desired vegetation communities, vegetation changes as a result of fire will be small.

Active research and implementation of management strategies aimed at elimination of undesirable exotic species, especially thistles, brooms, and pampas grass, will reduce the amount of nonnative vegetation, which is visually and ecologically incompatible with the surrounding natural vegetation of the Marin County areas. Methods

chosen for exotic species removal will not cause acceleration of erosion or loss of soil and will not chemically affect nontarget plants and animals in the area.

The health and continued existence of the redwood grove at Muir Woods will be assured by continuing to manage the forest. Thinning to encourage regeneration and planting when necessary will allow revegetation of previously disturbed areas.

Summary

New disturbance as a result of construction will be greatly outweighed by the amount of land that will be restored to more natural or landscaped conditions following building and pavement removal. Visitors will have an effect on vegetation and soils, but careful management of use and temporary closure of areas that show signs of unacceptable damage by visitors will keep visitor use impacts under control. While resource management objectives are only developed in a very general way in the plan, the goal is to eventually restore much of the park to more natural vegetative conditions.

IMPACTS ON WILDLIFE AND MARINE ORGANISMS

General effects on wildlife are directly associated with the loss or gain of habitat and the sensitivity and adaptability of wildlife to human use.

Changes in the Amount of Wildlife Habitat

Removal or restoration of vegetation will change food and shelter availability and will affect both primary consumers and predators who inhabit the area. Changes in terrestrial habitat as a result of construction and restoration are summarized in table 18 in the section "Impacts on Vegetation and Soils." Habitat types to be lost by new construction activities are typical to coastal California, and no particularly valuable wildlife habitat is included in the 43 acres that will be disturbed. Restored areas, planted with a variety of woody and herbaceous species, will provide food and shelter for birds and small mammals. The value of this restored habitat, totaling 102 acres, will depend upon the species planted. Overall the acreage to be restored will exceed the amount of habitat to be disturbed by construction.

Marine habitat will be temporarily disturbed by proposed modification of piers at Aquatic Park and Fort Baker. While some additional study will be needed to refine proposals and to determine

specific impacts, any construction activity in a marine area will have the following general impacts to varying degrees of magnitude depending upon the size of the project. During construction activity, fish will migrate out of the area. Disturbance of bottom sediments will directly affect sessile benthic organisms by crushing them with machinery or by burying them with settling silt. Filter feeders will be affected by suspended sediments that could clog feeding mechanisms. Recolonization of disturbed marine areas will occur, but if conditions are also changed, a different assemblage of species will occupy the area after disturbance than before. Recolonization is usually rapid, so that characteristic fauna and flora are found in the area within a year after disturbance. Any additions of artificial underwater structures, such as pilings for piers, will provide additional habitat for sessile species such as barnacles and for game fish that often concentrate around artificial underwater structures.

The following specific proposals will affect marine fauna: lagoon modification to protect the historic ships, construction of a new Hyde Street pier and boat storage and maintenance facilities, and removal of the Sea Scout pilings and rowing club pier, all of which will occur at Aquatic Park; and removal of the bulkheading and repair of the pier at Fort Baker. Modifying the Aquatic Park lagoon and constructing a new Hyde Street pier will require additional study to determine methods and impacts. Modifications could include lagoon dredging and construction of a breakwater. Detailed impacts will be analyzed separately, after the lagoon study is complete.

A proposal to remove bulkheading at Horseshoe Cove in Fort Baker and replace it with a more natural sand beach also requires additional shoreline study to assure that the proposal is feasible. Removal of the bulkheading will remove an artificial, but rich, habitat for marine organisms such as barnacles and crabs. Replacement with a sand beach will change the kinds of organisms that will colonize the area.

Freshwater habitat could potentially be disturbed by construction activity to move the Muir Woods visitor parking and administrative and maintenance facilities. Unless erosion and runoff are carefully controlled, construction could potentially increase siltation into nearby Redwood Creek, which supports a significant migration of silver salmon and steelhead, and depending on the time of year, it could reduce the suitability of the Muir Woods area as an anadromous fish spawning area. Redwood Creek is the only coastal stream in the area that is used by silver salmon. To prevent damage to salmon and steelhead and their habitat, construction will be undertaken during periods of the year when the fish are in coastal offshore waters or in low numbers in coastal streams. Upstream migration and spawning occur from January 15 through

March 15 for steelhead and from December 15 through February 15 for silver salmon. Allowing 60 days for eggs to hatch, the construction period should be between May and October. Because this is also the season of heaviest visitor use, the proposal will result in disruption of normal park use for at least one summer season. Construction will either be completed by the spawning period or measures will be taken to stabilize any potentially erodible areas or to collect runoff before it reaches the creek.

Effects of Construction Activity and Noise

Noise and human activity associated with construction, demolition, and structure removal will disturb animals that would otherwise feed, rest, or nest near the activity area. Most animals will migrate out of the area while activities are ongoing, but they will probably return later unless increases in visitor use following construction activity force more timid species out of the area entirely. Noise and activity associated with demolition and rubbish removal on Alcatraz will temporarily disturb birds such as gulls, cormorants, ducks, and pelicans, and also harbor seals and sea lions that would normally haul out on the rocks around the island. Similarly, birds will be disturbed at Rodeo Lagoon during demolition and modification of structures at Fort Cronkhite.

Visitor Disturbance of Fauna

Many of the long-term impacts on wildlife and marine organisms are related to visitor use and the potential for disturbance by increased volumes of people and new recreational uses in an area. Species in remote areas that are not accustomed to people or that are attractive to collectors will be most affected.

Collection of shore and intertidal invertebrates and disturbance of shore habitats will increase with the number of visitors near the shore at Fort Mason, Crissy Field, Sutro Baths, and other beaches and rocky intertidal shores throughout the park.

Backcountry developments, such as hike-in camps at Gerbode, Tennessee Valley, Morses Gulch, McKinnan Gulch Mine, Bolinas Ridge, Home Ranch Creek, and Muddy Hollow Ranch may cause populations of some wildlife species to decline by increasing the presence of people and reducing quiet spots for wildlife to breed, feed, rest, and bear young. Species in these areas are not as accustomed to the presence of humans as are species in more commonly used areas, such as Rodeo Valley. Nocturnal species could be especially disturbed by overnight use of camp areas. The Marin County units, where this impact will be most important, supports a wide variety of wildlife, including terrestrial and marine

mammals, reptiles, amphibians, and birds, that could be disturbed by backcountry use.

Rodeo Lagoon contains important habitat for shorebirds, waterfowl, and migratory birds, and has been identified by the management zoning map as a biotically sensitive area. The overall increase in visitation in the vicinity will increase the amount of visitor activity on and around Rodeo Lagoon. While past uses of the lagoon included canoeing and fishing, and the adjacent area historically housed large numbers of military personnel, use of the area has been limited in recent years and wildlife may not now be accustomed to high use levels. Therefore, activities will be closely controlled and seasonally limited so that valuable wildlife habitat will not be disturbed.

A migratory population of up to 250 California brown pelicans, an endangered species, seasonally feeds in the lagoon and roosts on Bird Island and along the coast. They do not nest in GGNRA. The largest population of pelicans is found in the area during July and August, and almost all of the birds migrate out of the area by December. This seasonal use pattern will allow visitor use during certain periods when it will not be detrimental to the pelican population. Other birds found in the lagoon area are a variety of ducks, coots, egrets, herons, cormorants, and migratory land and shore birds. The potential exists for disturbance of feeding habits and resting and breeding habitat for a large number of species if increased visitor use proves to be detrimental.

Management actions will be undertaken to limit or relocate activity in the picnic/play area if ongoing monitoring by the park staff determines that wildlife is being affected by visitor use in that location. Therefore, there will be no effect on the lagoon's or lake's resident and migratory birds, including the endangered brown pelican, as a result of the proposal. The National Park Service will initiate formal consultation with the U.S. Fish and Wildlife Service in compliance with section 7 of the Endangered Species Act concerning the effect of the proposals on the brown pelican.

As visitation levels in coastal locations increase, the potential for increased harassment of marine mammals hauling out in park areas--particularly during sensitive pupping periods--will also increase. Sensitive harbor seal hauling and pupping areas are found at Double Point, Bird Rock, Point Reyes Headlands, Drakes Estero, Limantour Estero and Spit, and Bolinas Lagoon. To mitigate any potential threats posed by harassment of marine mammals by visitors, the National Park Service will monitor visitor impacts and take necessary actions to assure that these animals are not affected. These measures may include placement of warning signs at visitor access areas, increased patrol, or temporary closure of areas during particularly sensitive periods.

The provision of better fishing facilities at Aquatic Park and Fort Baker (fish-cleaning stations and piers) and continued access for fishing at Fort Mason will result in a small increase in the pressure on sport fish in the area. This increase in fishing is not expected to have any significant effect on sport fish populations in the San Francisco Bay.

Hiking and horseback riding along trails will continue to contribute to trail erosion in the Marin County areas of the park. Sediments from this source will increase the siltation load of streams and could potentially reduce spawning suitability for salmon and steelhead. Trail use near Redwood, Pine Gulch, and Olema creeks has the greatest potential to affect spawning areas since all of these creeks contain active spawning runs (only Redwood Creek is a spawning area for silver salmon). These important habitat areas are protected by designation as biotically sensitive areas in the management zoning plan. Therefore, trail use that is detrimental to fisheries will not be allowed. Use will be monitored to determine what, if any, changes visitors are causing so that management actions can be taken to modify trail locations or uses.

An environmental education center at Rancho Bolinas at the head of Bolinas Lagoon and a wayside exhibit on Highway 1 along the lagoon near McKinnan Gulch will bring people near the sensitive wildlife habitat area of the lagoon. Careful supervision of school groups will assure that increased use in this area with excellent educational opportunities will not disturb habitat used by shorebirds, seals, fish, shellfish, and other invertebrates.

Informal canoe launching at Johnson's Oyster Company will be allowed to continue, but no new facilities for launching will be constructed. While the continuation of canoeing at a low level will have some effect on the invertebrates, fish, and harbor seals found in the area, the impact will be minimal.

Wildlife will not be disturbed by special events at the rifle range in Rodeo Valley because the area has no significant wildlife habitat value. Noise at the special event site and an increase in the numbers of people visiting the area could, however, temporarily drive birds and small mammals away from Rodeo Valley and into quiet side canyons. Effects on wildlife of special events to be held at other locations will have to be evaluated on a case-by-case basis.

The known and suspected distributions of candidate, proposed, and listed endangered or threatened species that occur in the park area have been mapped by the U.S. Fish and Wildlife Service. A listing of these species is found in the Appendix. While there is a potential for developments and increased levels of visitors to jeopardize threatened and endangered species found within specific project areas, formal consultation with the U.S. Fish and Wildlife

Service indicates that jeopardy to these species can be avoided if concerted attention is given to these species and their sensitive habitat as more specific site plans are developed. The following potential areas of conflict will have to be resolved through more detailed planning and site specific surveys:

Construction areas in Rodeo Valley and other shoreline areas may temporarily displace California brown pelican individuals. This activity is not expected to pose a threat to the species.

Increases in visitor use of shoreline areas may affect California brown pelican roosting areas. Pelicans occur within the area in large numbers from August to November. Monitoring of visitor and pelican use will assure that this species is not affected by changes in visitor use.

Public use on the Point Reyes peninsula may adversely affect two invertebrate species and future monitoring of visitor use may be necessary.

Any increase in visitor use of the marshes of Tomales Bay and Bolinas Bay could affect the California clapper rail which now occasionally visits these areas.

The above potential conflicts and any other conflict areas will be resolved and avoided through additional investigation into the ecology, range, and occurrence of listed and candidate species and informal and formal consultation with the U.S. Fish and Wildlife Service as more specific plans are developed.

Summary

Construction activities will disturb some additional habitat, both terrestrial and marine, but more habitat will be restored than lost. Increased noise levels and activity during construction or demolition will temporarily discourage wildlife use of a much larger area than is directly disturbed by construction. Construction activity near Redwood Creek, which contains anadromous fish, will be carefully controlled and monitored to ensure that spawning fish are not disturbed by increased stream siltation. Any jeopardy to species listed as threatened or endangered will be avoided by considering these species as more specific site plans are developed.

Besides keeping use levels low in sensitive wildlife areas, a number of management techniques will be utilized to reduce impacts of visitors. The effects of visitor use will be monitored throughout the park so that unacceptable impacts can be detected early and corrective action can be taken. Monitoring of marine resources in the intertidal zone and of important bird habitat will provide

information upon which to base closure of certain shoreline sections or other use limitations necessary for protecting sensitive wildlife and marine organisms.

IMPACTS ON VISUAL QUALITY

Changes in visual quality will result primarily from removal of existing structures, many of them temporary military structures or deteriorated buildings that are unsightly, and the creation of additional open space. A park appearance will be greatly enhanced in the southern units by expanding vistas and landscaping new open areas. A general cleanup, renovation of existing facilities, and compatible design for new facilities will increase the aesthetic appeal of the parks.

The plan provides for limited development in undisturbed areas, primarily campgrounds and picnic areas in Mount Tamalpais, Olema Valley, and Point Reyes. These developments will result in partial disturbance of the areas they cover, but the overall visual character will remain unchanged.

At Muir Woods, where the parking lot and other facilities will be re-located out of the redwood grove, the visual quality of the grove will be improved at the expense of creating a new visual intrusion in a previously undisturbed woodland and grassland area nearby.

Visual integrity will be an important factor in the placement and design of all new park facilities, including parking lots, campgrounds, and picnic areas.

IMPACTS ON AIR QUALITY

Effects of Park-Related Traffic

As more people visit almost all sections of the park there will be an increase in the total amount of park-related vehicle traffic--both on access roads to the park and on roads within the park. There is a potential for degradation of air quality because of this increase in vehicle use. Other sources of pollutants (new facilities unrelated to vehicular traffic) will not be created by the plan.

To determine the effects of increased park automobile and transit traffic on the air quality of the park and surrounding region, air quality analyses at two sites were undertaken using worst-case conditions. Sites were chosen that would illustrate the impacts of the plan on the air quality of two contrasting environments with different visitor use levels--the natural environment of Point Reyes and the urban environment of San Francisco. Possible changes in

air quality for other areas in the park can be surmised from these analyses.

One analysis site is a steep section of Limantour Road in Point Reyes National Seashore which passes through a corridor separating mandatory Class I wilderness areas, where no degradation of air quality values will be allowed. During existing peak traffic periods, when traffic density is 250 vehicles per hour, the worst-case concentrations for major automotive pollutants (carbon monoxide, hydrocarbons, nitrogen oxides, sulfur oxides, and total suspended particulates) are far below the applicable standards and much less than concentrations known or suspected to cause damage to any flora, fauna, or other air quality related values (see the air quality analysis in the Appendix). Even if automobile and transit traffic increases by 33 percent along the road during peak periods, to the maximum theoretical carrying capacity of the area, air quality related values will not be affected, and Class I air quality increments will not be approached for the Point Reyes area. Park automotive emissions are the primary pollution source and will not act cumulatively with other point or line sources to produce a significant effect on air quality. In addition, emission factors are expected to be lower in the future as more new cars meeting stringent emission standards are on the road and as a greater portion of visitors arrive and tour the park via transit systems. Therefore, no degradation of the Class I air quality will occur. The calculated values for the Point Reyes road section were so slight that air quality related values would not be affected even in similar situations where traffic volume was more than 10 times greater. Such intensive traffic volumes are not present now and are not anticipated in the Marin County park units.

The second analysis site is located within the city of San Francisco along heavily traveled Marina Boulevard. A section of Marina Boulevard between Laguna Street and Doyle Drive immediately adjacent to Golden Gate National Recreation Area was selected because it is the most heavily traveled road segment affecting the park and because it carries the greatest volume of park-related traffic. Visitation in the adjacent San Francisco Bay waterfront area is projected to increase 2½ times. Marina Boulevard also lies within a nonattainment area for carbon monoxide and oxidants (an area that does not meet the ambient air quality standards), requiring that any change in emissions of these pollutants be given special consideration.

Based upon present recreational and commuter traffic and the maximum projected traffic for 1986, carbon monoxide and hydrocarbon concentrations were calculated for peak traffic conditions (see the air quality analysis in the Appendix). Hydrocarbons were calculated to get an indication of ozone levels, which are difficult to calculate, since it is known that hydrocarbons and ozone levels are generally related. When compared with the

national ambient air quality standards, emissions of carbon monoxide on Marina Boulevard during peak traffic periods did not exceed the standards in 1976 and will not exceed them in 1986. In fact, while total traffic will increase, total emissions of carbon monoxide will be less in 1986 than at present. Emissions at peak 1-hour and 8-hour periods will total less than 20 percent of the total concentration allowed by the standards.

Park-related traffic in 1986 will not exceed the standards for hydrocarbons, but total use during weekday mornings, when commuter traffic is high but park-related traffic is low, will exceed the standard for hydrocarbons. (The peak 3-hour concentration will be 180 ug/m³ (micrograms per cubic meter) while the standard is 160 ug/m³.) The total hydrocarbon concentration will be lower in 1986 than it was in 1976.

Park-related emissions will contribute to air pollution outside the park by increasing the amount of recreational traffic on access roads. In the San Francisco units, park-related emissions are additive with other urban pollution sources, while in the northern units recreational traffic may contribute most of the emissions along an access road. Based upon the two reported air quality analyses, park-related emissions should not significantly affect air quality outside of the park as a result of the plan. Even without GGNRA/Point Reyes or the plan, recreational traffic would be expected to increase at a rate of 5.7 percent each year. The presence of parklands that are close to home and serviced by transit systems will ultimately reduce overall recreational traffic and related emissions.

Air quality will be affected in a minor way by several other components of the plan. By not providing sufficient parking to satisfy all of the potential demand in the San Francisco waterfront area, two counteracting effects on air quality could occur. On one hand, visitors arriving in the waterfront area in private cars may drive around in surrounding areas looking for parking. Emissions from stopping and starting vehicles circling the area will increase pollution levels. On the other hand, visitors will be encouraged to use transit systems to reach the park. Because of enthusiastic response to experimental transportation systems established in the past, general acceptance of transportation systems in the Bay Area, and the number of families in San Francisco that lack private vehicles, it is assumed that when funding is available and transportation systems are established, visitors will use them. As a result, lower levels of emissions will be generated by visitors arriving by transit vehicles than by visitors arriving by private vehicles.

Use of shuttle systems and closure of some areas, such as Rodeo Valley, to private automobiles during heavy use periods will greatly

reduce the potential for deterioration of air quality. Improvements in parking and circulation patterns in the Cliff House area will reduce congestion and reduce air pollution from automotive emissions.

Construction and demolition activities throughout the park will temporarily increase noise and dust levels, as well as emissions from construction machinery. These effects will be short lived and will affect a local area only.

Summary

Automotive pollution, the only effect of the plan on air quality, will not significantly degrade air quality. Assuming successful implementation of transportation plans for making effective use of transit and shuttle systems to bring people to the park and connect the different park units, there will be little or no adverse effect on air quality and, in fact, there could be a beneficial effect in some areas. The contribution of park traffic to any deterioration in air quality will decrease between 1976 and 1986 because more stringent emission standards will decrease future emissions per car. Federal and state air quality standards will not be exceeded. The Class I airshed of the wilderness area of Point Reyes National Seashore will not be affected by the plan.

IMPACTS ON WATER RESOURCES

Water Quality

Almost any construction activity has the potential to decrease water quality in a local area as sediments are transported into surrounding waters by runoff. Suspended sediments will temporarily increase the sediment load, decrease clarity, increase turbidity, and lower the oxygen content of water. In most cases sedimentation increases will not significantly affect water quality because of the large size of the receiving water body and the small amount of sediment that will be contributed. Where large bodies of water are affected (the bay or ocean), the sediment contributions from small construction and demolition sites will be insignificant compared to the sediment load that is constantly present. The San Francisco Bay receives a total of 6 million cubic yards of sediment a year from large upland watersheds, and wave action causes coastal erosion and keeps turbidity high.

Bay and ocean water quality will be affected in a very minor way by sediment runoff from the following projects: demolition and rubble removal at Alcatraz, removal of structures and landscaping at Fort Mason, landform modification and shoreline stabilization at Crissy Field, earth movement to create a park at Sutro Baths, and

bulkhead removal and restoration of a sandy beach at Fort Baker. The effects on bay water quality of modifying the lagoon at Aquatic Park for the protection of historic ships cannot be determined until further study results in the definition of a feasible solution to the problem. However, the potential for temporary and long-term degradation of local water quality exists, depending on the extent of modification, the need for dredging, and the characteristics of the bottom sediments. These impacts of ship protection will be discussed in a separate analysis after feasible alternatives have been defined.

A temporary decrease in water quality of streams and other surface waters will also result from construction disturbance. Movement of the Muir Woods facilities and parking will increase erosion and siltation into Redwood Creek and therefore lower stream-water quality. Mitigating measures described in the section "Impacts on Wildlife" should minimize the effects on water quality and fisheries resources. A minor decrease in water quality of Rodeo Lagoon and Rodeo Lake will result from structure removal and landscaping at Fort Cronkhite. While siltation will temporarily increase, it will not decrease the life of the impoundment, significantly reduce water quality, or limit use of the area by wildlife or as a fisheries resource.

More serious than temporary construction disturbances to water quality will be the long-term disturbances resulting from continuous and often increasing levels of visitor use. Increased use of trails by hikers and horseback riders will increase erosion and sedimentation of surrounding waters.

During special events, the large influx of visitors into an area could temporarily affect local water quality. The combined use of portable sanitary facilities and the planned central sewer system facilities should provide for removal of human waste without affecting water quality at the rifle range in Rodeo Valley. However, if portions of the site are denuded by use, an increase in erosion and sedimentation could result. Plans for immediate revegetation of any denuded areas will decrease the likelihood of degradation of water quality.

An increase in backcountry hiking and camping will increase the potential for contamination of water resources by human wastes. A drinking water source will be affected if visitor use extends onto adjacent watersheds managed by the Marin Municipal Water District. If a problem occurs and any contamination results from hiker spillover into these lands or illegal camping, the boundary will be patrolled.

Horse use will not only increase sedimentation from erosion, but could also introduce fecal material into the waters of the Marin County areas of the park. Contaminated surface runoff from

stables in Rodeo, Tennessee, and Olema valleys will be intercepted and treated prior to entering tributary streams. However, horse waste along trails will contaminate surface water to some extent in the Marin Headlands, Mount Tamalpais, and Olema Valley. Watersheds providing municipal water for the towns of Stinson Beach and Muir Beach are within the park and will continue to be affected by horse use.

A reduction in livestock waste contamination of watersheds will occur in areas where grazing levels are lowered to prevent overgrazing. Contamination of runoff in important watersheds such as the Bolinas Lagoon, Stinson Beach, and Muir Beach watersheds, which are used as municipal water sources, and in other critical watersheds, such as Tomales Bay, Drakes Estero, and Limantour Estero, will probably be reduced if numbers of livestock are reduced. In addition, sediment introduction into watercourses will decrease as erosion problems are reduced and previously denuded areas near stock water supplies and trails are revegetated.

The continued and expanded use of ferry boats to transport visitors will cause some localized pollution of the bay from gasoline and oil discharge, especially at takeoff and landing sites. New ferry operations at Fort Baker and possibly at Fort Mason, the expanded ferry operations at Alcatraz, and potential expansion of ferry service to Larkspur ferry terminal could affect local bay and ocean water quality. When the size of the bay and the amount of other boat traffic is considered, however, the contribution to water pollution by park-related vessels will be insignificant.

Increased park-related private boater use of Fort Baker will have a similar minor effect on water quality of Horseshoe Bay, as petroleum by-products are introduced by boats berthed in the area. The potential for deterioration of water quality from human wastes will also exist when private boat use increases. To help ensure that boaters do not empty holding tanks containing human and chemical wastes into the bay, a dumping station will be provided at Fort Baker.

Nutrient levels in runoff may increase periodically near landscaped areas where fertilization and irrigation are necessary to establish a new plant cover or maintain manicured gardens and landscapes. Fertilization will be avoided in areas where open surface waters could receive an influx of nutrients that could affect aquatic organisms or decrease aesthetic values of open water by eutrophication. If it is created, the Crissy Field lagoon may experience eutrophication unless adequate flushing and water exchange are provided. This problem will be solved by appropriate design.

The water quality of all new water sources will comply with Environmental Protection Agency primary drinking water regulations that have been established pursuant to the Safe Drinking Water Act. Almost all new water sources are associated with new camping areas. If water sources cannot provide water of sufficient quality to comply with the maximum contamination standards allowable by the regulations and if treatment is not feasible, consideration will be given to either relocating the camp or designating the area as a dry camp where visitors must bring in water from surrounding areas. Wherever wells are to be used to supply water, groundwater supplies will be monitored for early detection of any saltwater intrusion. Should saltwater intrusion occur, immediate action will be taken to restrict water use or limit visitor numbers.

Bacterial contamination of water resources will not result from increased visitor use in developed areas because all new developments will contain adequate sewerage systems and comfort stations (see table 19 for proposed sewage disposal systems). Reconstruction of deteriorated sewerage systems will improve water quality in Rodeo Valley, where an existing sewage treatment problem resulting from an overflowing septic tank will be corrected by installation of a new central collection system and treatment outside the park. Overall, this action will greatly improve water quality of Rodeo Lagoon and Lake. Use limitations and other precautionary measures will minimize the occurrence of overflows until the new system is constructed. The proposal to improve sewerage systems in Rodeo Valley has been covered in a separate environmental summary.

The resources management plan, to be developed subsequent to the general management plan, will contain a section on water resources management, which is required through a memorandum of understanding with the Environmental Protection Agency. An analysis of present water use and quality and a classification of water for future use will be included in the resource plan. Future monitoring to ensure nondegradation of the established water standards will be necessary.

Water Demand

San Francisco. Water for all developments in the San Francisco mainland units is provided by existing municipal water sources that supply the city of San Francisco and the U.S. Army water system serving Baker Beach, Crissy Field, and Fort Point. These sources are adequate to meet present and projected water demands without significantly affecting either local or regional water supplies. No new development of water sources will be required.

TABLE 19. WATER SUPPLY AND SEWAGE DISPOSAL

<u>Area</u>	<u>Water Source</u>	<u>Existing (E) Proposed (P)</u>	<u>Estimated Water Demand (peak use, gallons per day)</u>	<u>Sewage Disposal System</u>	<u>Existing (S) Proposed (P)</u>
MARIN HEADLANDS					
Fort Baker, central Rodeo Valley (Forts Barry and Cronkhite)	Marin Municipal Water District (MMWD), from distribution system on interruptible basis; will seek noninterruptible service	E	168,000 - visitor use 81,000 - irrigation	collection system and treatment by Sausalito-Marin City Sanitary District	E for Fort Baker, P for central valley (analyzed in environmental summary 6/78)
Kirby Cove camp	MMWD and low-flow well	E	3,000	vault toilets	E
Gerbode Preserve camp	well or diversion	P	1,000	composting or vault toilets	P
Tennessee Valley co-op stables and trailhead	low volume springs	E	6,000	vault toilets, septic tank/leach-field	E (expand)
Tennessee Valley camp	well or diversion	P	1,000	vault toilets	P
Oakwood Valley farm and picnic area	well or diversion	P	<u>10,000</u>	vault toilets, septic tank/leach-field	P
		Total	270,000 gpd (including irrigation)		
MOUNT TAMALPAIS					
Muir Beach	Muir Beach Community Services District	E	8,000	chemical toilets	E
Muir Beach horse boarding	Muir Beach Community Services District	E	6,000	septic tank/leach-field	E
Muir Woods	North Marin County Water District, transferable to MMWD well	E	50,000	septic tank/leach-field	E
Stinson Beach	Stinson Beach Co. Water District, may develop additional source	E	84,000	septic tank/leach-field	E

<u>Area</u>	<u>Water Source</u>	<u>Existing (E) Proposed (P)</u>	<u>Estimated Water Demand (peak use/ gallons per day)</u>	<u>Sewage Disposal System</u>	<u>Existing (E) Proposed (P)</u>
Morses Gulch camp	well or diversion	P	1,000	vault toilets	P
Old Mine camp	well or diversion	P	1,000	vault toilets	P
Mount Tamalpais State Park and Audubon Canyon Ranch	MMWD, various individual systems and diversions	E	113,000	septic tank/leach-field	E
		Total	263,000 gpd		

OLEMA VALLEY

Rancho Bolinas environ. ed. center	water diversion, well	E	2,000	septic tank/leach-field	E
Bolinas Ridge camp	diversion, well	P	1,000	vault toilets	P
Five Brooks camp, stables, trailhead	diversion, well	E (expand)	28,000	septic tank/leach-field	E (expand)
Truttman camp	diversion, well	E	4,000	vault toilets	P
Hostels (general location)	diversion, well	E	6,000	septic tank/leach-field	E
		Total	41,000 gpd		

POINT REYES

Bear Valley	North Marin Water District	E	65,000	vault toilets, septic tanks/leachfields	E (expand)
Wildcat camp	well	E	1,000	vault toilets	E
Glen camp	well	E	5,000	vault toilets	E
Coast camp	well	E	1,000	vault toilets	E
Sky camp	well	E	1,000	vault toilets	E
Marshall Beach camp	well, diversion, or bring your own	P	1,000	vault toilets	P

<u>Area</u>	<u>Water Source</u>	<u>Existing (E) Proposed (P)</u>	<u>Estimated Water Demand (peak use/ gallons per day)</u>	<u>Sewage Disposal System</u>	<u>Existing (E) Proposed (P)</u>
Home Ranch Creek camp	well, diversion, or bring your own	P	500	vault toilets	P
Muddy Hollow Ranch camp	well, diversion, or bring your own	P	500	vault toilets	P
Laguna Ranch area environ. ed. center and hostel	Limantour water system	E	6,000	septic tank/leach-field	E
Limantour Beach	well	E	10,000	vault toilets, septic tank/leachfield	E
Drake Beach, North Beach, South Beach	well	E	10,000	evaporation lagoon, septic tanks/leach-fields	E
Lighthouse	well	E	2,000	vault toilets, septic tank/leachfield	E
Pierce Ranch	well	E	2,000	vault toilets, septic tank/leachfield	P
Lifesaving station	well	E	2,000	vault toilets, septic tank/leachfield	P
Palomarin trailhead		--	-----	vault toilets	E
		Total	107,000 gpd		

<u>Area</u>	<u>Water Source</u>	<u>Existing (E) Proposed (P)</u>	<u>Estimated Water Demand (peak use/ gallons per day)</u>	<u>Sewage Disposal System</u>	<u>Existing (E) Proposed (P)</u>
Morses Gulch camp	well or diversion	P	1,000	vault toilets	P
Old Mine camp	well or diversion	P	1,000	vault toilets	P
Mount Tamalpais State Park and Audubon Canyon Ranch	MMWD, various individual systems and diversions	E	113,000	septic tank/leach-field	E
		Total	263,000 gpd		

OLEMA VALLEY

Rancho Bolinas environ. ed. center	water diversion, well	E	2,000	septic tank/leach-field	E
Bolinas Ridge camp	diversion, well	P	1,000	vault toilets	P
Five Brooks camp, stables, trailhead	diversion, well	E (expand)	28,000	septic tank/leach-field	E (expand)
Truttman camp	diversion, well	E	4,000	vault toilets	P
Hostels (general location)	diversion, well	E	6,000	septic tank/leach-field	E
		Total	41,000 gpd		

POINT REYES

Bear Valley	North Marin Water District	E	65,000	vault toilets, septic tanks/leachfields	E (expand)
Wildcat camp	well	E	1,000	vault toilets	E
Glen camp	well	E	5,000	vault toilets	E
Coast camp	well	E	1,000	vault toilets	E
Sky camp	well	E	1,000	vault toilets	E
Marshall Beach camp	well, diversion, or bring your own	P	1,000	vault toilets	P

The island of Alcatraz has no local freshwater, and all water is imported by ferry from San Francisco and stored on the island. As a result, only drinking water will be available to visitors to encourage water conservation. Continued use of chemical toilets will limit water demand. The water requirements of proposed plantings will be taken into account in landscaping plans so that irrigation, water transport, and water storage capacity can be kept at a minimum.

Marin County. Park areas in Marin County are presently supplied by municipal systems and local water developments. Water consumption from existing sources will increase as a result of the plan, and several new local water developments will be required for new facilities where new hookups to municipal water sources are not available. Peak use water demand at full plan implementation for park areas in Marin County is indicated in table 19. (The methodology used in determining water demand is included in the Appendix).

Marin Headlands. In the Marin Headlands, peak daily water demand will total 270,000 gallons per day (gpd) when all requirements for visitors, irrigation, and administration are totaled. If irrigation needs are not considered, peak daily water demand for visitor use will total 189,000 gpd, with about 171,000 gallons supplied by Marin Municipal Water District (MMWD) to Fort Baker and central Rodeo Valley, and 18,000 gallons provided by existing or proposed development of groundwater sources.

Increases in water consumption as a result of special events attendance were not taken into account in peak water demand calculations because onsite water will not be needed. Portable chemical toilets will be brought in and drinks will generally be sold at the special event site.

Water service is provided to the park on an interruptible basis. In times of water shortage and drought the park will face the prospect of having this source cut off. If irrigation water is provided by MMWD, its use will be cut off first, but if sufficient water is still not available, visitor services will have to be drastically curtailed, with the possibility that portions of the headlands will be temporarily closed or some activities will be suspended.

Very few local water sources have been developed in the Marin Headlands area with the exception of low-flow springs. Groundwater use has been limited, but extensive testing has been undertaken. From test hole information it appears that sufficient groundwater is available to meet the visitor needs in this area.

Approximately 42 acres will be irrigated at the Fort Baker and Fort Barry parade grounds, rifle range, Fort Cronkhite playfield, and

Capehart picnic area. Peak water demand for irrigation will be 81,000 gpd, assuming one-half inch of water a week is applied on the 42 acres. Irrigation will be needed for about six months each year. The source of irrigation water will be either the MMWD, if sufficient water is available, or the Sausalito-Marin City Sanitary District, if its wastewater treatment plant is upgraded to provide recycled water. If recycled water becomes available, the park will consider recycled water for uses other than irrigation, such as toilet flushing, to reduce consumption of water supplied by other local and municipal sources.

Total water consumption will be reduced somewhat, in Marin Headlands and throughout the park, by the installation of water-saving devices, through the use of drought-tolerant native plant species, and encouragement of water conservation practices. Water-saving faucets, reduced flush-volume toilets, and chemical toilets and demonstration alternative sewage systems that do not require water, such as composting toilets, will be installed whenever possible.

When turf areas are restored, species will be chosen that have low water requirements and that are capable of withstanding drought periods. Landscaping that is adapted to coastal precipitation patterns and will not require irrigation after establishment will be used to revegetate all other areas.

Mount Tamalpais. Because use levels are anticipated to decrease, peak daily water demand will also decrease. Total water demand is anticipated to be approximately 263,000 gpd, while present demand may be as high as 312,000 gpd. Most of the water for the area will be provided by existing municipal water systems, with the exception of two new local water systems that will be required to serve new camps.

Park areas serviced by municipal sources may be subject to water service interruption during periods of low rainfall so that sufficient water can be reserved for the communities of Stinson Beach and Muir Beach. Beach use facilities may need to be closed if supply becomes limited, but water resources themselves will not be affected.

The new camps requiring water development will have low water demand. If water is present in the area, a groundwater well or a diversion should not affect local water sources. However, as is the case in Marin Headlands, until an attempt is made to develop a local water source, the potential to supply water to these camps will remain unknown.

Olema Valley. The existing water supply in Olema Valley comes from local wells and diversions. Water demand in the valley

will be greatly increased as a result of the plan. Although the potential yield of existing wells is not known, test wells in the area yield up to 85,000 gpd, more than twice the required peak water demand of 41,000 gpd. Thus, it appears that local sources in the valley will be able to meet this water demand. Most of the water demand will be generated in the Five Brooks area, the initiation point of most of the activity in the valley.

Point Reyes. Water demand at Point Reyes will increase as a result of the plan to a total peak demand of 107,000 gpd, in comparison with an existing peak demand of 92,000 gpd. The only new water developments that will result from the plan will be to provide water to the proposed camps. Consumption at new camps will be low, and if water is developed it will not affect local water sources. Most of the increased water consumption will occur at Bear Valley, which is supplied by the North Marin Water District. Sufficient water capacity is available within the seashore to meet the projected demand.

Floodplain and Wetlands Management

There will be no adverse impacts on water resources associated with the occupancy or modification of a floodplain or wetland. The only structures in the park that are subject to flooding are in coastal areas subject to tsunami flooding. The presence and continued use of these buildings in the floodplain will pose a limited threat to the structures and the people using them (see "Impacts on Visitors, Visitor Safety"). No new structures will be constructed in wetland areas.

Summary

An insignificant deterioration of water quality will result from the introduction of sediments from construction area runoff and trail erosion. Increases in visitation and horse use could introduce both fecal material and sediments to surface and ground waters. Improvements in water quality will result when existing sewage collection and treatment problems are corrected and when livestock numbers are reduced to eliminate overgrazing.

Water consumption will increase with increases in visitor use levels. During drought periods, demand may exceed the ability of municipal water sources to provide water, resulting in the temporary closure of some park facilities. However, both local and municipal water supplies should be sufficient to meet visitor demand most of the time, except during time of severe drought. New water development, primarily to serve camps, appears to be feasible based upon small water demand at these facilities, past water production, and hydrogeologic features.

Water conservation, phased development, and plan modification if needed will assure that development and use levels will not exceed the potential of the area and surrounding communities to provide water.

ENERGY EFFICIENCY

Making adaptive use of existing structures to accommodate park functions and activities, rather than building new structures, will reduce construction-related energy requirements. While refurbishment and some modification of structures will be required to make them suitable for visitors, the requirements will be less than for new construction. On the other hand, the operation of historic structures that are adapted for new uses may not be as energy efficient as the operation of new structures that could be designed with a consideration for cool and foggy coastal climatic conditions.

As historic buildings are refurbished, energy saving materials and features (insulation, efficient heating systems) will be incorporated into the structures. Individual meters for each facility will be installed to measure incoming fuel, water, and electricity to aid in monitoring and regulating use of these commodities. Wasteful use can be pinpointed and corrected if energy use measurements are made for each facility.

A Bay Area center for environmental awareness and alternative energy technology is being considered as an appropriate use for some of the historic structures at Fort Barry. Interested groups will be invited to carry on research, demonstrate, and explain alternative energy technology and conservation measures. Methods will be tested and demonstrated in hostels and at other facilities throughout the park to decrease energy consumption within the park. As an educational tool, the alternative energy center will also encourage investigation of new energy-saving measures by the general public.

The implementation of a transportation system will allow visitors to reach the park and travel from one area to another within the park with a lower expenditure of gasoline per visitor.

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F U T U R E S T U D I E S

The impacts of a number of actions discussed in the plan cannot be adequately analyzed at this time for a number of reasons including (1) information is unavailable because studies have not been completed; (2) site-specific proposals have not been defined; (3) additional coordination with other agencies or individuals is needed; or (4) a final decision has not been made because it seems desirable to leave options open for the future. Some of these actions have the potential for causing significant environmental impacts, but only further study will reveal the actual extent of impact and the feasible alternatives that may be available. Impact analysis at this time, in other than a very general way, would result in an incomplete, and possibly inaccurate, picture of the future environment. The plan does not commit the National Park Service to any of these actions if impacts are considered significant, and the development of a range of alternatives including no action will precede final decisions on these issues. A separate environmental analysis and additional public involvement may be needed for the following actions. By going ahead with the plan even when several issues are not completely resolved, the entire general management plan will not be delayed while waiting for future studies and final resolution of these issues.

PRESERVATION OF THE ALCATRAZ CELL HOUSE/CITADEL COMPLEX

The cell house and military citadel upon which the cell house rests are rapidly deteriorating. The feasibility of their preservation will depend upon the extent of structural problems, the extent of necessary modifications, and projected costs. A structural analysis of the complex will be necessary before a decision of how to preserve the resources can be reached. Depending upon the outcome of this study, a number of options for the preservation of the cell house and citadel may result. These options could even include the removal of the cell house if repair work would substantially alter its historic fabric or appearance.

Following the study, an impact analysis of the various options will be prepared to aid in making the final decision. Any future action will comply with the procedures established by the Advisory Council on Historic Preservation.

If preservation efforts would result in substantial alteration of one or the other of the citadel or cell house, or if preservation is impossible and the cell house has to be removed, significant impacts on cultural resources would result. Because the results of the structural analysis are not known at this time, the evaluation of the

significance of the impacts on these structures will be deferred until later. It is possible that additional documentation of environmental impacts will be required, as well as compliance with the procedures established by the Advisory Council on Historic Preservation.

AQUATIC PARK LAGOON MODIFICATION

The historic ships now moored at the Hyde Street pier in Aquatic Park lagoon are subject to constant deterioration brought about by wind and tidal surge. Various methods for protecting the ships need to be investigated to determine their feasibility and impacts. Options for protection could include construction of a breakwater, physical modification of the lagoon, construction of a new Hyde Street pier, alternative mooring methods, or a combination of these. A study is needed that will gather physical and biological data including wind, wave action, tidal current, and bottom conditions; composition of bottom sediments; the amount of dredging that could be required; disposal sites for dredged material; maintenance requirements and their costs; and the anticipated effects on marine organisms and water quality. This information will also be needed to determine the feasibility of a floating stage at Aquatic Park.

The Port of San Francisco now owns the Hyde Street pier, which would be altered or replaced during lagoon changes. Modification of the pier would require its transfer to the National Park Service or an agreement as to design and operation of the structure. This problem is yet to be resolved.

Without the benefit of necessary data or the resolution of ownership, a valid impact analysis cannot be made. An impact analysis of the possible options for protecting the ships, based upon the study results, will be completed before a final decision is made.

FERRY SERVICE FROM FORT MASON

The final decision to implement ferry service from Fort Mason to Alcatraz will be delayed in order to allow time to first monitor the use of the park, observe the traffic situation, and establish mass transit service to the area. By keeping the option for ferry service open, the final decision can later be based upon observations of the operating park over a longer period.

If monitoring of traffic and parking conditions indicates that surrounding areas would not be adversely affected, ferry service to Alcatraz from Fort Mason will be proposed. An impact analysis will be prepared before any action is taken to initiate service.

POSSIBLE REMOVAL OF HISTORIC STRUCTURES AT FORT MASON OR FORT CRONKHITE

During site-specific design planning, it may be desirable to remove a small number of historic structures for aesthetic purposes or because the buildings are not needed for park activities and are costly to maintain. However, before any historic structure is removed, the environmental impacts will be analyzed, and removal will be in compliance with the procedures established by the Advisory Council on Historic Preservation.

ACCESS INTO CRISSY FIELD

The best access into Crissy Field and the relationship of access to facilities is yet to be determined. The National Park Service will cooperate with the army, San Francisco Department of City Planning, MUNI, San Francisco Department of Public Works, and the Golden Gate Bridge District to work to resolve the access problem.

SHORELINE EROSION AND LAGOON FEASIBILITY STUDY FOR CRISSY FIELD

A study will be undertaken to determine the present causes of instability of the shoreline, methods for stabilizing the beach and restoring a natural appearance to the area, and costs and maintenance requirements. Results of this study may affect the site design for the beach area. Following engineering studies and development of feasible alternatives, additional environmental analysis will be required. The feasibility of creating a lagoon for water play will also require additional study. The size and flushing characteristics to prevent eutrophication will have to be considered.

CLIFF HOUSE HISTORIC STRUCTURE ANALYSIS

The proposal for restoration of the 1909 Cliff House assumes that restoration is feasible and that the restored structure will accommodate existing uses. A structural analysis will be required to determine the condition of the structure, what modifications have taken place, the amount of remaining historical fabric, the feasibility of restoration, the capability of the historic structure to accommodate the proposed uses, and the cost of restoration. If the study determines that either structural deterioration or destruction of historic fabric has advanced to a point of making the historic restoration of the building infeasible, the possibility of constructing a new Cliff House will be considered. An impact analysis will precede any decision to change the proposal to restore the 1909 Cliff House.

EROSION OF OCEAN BEACH

Control of shoreline erosion at Ocean Beach and future opportunities for recreation will directly relate to a proposal by the city of San Francisco to construct a major wastewater storage and transport facility along Ocean Beach just east of the park boundary and to replace the Great Highway. In order to prepare a response to the city's plans, the National Park Service hosted a conference on Ocean Beach erosion control which brought together a panel of experts in the fields of coastal processes, ecology, and engineering. The panel made several recommendations concerning location of the facility, structural requirements of the walls, disposal and stabilization of excavated material, maintenance of the facility, and monitoring of shoreline processes. The National Park Service will continue to work with the city to arrive at the best solution of the problem.

The National Park Service will need to issue a permit to the city for disposal of sand on the beach in the national recreation area. Because a decision on the city's proposal has not yet been made and because the storage facility is to be built outside of the park, decisions on the management of Ocean Beach cannot be made at this time. Before a National Park Service permit is issued to dispose of sand on the beach, a thorough analysis will be prepared to determine the effect of the proposal.

MODIFICATION OF FORT BAKER BEACH

The changes in the shoreline that will result when the seawall is removed and replaced with a sandy beach will be subject to additional study and impact analysis before construction proceeds. The difficulty of maintaining the new beach (which existed before bulkheading was installed) will be evaluated as well as what site-specific impacts on coastal dynamics and marine organisms will result from construction activity.

INCREASED VISITOR ACTIVITY AT RODEO LAGOON

The effects of increased visitor use on the wildlife of Rodeo Lagoon and Lake will be monitored as visitor use levels increase. Baseline information on the kinds of birds present now and their numbers will be compared with future observations so that changes in seasonal use or management techniques can be made if necessary to prevent visitor impacts.

NEW SOUTHERN ENTRANCE TO STINSON BEACH

A new road alignment will be constructed to provide a southern entrance for park visitors to Stinson Beach so that they no longer drive through the village of Stinson Beach. At present, traffic must proceed through the town in order to enter the beach parking area. A feasibility study is being planned by the Federal Highway Administration for 1980 to determine options for the alignment of this new road section. At that time, the site-specific environmental impacts of the new road will be analyzed.

ZONE CAMPING

A feasibility study to determine the potential impacts (increased fire potential, water pollution, impacts on vegetation and soils) will be undertaken prior to making a decision to allow primitive zone camping at Point Reyes.

CONSTRUCTION PROJECTS

All construction projects included in the plan will be preceded by an additional review and site-specific analysis of their impacts in an environmental assessment. This review will assure either that impacts were adequately covered in this environmental analysis or that additional impacts based on new information or changing conditions or publics are taken into account and documented before the site is finally committed to development. Detailed surveys required for compliance with NPS policies and federal laws will be undertaken at that time. These surveys will include site-specific archeological surveys and surveys to verify endangered species occurrences. The U.S. Fish and Wildlife Service will be consulted whenever conflicts with endangered or threatened species are encountered necessitating reinitiation of procedures under section 7 of the Endangered Species Act. Locations of facilities may be slightly altered or appropriate mitigating measures adopted to reduce impacts as a result of these site-specific analyses.

VEGETATION MANAGEMENT

A vegetation management plan is needed to guide programs for maintaining vegetative diversity, controlling exotics, protecting fragile environments, and other resource management goals. Additional studies will be necessary before specific proposals can be made.

GRAZING

As part of the vegetation management studies, additional study of the effects of grazing will be required to determine where this activity can be used as a resource management technique for maintaining grasslands. Based on results of this study, a plan will be developed for the issuance of grazing permits.

C O N C L U S I O N S

Major changes in human activity and land use occurred when Point Reyes National Seashore and Golden Gate National Recreation Area were established as units of the National Park System by congressional action. Recreational use patterns that have now become established on former military, state, city, and private lands are going to continue at a higher use level with no new significant environmental impacts. The planned uses of the resources are primarily for recreational activity, consistent with the reasons for establishment of the areas.

Relevant environmental factors have been considered in evaluating the significance of the environmental impacts of the plan. The magnitude of change to the natural environment is expected to be small. The emphasis on utilizing existing structures and limiting new development to areas that have already been physically altered in the past will reduce the amount of new disturbance to a very small portion of the 100,000-acre area. Urbanization, along with its attendant development and pollution has already affected the quality of natural resources to some extent, making the changes proposed by the plan relatively insignificant.

The maintained environment and structures of the San Francisco units have a greater ability to absorb impacts than the more northern areas, and consequently most development and use is proposed for these units. In the northern units, where environmental sensitivity is often high, few actions that could affect natural resources are proposed. Exclusive protection of areas where natural values are high, little or no modification of remaining resources in areas that have been stressed by past uses, restoration to more natural conditions when possible, and use of already disturbed sites will allow long-term preservation of natural resource values. No significant adverse effects on habitat or endangered or threatened species will result. Unique areas or areas of special designation such as wilderness areas, ecologically critical areas, or Class I airsheds, will not be affected.

Energy consumption will be as low as possible with the provisions for transit systems and adaptive use of existing structures. The plan will not violate any laws or standards that have been imposed to protect the environment.

A large number of historic structures are going to be affected in a minor way by the plan. Changes in historic structures are necessary in order to adaptively use and preserve them over the long term. Modifications of historic structures to allow adaptive uses will usually be interior changes and will be reversible in

structures that have interior significance. Significant impacts on the area's cultural environment will not result. No significant adverse impacts will affect areas listed on or eligible for listing on the National Register of Historic Places.

The tourist-oriented and urban character of the area surrounding the park will not be significantly affected. Heavy vehicular and pedestrian traffic is already present, and large numbers of businesses are already established to provide visitor services. The plan will not promote growth or change growth patterns in any adjacent community. Public health and safety will not be adversely affected.

The cumulative direct and indirect impacts of the proposal that can be determined at this time are not significant to either the locales of site-specific actions or to the region. A number of unresolved actions requiring more study may or may not be significant, but without further study and definition of the proposal, no determination can be made. The proposal does not commit the National Park Service to future actions which could be significant. There are no known other proposed actions, either inside the park or in the area, which considered along with the proposal will be significant. The controversial impacts have been resolved by compromise or plan alteration.

NATIONAL PARK SERVICE
GOLDEN GATE NATIONAL RECREATION AREA, CALIFORNIA
AND POINT REYES NATIONAL SEASHORE, CALIFORNIA
GENERAL MANAGEMENT PLAN

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the provisions of the National Environmental Policy Act and The regulations of the Council on Environmental Quality (Federal Register, Volume 43, Number 230, November 29, 1978) an Environmental Assessment was prepared for the General Management Plan for Golden Gate National Recreation Area and Point Reyes National Seashore.

The Environmental Assessment was released in August, 1979 and received extensive public and agency review. Proposals cover development and restructured use in the San Francisco and Marin County units of the recreation area; concepts for natural and cultural resources management; and proposals for transportation to and within the areas. Plan emphasis is to place urban recreational development in areas where natural landscapes have been modified and have low density use with minimal impact in areas retaining substantial material integrity. Cultural resources are considered in the plan which proposes that historic structures be stabilized and used adaptively rather than being demolished or extensively restored and that non-historic building be removed and setting relandscaped to increase outdoor recreational opportunities and improve the scene. Agreement has been reached with the State Historic Preservation Officer and Advisory Council on Historic Preservation concerning proposals with effect on cultural resources. Overall responses have been in support of the plan and no recommendations for substantial revisions were made.

As a result of the assessment and review of comments received, it is believed that no substantial controversies exist and that the plan does not have the potential to cause significant adverse impacts on the quality of the human environment. Therefore, based on these reviews an Environmental Impact Statement will not be prepared.

The Environmental Assessment is on file and may be viewed at the following offices: General Superintendent, Golden Gate National Recreation Area, San Francisco, California; Superintendent, Point Reyes National Seashore California; and National Park Service, Western Regional Office, San Francisco, California.

Approved Howard W. Chapman
Regional Director, Western Region

9-24-80

Date

ENVIRONMENTAL REVIEW

FOR THE

GENERAL MANAGEMENT PLAN
AND
ENVIRONMENTAL ANALYSIS

Golden Gate National Recreation Area
Point Reyes National Seashore

May 1, 1980

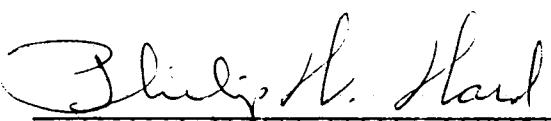
Recommended:


John H. Davis
Acting General Superintendent

5/1/80

Date

Approved:


For Howard H. Chapman
Regional Director
Western Regional Office
National Park Service

6/9/80

Date

The planning process and the alternatives considered throughout its course for which this environmental review signifies a milestone of completion can be described best by an excerpt from the draft General Management Plan itself:

Planning has involved extensive discussions with public agencies and conservation organizations and also more than one hundred workshops in Bay Area communities. About 10,000 people of all ages, incomes, and lifestyles have directly participated in this process through these public workshops, letters, and meetings with the planning staff over the past four years.

In conjunction with this extensive public dialogue, the planning team has carefully compiled and analyzed information about the wildlife, vegetation, soils, history, socioeconomic setting, and other subjects that are key factors in making decisions about the parks' future (Preliminary Information Base, four volumes, October 1975.) Public preferences and feelings were carefully filtered through this collection of knowledge. An important intermediate product of this process was the Assessment of Alternatives for the General Management Plan (May 1977), supplemented by a popular summary, A People's Guide to the Future of the National Parks Next Door. These publications presented up to four alternative scenarios for the future of fourteen geographic units of the park. Each alternative related to one of the four basic park philosophies expressed by the public (1) minimum visible change--things are O.K. the way they are today; (2) maximum natural appearance--wherever possible restore natural qualities and hold development to a minimum; (3) education/history--the park is an ideal learning environment and visitors need a lot of help to get maximum enjoyment and benefit from it; (4) recreation--the park is a place that offers many opportunities for leisure activities. All of the alternatives protected ecologically sensitive natural areas, retained significant historic structures, and proposed facilities only in areas suitable for development. Each alternative was accompanied by a thorough environmental analysis describing the potential results of each proposal.

During the public review of the Assessment of Alternatives, people were encouraged to interchange the individual proposals to design the park system they preferred. Public responses to the alternatives were gathered in five hearings held by the GGNRA Citizens' Advisory Commission (CAC) and through individual's and group's letters and worksheets. These responses were analyzed to determine areas where people were in general agreement and areas where issues were still to be resolved. These determinations and the recommendations of the planning staff were submitted in a series of position papers to the public and CAC, which voted approval of the recommendations and resolved the few remaining conflicts through additional meetings and committee work.

The analysis of public responses to the planning alternatives revealed that a surprising number of proposals received nearly unanimous support from reviewers. These were generally recommended, and proposals that

received little or no endorsement were rejected. There was one critical exception of this decision-by-vote process. Many key participants, such as the elderly, who were contacted early in the planning process through aggressive efforts to reach into the community, did not return to comment on the alternatives. Nevertheless, to fulfill their commitment to serve a variety of constituents, the planning team carefully considered the needs of these groups in the formulation of the plan.

When public preference for the future of a particular area was split, some basic valuations seemed to prevail in the decision-making process. On the one hand, emphasis was placed on urban recreational development in areas where the natural landscape has already been significantly disturbed. On the other hand, the proposals lean toward low-intensity use and minimal facilities in areas that retain substantial natural integrity.

Decisions were also tempered by a preference for stabilization and adaptive use of historic structures rather than alternatives for extensive demolition or authentic restoration of buildings and settings. At the same time, the plan favors tearing down nonhistoric buildings to increase outdoor recreational opportunities and enhance the natural scene.

As much as possible, the plan attempts to sustain park uses that are occurring now. However, some activities will be shifted to new locations where they will be more compatible with park resources and other uses.

The draft plan (both full text and summary) was distributed to the public in June of 1979. The following hearings were then conducted by the Golden Gate National Recreation Area Advisory Commission to receive comments from the public:

September 25, 7:30 PM, Fort Mason
September 29, 9:30 AM, Fort Mason
October 4, 7:30 PM, Berkeley
October 9, 7:30 PM, Mill Valley
October 13, 9:30 AM, Point Reyes Station

Generally, comments and suggestions offered by agencies, organizations, the Advisory Commission, and the public were supportive and primarily oriented toward clarifying the intent of plan proposals. There were no controversies or recommendations for substantial plan revisions apparent in any of the hearings or in any of the letters and position papers submitted in response to the plan.

Specific suggestions for numerous minor modifications are contained in the text of the following Advisory Commission committee reports:

Education/Recreation - 3 reports - September 25, October 21, and November 13
Land's End/Fort Funston - September 25
Marin Headlands - September 25
Northeast Waterfront - September 25
Olema Valley/Mt. Tamalpais - September 25
Point Reyes - September 25
Trails - September 25
Transportation - September 25

These reports, which were approved by the full commission on November 15, 1979, resulted from an exhaustive page-by-page review and analysis of the draft plan by the committees prior to the public hearings. Subsequent to the hearings, two staff reports were submitted to the full commission responding to relevant issues and questions raised by the public in both written and verbal testimony.

At their December 8, 1979 meeting, the Commission unanimously voted final approval of the General Management Plan subject to recommended modifications contained in the ten committee reports and the two staff reports.

Of all the constructive suggestions contained in the committee reports, only a few appear to be of sufficient magnitude to warrant mention in this review. The serious concern of the Marin Headlands Committee for protection of the natural resources of Rodeo Lagoon and Lake (particularly bird populations) motivated them to ask that the proposals for canoe rentals, a fishing dock and a stocking program be dropped from the plan. Noting the widespread opinion that it would be impractical, the Point Reyes Committee asked that the proposal to operate an ocean-going ferry to the seashore be deleted from the transportation section of the plan. As is the case with all of the Advisory Commission recommendations, we propose that the above suggestions be accepted in full.

Written comments from the Marine Mammal Commission and the Point Reyes Bird Observatory included an objection to a proposed walk-in campground due to its proximity to important harbor seal habitat in Bolinas Lagoon. Because the campground is proposed in a canyon, the mouth of which is separated from the lagoon by a busy highway, we recommend that the proposal be retained in the plan with the condition that final siting and implementation will be contingent upon resolution of these concerns directly with appropriate staff of the Point Reyes Bird Observatory.

With respect to National Environmental Policy Act compliance, the following statement was contained in two prominent locations within the text of the draft plan:

As in the past, public review of the plan and its environmental analysis and consideration of all comments will precede the commitment to a final plan of action and a decision as to the significance of its environmental consequences. These decisions will be recorded in an environmental review. If this review of public and agency comments and the environmental analysis reveals that the environmental consequences of the plan will not cause a significant adverse impact on the quality of the human environment and are not substantially controversial, then a finding of no significant impact will be part of the environmental review and the plan will be approved. If this is not the case, then a decision will be made to prepare an environmental impact statement on the proposed action and approval of the plan will await its evaluation.

None of the plan's reviewers either advocated preparation of a full environmental impact statement or stated in their review comments that the consequences of the document would be substantially controversial or would result in significant adverse impacts. Therefore, it is recommended that a finding of no significant impact should be determined at this time and that the plan should be approved by the Regional Director subject to modifications recommended by the Advisory Commission.

C O N S U L T A T I O N A N D C O O R D I N A T I O N W I T H O T H E R S

The plans and policies of other public agencies in the San Francisco Bay region influence management and planning decisions for GGNRA/Point Reyes, and vice versa. The National Park Service has worked with all the following agencies in development of this plan, and their review of the plan is requested. The agencies that have been and continue to be most closely associated with park planning can be separated into the following categories.

CO-MANAGERS

Currently, not all land within the park's boundary is managed by the National Park Service. Co-managers include the United States Army and Coast Guard, state and local park agencies, and two nonprofit groups.

Major portions of the recreation area are former United States Army lands, which were immediately transferred to the National Park Service upon establishment of the park. The act provides that the military can retain certain rights on portions of these lands, including areas within Fort Mason, the Presidio, and the Marin Headlands. The Presidio of San Francisco in its entirety and the eastern half of Fort Baker are included within the boundary of the park; however, they will remain under the jurisdiction of the Department of Defense until such time as that department determines that any substantial portion is excess to its needs. Two areas within the Presidio have been irrevocably permitted to the National Park Service for recreational use--45 acres of bayfront land at Crissy Field and 100 acres of land at Baker Beach. The act also provides that "reasonable public access" will be granted to the Secretary of the Interior at Horseshoe Bay in East Fort Baker "together with the right to construct and maintain such public service facilities as are necessary for the purposes of this act."

Many plan proposals, especially those related to transportation and access routes, will require coordination with the army. Also, many National Park Service proposals are dependent on gradual phaseout of various army operations in the Marin Headlands.

The act also specifies continued military use of the following facilities operated by the U.S. Coast Guard on lands within the national recreation area: Fort Point Coast Guard Station (by permit), Point Bonita, Point Diablo, Lime Point, and two areas of Point Reyes National Seashore.

Seven park units owned by the city and managed by the San Francisco Department of Recreation and Parks were included within the boundary of the southern portion of the recreation area, and were intended by the Congress for donation to the federal government. Six of these units (Fort Funston, Ocean Beach, Sutro Heights, Lands End, Fort Miley, and Aquatic Park) have already been transferred to the National Park Service, leaving only the Marina Green area still under city jurisdiction.

Nine units of the California State Park System totaling approximately 7,700 acres were also included in the recreation area boundary, and also intended for donation to the federal government. In July 1976, an act providing for the transfer of five of these units to the National Park Service was passed by the state legislature and signed by the governor. This act also allowed for the transfer of three additional units at the discretion of the governor, who has subsequently agreed to transfer two. This leaves Angel Island State Park, which can be transferred at the governor's discretion, and Mount Tamalpais State Park, which was completely excluded from the current act. Regardless of the status of the various state park units, it is clear that these parklands are an integral part of a cohesive coastal resource and should be managed and developed in close coordination with the lands now in federal ownership.

Although they are not specifically cited in the enabling legislation, hearing records show that two properties within the recreation area boundary were clearly intended by the Congress to be exempt from purchase as long as their use remains compatible with the purposes of the park. The Zen Center, a 106-acre tract along Route 1 immediately south of the community of Muir Beach, serves as headquarters for a religious organization, providing central living accommodations for about 25 people. In addition to their religious activities, truck farming constitutes the group's primary activity. Trails lead through the area, and visitors are welcomed. The Audubon Canyon Ranch is a 1,014-acre nature preserve owned and operated by a private nonprofit conservation organization. The purpose of the ranch is the protection and interpretation of important egret and heron rookeries located in the canyon.

BAY AREA PARK AND RECREATION AGENCIES

As the primary regional source of recreational opportunities, GGNRA/Point Reyes will be planned and managed as one element of a Bay Area park system. Therefore, regional supply and demand factors must be considered. This defines the second category of agencies exerting an influence on decisionmaking--other park planners and managers in the region, including not only San Francisco and Marin County Departments of Parks and Recreation

and the East Bay Regional Park District, but also the park departments of seven additional counties in the Bay Area as well as the California Department of Parks and Recreation.

Particular interrelationships occur where other public park areas are adjacent to the national parkland, as are the zoo and Golden Gate Park in San Francisco. The Marin Municipal Water District lands are also contiguous with GGNRA/Point Reyes and share common access roads and trail systems. The cross-Marin trail proposed by the county will pass through both county and national parklands.

Review by these agencies of national park proposals will define the role of GGNRA/Point Reyes in local, regional, and state park systems.

REGIONAL PLANNING AGENCIES

The third category of organizations whose plans and policies exert an important influence on GGNRA are the several regional planning agencies of the Bay Area. The California Coastal Zone Commission and the Bay Conservation and Development Commission have both produced policies and guidelines for the proper use and development of the shoreline. These policies will be regarded as important constraints that will help guide all future considerations affecting the waters of the bay and ocean and the lands bordering them. Generally, policies of both commissions support recreational use as a priority for shoreline areas and do not appear to be in conflict with National Park Service policies. Similarly, the plans and recommendations of the Association of Bay Area Governments must be taken into account as a valuable consolidated regional attitude and articulation of needs toward such subjects as transportation systems, open space, and recreation facilities. Initial consultation with these agencies indicates general conformance of plans and policies; review of this plan will continue this coordination.

Additional consultation with the regional offices of the Environmental Protection Agency, U.S. Fish and Wildlife Service, California Regional Water Quality Control Board, Bay Area Pollution Control District, and the California Department of Fish and Game may be necessary to ensure compliance with environmental quality regulations and laws.

LOCAL PLANNING AGENCIES

Two important local planning agencies are concerned with the park--the Marin County and San Francisco Planning Departments.

Parklands within GGNRA/Point Reyes comprise more than a third of the total land area and most of the coastline in Marin County, and all of San Francisco's oceanfront and most of its northern bay waterfront are part of GGNRA--which is especially significant in light of the city's peninsular nature and the aesthetic influence of the water. Also, two of the city's most well-known landmarks occur within the park--Alcatraz and (although it is owned and managed by others) the Golden Gate Bridge.

The master plan of the city of San Francisco is recognized for its influence on planning and management decisions. Additional projects of the city of San Francisco related to the park include a wastewater management plan and proposals to modify the Great Highway and establish connections between Golden Gate Park and Ocean Beach. A memorandum of understanding between the city and the National Park Service ensures their review of park proposals, particularly those related to transit systems, proposed construction, and sand incursion upon roadways adjacent to the park.

The General Plan for Marin County is a basic guide for coordination. In addition to this county plan, many communities adjacent to the park have articulated their needs and concerns in community plans that will affect decisions about park proposals. Major plan elements requiring coordination include transportation, trails, and visitor services. A memorandum of understanding between the National Park Service and Marin County specifies that both parties will consult with the other on all planning and management issues of mutual concern.

TRANSPORTATION AGENCIES

Perhaps the most critical park planning issue is transportation. Initial park legislation recognized this fact and specially funded a 2-year study, the Golden Gate Recreational Travel Study (GGRTS), to coordinate the ideas of numerous Bay Area and state transportation agencies. The proposals of this study have been incorporated into the transportation approach outlined in this plan.

The Metropolitan Transportation Commission is a regional planning agency that develops Bay Area transportation policies and reviews funding requests. Proposals related to park transportation will require their assistance as well as review by the local transportation departments of San Francisco and Marin Counties.

Roads within the park are maintained by numerous agencies. Proposals affecting these roadways could require assistance from the California State Department of Transportation (CALTRANS), and the Marin or San Francisco Department of Public Works.

The major Bay Area transit systems with park-serving potential are Golden Gate Transit for Marin, Municipal Railway (MUNI) for San Francisco, and Alameda-Contra Costa (AC) Transit for Alameda/Contra Costa Counties. Although Bay Area Rapid Transit and Southern Pacific Railway do not connect to the park, their scheduling may increase transit possibilities for East Bay and peninsula residents.

THE PUBLIC

Numerous groups and individuals have shaped this plan. Workshops with both organized groups and the general public were held from October 1974 to November 1975 to identify planning issues and citizens' feelings as to what topics the plan should address. Workshops recorded the preferences and feelings of about 10,000 people. All of the information gathered was considered in the development of the Assessment of Alternatives for the General Management Plan, which was distributed to the public in 1977.

The public was again asked to express their preferences in 1977; this time on the four alternatives expressed in the assessment and its summary, which received wide public distribution. Comments were gathered through hearings, letters, and worksheets from interested citizens. Some issues still remained to be resolved following analysis of responses to the assessment. The public and the GGNRA Citizens' Advisory Commission resolved these conflicts through additional discussions.

This plan, the final result of a planning effort that has relied heavily on public response, is also available for public review.

DISTRIBUTION OF THE PLAN

Copies of the General Management Plan/Environmental Analysis will be available for review at National Park Service offices in the Bay Area as well as in the main public libraries. In addition, copies have been sent to the following government agencies (federal, state, regional, and local) and groups for their review and comments. These agencies and groups also received copies of the Assessment of Alternatives.

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Environmental Protection Agency, Region IX
Department of the Army

 Corps of Engineers, San Francisco District
 Corps of Engineers, South Pacific Division
 Sixth Army Headquarters
 Presidio of San Francisco
 Oakland Army Base

Department of Commerce
 National Oceanic and Atmospheric Administration

Department of the Interior
 Heritage Conservation and Recreation Service
 Fish and Wildlife Service, Regional Office

Department of Transportation
 Coast Guard, 12th Coast Guard District
 Federal Highway Administration, Region Nine
 Urban Mass Transportation Administration, Region Nine

STATE AGENCIES

California State Clearinghouse
San Francisco Bay Conservation and Development Commission
California Coastal Zone Conservation Commission
 - North Central Coast Region
Fish and Game Department
Department of Parks and Recreation
 Office of the Director
 San Francisco Area Manager
State Historic Preservation Officer
Department of Navigation and Ocean Development

REGIONAL, COUNTY, AND MUNICIPAL AGENCIES

Association of Bay Area Governments
Bolinas Public Utilities District

City of San Francisco
Board of Supervisors
Planning Commission
Planning Department
Northeastern Waterfront Planning Advisory Committee
Recreation and Park Department
Recreation and Park Commission
Department of Public Works
East Bay Regional Park District
Larkspur Planning Department
Marin County
Board of Supervisors
Comprehensive Planning Department
Planning Commission
Park and Recreation Department
Park and Recreation Commission
Department of Public Works
Marin Municipal Water District
Mill Valley Planning Department
Sausalito Planning Department
Stinson Beach County Water District
Transportation Agencies
Metropolitan Transportation Commission
Golden Gate Recreational Travel Study
Golden Gate Bridge and Transportation District
Golden Gate Transit
San Francisco Municipal Railway

ORGANIZATIONS

Audubon Canyon Ranch
Audubon Society
Bolinas Planning Group
California State Historical Society
Citizens Ad Hoc Trails Committee
Coalition of San Francisco Neighborhoods
Coastal Parks Association
Environmental Action Committee of West Marin
Foundation for San Francisco's Architectural Heritage
Friends of the Earth
Inverness Planing Group
League of Women Voters
Marin Conservation League
Marina Civic Improvement and Property Owners Assocation
Muir Beach Improvement Assocition
People for a Golden Gate National Recreation Area
Planning Association for Richmond
Point Reyes Bird Observatory