

CHAPTER 11.0
Responses to Comments

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11.0 RESPONSES TO COMMENTS

The Draft EIS for the Disposal and Reuse of NSTI was circulated for public and agency review from May 10 to June 24, 2002. The lead agency, the Navy, held a public hearing on June 11, 2002, at Treasure Island to provide the public with an opportunity to comment on the content and accuracy of the Draft EIS. In addition, written comments were accepted throughout the review period.

In accordance with NEPA regulations, the Final EIS provides responses to comments on the Draft EIS (40 CFR § 1503.4). In compliance with those regulations, this section of the Final EIS includes a list of agencies, organizations, and individuals commenting on the Draft EIS, comment letters, and responses to the substantive environmental issues raised in the comments. Responses to comments received at the public hearing also are included. If a comment did not relate to an environmental issue or was worded more as a statement to be entered into the record, it is indicated by the response "comment noted."

Agencies or Individuals Commenting on the Draft EIS

<i>Letter Reference</i>	<i>Commentor</i>
FEDERAL AGENCIES	
A	US Coast Guard
B	US Department of Transportation, Federal Highway Administration
C	US EPA
STATE AGENCIES	
D	State Clearinghouse
E	State Clearinghouse
F	Department of California Highway Patrol
G	Department of Toxic Substances Control
H	California Department of Transportation
I	Office of Historic Preservation
J	San Francisco Bay Conservation and Development Commission
K	California Regional Water Quality Control Board, San Francisco Bay Region
L	California State Land Commission
LOCAL AND REGIONAL AGENCIES	
M	San Francisco Bay Trail Project
N	City and County of San Francisco
O	San Francisco Municipal Railway

<i>Letter Reference</i>	<i>Commentor</i>
ORGANIZATION	
P	Arc Ecology
INDIVIDUALS	
Q	Michael Dziadek
R	Norman L. de Vall
S	Ruth Gravanis
T	Richard Hansen
U	Emeric Kalman
V	Warwick Tompkins
W	Warwick Tompkins
PUBLIC HEARING COMMENTS	
PH-1 and 2	Warwick Tompkins
PH-3	Richard Hansen
PH-4	Susan DeVico
PH-5	Dale Smith

U.S. Department
of Transportation

United States
Coast Guard



Commander
Maintenance & Logistics
Command Pacific

LETTER A

Coast Guard Island, Bldg 54D
Alameda, CA 94501-5100
Staff Symbol: se-1
Phone: (510) 437-3511
FAX: (510) 437-5753

16475
June 24, 2002

Ms. Timarie Seneca
BRAC Operations Office
U.S. Navy, Southwest Division
Naval Facilities Engineering Command, Code 06CM.TS
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517

Subject: *Draft Environmental Impact Statement for the Disposal and Reuse of Naval Station
Treasure Island, San Francisco, California. May 2002.*

Dear Ms. Seneca:

Thank you for providing copies of the subject draft environmental impact statement (DEIS) to the Coast Guard. We have noted that Coast Guard property was excluded from this DEIS that only addresses development proposals on 920 acres to be disposed of by the Navy, i.e., Naval Station Treasure Island (NSTI) lands as delineated in the DEIS as "Reuse Plan Area". The Coast Guard has some concerns about matters that may directly or indirectly affect Coast Guard operations, property, and personnel related to the proposed alternative development plans.

The DEIS discussion of future utilities related primarily to development proposed on Treasure Island, e.g., installation of a perimeter utility corridor around Treasure Island for Alternatives 1 and 2. The DEIS did not address provision of utility services to entities outside the NSTI planning area, i.e., the U.S. Department of Labor, Coast Guard, or Caltrans. The Navy currently owns and operates the utilities, and provides utilities services to the Coast Guard. The Coast Guard wants the responsibility to be transferred to San Francisco.

A-1

Coast Guard has some concerns regarding its access road, i.e., Macalla Road, and the capacity of the road to accommodate additional traffic from new development proposed in the DEIS. The relocation of Macalla Road by Caltrans, as part of its east span replacement construction activity for the San Francisco Oakland Bay Bridge, should afford an opportunity to work out a new design that will provide a satisfactory solution for all users. As mentioned in the DEIS, the on and off ramps to the bridge need upgrading, and it was noted that the ramps are owned by the Navy. The Coast Guard is concerned about accessibility to Yerba Buena Island (YBI) and the bridge, and the need to upgrade the ramps to have the capacity to handle additional traffic that will be generated by the alternative development proposals.

A-2

A-3

Coast Guard has some concerns about potential contamination from past practices. Installation Restoration Site 11 (IR 11), is contiguous to Coast Guard property. As mentioned in the DEIS, it was transferred to the FHWA, but additional investigation is planned to determine the extent of the landfill and the need for remedial action. The Coast Guard is concerned about possible migration of contamination from IR 11 onto or under its property. This is an issue that Coast

A-4

16475

June 24, 2002

Guard needs to have resolved before Caltrans starts construction activity on IR 11. The Coast Guard is pleased with a statement that two underground storage tanks (UST) at the entrance to Coast Guard property will be removed.

A-4

References in the DEIS to Quarters 8 and 9, which are both eligible for the National Register of Historic Places, are somewhat confusing. They were transferred by the Navy to the Coast Guard, but this was not stated anywhere in the DEIS. The depiction of Quarters 8 and 9 on Figure 3-4 is inconsistent with the title of this figure, i.e., "National Register Listed Buildings and Eligible Properties on NSTT" since Quarters 8 and 9 are outside of NSTI.

A-5

If you have any questions regarding the above comments, please call my environmental reviewer, Ms. Carol Meyer, at (510) 437-3511. Thank you for your consideration.

Sincerely,



J. MILKEY

Lieutenant Commander, U. S. Coast Guard
Chief, Planning Branch
By Direction of the Commander

Copy: Commanding Officer, Coast Guard Group San Francisco

1 RESPONSE TO COMMENTS

2 **Response to Comment A-1.** The Navy intends to convey all utilities associated with NSTI to
3 the designated property recipient. The Navy has retained all utility easements that are within
4 lands transferred to FHWA. Easements that are assignable will be transferred to the designated
5 property recipient in conjunction with the associated utilities. The US Coast Guard would be
6 required to reach agreement with the property recipient for providing or sharing operation of
7 any utility services in the future.

8 **Response to Comment A-2.** The design of the San Francisco-Oakland Bay Bridge (SFOBB) east
9 span retrofit project has been completed and construction has begun. The project will include
10 improved eastbound ramp access from Yerba Buena Island to the Bay Bridge East Span for
11 vehicular traffic, as well as new pedestrian and bicycle access to and from the East Bay on the
12 south side of the SFOBB East Span. Neither Caltrans nor the Treasure Island Development
13 Authority (TIDA) has plans to make further improvements to Macalla Road and connecting
14 ramps. Macalla Road currently has very low traffic volumes. While it is not a high capacity
15 road, it has the capacity to handle 300-400 vehicles per hour. The May 2000 EIR estimated that
16 the on-ramp on the east side of the SFOBB tunnel would carry approximately 195 vehicles
17 during the weekend midday peak hour (worst case condition under Alternative 1), of which
18 only a portion came from Treasure Island using Macalla Road. The remaining came from Yerba
19 Buena Island. Macalla has capacity for an additional 200 vehicles.

20 **Response to Comment A-3.** As stated in response to comment A-2, the design of the SFOBB
21 east span retrofit project has been completed and construction has begun. The project will
22 include improved ramp access from Yerba Buena Island to the Bay Bridge East Span for
23 vehicular traffic, as well as new pedestrian and bicycle access to and from the East Bay on the
24 south side of the SFOBB East Span. Neither Caltrans nor the TIDA has plans to make further
25 improvements to the connecting ramps.

26 **Response to Comment A-4.** IR Site 11 is in the remedial investigation (RI) stage. The full extent
27 of contamination will be assessed, and, upon completion of the RI, the appropriate course of
28 action to address contamination at the site will be made. The remedial action selected will
29 ensure that contamination issues at the site will be adequately addressed and that no
30 contamination would migrate onto US Coast Guard property. As the commentor notes, the
31 Navy intends to remove two underground storage tanks at IR Site 11. The date of removal of
32 these tanks will be determined based on the timing of SFOBB construction activities in the area.
33 All remedial work is expected to be completed in 2006.

34 **Response to Comment A-5.** Section 3.4 has been revised to clarify that quarters 8 and 9 have
35 been transferred to the US Coast Guard. Quarters 8 and 9 have been removed from Figure 3-4.

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**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CALIFORNIA DIVISION
980 Ninth Street, Suite 400
Sacramento, CA. 95814-2724
June 11, 2002**

IN REPLY REFER TO
HDA-CA
File #: 04-SF-80
Document #: P 40532

Ms. Timarie Seneca
BRAC Operations Office, Southwest Division
Naval Facilities Engineering Command, Code 06CM.TS
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517

Dear Ms. Seneca:

SUBJECT: DEIS for Disposal and Reuse of Naval Station Treasure Island.

Thank you for the May 7, 2002, notice along with a copy of the Draft Environment Impact Statement (DEIS) for the Disposal and Reuse of Naval Station Treasure Island (NSTI).

The DEIS purpose and need as stated is to dispose of surplus federal property at NSTI for subsequent reuse. Furthermore, it states "Navy considered the Local Redevelopment Authority's (LRA) stated purpose and need in developing reasonable reuse alternatives." Since the scoping meeting, the DEIS shows that the City and County of San Francisco have decided to proceed with the state process under a separate environmental impact report (EIR) to analyze the impacts from the reuse of NSTI. It is our understanding that the proposed EIR is currently being prepared. As such the DEIS is deficient in addressing the impact related to the developments that have not yet been determined by the city.

B-1

The DEIS states that on October 26, 2000, the Federal Highway Administration (FHWA) transferred 97 acres of Navy dry and submerged land on Yerba Buena Island (YBI) to the California Department of Transportation (Caltrans). It further states that the FHWA conveyed this land in fee and this land is no longer available for transfer by the Navy to the city. Most of the acreage noted in the federal land transfer to Caltrans is under a "Temporary Construction Easement (TCE)," please note that the TCE acreage is not a fee transfer and the land will be returned to the United States when the construction of the San Francisco - Oakland Bay Bridge, East Span Seismic Safety Project is completed. The DEIS needs to clarify and identify the area as fee transfer and other areas as TCE. We have enclosed a map showing the limits of the federal land transfer for your use.

B-2

Section 3.5, Transportation, discusses the transportation system and the deficiencies. Table 3-9 on page 3-47 is using accident data from January '92 to April '95. More recent information should be used to assess the accidents to date as well as the safety concerns associated with the increased traffic by future city developments.

B-3

Chapter 4, Environmental Consequences are deficient in addressing land use on YBI and the ramps to and from I-80. As noted above, the TCE will return to the Navy/United States when it is no longer needed for the SFOBB. The impact associated with the city's development should be evaluated and mitigated. The document uses 2010 for traffic analysis and certain mitigation measures identified was based on 2010 forecast and demand. It would be appropriate to use 2015 or built out year forecast to assess mitigation for future planned developments. Section 4.5.1 shows impact to SFOBB/I-80 YBI westbound on-ramp (west side) and (east side) to be significant. One of the mitigation measures for the west side on-ramp is to route traffic to the east side on-ramp. The DEIS also discusses the planned ramp upgrade as a part of the SFOBB project. This statement is incorrect. The existing eastside westbound on-ramp will be closed during the construction of the SFOBB, East Span. After construction, the existing on - ramp will be similar to what it is today. It is our understanding that the City is working with Caltrans to improve or modify this ramp but this is being proposed outside the scope of the SFOBB, East Span project. Unless the proposed upgrade by the City is completed, both of these on-ramps will be deficient and have insufficient capacity to handle the increased traffic from the city's development.

B-4

If you have any questions regarding these comments please contact Bill Wong, Bay Bridge Project Manager, at (916) 498-5042.

Sincerely,



For
Michael G. Ritchie
Division Administrator

Enclosure

1 **Response to Comments**

2 **Response to Comment B-1.** As the commentor notes, the federal action evaluated in this EIS is
3 the disposal of surplus federal property at NSTI. NEPA requires federal agencies to evaluate
4 the reasonably foreseeable effects of the federal action. The EIS needs only to assess the
5 potential for impacts based on the reasonably foreseeable reuse of the property and need not
6 address future site development plans that are beyond the Navy's ability to reasonably
7 estimate.

8 Because a final development plan was not available at the time it was prepared, the EIS relies on
9 alternatives that reflect a range of development concepts, including the City and County of San
10 Francisco's Draft Reuse Plan (San Francisco 1996e). Alternative 1 represents the City's draft
11 reuse plan concept and is a high level of development. Alternative 2 is based on
12 recommendations by the Urban Land Institute and the public on the Draft Reuse Plan and is a
13 medium level of development. Alternative 3 is a limited development alternative that focuses
14 on reuse of existing facilities.

15 A developer submitted a proposal for NSTI to TIDA on July 2, 2002, and TIDA is currently
16 reviewing it. TIDA or private reuse entities will be required to prepare separate environmental
17 documentation to address the potential impacts of the development plan once it has been
18 finalized.

19 **Response to Comment B-2.** The May 2002 draft EIS was prepared with the understanding that
20 all property in the temporary construction easements (TCEs) and aerial easements were
21 encumbered to such a degree that it eliminated the ability for development, per the Draft Reuse
22 Plan. In earlier negotiations, TIDA and the Navy concluded that the property need not be
23 conveyed until the easements had been relinquished. Further, the prospective completion date
24 for the new SFOBB east span was beyond the period in which the Navy could convey the
25 property under the BRAC authority. Therefore, all of the approximately 98 acres (40 ha) of land
26 transferred to FHWA, including the TCEs and aerial easements, were excluded from evaluation
27 in the Draft EIS. Due to a new understanding between Navy and TIDA, Navy has determined
28 that the TCEs and aerial easements are available for disposal and are included in the transfer
29 and reuse analysis presented in the Final EIS.

30 The Final EIS has been revised to reflect that land on Yerba Buena Island transferred to FHWA,
31 and subsequently conveyed to Caltrans, via permanent aerial easements of approximately 0.6
32 acre (0.2 ha) of dry land and TCE's approximately 77 acres (32 ha) of dry and submerged land,
33 are available for disposal and are evaluated in the EIS. Lands permanently conveyed in fee to
34 Caltrans (approximately 20 acres [8 ha] of dry land) for construction and operation of the
35 SFOBB are permanently transferred out of Navy ownership and are not evaluated in the EIS. In
36 addition, Figure 1-2 and other figures throughout the Final EIS have been revised to reflect the
37 inclusion of these areas.

38 With the exception of the cultural resources analysis, inclusion of the TCEs and aerial easements
39 was not found to measurably alter the analysis or conclusions presented in the Final EIS. The
40 TCE and aerial easements make up only approximately 8.5 acres [3.5 ha], or 0.02 percent of the
41 dry land proposed for disposal. The analysis of such resources as socioeconomics, traffic, air

quality, and noise is partly based on the approximate acreage of each land use type. Nevertheless, the designated land uses for these lands (residential, publicly oriented, and open space/recreation), which were developed before being transferred to FHWA, are less intensive and, as such, loss of this land does not substantially alter the assumptions of the analysis in the EIS.

The TCEs and aerial easements contain structures that are eligible for listing on the National Register of Historic Places and areas of cultural sensitivity. These areas were not considered as part of the proposed transfer and were identified but not analyzed in the Draft EIS. The Final EIS has been revised to address these resources. The MOA for cultural resources has also been revised to include these areas; as a result of inclusion of these resources in the MOA, no new significant impacts were identified as a result of inclusion of these areas.

Response to Comment B-3. The accident data in Table 3-9 of the Draft EIS (now Table 3.5-1 of the Final EIS) has been updated based on information provided by Caltrans.

Response to Comment B-4. Please see response to comment B-2 regarding inclusion of the FHWA/Caltrans easements in the EIS analysis.

A technical memorandum has been included as Appendix F.3-A with year 2025 freeway mainline and ramp analyses. This technical memorandum concluded that there is no change in the findings of additional significant traffic impacts on SFOBB and its connecting ramps at NSTI. The year 2025 vehicle trip generation estimates for the proposed action is the same as that of year 2010 because the year 2010 vehicle trip generation analysis presented in the Draft EIS is for the full build of the proposed action. While traffic demand on the Bay Bridge would be greater in 2025 than in 2010, the actual number of vehicles that can get onto the SFOBB in both eastbound and westbound directions are restricted by the metering lights on the eastern end and by the I-80 lane configuration and congestion in San Francisco downtown.

The EIS states that the level of service on the SFOBB is assumed to continue to operate at capacity with or without reuse of NSTI. The EIS does state that there would be significant but mitigable impacts from the increased volumes and queuing on three SFOBB ramps on Yerba Buena Island and from a reduced level of service on the westbound SFOBB during the peak traffic periods and the only feasible mitigation (transportation demand management [TDM]) is provided. The metering lights at the SFOBB toll plaza control westbound traffic to ensure smooth operation of the SFOBB. Additional traffic under reuse of NSTI would not slow the metering lights and, as a result, regardless of the number of vehicles approaching the SFOBB, the operation of the SFOBB would remain the same and, therefore, impacts as evaluated in the EIS would not change.

It is noted that the eastbound on-ramp on the west side of Yerba Buena Island is expected to be closed for approximately three years during construction of the SFOBB, which may result in traffic impacts that Caltrans would need to mitigate as part of that project. Nevertheless, the closure of the eastbound on-ramp during SFOBB construction would not be expected to measurably affect or interact with reuse construction for several reasons. First, the traffic analysis presented in the EIS is for full build out at NSTI. It is unlikely that the first phase of

1 reuse construction would generate such high levels of traffic. Second, SFOBB construction is
2 scheduled to be completed in 2005 and is unlikely to substantially overlap with the first phase
3 of reuse construction, which was projected in the Draft Reuse Plan to occur between 2002 and
4 2006. Finally, the EIS does not refer to any planned upgrade of the westbound on-ramp on the
5 eastside of Yerba Buena Island. The Navy concurs that the eastside westbound on-ramp would
6 be deficient to address reuse traffic and proposes mitigation to address this potential impact.

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LETTER C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94106-3901

Timarie Seneca
BRAC Operations Office
Naval Facilities Engineering Command
U.S. Navy, Southwest Division
1230 Columbia Street, Suite 1100
San Diego, CA 92101

June 20, 2002

Dear Ms. Seneca:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the *DISPOSAL AND REUSE OF NAVAL STATION TREASURE ISLAND (NSTI), City and County of San Francisco, California* (CEQ # 020174, # D-USN-K11107-CA). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act. EPA attended the Navy's public hearing for this DEIS, held on Treasure Island on the evening of June 11, 2002.

The proposed action is disposal of Navy property for subsequent reuse and redevelopment. Operationally closed in 1997, NSTI is on two islands in San Francisco Bay midway between the shores of the San Francisco and Oakland. Treasure Island, the larger island, consists of 402 acres of dry land created with fill in the 1930s. Approximately 681 acres of dry and submerged land are available for disposal on Treasure Island. Yerba Buena Island is a natural island connected to Treasure Island by a causeway. Approximately 239 acres of dry and submerged land are available for disposal on Yerba Buena Island (a total acreage of approximately 920 acres is thus proposed for disposal and reuse). Approximately 36 acres of land on Treasure Island were previously transferred to the U.S. Department of Labor, while approximately 97 acres on Yerba Buena Island were transferred to the Federal Highway Administration (with a subsequent transfer to the California Department of Transportation), and 22 acres are scheduled for transfer to the U.S. Coast Guard (the acreage already transferred to the U.S. Department of Labor and the Federal Highway Administration, and scheduled for transfer to the U.S. Coast Guard, is outside the scope of the current disposal and reuse action assessed in this DEIS).

The DEIS evaluates three reuse alternatives. Navy disposal of 920 acres of dry and submerged land on the two islands is assumed for each reuse alternative. Alternative 1 represents full implementation of the development scenario described in the Naval Station Treasure Island Draft Reuse Plan developed by the Treasure Island Development Authority (TIDA). Alternative 2 is based on comments received during the scoping process, including recommendations by an advisory panel of the Urban Land Institute. Alternative 3 represents a lower level of

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redevelopment than proposed in the Draft Reuse Plan. A fourth alternative, No Action, assumes no property disposal, but retention of the property by the Navy in an inactive or caretaker status. Under No Action, existing leases would continue until they expire or are terminated, no new leases would be implemented, and all buildings and other facilities would remain vacant and unused. Alternative 1 (the Navy's Preferred Alternative) features a combination of publicly-oriented development, open space and recreation, and extensive residential development at full build out. Under Alternative 1, publicly-oriented development on Treasure Island would include a theme attraction park, a 300-room hotel, and a 1,000-room hotel with three restaurants and offices. Publicly-oriented uses on Yerba Buena Island would include a 150-room hotel, conference facilities, and restaurant. Clipper Cove Marina would be expanded and a new yacht club developed. Community uses on both islands would include parks and open space, schools, a bikeway and pedestrian path. Industrial uses and infrastructure include a new wastewater treatment plant, a new police station and a new fire station on Treasure Island. Other facilities would include an elementary school, child development center, fire training school and brig. Residential housing includes a reuse of existing housing and construction of new housing on both islands. Alternative 1 proposes 2,840 dwelling units (290 existing residential units + 2,550 new residential units).

The DEIS sufficiently addresses the environmental impacts associated with the proposed disposal and reuse action. However, EPA has environmental concerns that mitigation is not addressed where impacts are identified, and information which is necessary to assess impacts is not provided. Specifically, EPA has environmental concerns with the proposed action because air quality impacts are identified, however, no mitigation is proposed. These include emissions from construction and demolition activities; transportation-related emissions; potential carbon monoxide (CO) hot spots; and potential air toxic emissions (see pp. 4-60 to 4-64). In each case, the Navy asserts that no air quality-related mitigation is proposed because the emissions are not considered to be significant. However, NEPA requires that an Environmental Impact Statement discuss steps that could be taken to mitigate adverse environmental consequences (e.g., potential CO hot spots, emissions of air toxics) even if such mitigation would not be implemented by the lead Federal agency (as in this case, since TIDA and/or the City and County of San Francisco would require or implement mitigation associated with NSTI's reuse).

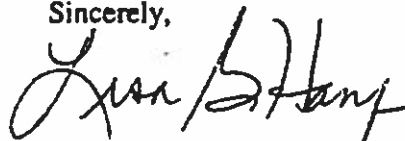
EPA also has environmental concerns because the DEIS does not present relevant information on the location and amount of dredging associated with reuse activities, i.e., a new ferry terminal and marina maintenance. Because NSTI was an active Federal facility for more than 60 years, and the Navy was historically involved in a number of dredging and dredged material disposal projects in the San Francisco Bay Area, we assume that the Navy has information on file regarding dredging activities at NSTI, including historic data on sediment quality and characteristics. However, the Navy has deferred an analysis of impacts associated with dredging for this project, with page 2-14 stating, "this EIS must necessarily evaluate potential impacts from dredging on a programmatic level." There is, however, no corresponding commitment by the Navy to prepare a tiered NEPA document analyzing the environmental effects of dredging associated with NSTI reuse activities.

LETTER C

We have environmental concerns regarding several issues involving hazardous materials and hazardous substances contamination at NSTI. EPA believes that the manner in which the Navy presents information on hazardous materials and hazardous substances contamination at NSTI can be presented more clearly, resulting in an improved NEPA document and an informed decision-making process. For example, although the DEIS presents a useful discussion of hazardous substances contamination at NSTI, no map is provided that depicts contamination at NSTI, although such maps are available as part of the environmental restoration process. Additionally, no information is provided regarding the Navy's schedule for its investigation and remediation activities at NSTI. We are concerned by remarks made by the Navy at the June 11, 2002 hearing that environmental restoration activities and this NEPA process are separate processes, and that information developed as part of the environmental restoration process will not be presented in this NEPA analysis (e.g., maps depicting contamination at NSTI, and information regarding the Navy's schedule for investigation and remediation of hazardous substances at NSTI). Although we recognize that the NEPA process and the environmental restoration process are separate statutory requirements, current information developed in the course of the Navy's environmental restoration process at NSTI should be appropriately reflected in a concise manner in this EIS.

Based upon our review, EPA rates this DEIS as EC-2, Environmental Concerns - Insufficient Information. Please refer to the attached "Summary of Rating Definitions" for a detailed explanation of EPA's rating system. Please refer to our detailed comments (attached) for further discussion of EPA's concerns and other issues requiring clarification or more discussion in the Final Environmental Impact Statement (FEIS). We appreciate the opportunity to comment on the DEIS. Please send two copies of the FEIS to me at the letterhead address (mailcode: CMD-2) when it is filed with EPA's Washington, D.C. office. If you have any questions, please contact my staff reviewer for this document, David Tomsovic, at 415-972-3858.

Sincerely,



Lisa B. Hanf, Manager
Federal Activities Office

Enclosures: 4

"Summary of Rating Definitions"
EPA's Detailed Comments on DEIS
Site Location Map (contaminated sites)
Site Summary (list of contaminated sites)
Pollution Prevention Checklists

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

LETTER C

U.S. EPA Comments on the Navy's Draft Environmental Impact Statement (DEIS) - Disposal and Reuse of Naval Station Treasure Island (NSTI), City and County of San Francisco, California - June 20, 2002.

AIR QUALITY

Air Quality Impacts and Air Quality Mitigation

The DEIS (p. 4-59) states, "Buildout of Alternative 1 would result in short-term air pollutant emissions from construction activities, long-term emissions from operation of new sources, and potential long-term emissions from hazardous air pollutants." For Alternative 1, pages 4-60 to 4-64 state that no mitigation is proposed for the air quality effects of construction and demolition activities; transportation-related air pollutant emissions; potential carbon monoxide (CO) hot spots; or potential air toxic emissions. In each instance, the DEIS asserts that such impacts are 'not significant,' thus not warranting mitigation. Similarly, no air quality mitigation is proposed for Alternatives 2 and 3. Dust control measures recommended by the Bay Area Air Quality Management District (BAAQMD) are listed (p. 4-60).

In order to facilitate effective NEPA public disclosure, we strongly recommend that the Navy discuss its rationale for determining that impacts related to potential CO hot spots, emissions of air toxics, and other air quality-related issues were found to be 'not significant.' For example, page 4-64 states that for Alternative 1, air toxics could be generated by retail establishments, but the DEIS acknowledges that "the actual amount of these air contaminants cannot be quantified due to a lack of information about specific business uses...in the reuse plan area." It thus appears premature to assert that air toxic emissions would not be significant if actual pollutant types and emission levels are not known. It also seems premature to indicate that no mitigation is proposed without knowing the types and volumes of air toxics that would be emitted.

EPA believes that the Navy's approach (i.e., no mitigation proposed for air quality effects) is not consistent with the Council on Environmental Quality's (CEQ) pollution prevention memorandum to Federal agencies ("Memorandum to Heads of Federal Departments and Agencies Regarding Pollution Prevention and the National Environmental Policy Act," CEQ, January 12, 1993). Concerning the responsibilities of Federal agencies, CEQ's memorandum indicates that "federal departments and agencies should take every opportunity to include pollution prevention considerations in the early planning and decision making processes for their actions...and...document those considerations in any EISs...."

It does not appear that the Navy has taken "every opportunity" to integrate air quality mitigation to the "fullest extent practicable." Because of the role played by the BAAQMD in protecting the airshed, we encourage the Navy to work closely with that office to identify appropriate air quality mitigation measures, which should be presented in the Final Environmental Impact Statement (FEIS).

Recommended Mitigation for Air Toxic Emissions

Page 4-64 states that no mitigation is proposed for potential air toxic emissions. The FEIS should recognize that construction machinery is a source of air toxic emissions. A discussion of appropriate mitigation to reduce air toxics from construction machinery should be presented in the FEIS. Such mitigation would prove useful to the Treasure Island Development Authority (TIDA), and the City and County of San Francisco, as they proceed with NSTI's reuse. Below are suggested mitigation measures to reduce construction-related diesel emissions that EPA recommends be presented in the Navy's FEIS:

- ▶ Require that diesel-powered equipment be properly maintained;
- ▶ Minimize idling of diesel equipment to the fullest extent feasible;
- ▶ Lease or buy newer, "cleaner" equipment, 1996 or newer model year and use a minimum of 75 percent of the total horsepower of the equipment;
- ▶ Prohibit engine tampering to increase horsepower (engines should be tuned to meet the engine manufacturer's specifications);
- ▶ Use low sulfur diesel fuel (with a sulfur content of 15 ppm or less);
- ▶ Reduce diesel emissions using control technologies like traps that capture about 80% of diesel particulates, and specialized catalytic converters (oxidation catalysts) which control approximately 20% of diesel particulates, 40% of carbon monoxide, and 50% of hydrocarbons. These control technologies can be used together to maximize reductions in diesel emissions;
- ▶ Evaluate the use of other available engine types such as electric, liquified or compressed natural gas (CNG), hydrogen fuel cells, or alternative diesel formulations [Note: CNG may have a drawback since there is research data indicating that formaldehyde is emitted during combustion];
- ▶ Reduce construction-related traffic trips; and,
- ▶ Develop a 'Construction Emissions Mitigation Plan' describing measures to reduce the project's diesel emissions.

C-3

The Navy should know that the National Aeronautics and Space Administration (NASA) has agreed to adopt similar recommendations as part of their NASA Ames Programmatic Development Plan, including adoption of a 'Construction Emissions Mitigation Plan.'

Coordination with the Federal Highway Administration on Traffic-Related Issues, Including Air Quality

Page 7-1 identifies agencies contacted during the development of the DEIS. The Federal Highway Administration (FHWA) was not contacted. Since access to, and egress from, NSTI connects to the National Highway System (Interstate 80, I-80), the FHWA may have concerns regarding potential impacts to I-80 from future reuse activities at NSTI, including air quality impacts and an appropriate level of air quality mitigation. We recommend that the Navy contact FHWA to determine potential issues of concern to FHWA, including the EIS's presentation of

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project-related impacts, and mitigation that should be presented in the FEIS. We note that a number of potential transportation-related mitigation measures are recommended in 4.5 (Transportation). Lastly, since FHWA may have jurisdiction by law and/or special expertise regarding access or potential impacts to I-80, the FEIS should address whether FHWA was asked to be a cooperating agency.

C-4

DREDGING AND DREDGED MATERIAL DISPOSAL

Page 2-14 states, "[t]he exact location and amount of potential dredging is not known at present and therefore, this EIS must necessarily evaluate potential impacts from dredging on a programmatic level." Because the Navy does not specifically identify this DEIS as a 'programmatic' NEPA document, it may be inappropriate to defer analyzing such impacts by indicating that they will be evaluated on a 'programmatic level' at some future point. Should the Navy use a programmatic approach for dredging-related issues at NSTI, the FEIS and NEPA Record of Decision should contain a commitment that a future 'tiered' NEPA document would be prepared by the Navy to assess dredging-related activities at NSTI, consistent with CEQ's NEPA Implementing Regulations on programmatic analyses. Absent that, dredging-related issues should be fully discussed in the current NEPA document, and addressed as part of the Navy's NEPA decision-making process for this project. As indicated in our cover letter, EPA assumes the Navy has information on file regarding dredging-related issues at NSTI, including historic data on sediment quality and characteristics. As a matter of NEPA public disclosure, such information should be presented in the FEIS. The FEIS should also address if the party seeking authorization for dredging and/or dredged material disposal would be TIDA, the City and County of San Francisco, and/or a private party.

C-5

HAZARDOUS SUBSTANCES CONTAMINATION AND HAZARDOUS MATERIALS

Polychlorinated Biphenyls (PCBs)

Page 3-137 addresses the spillage or release of PCB-contaminated transformer fluids at the PCB equipment storage area (Installation Restoration [IR] site 03). Page 3-143 states, "Surveys continue to be conducted for PCBs in secondary electrical equipment and hydraulic equipment." The FEIS should clarify the most current information regarding PCBs which may remain in use or in storage at NSTI, as well as the most current information regarding the known or suspected release of PCBs into the environment at NSTI areas proposed for reuse. The Navy should update the text discussion on page 3-137 to indicate that the Navy has requested permission from the State of California to eliminate site 03 as an IR site. The FEIS should clarify the phrase "the site was used to store and repair transformers," (p. 3-137) as the Navy's Base Realignment and Closure (BRAC) staff indicated to regulatory agencies that the site served only as an electrical substation.

C-6

The DEIS discusses other NSTI facilities where PCBs may have been potentially used

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(e.g., the old boiler plant and medical clinic, see p. 3-137; and the foundry, see p. 3-138). Page 3-143 indicates that the State of California has recommended further investigation of PCB contamination at IR site 09 (foundry). The FEIS should address if PCBs may have been used at the old boiler plant or other facilities using equipment containing PCBs, and, if so, whether PCB contamination may be an issue of concern. We note that page 3-137 states that the old boiler plant building was demolished in 1968, and its debris "reportedly buried in place." Should PCBs have been used at the old boiler plant, the FEIS should address if PCB contamination at the boiler plant site is an issue of concern.

C-7

The discussion in the DEIS on IR site 12 (old bunker) (p. 3-139) should be expanded to provide a more detailed description of the site contamination and investigation history under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). For example, please update the FEIS to describe a former Chemical Storage Yard in the vicinity of Halyburton and Bigelow Courts that was the subject of a large-scale removal action (approximately two acres) conducted in 2000-2001 to remove PCB-contaminated soils, and describe the numerous indoor air and subsurface soil sampling activities to assess PCBs at this area.

C-8

Impacts from Potential Methane Gas Concentrations

The FEIS should address if concentrations of methane gas may be an issue of concern at any areas of NSTI proposed for reuse. One potential area could be IR site 11 (Yerba Buena landfill), for which additional investigation is planned "to determine the extent of the landfill." (p. 3-139). Should methane gas concentrations be an issue of concern, the FEIS should address the Navy's coordination with regulatory agencies, including applicable requirements or mitigation to avoid or reduce potential impacts related to methane gas.

C-9

Radon and Radiological Contamination

Page 3-145 briefly addresses radon screening at six locations conducted under the Navy's Radon Assessment and Mitigation Program. In order to facilitate effective public disclosure under NEPA, the FEIS should discuss what activities involving potential radiological contamination occurred at these sites. Additionally, the FEIS should discuss the location of any sites screened for radon, and whether the Navy intends to survey other sites at NSTI for potential radiological contamination.

C-10

The FEIS should also briefly discuss if military vessels used in U.S. atmospheric testing of atomic and hydrogen weapons at Bikini and Enewetak (present-day Republic of the Marshall Islands) were brought to NSTI for damage assessment and radiological decontamination, or whether such activities took place only at the (former) Hunters Point Naval Shipyard. It is unclear if damage assessment and radiological decontamination took place at NSTI. The FEIS should briefly discuss if vessels involved in the weapons testing program were berthed at NSTI and, if so, whether radiological contaminants may have entered adjacent waters. This issue is

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relevant to addressing potential impacts associated with dredging and dredged material disposal for the marina and ferry service.

C-11

Map Depicting Known or Suspected Hazardous Waste, Toxic Substances or Hazardous Substances Contamination

The DEIS does not provide a map or maps depicting known or suspected hazardous waste, toxic substances or hazardous substances contamination at NSTI. In order to facilitate effective NEPA public disclosure, the FEIS should provide a map or maps depicting:

- ▶ Installation Restoration (IR) sites, including 29 sites identified for investigation (p. 3-136) which includes the 16 remaining IR sites described on pp. 3-136 to 3-142. We suggest that the FEIS present the Site Location Map and Site Summary Table from "Naval Station Treasure Island, Environmental Closeout Strategy/Schedules" (December 2001);
- ▶ Petroleum hydrocarbon contamination, including the nine major petroleum hydrocarbon sites identified on pp. 3-135 and 3-136 (e.g., hydraulic training school, fire training area, etc);
- ▶ Fuel storage tanks and oil/water separators;
- ▶ Polychlorinated biphenyls (both as releases or discharges into the environment, and in electrical and hydraulic equipment still at NSTI);
- ▶ Metals;
- ▶ Pesticides and herbicides;
- ▶ Solvents;
- ▶ Asbestos-containing materials;
- ▶ Lead-based paint;
- ▶ Radon and any other radiological contamination; and,
- ▶ Other areas or contaminants of concern to the Navy.

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A Navy map (attached) found in "Island Times: Environmental Investigation and Cleanup News" (summer 2001) is a useful reference that should be presented in the FEIS; this map depicts IR and petroleum sites, underground storage tanks, pipelines requiring possible investigation and remediation, and buildings at NSTI. In many respects the "Island Times" map is similar to the December 2001 map noted above, although the "Island Times" map does not specifically depict IR site 13 (stormwater outfalls), instead indicating that site 13 "includes all offshore areas."

Investigation and Remediation of Contaminated Areas

Pages 3-131 to 3-145 provide a useful discussion of hazardous materials, hazardous waste, and hazardous substances contamination at NSTI. The DEIS does not, however, present the Navy's schedule for when each contaminated area would be investigated and, as necessary, remediated prior to reuse. Current information on when the Navy's investigation and remediation efforts would be completed is integral to effective NEPA public disclosure for

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NSTI's reuse, and should be presented to agencies and the public as part of this NEPA document. The FEIS should provide the Navy's most current assessment for each area having known or suspected contamination or other releases into the environment; as well as for environmental restoration efforts involving units such as the survey of PCBs in secondary electrical equipment and hydraulic equipment, remediation of asbestos-containing materials, and other efforts. We recommend that such information be presented in a matrix format so readers can understand the Navy's schedule for completing its investigation and remediation of areas at NSTI with known or suspected contamination, or other toxic materials still in use. For reference, we have attached a "Site Summary: Naval Station Treasure Island" (Draft, 12/11/2001) that the FEIS could use as a model to portray the schedule for NSTI environmental restoration efforts.

C-13

POLLUTION PREVENTION AND MITIGATION FOR THIS PROJECT

EPA commends the U.S. Department of Defense and the Navy for environmental leadership in the Federal sector, including an exemplary leadership role in pollution prevention, energy and water conservation, recycling, waste reduction, and waste minimization. However, despite the Navy's leadership role, the DEIS does not specifically reference how the proposed reuse can meet the intent of guidance issued in 1993 by the Council on Environmental Quality (CEQ) to integrate pollution prevention in NEPA planning, NEPA documents, and NEPA decisions. Please note that CEQ does not require that a particular impact or emission level be considered "significant" before a Federal agency is able to discuss mitigation that avoids, prevents or reduces environmental impacts, including health impacts (e.g., the health effects of air toxics). CEQ instructs Federal agencies to include pollution prevention to the extent practicable in the proposed action and in the reasonable alternatives. For your reference, we have attached several pollution prevention checklists (for building/housing construction; dredging; energy management; landscaping; and military base closure and reutilization) presenting strategies to reduce potentially adverse impacts associated with a facility's reuse.

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The Council on Environmental Quality's "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations" is instructive (CEQ, March 16, 1981, see 46 Fed. Reg. 18026). Question 19a raises the question, "What is the scope of mitigation measures that must be discussed?" In reply, CEQ states,

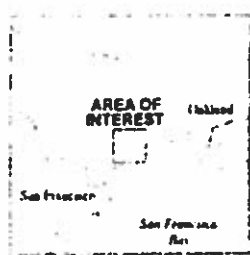
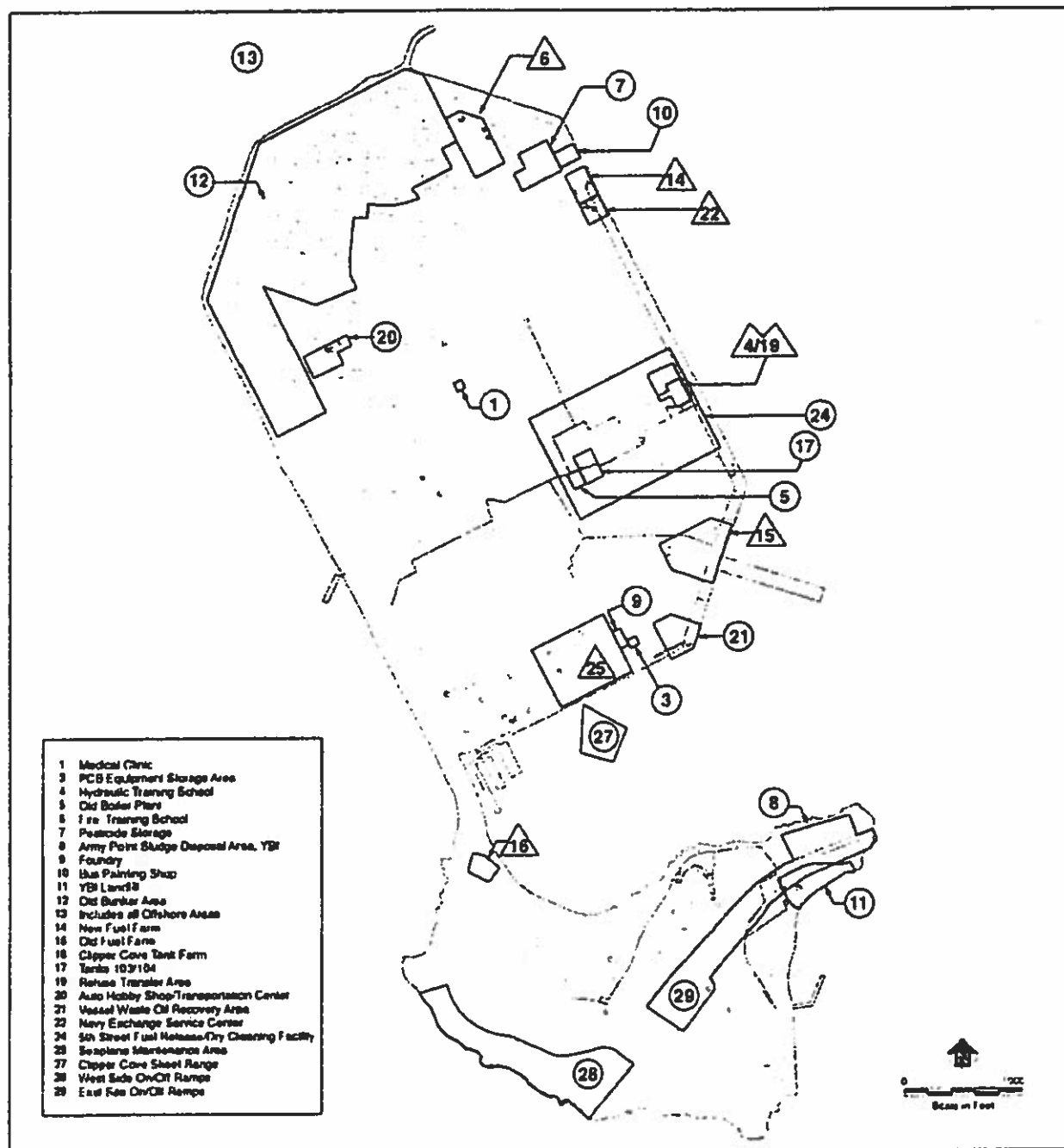
"The mitigation measures discussed in an EIS must cover the range of impacts of the proposal...Mitigation measures must be considered even for impacts that by themselves would not be considered 'significant.' Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not 'significant') must be considered, and mitigation measures must be developed where it is feasible to do so."

Question 19b asks, "How should an EIS treat the subject of available mitigation measures that are (1) outside the jurisdiction of the lead or cooperating agencies, or (2) unlikely to be adopted or enforced by the responsible agency?" CEQ indicates that,

"All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies.... This will serve to alert agencies or officials who can implement these extra measures, and will encourage them to do so. Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation."

For NSTI's reuse, TIDA is the primary entity to implement such measures, while the Navy's EIS should be the primary vehicle to identify such measures, even if impacts are 'not significant.' Lastly, the Navy should address the applicability of two Executive Orders: 13101 ("Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition," 9/14/1998); and 13148 ("Greening the Government Through Leadership in Environmental Management," 4/21/ 2000). The FEIS should discuss measures for acquisition of environmentally preferable materials for facility construction (which could be Federally-funded), waste prevention, waste recycling, energy and water conservation, and other feasible pollution prevention measures.

C-14



SITE SUMMARY NAVAL STATION TREASURE ISLAND

Site No.	Site Name and Description	Current Status
1	Medical Clinic	Awaiting site closure approval
3	PCB Equipment Storage Area	Awaiting site closure approval
04/19	Hydraulic Training School/Refuse Transfer Center	Corrective action in planning phase
5	Old Boiler Plant	Closed – incorporated into Site 24
06	Fire Training School	Currently being documented in CAP
7	Pesticide Storage Area	Additional investigation being prepared
8	Army Point Sludge Disposal Area	No additional sampling; will be documented into Final RI with Sites 11, 28, and 29
9	Foundry	Additional investigation being prepared for further delineation of TPH and lead
10	Bus Painting Shop	Additional investigation being prepared for further delineation of pesticides and SVOCs
11	YBJ Landfill	Additional investigation being prepared for landfill delineation and delineation of lead in surface soil
12	Old Bunker Area	Further investigation and time critical removal actions being performed
13	Stormwater Outfalls	Final RI in preparation
14/22	New Fuel Farm/ Navy Exchange Service Station	Currently being documented in CAP/ Interim Action in progress (SVE pilot)
15	Old Fuel Farm	Currently being documented in CAP
16	Clipper Cove Tank Farm	Construction Summary Report and Closure Summary Report in preparation
17	Tanks 103 and 104	Closed – incorporated into Site 24
20	Auto Hobby Shop and Transportation Center	Construction Summary Report and Closure Summary Report in preparation
21	Vessel Waste Oil Recovery Area	Additional investigation for delineation of VOCs being performed
24	Dry Cleaning Facility	Additional investigation for delineation of VOCs and TPH being performed
25	Seaplane Maintenance Area	Currently being documented in CAP/ Interim Action in progress (SVE pilot)
27	Clipper Cove Skeet Range	Final RI in preparation, FS in preparation
28	West Side On/Off Ramp	No additional sampling; will be documented into Final RI with Sites 8, 11, and 29
29	East Side On/Off Ramp	Additional investigation being prepared for delineation of lead in surface soil

Draft

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POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR BUILDING/HOUSING CONSTRUCTION

How Can Building/Housing Construction Affect the Environment?

Wastes associated with building/housing construction include unused and excess material generated during site excavation, site clearance, construction, and renovation activities. These wastes may be rubble (concrete, bricks, and asphalt), wood and wood products, plaster, metals, plastics, and insulation. These materials (commonly referred to as C&D debris) comprise approximately 15 to 30 percent of all waste disposed of in landfills. Further, some of these waste products may contain toxic constituents that pose a risk to human health and the environment. Many local governments have passed ordinances that restrict or prohibit the disposal of C&D debris in landfills and require the recycling of many of these materials. In addition, purchasing decisions associated with building/housing construction projects can affect the amounts of waste generated, as well future energy requirements (e.g., from lighting and heating).

Also see checklists on Ecosystem Preservation and Protection, Siting, Landscaping, Pest Management, and Energy Management.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

Ecosystem Concerns. The clearing of lands for construction can lead to the loss of wildlife habitats, erosion and sedimentation associated with the use of heavy machinery, loss of native plant life, and contamination of soils and surface and groundwater. However, proper design and planning can help reduce these impacts.

- Is the construction project necessary? Is the project over-designed? In some cases, the construction of additional structures is not needed and minor alterations to existing facilities may be sufficient.
- Have attempts been made to avoid construction in environmentally sensitive areas (such as wetlands and threatened or endangered species habitats)? *
- Are specifications for construction practices designed to control and exclude pest entry in contained habitats? *
- Does the construction contract specify that contractors should cause the least possible disturbance to the site's vegetation? For example, under certain circumstances, it may be possible to preserve individual trees or stands of old-growth that would otherwise be destroyed.
- Does the construction plan provide for erosion and sediment control during construction as well as after? Uncontrolled soil erosion can have adverse effects on local waterbodies and aquatic life.
- Will soil excavated from the construction site be reused? Topsoil can be respread in areas to be landscaped to enhance plant health. *
- Does the plan include the revegetation of areas disturbed by construction? *

* Indicates an environmental impact reduction opportunity.

- Is there a plan to reduce the use of materials containing constituents that can negatively affect the environment?
- Is there a spill control and countermeasure plan to properly address spills of hazardous construction materials?
- Will hazardous materials be stored properly at the construction site? Hazardous materials should be kept in storage buildings (with secondary containment and hard stands) located away from the active construction zone. Examples of hazardous materials typically found at construction sites are petroleum products (lubricating oils and greases), fuels (gasoline, kerosene), solvents, paints, batteries, and miscellaneous equipment maintenance supplies.

Procurement Concerns. Environmentally sound purchasing decisions are an important element of pollution prevention, helping reduce the amount of waste generated by a building/housing construction project. In addition, the purchasing of recycled-content material helps support markets for materials collected for recycling.

Executive Order 12873 directs all Federal agencies to review and revise their specifications, product descriptions, and standards to increase their purchase of environmentally preferable and recycled products.

- Will the project include the use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time?
- Are there provisions for the proper storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements?
- Will perishable construction materials (such as paints) be purchased incrementally to ensure reduced spoilage of unused materials?
- Will the project use building materials that have minimal packaging to avoid the generation of excessive packaging waste?
- Will the project use building materials that are produced locally to avoid energy use and pollution generated from transportation?
- Will the project use construction materials containing recycled content when possible and in accordance with accepted standards? Examples of recycled-content materials include concrete containing fly ash and thermal insulation containing cellulose (i.e., recovered newspaper with fire retardant).
- Does the construction plan include the use of alternative, environmentally preferable construction materials? Alternative construction materials include lumber products containing recycled plastic and/or wood, lead-free and low-VOC paints and coatings, and recycled steel for use in building frame applications.

* Indicates an environmental impact reduction opportunity.

- Does the construction plan call for the use of refurbished construction materials? Purchasing and using once-used or recovered construction materials can often save money and reduce the amount of C&D debris disposed of as waste.

Reuse and Recycling. Many of the waste materials generated as a result of building/housing construction can be reused, refurbished, or recycled into usable products. The benefit of these practices is that materials that would otherwise be disposed of from the waste stream are diverted for productive uses.

- Will the construction contract specify that construction materials left over at the end of the project be reused in other projects rather than be disposed of? *
- Will the construction contract specify that construction materials that are damaged or wasted be recovered for refurbishing and use in other construction projects? Such items as cabinets, doors, plumbing and lighting fixtures, tile, carpeting, door hinges, wall paneling, restroom mirrors, and stairway banisters can be recovered and renovated for use. Local community groups or individual homeowners may also be interested in reusing these items. *
- Is there a plan to use or sell trees cut down during construction activities as lumber or compost? *
- Will any metal, wood, or packaging wastes generated as a result of construction activities be collected for reuse or recycling into other usable products? Commonly recycled construction materials include concrete, asphalt roofing material, metals, and structural wood. *
- Will mercury-containing materials recovered in any renovations of existing structures be recycled?

Energy Efficiency. Employing energy efficient technologies and practices can have a significant positive effect on the environment. There are a number of opportunities to include energy efficiency in building/housing construction projects.

Executive Order 12902 calls on Federal agencies and facilities to increase energy conservation efforts and improve energy efficiency.

- Does the construction plan specify the use of "low-embodied energy" construction products whenever possible? The energy required to make a product should be considered in making purchasing decisions.
- Does the construction plan specify the use of energy efficient lighting systems?
- Will preference be given to purchasing energy-efficient electric products and equipment (such as appliances and heating and cooling systems)?
- Does the construction plan call for sufficient insulation to reduce heat loss and conserve energy?
- Will the proposed facility participate in the EPA Energy Star Buildings program?

* Indicates an environmental impact reduction opportunity.

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR DREDGING

How Can Dredging Affect the Environment?

Dredging activities in fresh and salt water environments can have a variety of impacts on the environment. These impacts can include benthic disturbances, water quality degradation and impacts on aquatic organisms, and water and soil contamination resulting from marine and upland disposal of dredged materials. Impacts can also result from the potential release of hazardous constituents to marine and terrestrial environments. Dredging activities require the transportation of dredged materials and the use of energy resources.

Also see checklists on Dams, Hydropower, and Water Supply Reservoirs, Ecosystem Preservation and Protection, and Flood Control Projects.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

Beneficial Use Options. Beneficial use options for dredged materials include beach nourishment and habitat restoration or enhancement. The beneficial use of dredged materials prevents the material from consuming limited upland landfill capacity and from having adverse impacts on the marine environment.

- Have specific beneficial use options been identified for dredged materials to reduce or eliminate the volume of waste that would otherwise be disposed of? *
- Will dredged materials be sampled and analyzed for particle size and evaluated for use as beach nourishment? Dredged materials should be sampled and analyzed for hazardous constituents to ensure that their use will not introduce pollution into the environment? *
- Does the project consider options to "clean" toxic dredged materials, thereby rendering them safe for beneficial use? *

Ecosystem Concerns/Dredging. Two dredging alternatives, mechanical and hydraulic, are practiced to remove sediments from marine environments. Mechanical dredging uses hoppers to dig and remove sediments. Hydraulic dredging uses a great deal of water to create suction to remove sediments and generates a much greater volume of dredged material that must be disposed of or used otherwise. This additional volume becomes a problem particularly when upland disposal is the only option.

- When considering dredging alternatives, has emphasis been placed on reducing or eliminating the amount of disturbance to the marine environment? *
- Will the selection of the dredging alternative (mechanical or hydraulic) be based on factors that will reduce or eliminate the generation of pollution and minimize the impacts on the environment?
- Will the dredging alternative be selected based on pollution prevention criteria that minimize energy consumption?
- Are sediment flushing or pass through alternatives being considered?

* Indicates an environmental impact reduction opportunity.

- Will measures be taken to minimize potential impacts on fisheries and aquatic resources?
- Have alternatives to dredging or alternatives that would reduce the amount of material to be disposed of, habitat destruction, and/or disposal-related impacts been considered? Options might include choosing an alternative site, extending the length of the pier to reach deep water, or reconfiguring dockage space to accommodate vessels into a smaller area.
- Have all environmentally sensitive areas been characterized? Have attempts been made to avoid dredging in environmentally sensitive areas? *
- Are measures considered to reduce or eliminate the pollution generated from dredging equipment and operations? Will sediments containing hazardous constituents be contained during dredging operations?
- Will hazardous materials needed for onsite heavy equipment maintenance and operation (e.g., fuels, solvents, greases) be properly stored and managed?

Ecosystem Concerns/Disposal of Dredged Materials. Dredging and dredged materials disposal in marine environments may have significant effects, including the disturbance of benthic environments, suspension of sediments, plume migration and introduction of potentially hazardous constituents (including heavy metals), and other negative impacts on water quality. By implementing various techniques, however, these impacts may be reduced or eliminated.

- Will measures be taken to minimize the introduction of contaminated dredged materials to benthic and other aquatic environments?
- Will techniques be used to reduce or minimize the suspension of sediments during dredging and or dredge disposal?
- Does the selection of marine disposal sites include criteria to create the least impact on aquatic life, water quality, plume migration, and sediment suspension?
- Has clean material been identified for use as a cap on toxic materials deposited in marine disposal?

Transporting Dredged Materials. Dredged materials must be transported from the original dredge site to the location of beneficial use or to disposal in either upland or marine disposal sites. The transportation of toxic materials presents significant threats to the environment in the event of a spill, accident, or other release. By addressing and utilizing pollution prevention techniques, these threats can be reduced or minimized.

- Has the dredging plan considered the need to transport potentially toxic dredged materials and taken steps to prevent spills during transportation?
- Have the safest and least populated routes of travel been identified for transporting toxic dredged materials that are unsuitable for beneficial use to the ultimate disposal site?

* Indicates an environmental impact reduction opportunity.

- Does the plan for the transportation of dredged materials to marine disposal sites consider minimizing the disruption of benthic environments and the dispersal of dredged materials in the water column during deposition?
- Will the method for transporting dredged materials minimize energy consumption?

Other References

U.S. Environmental Protection Agency. January 1994. Final EIS for the Designation of a Deepwater Disposal Site.

U.S. Army Corp of Engineers. January 1994. EIS/EIR for the Oakland Harbor Deep-Draft Navigation Improvements.

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR ENERGY MANAGEMENT

How Can Energy Management Affect the Environment?

The generation of electricity accounts for 35 percent of all U.S. emissions of carbon dioxide, the most prevalent greenhouse gas. Electricity generation also accounts for 75 percent of U.S. sulfur dioxide emissions and 38 percent of nitrogen oxides emissions. These gases can cause smog, acid rain, and global warming. The pollution associated with these greenhouse gases can be reduced by applying energy efficient technologies and practices. These techniques, which include using compact, long-lasting fluorescent lighting as an alternative to incandescent bulbs and using fuel efficient vehicles and alternative transportation methods, can have a significant impact on the environment.

What Questions Should Be Asked To Ensure That These Effects Are Minimized Or Eliminated?

Executive Order 12902, Energy Efficiency and Water Conservation, directs all Federal agencies and facilities to increase efforts to conserve energy and increase energy efficiency. Other Executive Orders, such as 12844 and 12845, call on Federal agencies and facilities to increase their purchasing of alternatively fueled vehicles and energy-efficient computers.

Lighting. Lighting consumes about 20 to 25 percent of the electricity generated in the United States. In commercial buildings, lighting accounts for 40 percent of overall electricity usage. Lighting is one of the easiest areas where energy conservation and efficiency techniques can be applied to save energy.

- Will an assessment be performed to determine the best number, location, and type of lighting fixtures for the facility? A well-designed lighting assessment prevents the installation of excessive lighting fixtures and should incorporate the use of task-specific lighting (e.g., desk lamps) where possible rather than relying on overhead lighting.
- Can motion sensors or timers be used to turn lights off automatically when they are not needed? Motion sensors are widely used in European countries in such areas as hallways, stairwells, and restrooms, as well as work spaces. The use of these sensors is growing in the United States as well.
- Will the most efficient lighting equipment available be used? Optical reflectors and electronic ballasts can improve the efficiency of lower wattage lighting.
- Will the facility take advantage of the lighting provided by natural sunlight through building design, orientation, and internal layout? Other opportunities to maximize the use of natural light include utilizing top-silvered blinds and light colored finishes to reflect light and installing glass skylights or panels on top of office partitions to increase ambient lighting.
- Will the use of external lighting be minimized to reduce impacts to nearby sensitive habitats?
- Will the facility prepare an energy awareness campaign to educate employees about the importance of energy conservation?

Electrical Products and Equipment. A facility's energy consumption can be reduced greatly by purchasing energy-efficient products, such as energy-efficient computers and appliances. Computers alone are believed to account for 5 percent of commercial electricity consumption. The selection of energy efficient products can, then, help reduce a facility's energy consumption.

- Will the facility use energy efficiency as a criterion in purchasing electrical equipment?
- Will commercially available appliances with high energy ratings be selected?
- Will the project make use of high-efficiency, adjustable-speed motors in machinery and equipment applications when possible?
- Can timers be used to turn off computers or equipment automatically when they are not in use?

Heating and Cooling. Improvements in heat, ventilation, and air conditioning (HVAC) systems can lead to significant energy savings.

- Will heat and/or air conditioning thermostat settings be either manually or automatically changed at night, weekends, or at other times when the facility is not in use?
- Will the facility employ a computerized energy management system (EMS) to control heating or cooling systems or lighting?
- Can outside air be intentionally drawn into the facility for cooling purposes during cool weather?
- Can a system to bring warm air down to floor level from the underside of the roof be installed for heating purposes during the winter (e.g., ceiling fans)?
- If the facility will utilize electric chillers, will the chilled water lines be properly insulated?
- If the facility will use a boiler, will the steam/hot water lines be properly insulated?
- Will energy efficient windows or reflective films, such as "low-emissivity" or "low-e" coatings, be installed?
- Could solar panels be integrated into the building design to reduce reliance on electricity or fossil fuels?
- Will the smallest, most-efficient HVAC system possible be used to regulate building temperature properly?
- Will load sharing be used to reduce energy consumption? Shutting down HVAC systems for non-critical uses for short periods can result in significant savings.
- Will the facility use natural shading from trees and shrubbery to reduce heating and air conditioning needs?

- Will appropriate building materials be selected to minimize energy use from heating and air conditioning (e.g., using light colored paint, paving, and roofing materials and not designing a building with large glass facades in hot, sunny areas)?

Insulation Concerns. Insufficient insulation can result in the loss of large amounts of energy. For example, the poor insulation of windows is responsible for approximately 25 percent of all heating and cooling requirements. The insulation of heat-generating equipment also reduces the need for building cooling.

- Will hot or cold equipment surfaces and the building walls and roof be well insulated?
- If this is a manufacturing or industrial environment, will any heat exchangers for heat recovery be installed?
- Will building doors opening to the environment minimize energy losses? Proper weather stripping reduces energy losses, as do revolving and double doors.
- Will insulated windows be used? Such windows employ a gas, such as argon, between two coated panes of glass to minimize energy losses.
- Where appropriate, will energy efficient insulation materials fabricated from recycled materials be used?

Hot Water. Reducing the use of hot water can help conserve energy by decreasing the amount of energy that must be expended to heat water.

- Will water-efficient showerheads be installed?
- Will faucet aerators be installed?
- Will water heaters be sufficiently insulated?
- Will energy-efficient water heaters be purchased?
- In manufacturing facilities, can the heat radiated from hot water pipes be used for other purposes?

Fuel and Gasoline. Increasing fuel efficiency and using alternatively fueled vehicles helps reduce our reliance on fossil fuels, which cause air pollution when burned.

- If the facility requires the use of fleet vehicles, will fuel-efficient, cleaner burning vehicles be purchased?
- Has the use of alternatively fueled (e.g., electric, solar electric, compressed natural gas, ethanol, or methanol) vehicles been considered? Alternatively fueled vehicles have proved successful for short distance purposes. They can be used as fleet vehicles for facility maintenance or for short trips around a large facility.

- Are there provisions to encourage facility employees to reduce motor vehicle use? These provisions can include installing bike racks and showers, providing shuttle service between the facility and public transportation stops, promoting carpooling by maintaining ride boards, and subsidizing public transportation costs.

Energy Production Facilities. The design, construction, and operation of energy production facilities presents a number of opportunities to reduce pollution and environmental impacts.

- In constructing or operating energy production facilities, will rate structures be considered that will reduce peak loads?
- Are co-generation activities included in facility design?

Other References

Northeast Sustainable Energy Association. 23 Ames Street, Greenfield, MA 01301. Telephone No. (413) 774-6051.

Rocky Mountain Institute. 1739 Snowmass Creek Road, Snowmass, CO 81654-9199. Telephone No. (303) 927-3851, Fax No. (303) 927-4178.

U.S. Department of Energy, Federal Energy Management Program. CE-44, 1000 Independence Avenue, SW, Washington, DC 20585. Telephone No. (202) 586-5772.

U.S. EPA, Energy Star Buildings Program. Telephone No. (202) 233-9146.

U.S. EPA, Energy Star Computers Program. Telephone No. (202) 233-9114.

U.S. EPA, Green Lights Program. Telephone No. (202) 233-9065.

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR LANDSCAPING

How Can Landscaping Affect the Environment?

Landscaping wastes currently account for approximately 20 percent (or 31 million tons) of the municipal solid waste (MSW) generated in the United States each year. This makes landscape trimmings the second largest component (by weight) of the MSW stream. Because of their high bulk and density, landscaping wastes consume a disproportionate amount of landfill space. In addition, these wastes, as well as other organic matter disposed of in the landfill, can generate methane and acidic leachate when they decompose. When incinerated, the high moisture content and high nitrogen levels of these wastes can interfere with the combustion process and contribute to the formation of smog-causing nitrogen oxides.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

On April 26, 1994, President Clinton signed a Presidential Memorandum calling for the establishment of guidelines for Federal facility managers on how to increase the use of native species, reduce the use of chemical fertilizers and pesticides, implement water conservation techniques, and promote awareness of the environmental and economic benefits of better landscaping techniques. These guidelines will be proposed by a Federal interagency workgroup established by the Federal Environmental Executive. The following questions address the concepts delineated in the Presidential Memorandum, as well as additional opportunities to prevent pollution and reduce waste generation associated with landscaping operations.

Ecosystem Concerns. Landscaping activities can affect the environment through the release of toxic pesticides and excess nutrients, as well as the destruction of wildlife habitat and ecologically sensitive areas. However, proper landscape design and maintenance can help reduce these environmental impacts and can help minimize the effects of other activities as well.

- Will landscape development be integrated with existing natural resources? Such integration may include the use of a Geographic Information System (GIS) that incorporates physical and natural features of the area to be developed (e.g., tidal and non-tidal wetlands, steep slopes, and natural riparian buffers). *
- Will the landscape plan incorporate the use of plants that require little water and minimal fertilizer, herbicide, and pesticide use?
- Does the landscape plan encourage the use of Integrated Pest Management (IPM)?
- Will the landscape plan ensure that rare, threatened, and endangered wildflowers and other species are adequately protected? *
- Does the landscape plan consider materials other than asphalt for constructing walkways across lawns (i.e., using wood chips, flag stones, and other materials that have less environmental impact than asphalt)?

* Indicates an environmental impact reduction opportunity.

- Will the landscape plan include the planting of primarily native trees, shrubs, and perennials? *
- Will the introduction of invasive species be avoided? *
- Will the plantings be arranged in a natural manner and in naturally associated groupings? *
- Does the landscaping plan incorporate features to minimize solar radiation or heat sinks, such as planting shade trees and avoiding overly large areas of asphalt? *
- Will the plant species used in the landscape plan provide food or cover for desirable wildlife? *
- Will the landscape plan call for fertilizing lawns only when grass roots will take up nutrients? These times are late summer-fall for cool season grasses and early summer for warm season grasses.
- Will lawns be watered at the optimal time of day to promote healthy growth and conserve water?
- Does the landscape plan take advantage of vegetation's natural properties? Planting shade trees near building windows can reduce energy consumption associated with air conditioning needs and serve as effective wind barriers.
- Will species of vegetation that support wetlands development be planted on the edges of waterbodies? These species may help break down pollutants carried in non-point source runoff and also can prevent soil and debris from polluting waterbodies.
- Will lawn areas be kept to a minimum with the remainder planted/retained as native meadows and woodlands to minimize air impacts associated with power maintenance equipment and the need for pesticides?
- Does the facility design reduce the impact of lighting on critical habitats and scenic areas?

Reducing Landscape Wastes. A number of steps can be taken during project planning, design, and operation and maintenance to reduce or avoid the generation of landscaping wastes. These techniques include landscape development and alteration, grass-cycling, composting, and mulching. They can be tailored to specific characteristics of a landscape, such as climate and geography, and can be mixed in any number of combinations.

- Will the landscape plan incorporate the planting of native and indigenous trees and plants that require less attention and maintenance? *
- Will trees and shrubs be pruned only on an as needed basis? *
- Will grass-cycling be practiced as part of project landscape maintenance operations? Grass-cycling is a process in which grass clippings are left in place on a lawn after mowing instead of being raked and bagged. Grass-cycling requires that no more than one third of the blade is cut off and that no more a 1-inch total be cut at any one time. This process improves lawn quality by returning

* Indicates an environmental impact reduction opportunity.

important nutrients from the decaying clippings to the soil and lawn. When grass-cycling is practiced, less money is spent on fertilizers, disposable collection bags, labor costs, and waste disposal. *

- Will composting be practiced as part of project landscaping maintenance operations? Composting is a process using microorganisms (generally bacteria or fungi) in the presence of oxygen and moisture to break down organic wastes into a humus-like product. Compost is a superior soil conditioner or mulch suitable for most landscaping and gardening uses. Using compost will help reduce reliance on phosphate and nitrogen fertilizers that may be detrimental to the surrounding ecosystems. Compostable materials include grass clippings, seaweed, leaves, sawdust, chipped or shredded brush, cow and horse manure, chipped or shredded logs, weeds, pine needles, hay, straw, shredded newspaper, and wool and cotton rags. Weeds with many seeds, diseased plants, and manure from meat-eating animals should not, however, be composted.
- Will mulching be practiced as part of project landscaping maintenance? Mulching is the practice of spreading or mixing organic material, such as wood chips, leaves, or compost, over soil surfaces. Mulch reduces moisture evaporation from the soil surfaces, reduces soil erosion and compaction from heavy rains, moderates soil temperature, provides optimal conditions for soil enhancing organisms, protects young tree trunks, and provides nutrients as it decays. Furthermore, mulch inhibits weed growth, thereby decreasing the need for constant landscaping care and weed disposal.

Landscape Product Purchasing and Management. Lawn and plant care products, such as fertilizers and pesticides, are also considered as wastes that result from landscape operations. Spoilage of these materials and the packaging left after use should be minimized to reduce an operation's impact on the environment.

- Will landscape products be purchased in bulk or concentrate to reduce packaging waste?
- Will strict inventory control practices be adopted to prevent material expiration and, thus, waste generation?
- Will the use of gas-powered landscape maintenance equipment (which account for 5 percent of our air pollution) be kept to a minimum? Executive Order 12844 calls on Federal facilities to increase their purchase of alternatively fueled motor vehicles.

Other References

"Presidential Memorandum for the Heads of Executive Departments and Agencies on Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds." August 22, 1994. *Federal Register* Vol. 59, No. 161.

U.S. EPA. "Environmental Fact Sheet: Recycling Grass Clippings." July 1992. EPA/530-F-92-012.

U.S. EPA. "Environmental Fact Sheet: Yard Waste Composting." May 1991. EPA/530-SW-91-009.

* Indicates an environmental impact reduction opportunity.

POLLUTION PREVENTION/ENVIRONMENTAL IMPACT REDUCTION CHECKLIST FOR MILITARY BASE CLOSURE AND REUTILIZATION

How Can Military Base Closure and Reutilization Affect the Environment?

Military base closure and reutilization projects can have a variety of effects on the environment. These impacts may include air quality effects from demolition/construction dust and increased vehicle/aircraft emissions, hazardous materials and waste management concerns (including Installation Restoration Program sites, unexploded ordnance, PCBs, asbestos, lead-based paint, and underground storage tanks), noise impacts, pollution of surface water and groundwater sources, impacts to biological resources, and soil erosion and contamination.

Also see checklists on Ecosystem Preservation and Protection, Energy Management, Water Use, Landscaping, Waste Site Investigations and Cleanup Activities, Solid Waste Landfills, Building/Housing Construction, Airports, and Water Use.

What Questions Should Be Asked To Ensure That These Effects Are Minimized or Eliminated?

Air Quality Concerns. Demolition and construction as part of military base closure activities can cause air quality impacts from fugitive dust and construction equipment emissions. In addition, proposed base reuse plans may result in an increase of air pollutants from mobile sources (e.g., vehicles and aircraft) and point sources (e.g., generators, incinerators, and storage tanks).

- Are there opportunities to reduce the adverse effects of air emissions by considering alternative reuse plans for the military base?
- Will fugitive dust reduction measures (such as ground watering and reduced speed limits on unpaved roads) be incorporated into demolition/construction activities?
- Are adequate containment measures specified to avoid the accidental release of friable asbestos during demolition or modification of structures?

Hazardous Material/Waste Management Concerns. Concerns associated with military base closure and reuse projects include the management of hazardous materials and wastes (such as solvents, pesticides, aviation fuels, POL, and heavy metals), remediation of existing Installation Restoration Program (IRP) sites, removal of unexploded ordnance, and management of asbestos, PCBs, lead-based paint, and underground storage tanks.

- Are there provisions for reducing potential spills and uncontrolled releases of hazardous materials? Is there a spill prevention and control plan?
- Will new and reused underground storage tanks be equipped with leak detection mechanisms, secondary containment systems, spill and overfill protection, and cathodic protection?

- Will PCB-contaminated equipment be removed prior to base closure? Will remaining PCB-contaminated equipment be routinely inspected for leaks? Will transformers be retrofilled with non-PCB-containing oils? *
- Are measures specified for the proper removal and disposal of structural material containing toxic lead-based paint associated with demolition activities? *

Noise Concerns. Noise associated with demolition/construction equipment and planned land uses, such as airfields or industrial activities, can affect both humans and wildlife.

- If aircraft operations are planned to continue, are noise buffer zones and a wide range of sound attenuation measures, such as noise barriers and concrete bunkers, included to reduce noise impacts?

Surface Water Concerns. Surface water quality could be affected by spills or leaks of hazardous materials and by contaminated storm water runoff.

- Does the project require the preparation of Spill Prevention Control and Countermeasures Plans, Stormwater Pollution Prevention Plans, and Soil Erosion and Sediment Control Plans?
- Will oil/water separators be installed to prevent fuels, oils, and other residual contaminants in storm water runoff from contaminating any nearby streams or other surface water?
- Do construction designs incorporate provisions to reduce storm water runoff/sediment transport? Such designs include creating landscaped areas that are pervious to surface water, minimizing areas of surface disturbance, and constructing runoff/sediment transport barriers around soil stockpiles.

New Use Concerns. Public utilities, such as wastewater treatment facilities, solid waste landfills, and electricity/natural gas supplies, may be affected by military base closure and reuse projects. Reuse plans may propose new commercial and residential uses that would increase water and electricity/natural gas consumption and increase wastewater and solid waste disposal requirements.

- Does the project require the collection of inert demolition/construction wastes, such as wood, metals, concrete, and asphalt, for reuse or recycling to decrease potential impacts on landfills?
- Will energy efficiency and water conservation devices be incorporated into all new residential and commercial structures?

Biological Resources Concerns. The construction of new or expanded facilities could require the filling of wetlands and could result in habitat loss from the siting of structures and utilities. Potential impacts to wildlife could result from noise and dust during demolition/construction activities.

- Does the siting of any new construction take into consideration avoiding proximity to wetlands, wildlife habitat, and ecologically sensitive areas? *

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- Are measures included to avoid disturbing the habitat of any threatened or endangered species located on or in the vicinity of the military base? *
- Are measures specified to control construction runoff, such as the use of berms, silt curtains, straw bales, and other erosion control techniques?
- Will native trees and vegetation be planted to increase favorable habitat for wildlife and help prevent erosion? *

Geology/Soils Concerns. Demolition/construction activities may cause soil erosion and soil contamination.

- Can existing facilities and paved areas be remodeled and used to minimize soil disturbance caused by extensive new construction?
- Does the project call for preparation of soil erosion and sediment control plans? Are specific control measures suggested, such as seeding exposed soil, watering to prevent fugitive dust, and using sediment basins and fences?

Other References

Army Regulation 200-1, Environmental Protection and Enhancement.

Army Regulation 220-2, Environmental Effects of Army Actions.

U.S. Department of the Interior, Denver Service Center. September 1993. *Guiding Principles of Sustainable Design*. National Park Service (NPS) publication number NPS D-902; GPO publication number GPO 777442.

* Indicates an environmental impact reduction opportunity.

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