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4.3 NATURAL RESOURCES

This section evaluates potential impacts to biological, water, visual, air quality and noise resources. The evaluation methodology, impacts for each alternative, and mitigation measures to address potential impacts are discussed. Mitigation may be adapted from the GMPA EIS, or be new measures.

4.3.1 BIOLOGICAL RESOURCES

METHODOLOGY

To assess the potential for direct and indirect impacts on biological resources, the spatial extent of activities in each planning district was reviewed for each alternative in relationship to base maps of biological resources from the Affected Environment Chapter. The analysis considers a variety of factors in determining the relative significance of an impact, including the degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973(ESA). The Trust also considered species and related habitat that are listed under the California Endangered Species Act and by the California Native Plant Society in this analysis. Special status species are evaluated under a separate subsection below. Other factors considered in determining the intensity of an impact include an alternative's potential to degrade habitat function and size, and/or interference with movement of any native resident or migratory fish or sensitive wildlife species.

For the purposes of the analysis, it was assumed that construction activities would be restricted to developed areas within each planning district (see Figures 3, 5, 6a, 7, 9, 11 and 13), and therefore would not directly displace existing natural habitat. The amount of proposed square footage (demolition and new construction) was used in determining the relative magnitude of the effect. Other factors include the intensity of overall land uses (i.e., total amount of built space, projected visitation) proposed under each alternative as well as consideration of special events, and general operations. Indirect impacts including potential increased disruption and abundance of invasive plant species and issues of adjacency are discussed.

A list of mitigation measures is provided at the end of the impact analysis. Measures adapted from the GMPA EIS are presented first, followed by new mitigation that was developed specifically in this EIS. Because this is a programmatic document, and future site-specific planning and environmental review would be completed, many of the mitigation measures are set up to provide standards, monitoring and other broad requirements that would be applied to future projects.

POTENTIAL IMPACTS

DIRECT AND INDIRECT EFFECTS ON NATIVE PLANT COMMUNITIES

All Alternatives

New construction generally requires clearing and grubbing of vegetation and the importation of fill materials where buildings, ornamental landscaping, paved streets or parking lots, and related facilities are to be located. These activities could result in a permanent loss and/or temporary disturbance of existing plants in the affected area, as well as adjacent areas resulting from increased human activity. Demolition activities, in particular staging and access, can similarly disturb on-site and adjacent vegetation. The creation and/or expansion of high intensity land uses and special events can also directly and indirectly affect native plant communities in various ways including elevated levels of visitor traffic, pets, and potential introduction of invasive non-native plants species. Infrastructure and operational requirements can also affect biological resources. All of these actions (demolition, construction, land use and general operations) can result in the direct or indirect loss or degradation of habitat function and size, potential fragmentation of habitat, reductions in numbers of individuals or loss of habitat to levels below those required to sustain any native plant population. Each alternative evaluated in this EIS proposes varying intensities of the activities described above. An alternative-by-alternative analysis is provided below.

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No Action Alternative (GMPA 2000)

This alternative would increase the area of existing open space in Area B from about 695 acres to about 794 acres, and would expand the acreage of native plant habitat in Area B from about 70 acres to about 210 acres. The increase in native habitat would be a beneficial effect of this alternative. The VMP would guide all protection, restoration, and enhancement of vegetation resources. Restoration of the ecological processes within the three tributaries of Tennessee Hollow would improve the creek and associated riparian corridor. The restored creek and riparian corridor would connect to an expanded tidal marsh at Crissy Field. Serpentine grasslands at Inspiration Point and a contiguous functioning dune system in the western section of the Presidio would be restored. Ecological restoration and protection activities would continue in the Lobos Creek Dunes, North Baker Beach, the PHS Planning District, Rob Hill, the serpentine bluffs, Mountain Lake, Inspiration Point and many wetlands. As a result of these efforts, this alternative would increase important habitat for plant and wildlife on the Presidio. The No Action Alternative (GMPA 2000) also identifies other corridors and sites proposed for restoration. Many of these areas are adjacent to existing native plant communities, where increased habitat could enhance rare or endangered plants and unique wildlife (see Figure 17, Natural Resources, Affected Environment Chapter).

The No Action Alternative (GMPA 2000) would result in approximately 1.12 million square feet (sf) of demolition and up to 170,000 sf of new construction. The demolition and new construction could adversely affect native plant communities shown in Figure 18, Natural Resources, Affected Environment Chapter, if grading, staging, construction and/or landscaping were to occur in an area containing native plant communities or assemblage. Demolition or construction adjacent to these areas could also create indirect impacts including those caused by inadvertent trampling from vehicles or workers seeking convenient access or staging/storage space, pollution from spills or upsets, the introduction of incompatible soils and fill materials, and/or the inadvertent introduction of invasive non-native plant species. GMPA EIS mitigation measures would be applied to protect native habitat communities from the direct and indirect effects of demolition and new construction. These measures include preparation and implementation of site-

specific native revegetation plans and using local native plants to be propagated in a Presidio-based native plant nursery. It should be noted that the majority of the demolition activities proposed under the No Action Alternative (GMPA 2000) would be necessary to implement restoration activities, and to provide an increase in open space.

Specific measures to minimize direct and indirect effects on natural plant communities are presented at the end of this section and include the use of buffers between sensitive resources and intensive activities. Where buffers are not feasible, fencing or other barriers would be erected. Best management practices for activities within and adjacent to native habitats would be developed and applied. The importation and use of incompatible soil material for ecological restoration efforts, and the inadvertent importation of invasive exotic seeds and plant materials in erosion control and soil materials used in construction and demolition projects would be prohibited. The alteration of local surface and groundwater hydrology that could affect the available water necessary for maintaining the richness and presence of localized plant communities and assemblages would also be prohibited. Construction, demolition and special events in proximity to sensitive natural areas would have an approved invasive non-native plant control program. In addition, a program to ensure that the protection, monitoring and restoration of Presidio ecosystems, including the critical control of invasive non-native plant species, are accomplished over the long-term would be in place. Taken together, these measures would protect native plant communities and/or assemblages from direct and indirect impacts.

Existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase. These activities could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant communities zone. Measures to ensure that native plant communities would be protected from these disturbances, including setbacks and/or barriers to protect native plant communities, would be required. High intensity land uses (including active recreational activities or special events) adjacent to native plant communities and/or assemblages could result in indirect impacts, such as trampling from increased recreational use or informal access by people and their pets.

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Disturbed areas would be immediately revegetated with native species to reduce the potential of colonization by invasive non-native species. Timely restoration of these areas would also discourage intrusion into native communities from adjacent activity areas. Visitor access would be guided by the Presidio Trails and Bikeways Master Plan, as well as the best management practices and related monitoring activities required as mitigation in this EIS. Under this alternative, activities such as infrastructure development, building rehabilitation and increased land use activities in developed areas could also result in adverse impacts to remnant special-status species, wetland vegetation and native plant assemblages occurring outside of the VMP native plant community zone. Losses to other biological resources in developed areas, including the San Francisco owl's clover population north of the Log Cabin, and the remnant wetland vegetation communities in the Fort Scott, South Hills and Main Post Planning Districts, would occur if development was sited in areas supporting these vegetation communities and/or assemblages. Best management practices would be implemented within and adjacent to these areas, and other outlier native plant and vestige wetland resources, to protect them and their associated habitats. These best management practices would be developed such that the management of these resources would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Future site-specific planning and environmental review, in conjunction with these BMPs and other requirements listed in this EIS, would be implemented to prevent such effects.

In conclusion, the No Action Alternative (GMPA 2000) would provide an overall increase in the existing open space and native plant communities and would provide for the restoration of several natural areas and ecological corridors (i.e., Tennessee Hollow, expansion of Crissy Field Marsh, and restoration of serpentine grasslands at Inspiration Point). Demolition activities would be slightly higher than the Final Plan and Sustainable Alternatives, but new construction would be substantially lower than any of the action alternatives (with the exception of Minimum Management). Direct and indirect impacts to native plant communities associated with demolition and construction would be minimized and/or eliminated through implementation of the mitigation measures identified in this section. Overall, this alternative would have a beneficial effect on native plant communities and restoration, and would provide a substantial increase in the amount of

existing open space. Impacts associated with proposed demolition, new construction, and other disturbances can be minimized through implementation of the required mitigation.

Final Plan Alternative

Under the Final Plan Alternative, existing open space would be increased from 695 to 794 acres, similar to the No Action Alternative (GMPA 2000). This alternative would similarly result in an increase in the total amount of existing native plant communities (from 70 to 212 acres), slightly more than the 210 acres proposed under the No Action Alternative (GMPA 2000). As with the No Action Alternative (GMPA 2000), the VMP would guide all protection, restoration, and enhancement of vegetation resources, including the restoration of the three tributaries and riparian corridor of Tennessee Hollow, which would be restored and connected to the marsh at Crissy Field. Although the amount of open space would be about the same as the No Action Alternative (GMPA 2000), the potential for disturbance or loss of native plant and wildlife habitat would be higher because the Final Plan Alternative proposes somewhat greater development (i.e., replacement construction).

The Final Plan Alternative would result in approximately 1.07 million sf of demolition and up to 710,000 sf of new (replacement) construction. The demolition and new (replacement) construction could adversely affect native plant communities shown in Figure 18, Natural Resources, Affected Environment Chapter, if grading, staging, construction and/or landscaping were to occur in an area containing native plant communities or assemblages or where restoration is proposed. In comparison to the No Action Alternative (GMPA 2000), this represents roughly 50,000 sf less demolition and 540,000 sf more construction. Although there is a difference in the total square footage, the analysis of demolition and construction impacts (and corresponding mitigation) provided above for the No Action Alternative (GMPA 2000) would apply to this alternative. The impact on biological resources within the developed areas, as described above for the No Action Alternative (GMPA 2000), would also be the same for the Final Plan Alternative. Because this EIS tiers from the 1994 GMPA EIS and focuses on the incremental changes that would occur between the GMPA and each PTMP alternative, the analysis below is accordingly focused on the substantive

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(biological) differences between the No Action (GMPA 2000) and the Final Plan Alternatives.

Under the Final Plan Alternative, approximately 4 acres of developed area within the western West Washington Housing area would be converted to open space. This additional open space would reduce potential edge effect pressures (e.g. from invasive non-native plant species and other urban pressure) on adjacent native plant communities, and result in the restoration of central dune scrub and potentially oak woodland habitat. This habitat would be contiguous with habitat currently proposed for future San Francisco lessingia recovery, and could support the establishment of lessingia and other rare dune annual species. However, at the Nike Missile Site (above the Nike swale) approximately 2 acres of currently paved and disturbed area would be designated for institutional/residential use. This area is proposed for native plant habitat restoration under the No Action Alternative (GMPA 2000). The precise effect of the change in land use would depend on the site-specific changes proposed. The area to the south supports potential jurisdictional wetlands and populations of the federally-endangered San Francisco lessingia, and to the north recently restored dune scrub habitat. Possible secondary effects from future use of this site could include potential changes in hydrology of the wetland, and conversion of adjacent early successional native vegetation to more shrubby vegetation assemblages. Future uses would, however, be subject to the mitigation measures presented in this EIS, as well as site-specific planning and environmental review. The mitigation measures identified in this EIS require use of buffer areas to protect sensitive species, restrictions on the use of non-native invasive plant species, and implementation of best management practices. Any proposed construction and operations in this area would also be designed or otherwise conditioned to minimize changes in the local hydrology such that the surrounding native vegetation including adjacent lessingia habitat would not be adversely affected.

Under the Final Plan Alternative, the Trust commits to the long-term ecological viability of Crissy Marsh. The Trust, in partnership with the NPS and Golden Gate National Parks Association, has initiated the Crissy Field Marsh Expansion Technical Study (Marsh Study) to consider a broad array of options to achieve this.

Under the Final Plan Alternative, there would be an increase in the number of projected Presidio residents, visitors and employees and total built space when compared to the No Action Alternative (GMPA 2000). This overall increase in use of the park by the public could indirectly affect the health of native plant communities, specifically the viability of sensitive habitats within in the PSHS Planning District. This could result in the increased potential for fragmentation, loss of natural processes or disturbance to native plant communities, and have reduced ecological benefits compared to those defined under the No Action Alternative (GMPA 2000). In addition, similar to the No Action Alternative (GMPA 2000), existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase, which could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant communities zone. Best management practices would be implemented within and adjacent to areas supporting outlier native plant and vestige wetland resources outside of the native plant communities zone (including the San Francisco owl's clover population north of the Log Cabin, and the remnant wetland vegetation communities in the Fort Scott, South Hills and Main Post Planning Districts), to protect them and their associated habitats. These BMPs would be developed such that the management of these resources would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Future site-specific planning and environmental review, in conjunction with these BMPs and other requirements listed in this EIS, would be implemented to prevent such effects.

In conclusion, the Final Plan Alternative would have a similar beneficial effect on expansion of existing open space and native plant communities by providing roughly the same and 2 areas more, respectively, than the No Action Alternative (GMPA 2000). Although disturbances from demolition would be substantially less under the Final Plan Alternative, the projected land use levels and total amount of new (replacement) construction would be greater. Mitigation would be required to reduce potential adverse impacts on native plant communities, and future site-specific planning and environmental review would also be completed.

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Final Plan Variant

Under the Final Plan Variant, existing open space would be increased from 695 to 819 acres, which represents an increase (25 acres) in open space over the No Action Alternative (GMPA 2000). This alternative would also result in an increase in the total amount of existing native plant communities (from 70 to 215 acres) over the 210 acres proposed under the No Action Alternative (GMPA 2000). As with the No Action Alternative (GMPA 2000), the VMP would guide all protection, restoration, and enhancement of vegetation resources, including the restoration of the three tributaries and expanded riparian corridor of Tennessee Hollow, which would be restored and connected to an expanded marsh at Crissy Field.

The Final Plan Variant proposes roughly 1.25 million sf of demolition, and no new (replacement) construction. The demolition could adversely affect native plant communities shown in Figure 18, Natural Resources, Affected Environment chapter, if grading, staging, operations and/or landscaping were to occur in an area containing native plant communities or assemblages. In comparison to the No Action Alternative (GMPA 2000), this represents roughly 130,000 sf more demolition, and 170,000 sf less new construction. Therefore, cumulatively this alternative could have a similar potential to disturb native plant communities as the No Action Alternative (GMPA 2000). The measures identified above for the No Action Alternative (GMPA 2000) would apply to this alternative and would minimize the potential loss or degradation of existing native plant communities from direct and indirect/adjacent activities and disturbances. The impact on biological resources within the developed areas, as described above for the No Action Alternative (GMPA 2000), would also be the similar for the Final Plan Variant, with exceptions listed below. The following analysis is focused on the substantive (biological) differences between the No Action Alternative (GMPA 2000) and the Final Plan Variant.

Under the Final Plan Variant, an additional one-acre of native plant habitat would be restored north of Battery Sherwood, at the base of the western Crissy Field bluffs. This could provide the potential of increasing the remnant coastal scrub and fresh water seep vegetation communities within this area. Additionally, the width of the lower Tennessee Hollow corridor (directly

south of Doyle Drive) would be increased by approximately 3 acres. Additionally, four Gorgas warehouses would be demolished to further increase potential habitat (about 2 acres) for an expanded Crissy Field marsh. These areas are proposed for mixed-use/office/residential and mixed-use/visitor: cultural focus respectively under the No Action Alternative (GMPA 2000). The precise effect would depend on the type and extent of vegetation treatment proposed, as the areas are designated under the VMP as landscape vegetation, which would not preclude future site-specific native plant restoration. Increasing this open space could reduce potential edge effect pressures (e.g. from invasive non-native plant species and other urban pressures) by ensuring at least a 150-foot riparian corridor buffer throughout approximately 80 percent of the corridor.

Approximately 5 acres of additional open space would be created directly west of the Log Cabin and north of Fort Scott. This could decrease urban edge effect pressures on remnant fresh water wetland habitat and could provide opportunities for expanding both wetland and serpentine grassland habitat if consistent with future site-specific vegetation objectives.

Under the Final Plan Variant, there would be an increase in the number of projected Presidio residents, visitors and employees when compared to the No Action Alternative (GMPA 2000). This overall increase in use of the park by the public that could indirectly affect the health of native plant communities, specifically the viability of sensitive habitats within the PSHS Planning District. However, the increase in the overall amount of open space that would be achieved under this alternative would reduce some of the edge pressures on the native plant communities commonly associated with built environments. These would include the spread of invasive exotic species, increased visitor and tenant use, and increased disturbance from infrastructure. Measures to ensure that native plant communities would be protected from all disturbances, including setbacks and/or barriers to protect native plant communities, would be required. Similar to the No Action Alternative (GMPA 2000), existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase, which could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant

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communities zone. Best management practices would be implemented within and adjacent to areas supporting outlier native plant and vestige wetland resources outside of the native plant communities zone (including the San Francisco owl's clover population north of the Log Cabin, and the remnant wetland vegetation communities in the Fort Scott, South Hills and Main Post Planning Districts), to protect them and their associated habitats. These BMPs would be developed such that the management of these resources would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Future site-specific planning and environmental review, in conjunction with these BMPs and other requirements listed in this EIS, would be implemented to prevent such effects.

In conclusion, the Final Plan Variant would have a similar beneficial effect on expansion of existing open space and native plant communities [by providing roughly 25 and 5 acres more, respectively, than the No Action Alternative (GMPA 2000)]. Although disturbances from demolition would be substantially greater under the Final Plan Variant, the elimination of all new construction activities could cumulatively result in similar potential affects as those determined in the No Action Alternative (GMPA 2000). Consistent with the No Action Alternative (GMPA 2000), mitigation would be required to reduce potential adverse impacts on native plant communities, and future site-specific planning and environmental review would also be completed.

Resource Consolidation Alternative

Under the Resource Consolidation Alternative, existing open space would increase from 695 to 838 acres, which represents a 44-acre increase over the No Action Alternative (GMPA 2000). This alternative would increase the total amount of existing native plant communities (from 70 to 213 acres), a slight increase over the 210 acres proposed under the No Action Alternative (GMPA 2000). As with the No Action Alternative (GMPA 2000), the VMP would guide all protection, restoration, and enhancement of vegetation resources, including the restoration of the three tributaries and riparian corridor of Tennessee Hollow, which would be restored and connected to the expanded marsh at Crissy Field.

The Resource Consolidation Alternative proposes roughly 1.91 million sf of demolition, and up to 1.25 million sf of new (replacement) construction. The

demolition and new (replacement) construction could adversely affect native plant communities shown in Figure 18, Natural Resources, Affected Environment chapter, if grading, staging, construction and/or landscaping were to occur in an area containing native plant communities or assemblages or where restoration is proposed. In comparison to the No Action Alternative (GMPA 2000), this represents roughly 790,000 sf more demolition and over 1 million sf more new construction. Therefore, this alternative could have a greater potential to disturb native plant communities than the No Action Alternative (GMPA 2000). Measures identified above for the No Action Alternative (GMPA 2000) would apply to this alternative and would minimize the potential loss or degradation of existing native plant communities from direct and indirect/adjacent activities and disturbances.

Under the Resource Consolidation Alternative, approximately 1 acre of land in Tennessee Hollow proposed for native plant restoration under the No Action Alternative (GMPA 2000) would be designated for residential use. Residential use of this land could interfere with a planned buffer and habitat link with adjacent areas. As required by the mitigation measures presented in this EIS, timely restoration of appropriate native buffer vegetation adjacent to this area would help reduce the indirect effects associated with this land use. In addition, future site-specific planning and environmental review would be completed. The conversion of some developed areas (roughly 11 acres) within the central Tennessee Hollow corridor into open space could also potentially enhance creek, riparian and upland vegetation restoration efforts. In addition, other developed areas within the East and West Washington Housing area (approximately 27 acres) would also be converted to open space, reducing potential edge effect pressures (e.g. from invasive non-native plant species and other urban pressure) on adjacent native plant communities. The precise effects of the above actions would depend on the type and extent of vegetation treatment proposed, as these areas are designated under the VMP as landscape vegetation, which would not preclude future site-specific native plant restoration.

Under the Resource Consolidation Alternative, there would be a higher number of projected Presidio residents, visitors and employees. However, this alternative provides the greatest consolidation of intensive land use within the northern and eastern planning districts of the Presidio, resulting in a

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contiguous open space corridor in the southern planning districts. Overall this would result in less potential for fragmentation or disturbance to native plant communities and have higher ecological benefits than the No Action Alternative (GMPA 2000). Existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase, which could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant communities zone. However, the increase in the overall amount of open space that would be achieved under this alternative would reduce some of the edge pressures on the native plant communities commonly associated with built environments. These would include the spread of invasive exotic species, increased visitor and tenant use, and increased disturbance from infrastructure. Measures to ensure that native plant communities would be protected from all disturbances, including setbacks and/or barriers to protect native plant communities, would be required.

In conclusion, the Resource Consolidation Alternative would have an increased beneficial effect on expansion of existing open space and planned restoration of native plant communities (by providing roughly 44 and 3 acres more, respectively), compared to the No Action Alternative (GMPA 2000). Demolition and new (replacement) construction activities would be substantially higher than the No Action Alternative (GMPA 2000). Overall, the Resource Consolidation Alternative would have greater potential for direct effects on native plant communities during future construction. Implementation of the mitigation measures identified in this EIS would minimize these impacts, and future site-specific planning and environmental review would be required. Additionally, there would be a substantial increase in the amount of open space provided under this alternative, which would have a greater beneficial indirect impact than the No Action Alternative (GMPA 2000), by reducing edge effect and localized land use pressures from the developed environment on native plant communities.

Sustainable Community Alternative

Under the Sustainable Community Alternative, existing open space would increase from 695 to 772 acres, which represents a 22-acre reduction when

compared to the No Action Alternative (GMPA 2000). This alternative would result in an increase in the total amount of native plant communities (from 70 to 209 acres), but would be slightly less than the 210 acres proposed under the No Action Alternative (GMPA 2000).

The Sustainable Community Alternative would result in approximately 890,000 sf of demolition and up to 620,000 sf of new (replacement) construction. The demolition and new (replacement) construction could adversely affect native plant communities shown in Figure 18, Natural Resources, Affected Environment Chapter, if grading, staging, construction and/or landscaping were to occur in an area containing native plant communities or assemblages or where restoration is proposed. When compared to the No Action Alternative (GMPA 2000), this represents a reduction of approximately 230,000 sf in demolition and an increase of roughly 450,000 sf in new construction. Although the reduction in total demolition would lessen potential short-term impacts, it would also reduce the amount land available for open space and restoration activities. The increase in new (replacement) construction would create a greater potential to disturb native plant communities than the No Action Alternative (GMPA 2000). Measures identified above for the No Action Alternative (GMPA 2000) would apply to this alternative and would minimize the potential loss or degradation of existing native plant communities from direct and indirect/adjacent activities and disturbances.

Under the Sustainable Community Alternative, approximately 1 acre of land in Tennessee Hollow proposed for native plant restoration under the No Action Alternative (GMPA 2000) would be designated for residential use. Residential use of this land would interfere with a planned buffer and habitat link with adjacent areas. As required by the mitigation measures presented in this EIS, timely restoration of appropriate native buffer vegetation adjacent to this area would help reduce the indirect effects associated with this land use. In addition, future site-specific planning and environmental review would be completed.

The Trust, in partnership with the NPS and Golden Gate National Parks Association, has initiated the Crissy Field Marsh Expansion Study (Marsh Study), please refer to the discussion under the Final Plan Alternative.

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The projected residents, visitors and employees and built space (i.e., land uses) would be greater than the No Action Alternative (GMPA 2000). This increased activity could indirectly affect the health of native plant communities, specifically the viability of the native plant communities in and adjacent to the PHSH, East Housing and Crissy Field Planning Districts. Indirect impacts could include the increased potential for fragmentation and loss of natural processes or disturbance to native plant communities. This alternative would have less ecological benefit than the No Action Alternative (GMPA 2000). Existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase, which could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant communities zone. Measures to ensure that native plant communities would be protected from all disturbances, including setbacks and/or barriers to protect native plant communities, would be required.

In conclusion, the Sustainable Community Alternative would have a decreased beneficial effect on native plant communities [by providing approximately 1 acre less, as well as a 22-acre reduction in open space than the No Action Alternative (GMPA 2000)]. Demolition activities would be slightly lower than the No Action Alternative (GMPA 2000), but new (replacement) construction and projected land use levels would be substantially greater under the Sustainable Community Alternative. Implementation of the mitigation measures identified in this EIS would minimize these impacts and future site-specific planning, and environmental review would also be completed.

Cultural Destination Alternative

Under the Cultural Destination Alternative, existing open space would increase from 695 to 807 acres, which is 13 acres more than would be realized under the No Action Alternative (GMPA 2000). This alternative would result in an increase in the total amount of existing native plant communities (from 70 to 207 acres), which represents a 3 acre reduction from the No Action Alternative (GMPA 2000). While the amount of open space would increase under this alternative, the potential for disturbance or loss of native plant and

wildlife habitat would be higher than the No Action Alternative (GMPA 2000), because it allows for substantially greater development.

The Cultural Destination Alternative would result in approximately 1.37 million sf of demolition and 1.37 million sf of new (replacement) construction. The demolition and new (replacement) construction could adversely affect native plant communities shown in Figure 18, Natural Resources, Affected Environment Chapter, if grading, staging, construction and/or landscaping were to occur in an area containing native plant communities or assemblages or where restoration is proposed. When compared to the No Action Alternative (GMPA 2000), this represents an overall increase in demolition and construction (250,000 sf and 1.2 million sf, respectively). This alternative proposes the greatest amount of new (replacement) construction of all alternatives.

Under the Cultural Destination Alternative, conversion of developed areas (approximately 4 acres) within the western West Washington Housing area to open space would reduce potential edge effect pressures (e.g. from invasive non-native plant species and other urban pressure) on adjacent native plant communities, and result in the restoration of central dune scrub and potentially oak woodland habitat. This habitat would be contiguous with habitat currently proposed for future San Francisco lessingia recovery, and could support the establishment of lessingia and other rare dune annual species. Additionally, the PHSH parking area and Nike Missile Site (above the Nike swale) would be designated for landscape vegetation and institutional/residential uses, respectively. This area is proposed for native plant habitat restoration under the No Action Alternative (GMPA 2000). The surrounding area contains potential jurisdictional wetlands and populations of the federally-endangered San Francisco lessingia, and the area as a whole is included within the planned restoration effort for enhancing the natural values of the larger ecological corridor. The precise effect of these land uses would depend on the type and extent of projects proposed within each of these areas. For a discussion of possible impacts and applicable mitigation measures, refer to Final Plan Alternative analysis, above.

Under the Cultural Destination Alternative, approximately 1 acre of land in Tennessee Hollow proposed for native plant restoration under the No Action

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Alternative (GMPA 2000) would be designated for residential uses. Residential use of this land would interfere with a planned buffer and habitat link with adjacent areas. As required by the mitigation measures presented in this EIS, timely restoration of appropriate native buffer vegetation adjacent to this area would help reduce the indirect effects of this land use. In addition, future site-specific planning and environmental review would further consider the precise use of this area and potential mitigation.

The Trust, in partnership with the NPS and Golden Gate National Parks Association, has initiated the Crissy Field Marsh Expansion Study (Marsh Study), please refer to the discussion under the Final Plan Alternative.

Under the Cultural Destination Alternative, there would be a higher number of projected Presidio residents, visitors and employees and more built space. Overall this alternative would result in a more intensive use of the Presidio by the public, which could indirectly affect the health of native plant communities, specifically the viability of sensitive habitats within in the PHSH, East Housing and Crissy Field Planning Districts. This could result in the increased potential for fragmentation, loss of natural processes or disturbance to native plant communities, and have reduced ecological benefits compared to those defined under the No Action Alternative (GMPA 2000). Existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase, which could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant communities zone. Measures to ensure that native plant communities would be protected from all disturbances, including setbacks and/or barriers to protect native plant communities, would be required.

In conclusion, the Cultural Destination Alternative would have an increased beneficial effect on expansion of existing open space and a decreased beneficial effect on native plant communities [by providing roughly 13 acres more and 3 acres less, respectively, than the No Action Alternative (GMPA 2000)] as well as a reduction in the benefits associated with planned restoration. Demolition and new (replacement) construction activities and overall land use levels would be greater than both the No Action (GMPA

2000) and Final Plan Alternatives. Implementation of the mitigation measures identified in this EIS would minimize these impacts, and future site-specific planning and environmental review would also be completed.

Minimum Management Alternative

Under this alternative, existing open space areas would be increased only slightly (from 695 to 702 acres), a substantial reduction from the 794 acres proposed under the No Action Alternative (GMPA 2000). No native plant community restoration would occur under this alternative (existing communities represent approximately 70 acres). In comparison to the restoration proposed under the No Action Alternative (GMPA 2000) (210 acres), this would be a substantial reduction. Only those actions necessary to meet legislative requirements would be carried out. Management programs would be restricted to those that are already being conducted. Many of the provisions identified in the GMPA or the PTMP would not be implemented. Ecological restoration efforts that are currently underway would continue but would not expand into new areas as identified in the VMP. Major projects that would be undertaken to expand or improve open space would be limited to Mountain Lake Enhancement Plan actions and landscape improvements at the LDAC site. Native plant communities would continue to occupy 70 acres of Area B. No restoration would occur in 140 acres of native plant communities. Wherry housing would not be removed for restoration of native plant habitat. The Minimum Management Alternative would preclude opportunities to implement recovery actions for 3 federally threatened or endangered plant species (Presidio clarkia, Marin dwarf flax, and Raven's manzanita). It would also preclude active habitat restoration efforts to recover a fourth federally threatened and endangered species, the San Francisco lessingia. This would have an adverse impact on the viability of special-status species and associated remnant plant communities.

Any expansion that would be required to ensure the health of the Crissy Field marsh would not occur in Area B. Therefore, if the marsh closes for a period of time, altering the marsh environment's salinity and water inundation footprint and frequency the tidal marsh vegetation communities could be lost, and the re-introduction efforts for the federally endangered California sea-blite may be affected. If the Crissy Field wetland continues to close for

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significant periods of time the tidal marsh vegetation communities would be adversely affected.

No demolition or new construction would occur under the Minimum Management Alternative, so there would be little potential for the loss of existing native plant communities as a result of these activities. However, existing buildings would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, recreational facilities, and visitor access would continue to increase, which could affect native plant communities and/or assemblages, and associated special-status species located within and outside of the native plant communities zone. Measures to ensure that native plant communities would be protected from all disturbances, including setbacks and/or barriers to protect native plant communities, would be required.

In conclusion, the Minimum Management Alternative would have a substantial reduction in the beneficial effect on both existing open space and native plant communities [by providing roughly 92 acres less and 140 acres less, respectively, than the No Action Alternative (GMPA 2000)]. In particular, the failure to implement the native plant communities restoration objectives (as defined in the VMP) in existing “disturbed” habitat would have a significant reduction in the restoration benefits of the No Action Alternative (GMPA 2000), and in some cases create adverse biological effects. The projected land use levels would also be greater under the Minimum Management Alternative, and could result in increased impacts to the viability of the native plant communities in and adjacent to all existing habitat restoration areas. Overall, the Minimum Management Alternative would have the greatest direct effect on native plant communities.

DIRECT AND INDIRECT EFFECTS ON WILDLIFE

All Alternatives

The demolition, construction and/or operations associated with all alternatives could create a direct and indirect loss or degradation of native wildlife habitat (native plant communities and high-value wildlife habitat in landscaped areas and non-native forests) based on human activities including noise, pets, visual intrusion of humans, lighting. The more developed areas become, the less

valuable they tend to be as wildlife habitat. New development could increase human presence and increase the potential for soil, wildlife and vegetation disturbance. The potential for human-wildlife interactions and human-induced impacts (such as the introduction of unnatural food sources) would also increase. The potential for an increase in depositing unwanted pets into parklands and also feeding pets outdoors could also occur, resulting in increased predation on wildlife from feral cats. The effects of human food on the behavior, distribution, and abundance of wildlife species would continue in existing developments, and could begin in new developments unless facilities, education enforcement, and appropriate garbage management areas are provided.

The removal of development from an area would increase the value of the habitat.

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would result in new development and the operation of new land uses (including intensive recreational and special event activities). Depending on where these activities are located, they could result in significant losses or degradation of existing native wildlife habitat or high value wildlife habitat in non-native forests or landscaped areas. Wildlife could be disturbed by people walking, running or exercising pets, by vehicles, by noise, and by increased lighting. However, under this alternative, native wildlife species and their habitats would be identified, protected, monitored and, where possible, restored. Forest areas would be managed to provide for wildlife habitat values, especially where important native habitat occurs adjacent, within and underneath the historic forest canopy. Sensitive habitat areas would be protected during forest rehabilitation.

Activities associated with demolition or construction in areas adjacent to valuable wildlife habitat could degrade adjacent habitat through the visual and noise intrusion associated with human activity, the inadvertent trampling by vehicles or workers seeking convenient access or staging/storage space, and pollution, including potential spills or upsets. The rehabilitation and/or conversion of historic structures and demolition of non-historic structures could result in the modification and/or loss of potential habitat for the federally-protected *Yuman myotis* and other species of bats.

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Mitigation identified in this EIS would require site-specific surveys at the time a particular activity is proposed. Information obtained during the survey would be used to design and implement protective measures (see mitigation section for additional detail). High intensity land uses (including recreational activities) adjacent to open space could result in indirect impacts to native animals and wildlife habitat through visual and noise impacts from human activities as well as trampling damage from human and pet access and predation by domestic and feral cats and dogs. Buffers and/or barriers between sensitive wildlife habitat and human activity would be provided as required by the mitigation measures presented in this EIS. New development and high intensity recreation and land use activities would be avoided within forest areas that support high, sensitive, unique and/or documented wildlife values. Best management practices for activities within and adjacent to sensitive wildlife habitats and corridors would be developed and applied. Long-term monitoring would occur to ensure protection of wildlife species. Feeding of animals outside would be prohibited, and garbage management would be initiated to reduce the influences of human food on wildlife. In addition, measures to protect wildlife from the effects of artificial light would be required.

In conclusion, the demolition, construction and new land uses proposed under the No Action Alternative (GMPA 2000) could result in potential habitat degradation and wildlife disturbance. Through the mitigation measures required in this EIS and future site-specific planning and environmental review, the effect of these activities and subsequent impacts would be minimized. Overall, the habitat restoration efforts and expansion of open space areas proposed under the No Action Alternative (GMPA 2000) would offset potential impacts, and provide a long-term beneficial effect on wildlife resources.

Final Plan Alternative

The Final Plan Alternative would have similar wildlife impacts as described above for the No Action Alternative (GMPA 2000), including potentially significant loss or degradation of existing native wildlife habitat or high value wildlife habitat in non-native forests or landscaped areas. These impacts would be a direct result of proposed demolition, new (replacement)

construction and increased visitor uses. Although the Final Plan Alternative proposes less demolition, there would be an overall increase in new construction and use levels; therefore, there would be a higher potential for wildlife impacts. As described for the No Action Alternative (GMPA 2000), these proposed activities would be subject to a series of protective measures (mitigation) and the corresponding impact on wildlife would be minimized and/or eliminated.

One of the primary distinctions between the No Action (GMPA 2000) and Final Plan Alternative's effect on wildlife results from the proposed institutional/residential use of the Nike Missile site, rather than native plant restoration as proposed under the No Action Alternative (GMPA 2000). The area surrounding this feature provides nesting habitat for California quail and other wildlife. The region as a whole is included within a current restoration planning effort to establish a functioning dune and wildlife corridor. The precise effect of the institutional/residential uses would depend on the type and extent of the land use proposed within the area. Impacts on wildlife could occur either indirectly based on increased use levels. Please refer to the analysis of native plant communities above for a discussion of potential habitat changes and corresponding mitigation measures. With regard to use levels, the Trust would implement mitigation measures, such as use of buffer areas/set-back restrictions, monitoring and best management practices, to reduce wildlife impacts.

As previously described in the discussion of native plant communities effects, a Crissy Field Marsh Expansion Technical Study has been initiated to ensure the long-term ecological viability of the marsh which would beneficially affect wildlife that rely on the marsh and its environs as habitat.

Implementation of measures identified in this EIS would avoid other direct impacts on wildlife habitat, and would partially avoid indirect affects of adjacent uses. Future site-specific planning would provide for buffer zones and/or barriers between human activity and wildlife habitat in the Presidio forest, and would provide protection from disturbing and/or impacting forestry practices and other noise and light sources, and protection of natural habitat for wildlife species.

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In conclusion, the Final Plan Alternative would have similar habitat restoration benefits that would be realized under the No Action Alternative (GMPA 2000), and subsequently on wildlife habitat and movement. The direct impacts associated with proposed demolition, construction and use levels would be minimized through implementation of mitigation measures identified in this EIS, and future site-specific planning and environmental review would also be completed.

Final Plan Variant

Under the Final Plan Variant, the potential for direct and indirect impacts on native and other high value wildlife habitats would be similar to that of the No Action Alternative (GMPA 2000). Although there would be substantially more demolition, there would no new construction under this alternative. The mitigation measures presented in this EIS would minimize the impact of these activities. In addition, existing space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase. Implementation of measures identified in this EIS would avoid other direct impacts on wildlife habitat, and would partially avoid indirect affects of adjacent uses. Future site-specific planning would provide for buffer zones and/or barriers between human activity and wildlife habitat in the Presidio forest, and would provide protection from disturbing and/or impacting forestry practices and other noise and light sources, and protection of natural habitat for wildlife species.

Overall, the increase in the amount of open space resulting from this alternative would reduce some of the edge effect pressures, reduce habitat fragmentation in the lower Tennessee Hollow riparian corridor, western Crissy Field bluffs and northern Fort Scott sections of the Presidio, providing buffered wildlife corridors, and reducing some of the urban pressures such as noise, light and increased visitor and operational activities.

Resource Consolidation Alternative

Under the Resource Consolidation Alternative, the potential for direct and indirect impacts on native and other high value wildlife habitats would be similar to that of the No Action Alternative (GMPA 2000). Although there would be substantially more construction and demolition under this

alternative, the mitigation measures presented in this EIS would minimize the impact of these activities. In addition, existing space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase. Overall, the increase in the amount of open space resulting from this alternative would reduce some of the edge effect pressures, reduce much of the habitat fragmentation in the south western sections of the Presidio, provide a contiguous wildlife corridor, and reduce some of the urban pressures such as noise, light and increased visitor and operational activities.

Sustainable Community Alternative

Direct and indirect impacts on native and other high value wildlife habitats resulting from this alternative would be similar to but slightly less than the No Action Alternative (GMPA 2000). Demolition activities would be slightly lower than the No Action Alternative (GMPA 2000), but substantially higher for new (replacement) construction. The projected use levels would also be greater under the Sustainable Community Alternative, and could result in increased impacts on wildlife, specifically in and adjacent to the East Housing and Crissy Field Planning Districts. Impacts could include the increased potential for habitat fragmentation, increased use levels, changed spatial configuration of restored wildlife habitat necessary for movement, and potential natural resource conflicts in specific areas. The site-specific impacts on wildlife, and protective mitigation measures under this alternative would also be similar to those described in the Final Plan Alternative. Implementation of these measures would minimize these impacts.

Cultural Destination Alternative

Under the Cultural Destination Alternative, the potential for impacts would be similar to that of the Final Plan Alternative but more intense as this alternative proposes the greatest amount of new (replacement) construction, and second greatest amount of demolition, and projected use levels. In addition, existing space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase. The site-specific impacts on wildlife, and protective mitigation measures under this alternative would also be similar to those described in the Final Plan Alternative. As with all of the alternatives, wildlife could be

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disturbed by demolition, construction, recreation, special events and other activities occurring adjacent to wildlife habitat. Although these activities would be more intense under this alternative, implementation of measures identified in this EIS would reduce impacts on wildlife and protect the natural habitat of wildlife species.

Minimum Management Alternative

No new construction or demolition would occur under this alternative. However, existing space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase. Therefore, wildlife could be disturbed by human activity. As stated in the Direct Impacts on Native Plant Communities Section, only those actions necessary to meet legislative requirements would be carried out. Management programs would be restricted to those that are already being conducted. This would result in reduced integrity of wildlife corridors and reduced habitat available for wildlife species. The health of the Presidio forest would also continue to decline, with limited efforts placed on rehabilitation. This would affect many of the bird species that use the forest structure for roosting, nesting, and foraging. The potential decline in forest health and limited diversification of the forest would decrease habitat values. These impacts, taken together, would be a significant impact. Measures identified in this EIS would ensure that wildlife resources are identified protected and monitored.

NESTING HABITAT

All Alternatives

Tree and vegetation removal, trimming and pruning, and ground-clearing activities for construction, demolition and special events could result in the nest destruction, mortality, or disturbance of nesting, native migratory bird species or result in nest abandonment.¹ Increased development and reduced

¹ Disturbance or destruction of nests, eggs, or individuals of the European starling and the house sparrow and other non-native bird species are not considered a significant impact, because these birds are non-native species.

habitat and forest restoration activities could also limit available nesting habitat for bird species on the Presidio.

No Action Alternative (GMPA 2000)

Depending on location and time of year, demolition and construction activities associated with this alternative could destroy nests or disturb nesting activities of birds protected under the Migratory Bird Treaty Act. In addition, ongoing use of the Presidio by visitors, tenants, and special events would continue. Without proper mitigation and controls, these activities could impact nesting wildlife.

As a federal agency, the Trust would be required to comply with the Migratory Bird Treaty Act. Measures identified in this EIS would require that any potentially disturbing activities be avoided during nesting season in sensitive areas, or if unavoidable, require pre-construction surveys during the nesting season, prohibit disturbance of active nests, and ensure that protected bird species that are nesting would not be destroyed or disturbed. Other measures, including restrictions on the use of artificial lighting and other intrusive activities, would further minimize the impact of this alternative.

All Other Action Alternatives (with the exception of Minimum Management)

Based on the similarities in the nature and type of activities proposed under all action alternatives (with the exception of Minimum Management, as described below), the types of impacts that could affect nesting wildlife would be similar to the No Action Alternative (GMPA 2000). Construction and demolition activities, as well as increased use levels would be subject to the mitigation presented in this EIS. Other measures including restrictions on the use of artificial light would also be implemented. The amount of available nesting habitat available for nesting birds, however, would vary by alternative, with the Resource Consolidation Alternative having the greatest increase [44 acres compared to the No Action Alternative (GMPA 2000)] in open space, and the Sustainable Community Alternative having the most substantial decrease in open space [22 acres less than No Action Alternative (GMPA 2000)]. Please refer to discussion under the Direct and Indirect Effects on Wildlife Section.

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Minimum Management Alternative

Under this alternative, no demolition or new construction would occur, so nesting habitat would not be disturbed from these activities. However, visitor, tenant, activities would occur. As stated in the Direct and Indirect Effects on Wildlife Section, the Minimum Management Alternative would provide the least amount of open space compared to the No Action Alternative (GMPA 2000). This would result in a decrease of approximately 92 acres of potential nesting habitat for birds. The health of the Presidio forest would also continue to decline, with limited efforts placed on rehabilitation. This would affect many of the bird species that use the forest structure for roosting, nesting, and foraging. The potential decline in forest health, and limited diversification of the forest would decrease habitat values. Any expansion that would be required to ensure the health of the Crissy Field marsh would not occur. Thereby, if the marsh closes for a period of time, altering the marsh environment's salinity and water inundation footprint and tidal frequency, impacts to wildlife species would occur. Foraging potential, species richness, and nesting habitat would all be impacted. The movement of aquatic invertebrates and fish would be impacted. Water quality, temperature, the concentrations of suspended sediments and nutrients would all be influenced and could affect reproduction of aquatic organisms.

Additionally, this alternative would have the greatest habitat fragmentation and edge effect pressures from disturbance and potential increased use levels. Mitigation measures identified in this EIS would be required to monitor wildlife and restrict the use of artificial light to ensure that nesting habitat would not be disturbed. Overall, this alternative would have the least beneficial impact on nesting wildlife when compared to the No Action Alternative (GMPA 2000).

WILDLIFE MOVEMENT

All Alternatives

New construction, demolition and increased activities from Trust and tenant operations, special events and visitors could result in disruptions to wildlife movement by removing habitat from wildlife corridors or by concentrating intensive human activities in or adjacent to wildlife corridors.

No Action Alternative (GMPA 2000)

Wildlife corridors would benefit from the native plant habitat restoration and enhancement, forest restoration and wetlands and drainage corridor restoration that would occur under this alternative. At the same time, activities associated with the 1.1 million sf of demolition and 170,000 sf of new (replacement) construction, to the extent that they occur in or adjacent to wildlife corridors, could disrupt wildlife movement and migration. Intensive activities, including recreation and special events, in or adjacent to wildlife corridors, could also be disruptive. Future site-specific planning and environmental review would take into consideration and promote wildlife corridors, especially as the focus of habitat restoration activities, wherever feasible and beneficial for the resource, to reduce potential impacts.

Final Plan Alternative

This alternative would result in 1.1 million sf of demolition and 710,000 sf of new (replacement) construction. As with the No Action Alternative (GMPA 2000), the potential exists for disruption to wildlife movement or migration from demolition, construction, or intensive human activities proposed by this alternative that are sited in or adjacent to movement corridors.

In particular, development at the Nike Missile Site could further fragment habitats already adjacent to an urban interface. The proposed use of this area [proposed for native plant restoration under the No Action Alternative (GMPA 2000)] for institutional/ residential use could effect the movement and health of the limited population of the California quail, in this area as well as other nesting, roosting and foraging species. The existing wetland habitat could also be affected for wildlife use. Fragmentation and increased disturbance from invasive exotic species, buildings and infrastructure, and potential increased use levels would limit the viability of both wildlife habitats and wildlife movement within these and adjacent areas. Increased potential visitor, tenant, pet use, and associated human disturbances within these areas would also potentially affect wildlife movement within the corridor. Implementation of the mitigation measures identified in this EIS, including those restricting the use of invasive exotic species and installation of protective barriers, would help reduce the impact. However, future proposals for these sites would be subject to site-specific planning and environmental

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review. Depending on the specific proposals for these sites, consultation with USFWS and the Army Corps of Engineers may also be required to ensure compliance with FESA and Section 404 of the Clean Water Act. Overall, the potential for disrupting wildlife under this alternative could be greater than the No Action Alternative (GMPA 2000).

Final Plan Variant

This alternative proposes approximately 1.23 million sf of demolition and no new construction. Potential effects on wildlife movement resulting from demolition activities and/or proposed land uses/special events would be similar to those described for the No Action (GMPA 2000) and Final Plan Alternatives. However, to the extent that the Final Plan Variant would provide more open space than would the No Action Alternative (GMPA 2000), it would have an increased potential of enhancing wildlife corridors, specifically within the lower Tennessee hollow corridor and Crissy Field marsh ecotone. Future site-specific planning and environmental review would direct the focus of restoration to corridors supporting wildlife movement wherever feasible. Overall, this alternative would have a beneficial effect on wildlife movement.

Resource Consolidation Alternative

This alternative proposes approximately 1.9 million sf of demolition and 1.2 million sf of new (replacement) construction. Potential effects on wildlife movement resulting from this activity and/or land uses/special events would be similar to those described for the No Action (GMPA 2000) and Final Plan Alternatives. However, to the extent that the Resource Consolidation Alternative would provide more open space than would the other alternatives, it would have the greatest potential of enhancing wildlife corridors. Future site-specific planning and environmental review would direct the focus of restoration to corridors supporting wildlife movement wherever feasible. Overall, this alternative would have the most beneficial effect on wildlife movement.

Sustainable Community Alternative

The Sustainable Community Alternative provides for approximately 620,000 sf of new (replacement) construction, a substantial increase from the No Action Alternative (GMPA 2000). In addition, this alternative would provide less demolition than the No Action Alternative (GMPA 2000), and an increase in visitor use. Combined, these could result in increased intensive activities, including recreation and special events, in or adjacent to wildlife corridors, which could be disruptive to wildlife. Therefore, the potential for disrupting wildlife under this alternative could be greater than the No Action Alternative (GMPA 2000). Future site-specific planning and environmental review would also take into consideration and promote wildlife corridors, especially as the focus of habitat restoration activities, wherever feasible and beneficial for the resource, to reduce potential impacts. Future site-specific planning and environmental review would identify and promote wildlife corridors as the focus of habitat restoration activities wherever feasible to reduce impacts. In addition, implementation of the mitigation measures identified in this EIS would be required in future site-specific planning to further reduce the impact of demolition, construction, and land/visitor use on wildlife.

Cultural Destination Alternative

In general, the impacts associated with demolition and construction would be similar to the Final Plan Alternative; however, they would be more intense under this alternative due to the increase in proposed square footage (for both demolition and construction). Implementation of the mitigation measures identified in this EIS would be required in future site-specific planning to reduce these effects. The site-specific impacts on wildlife corridors, and protective mitigation measures under this alternative would also be similar to those described in the Final Plan Alternative. However, this alternative would provide approximately 13 acres more open space than the No Action Alternative (GMPA 2000), and could have a greater potential of enhancing wildlife corridors. Future site-specific planning and environmental review would direct the focus of restoration to corridors supporting wildlife movement wherever feasible.

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Minimum Management Alternative

Under this alternative, there would not be any demolition, new construction, or increased habitat restoration, so existing wildlife corridors would not be altered or enhanced. However, corridors providing wildlife movement would continue to be fragmented, which would limit wildlife movement within the Presidio. This would be a significant adverse impact on wildlife movement.

DIRECT AND INDIRECT EFFECTS ON SPECIAL-STATUS PLANTS

All Alternatives

Direct loss of special-status plants, or actions affecting reproductive success, population size, natural distribution, and/or natural processes necessary to perpetuate a special-status (rare, threatened or endangered) species, including loss or degradation of habitat function and size, or reductions in numbers of individuals or loss of habitat to levels below those required to sustain any native plant population could result from demolition, new (replacement) construction and/or land use and special event activities located in areas that provide habitat for special-status plant species. All actions that could affect federally threatened or endangered species would be coordinated in consultation with the USFWS.

Please refer to the discussion in the Direct and Indirect Effects on Native Plant Communities Sections for additional applicable mitigation measures and protective actions.

No Action Alternative (GMPA 2000)

Under this alternative, all 13 rare or endangered plant species currently on the Presidio would be identified, protected, enhanced and monitored. The VMP would guide all protection, restoration, and enhancement of vegetation resources, including the implementing objectives for restoring habitat necessary to recover and expand special-status species populations. Restoration activities would focus on actions identified by USFWS to recover the five federally listed plant species found on the Presidio, and expand their associated habitats. Removal of Wherry housing and restoration of the area as

native dune habitat, restoration of the serpentine grassland and scrub communities at Inspiration Point, and the coastal serpentine bluffs would have a beneficial impact by substantially increasing habitat necessary for the recovery of special-status species within those areas.

Future site-specific planning and environmental review would ensure that indirect impacts on any special-status species from adjacent demolition, new (replacement) construction or land uses would also be removed by providing buffers between sensitive resources and intensive activities or through other effective measures. Where buffers are not feasible, fencing or other barriers would be erected. Best management practices for activities within and adjacent to special-status species habitat would be developed and applied. The importation and use of incompatible soil material for ecological restoration efforts, and the inadvertent importation of invasive exotic seeds and plant materials in erosion control and soil materials used in construction and demolition projects would be prohibited. In addition, a program to ensure that their protection is accomplished over the long-term, monitoring and restoration of the Presidio's special-status species, including the critical control of invasive non-native plant species, would be in place. Taken together, these measures would protect special-status species from indirect impacts. In addition, populations of both the San Francisco gumplant and the San Francisco owl's clover are found in the developed sections of the Fort Scott Planning District. Best management practices would be implemented to protect them, and any other special status species population located within a developed area, as well as their associated habitats. These best management practices would be developed such that the management of these resources would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Future site-specific planning and environmental review, in conjunction with these best management practices and other requirements listed in this EIS, would be implemented to prevent negative effects.

In conclusion, the No Action Alternative (GMPA 2000) would provide an overall increase in the quality and quantity of habitat for special-status species. Direct and indirect impacts to special-status species associated with demolition, construction and increased land use activities would be minimized and/or eliminated through implementation of the mitigation measures

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identified in this section. Overall, this alternative would have the most beneficial effect on native plant communities and subsequently special-status species restoration, and would provide a substantial increase in the amount of existing open space. Impacts associated with proposed demolition, new (replacement) construction, and other disturbances would be minimized through implementation of the required mitigation.

Final Plan Alternative

The general effects associated with demolition, construction and land/visitor use (and corresponding mitigation requirements) described above for the No Action Alternative (GMPA 2000) would similarly apply for this alternative. Similarly, the beneficial effects from increased habitat restoration in the Inspiration Point, coastal serpentine bluff communities and phased removal of housing structures at Wherry housing would apply under this alternative. Under the Final Plan Alternative, the Nike Missile Site (above the Nike swale) would be used for institutional/residential uses. This area of existing development is proposed for native plant habitat restoration under the No Action Alternative (GMPA 2000), and is directly north of San Francisco lessingia habitat and the proposed Northern Recovery Unit (per the draft Recovery Plan for the Coastal Plants of the Northern San Francisco Peninsula). The precise effect of the change in land use on adjacent habitat would depend on the type and extent of development proposed. Future activities would be subject to the mitigation measures presented in this EIS, as well as site-specific planning and environmental review. The mitigation measures identified in this EIS require use of buffer areas to protect sensitive species and restrictions on the use of non-native invasive plant species. In addition, the Trust would ensure compliance with the objectives and criteria of the Recovery Plan.

Additionally, the conversion of developed area (approximately 4 acres) within the western West Washington Housing area to open space, would reduce potential edge effect pressures (e.g. from invasive non-native plant species and other urban pressure) on adjacent native plant communities, and result in the restoration of central dune scrub and potentially oak woodland habitat. This habitat would be contiguous with habitat currently proposed for future

San Francisco lessingia recovery, and could support the establishment of lessingia and other rare dune annual species.

Populations of both the San Francisco gumplant and the San Francisco owl's clover are found in the developed sections of the Fort Scott Planning District. Best management practices would be implemented within and adjacent to these areas, and other outlier native plant and vestige wetland resources to protect them and their associated habitats. These BMPs would be developed such that the management of these resources would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Visitor activities could also increase the potential for off trail use, increasing trampling and erosion. Potential development within this area could also affect habitat for three other special-status species (the San Francisco spineflower, the San Francisco wallflower, and dune gilia). However, the mitigation measures identified for San Francisco lessingia and other federally-listed species would ensure protection of these species.

In conclusion, the Final Plan and No Action (GMPA 2000) Alternatives would have similar overall special-status plant species impacts, with the Final Plan Alternative having a greater potential to effect San Francisco lessingia habitat south of the Nike Missile Site. However, through the implementation of the mitigation required in this EIS, the effects to lessingia and other special-status plant species would be minimized, and the Trust would work cooperatively with the USFWS to ensure that relevant Recovery Plans are effectively implemented.

All Remaining Alternatives (Except Minimum Management)

Impacts of the remaining alternatives (except Minimum Management) on special-status plants would similar to the No Action Alternative (GMPA 2000). The mitigation measures presented at the end of this section apply to these alternatives.

Minimum Management Alternative

No new construction would occur under this alternative, so there would not be any adverse impact on existing special-status plant populations from new

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construction. However, the retention of the Wherry housing would preclude recovery of a federally-endangered plant species, the San Francisco lessingia, which would be a significant, adverse impact.

Under this alternative, recovery objectives and actions for 3 other federally-listed plant species (the Presidio clarkia, Marin dwarf flax, and Raven's manzanita) would not be fully achieved on the Presidio, and could result in the inability to recover those species.

Best management practices, restrictions on the import and use of incompatible soils in restoration efforts, and control of invasive exotic plant species would be required to protect these species. In addition, populations of both the San Francisco gumplant and the San Francisco owl's clover are found in the developed sections of the Fort Scott Planning District. Best management practices during operations and for increased use levels within and adjacent to these areas would be necessary to protect these species.

Overall, the Minimum Management Alternative would have the least beneficial effect on the protection, habitat enhancement and recovery of special-status species on the Presidio. The retention of Wherry housing and potential reduction of habitat restoration efforts in 140 acres of available habitat would have an adverse impact on special-status plant species.

DIRECT EFFECTS ON SPECIAL-STATUS WILDLIFE

All Alternatives

Demolition and new (replacement) construction could result in the take of special-status (rare, threatened or endangered) wildlife species, or adversely affect the reproductive success, population size, natural distribution, and/or natural processes necessary to perpetuate a special-status wildlife species; reduce numbers of individuals or loss of habitat to levels below those required to sustain any native population; interfere with movement of any sensitive wildlife species; or result in loss or degradation of habitat function and size resulting in fragmentation and habitat loss. Additionally, the increase in use levels (including recreation activities, special events, pet use, etc.) could result in disturbance to special-status wildlife species.

Please refer to the discussion in the Direct and Indirect Effects on Wildlife Sections for additional applicable mitigation measures and protective actions.

No Action Alternative (GMPA 2000)

Although the restoration of native habitats, and the rehabilitation and diversification of the historic forest proposed under this alternative would benefit special-status animals, other activities could potentially have adverse impacts. New (replacement) construction and high intensity recreation and land use activities within or adjacent to habitats that support special-status wildlife could adversely impact these resources. The rehabilitation and/or conversion of historic structures and demolition of non-historic structures could result in the modification and/or loss of potential habitat for the special-status species (candidate) *Yuman myotis* bat. *Yuma myotis* is somewhat tolerant of human disturbance and is one of the few species of bats persisting in relatively urbanized areas. In addition, proposed construction and demolition activities could affect overwintering habitat for the monarch butterfly. The overwintering phenomenon is considered sensitive by the CDFG. Mitigation identified in this EIS would require site-specific surveys at the time a particular activity is proposed. Information obtained during the survey would be used to design and implement protective measures (see mitigation section for additional detail).

Best management practices for activities within and adjacent to special-status wildlife habitats and corridors would be developed and applied. Long-term monitoring would occur to ensure protection of sensitive wildlife species. Measures identified in this EIS would require that any potentially disturbing activities be avoided in areas supporting nesting or residing special-status wildlife species. For unavoidable activities, all actions that could affect federally, or state-listed threatened or endangered species would be coordinated in consultation with the USFWS, and CDFG respectively.

In conclusion, the No Action Alternative (GMPA 2000) would provide an overall increase in the quality and quantity of habitat for special-status species. Direct and indirect impacts to special-status species associated with demolition, construction and increased use levels would be minimized and/or eliminated through implementation of the mitigation measures identified in this section. Overall, the restoration activities proposed under this alternative

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would have a beneficial effect special-status species. Impacts associated with proposed demolition, new (replacement) construction, and other disturbances would be minimized through implementation of the required mitigation.

All Remaining Alternatives (Except Minimum Management)

Based on the similarities in the nature and type of activities proposed under all action alternatives (with the exception of Minimum Management as described below), the types of impacts that could affect special-status wildlife would be similar to the No Action Alternative (GMPA 2000) described above. The mitigation requirements described above, including pre-construction/demolition surveys and consultation with relevant resource agencies, would be implemented for all alternatives.

Minimum Management Alternative

Under this alternative, there would be no new development, so habitat for special-status animal species would not be affected from construction and demolition activities. However, habitat restoration efforts for plant and associated wildlife values would not increase beyond current restoration efforts, and in comparison to the No Action Alternative (GMPA 2000) this would represent a reduction in potential habitat for special-status wildlife species.

MITIGATION MEASURES

The following measures would apply to all alternatives.

Adapted from the GMPA EIS Measures

NR-1 *Native Plant Communities.* To reduce the possibility of colonization by non-native plant species, areas of native vegetation disturbed by construction, infrastructure repair, and increased land use activities would be immediately revegetated with native species. A site-specific revegetation plan would be prepared for each construction project affecting areas of native vegetation. Revegetation needs would be identified early to allow time to establish seedlings from onsite plants and thus avoid contamination of the gene pool. Wherever possible, planting materials (seeds and cuttings) from

the local Presidio gene pool would be used. The Trust would support a native plant propagation center and nursery to ensure that local stock was available for use in revegetation. The Trust would consult with the Soil Conservation Service, the California Native Plant Society, National Park Service, Golden Gate National Parks Association and other technical experts on native plant propagation techniques. All revegetation efforts would be protected by buffers and/or barriers during establishment, and maintained and monitored for at least three years.

NR-2 *Wildlife.* A wildlife survey of Area B would be prepared as part of the Vegetation Management Plan. A monitoring program would be established to identify potential cumulative and activity/site-specific impacts on birds and other species. From monitoring information, best management practices would be developed to reduce any impacts.

NR-3 *Threatened, Endangered, Rare and Sensitive Species.* To ensure long-term protection and mitigate any visitor-related impacts, a Presidio-wide inventory and monitoring program for rare and endangered plant and animal species would continue, and all populations would be protected and restored. Future wildlife and aquatic species surveys would be completed and if they uncover additional animal species of concern, management objectives would be developed and programs implemented for the particular species.

New Mitigation Measures

NR-4 *Special – Status Species.* Rare or endangered plant species, including any federal-and state-listed threatened and endangered species that are found to occur in the Presidio, would be monitored annually and protected. Actions would be taken to recover these species, and their habitats would be enhanced. Any future rare or endangered species found on the Presidio would also be afforded the same protection and restoration measures. All special-status wildlife would be inventoried and monitored, and habitat would be protected and restored. Restoration activities would focus on actions necessary to recover the five federally-listed plant species found on the Presidio, and restore their associated habitat in compliance with the FESA. During future site site-specific planning and environmental review, the Trust would review future projects to ensure that proposed uses and activities are consistent with

ENVIRONMENTAL CONSEQUENCES

Natural Resources

and help further the recovery objectives stated in any relevant adopted Recovery Plans.

NR-5 *Wildlife and Native Plant Communities.* To protect wildlife and native plant communities, the Trust would implement the following measures:

- Schedule heavy equipment use, to the greatest extent feasible, to avoid areas where soils are wet and prone to compaction;
- Enforce leash restrictions;
- Implement non-native wildlife control measures;
- Provide signage and/or other educational devices to encourage voluntary compliance with protection measures;
- Prevent unnecessary vehicular and human intrusion and use into native and sensitive habitat communities from adjacent construction, demolition and intensive special events and recreation activities;
- Prohibit the use of erosion control measures and mulches that contain non-native plant seeds;
- Prohibit the use of irrigation, fertilizers, and herbicides in areas adjacent to, or up-gradient from sensitive biologic resources; and
- Prepare interpretive materials and signage in areas of increased tenant use adjacent to natural habitat areas and sensitive native plant communities.

In addition, during project planning, site construction of new development and planned intensive human activities would be located at least 100 feet from the edge of existing native plant communities and/or assemblages. If this is not feasible, the following measures should be used:

- Install protective fencing or other barriers around affected native plant communities and natural habitat;
- Plant dense native vegetation buffers to discourage access by humans, pets, and equipment into the native plant communities and other sensitive natural habitats for wildlife;
- Regularly inspect the affected areas for any impacts or damage to biological resources;
- Revegetate native plant areas affected by construction immediately with native plant species appropriate to the area and grown from local seed stock, to reduce the potential of colonization by non-native species. If a natural resource specialist determines that interim erosion control and site

stabilization measures would be beneficial, this measure would be implemented prior to revegetation;

- Prepare and implement site-specific restoration action and/or revegetation plans. Native plant material would be grown and collected in and from Presidio resources;
- Monitor potential impacts of these protected areas from increased visitor and tenant use and install and/or modify protective fencing if impacts to resources occur; and
- Coordinate all future trail planning and recreational activities in areas adjacent to habitat restoration sites and sensitive wildlife habitat with an interdisciplinary team including a qualified biologist or natural resource specialist.

NR-6 *Best Management Practices.* Establish and implement both Presidio-wide and site-specific best management practices for construction/demolition activities, development of new and/or expanded tenant and visitor activities and special events adjacent to natural habitats.

NR-7 *Artificial Light.* Minimize the intrusion of artificial light into the night scene of ecosystems, and limit the level of human-caused sound during construction-related activities, public and tenant events, changed land use activities, overall plan development, and site planning. Restrict the use of artificial lighting to those areas where security, basic human safety, and specific cultural resource requirements must be met. Use minimal-impact lighting techniques, and shield the use of artificial lighting to prevent the disruption of the night sky, physiological processes of living organisms, and similar natural processes. Develop standard measures for lighting that ensure minimum disturbance to areas of natural darkness, and wildlife habitat, and reduce excess fugitive light in natural areas. Ensure no gain in light levels in natural habitats, to the greatest extent feasible. Develop and implement best management practices minimizing interior and exterior fugitive light and sound.

NR-8 *Natural Sounds.* Identify areas important to natural soundscapes, both for recreation and wildlife, and monitor when construction, special events or other activities occur that could be detrimental to this value.

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Identify mitigation measures on a project-specific basis, which could include seasonal restrictions based on nesting activity.

NR-9 *Wildlife and Wildlife Habitat.* To reduce the effects on wildlife and wildlife habitat during implementation of future projects:

- A qualified wildlife biologist would conduct a site visit during project planning and assess the potential for any sensitive wildlife species, including bats, or their habitat to occur on or adjacent to the project site. If sensitive animal species are found, the project would be redesigned or project timeline modified in accordance with the biologist's recommendations to avoid impacts. If avoidance is not feasible, species-specific and site-specific mitigation plans shall be developed, and regulatory agency consultation pursued (if needed) to mitigate direct take and replace habitat for the impacted species; and
- Any vegetation removal would follow the park guidelines for protection of nesting birds. This includes guidelines on timing of vegetation and removal.

NR-10 *Crissy Field Marsh.* No long-term leasing or new construction will be allowed in the area between the Commissary parking lot and the historic Mason Street warehouses for two years, which is the estimated duration of the Crissy Field Marsh Expansion Technical Study. Following the study, restoration planning and implementation efforts would be undertaken by the Trust in coordination with the NPS, GGNPA, and other stakeholders, and long-term leasing or new construction would be avoided in any agreed upon expansion area(s).

NR-11 *Public Health Service Hospital.* To ensure additional protection of the existing wetland and lessingia habitat near the PSHH, the following measures would be implemented:

- Proposed uses of the Nike Missile site would be designed or otherwise conditioned to minimize changes in the local hydrology such that surrounding native vegetation is not adversely impacted.

NR-12 *Cumulative Activities.* Cumulative disturbance to natural habitat areas would not exceed 20 acres within any given year. No more than 5 acres

of that disturbance should be concentrated within one wildlife corridor, sensitive habitat or plant community without approval from a professional ecologist. This would not apply to disturbances created by natural storm or environmental events, which, if such events occur, would be restored or treated consistent with natural resources objectives. If this threshold value must be exceeded, then a professional ecologist would approve a strategy for implementing the proposed projects, and would identify any additional resource protection mitigation prior to the implementation of specific projects. Any projects that contribute to exceeding the value would have approved biological monitoring guidelines in place.

4.3.2 WATER RESOURCES

METHODOLOGY

The hydrologic impact assessment addresses the alternatives' potential effects on surface and groundwater hydrology and hydrologic resources. These resources include watersheds, drainages, lakes, creeks, springs, seeps, and groundwater aquifers and infiltration areas.

To assess the potential for direct impacts on wetlands, streams and associated resources, the extent of new (replacement) construction in each planning district was reviewed for each alternative in relationship to base maps of wetlands and streams as described in the Affected Environment Chapter. It was assumed that new construction could be sited within developable areas shown in Figures 3, 5, 6a, 7, 9, 11, and 13 of the Alternatives Chapter. All new (replacement) construction would be limited to developed areas.

Indirect impacts, including downstream erosion and sedimentation, other effects on wetlands, and streams. This analysis considers the location of potential demolition and new (replacement) construction and increased use levels (e.g., trampling, clearing of vegetation) in relation to downstream hydrologic resources. To address indirect impacts on wetlands, streams and associated resources, the maps were again reviewed to identify those resources that could be affected. If resources could be potentially affected, mitigation measures were identified to reduce impacts (see the end of this section). In addition, refer to Section 4.6.3 (Storm Drainage) for additional analysis of stormwater.

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Natural Resources

POTENTIAL IMPACTS

DIRECT AND INDIRECT IMPACTS

All Alternatives

Impacts on wetlands, streams, associated freshwater marsh, seep, and riparian vegetation, and other hydrologic resources could result from adjacent demolition or construction activities, or increased human activity (e.g., trampling by dogs and humans, clearing of vegetation) from adjacent land uses, including recreational activities. Under all alternatives, however, there would be no net increase in new development (i.e., proposed demolition would always be greater than proposed new construction). Additional impacts could also result from activities that redirect or increase/decrease surface and groundwater flow, alter aquifer recharge, or increase and concentrate impervious surface area, thereby increasing runoff volume and velocity, resulting in increased erosion.

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would increase the area of open space from about 695 acres to about 794 acres, and would expand the acreage of native plant habitat from about 70 acres to 210 acres, including wetland vegetation. Restoration of hydrological processes would occur within the three tributaries of Tennessee Hollow creek system and Dragonfly creek, and would improve the natural process of the creek and riparian corridors. The restored Tennessee Hollow riparian corridor would connect to an expanded tidal marsh at Crissy Field. Wetlands at Mountain Lake would also be enhanced and protected. As a result of these efforts, this alternative would improve the quality of wetland and stream resources within the Presidio.

The No Action Alternative (GMPA 2000) provides for approximately 1.12 million sf of demolition and 170,000 sf of new development. Depending on its location, new development or increased recreational and land use pressures could affect the following wetlands and stream drainages, which are located within or directly adjacent to landscaped areas or development areas (presented by planning district/general use areas).

Main Post:

- Potential jurisdictional and NWI wetlands near Battery Blaney north of Doyle Drive;
- NWI wetland between Doyle Drive and Lincoln Boulevard, near Building 150;
- NWI wetland near Building 654 north of Doyle Drive by intersection of Mason Street and Crissy Field Avenue; and
- Potential jurisdictional and NWI wetlands within drainage, and drainage southeast of southeast corner of Cemetery west of Infantry Terrace.

Residential neighborhoods:

- Potential jurisdictional wetland near Pop Hicks Field west of Quarry housing; and
- Potential jurisdictional and NWI wetlands south of Presidio Boulevard near Footbridge west of Presidio Terrace.

South Hills:

- Drainage and potential jurisdictional wetland east of Mountain Lake in Golf Course; and
- potential jurisdictional wetland east of West Washington neighborhood immediately west of Compton Road and north of Washington Boulevard.

Fort Scott:

- Potential jurisdictional wetlands north of Fort Scott, near Miller Road;
- Potential jurisdictional wetlands adjacent to Battery Howe-Wagner

As further details about site-specific activities affecting wetlands and stream corridors are developed, the Trust would undertake applicable compliance steps, including obtaining any necessary permits, under the Clean Water Act Section 401, 402, and 404 programs. These permits would require avoidance, to the greatest extent feasible, and compensation for most impacts on wetlands and streams. The Clean Water Act regulatory process requires compliance with federal “no net loss of wetlands” policies, and includes a public and agency review process and a Section 404 (b)(1) alternatives analysis that would in practice be likely to require avoidance of impacts on aquatic habitats or compensation for losses in extent and values. Best management practices would be implemented within and adjacent to these wetland areas, and other

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vestige wetland resources, to protect them and their associated habitats. These best management practices would be developed such that the management of the wetland habitats would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Future site-specific planning and environmental review, in conjunction with these BMPs and other requirements listed in this EIS, would be implemented to prevent potential negative effects.

The integrity of groundwater infiltration areas and aquifer systems, and surface and groundwater levels, and the rate and direction of surface and groundwater flow could also be directly affected by new development. Therefore, mitigation would be required to provide for the preservation and avoidance of all unique geologic and subsurface water features to the greatest extent feasible, and/or compensation for impacts on infiltration areas, aquifer systems, and geologic stratigraphy on the Presidio.

New construction could concentrate impervious surface area, increasing runoff volume and velocity, resulting in increased erosion. Future site-specific planning would ensure that all newly constructed impervious surfaces address and prevent, to the greatest extent feasible, increased water runoff volume and velocity, as well as reduced water infiltration.

Staging and storage areas could also disturb adjacent wetlands, streams and associated habitats. If fuels, chemicals or other liquids stored adjacent to wetlands or streams were to spill, they could contaminate water and soils. High intensity land uses (including recreational activities) adjacent to wetlands or stream drainages could result in indirect impacts, such as trampling from informal access by people and their pets. Visitor access would be guided under the Presidio Trails and Bikeways Plan to protect sensitive resources. Visitor numbers and uses would be monitored and measures taken to reduce visitor impacts on wetlands and drainages. Future site-specific planning would ensure that measures would be developed to prevent visitors from trampling vegetation and creating social trails in wetland habitat. In addition, protective buffer zones would be established between wetland and riparian habitats and project-related disturbances to prevent construction and construction-related activity encroachment into the habitat areas and reduce potential disturbances. Barriers and restrictions if necessary would also be

implemented to discourage inappropriate activities that could degrade wetlands and streams.

In conclusion, the demolition, construction and new land uses proposed under the No Action Alternative (GMPA 2000) could result in potential wetland degradation and disturbance. Through the mitigation measures required in this EIS, the effect of these activities and subsequent impacts would be minimized. Overall, the restoration of hydrologic processes and expansion of open space areas proposed under the No Action Alternative (GMPA 2000) would offset potential impacts providing a long-term beneficial effect on wetland resources.

Final Plan Alternative

Under the Final Plan Alternative, existing open space would be increased from 695 to 794 acres, which is the same amount of open space that would be realized under the No Action Alternative (GMPA 2000). Although the Final Plan proposes less demolition than the No Action Alternative (GMPA 2000), there would be an overall increase in new (replacement) construction and use levels. Therefore, there would be a higher potential for wetland impacts. As described for the No Action Alternative (GMPA 2000), all new construction would be limited to developed areas, and would be subject to the mitigation required in this EIS. Overall, the impacts of the Final Plan Alternative would be similar to the No Action Alternative, with the following exceptions.

Under the Final Plan Alternative, Nike Missile Site (above the Nike swale) would support institutional/residential uses. This area is proposed for native plant habitat restoration under the No Action Alternative (GMPA 2000). The southern area contains potential jurisdictional wetlands. The precise effect of the institutional/residential uses would depend on the type and extent of projects proposed. Development within the Nike Missile Site could affect the hydrology of this wetland system by potentially altering the infiltration to, and integrity of groundwater infiltration areas and aquifer systems. Based on its upland and more distant location, the Nike Missile Site would likely have minimal direct impact on the existing wetland. Use of best management practices and other standard drainage and vegetation protection measures would be required, and would help ensure the wetland system is not impacted.

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Natural Resources

Under the Final Plan Alternative, the Trust commits to the long-term ecological viability of Crissy Marsh. The Trust, in partnership with the NPS and Golden Gate National Parks Association has initiated the Crissy Marsh Expansion Technical Study to consider a broad array of options to achieve this.

Depending on its location, demolition, new (replacement) construction and increased use levels/activities in landscaped and existing developed areas could affect the same wetland and drainage features described under the No Action Alternative (GMPA 2000). Future site-specific area planning would strive for "no net loss" of wetland features, and include applicable compliance steps. Best management practices would be implemented to these wetland resources to protect them and their associated habitats. These best management practices would be developed such that the management of the wetland habitats would be consistent, to the greatest extent feasible, with the objectives set forth in the native plant community zone of the VMP. Future site-specific planning and environmental review, in conjunction with these BMPs and other requirements listed in this EIS, would be implemented to prevent potential negative effects. As described in the mitigation section, if avoidance of wetland features and hydrologic resources is infeasible, compensation would occur. Additionally the Trust is committed to developing further details, guidelines and policy consistent with wetland planning principles, as the Trust undertakes site specific planning.

The integrity of groundwater infiltration areas and aquifer systems, and surface and groundwater levels, and the rate and direction of surface and groundwater flow could be altered by new (replacement) construction. Future planning and environmental review processes would consider this on a site-specific basis and mitigation would be required to provide for the preservation and avoidance of unique geologic and subsurface water features to the greatest extent feasible, and/or compensation for impacts on infiltration areas, aquifer systems, and geologic stratigraphy on the Presidio.

Beneficial impacts would result from the enhancement of Mountain Lake and restoration of Dragonfly Creek and the three tributaries in Tennessee Hollow creek, and the demolition of housing, removal of impervious surfaces and the

reduction of below ground infrastructure in segments of the South Hills Planning District.

In conclusion, the Final Plan Alternative would have a similar wetland restoration benefits that would be realized under the No Action Alternative (GMPA 2000). The direct impacts associated with proposed demolition, construction and land use activities would be minimized through implementation of mitigation measures identified in this EIS. Future site-specific planning and environmental review would also be completed.

Final Plan Variant

Under the Final Plan Variant, existing open space would be increased from 695 to 819 acres, which represents an increase (25 acres) in open space greater than would be realized under the No Action Alternative (GMPA 2000). As with the No Action Alternative, the three tributaries and expanded riparian corridor of Tennessee Hollow would be restored, connecting to an expanded marsh at Crissy Field. The Final Plan Variant would also expand the lower reach of the Tennessee Hollow riparian corridor by approximately an additional 3 acres.

The Final Plan Variant proposes roughly 1.25 million sf of demolition, and no new (replacement) construction. The demolition could adversely affect wetland features if grading, staging, operations and/or landscaping were to occur in an area containing native plant communities or assemblages. In comparison to the No Action Alternative (GMPA 2000), this represents roughly 130,000 sf more demolition, and 170,000 sf less new construction. In addition, existing building space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase, similar to the No Action Alternative (GMPA 2000). Therefore, cumulatively this alternative could have a similar potential to disturb wetland resources as the No Action Alternative. The measures identified above for the No Action Alternative (GMPA 2000) would apply to this alternative and would minimize the potential loss or degradation of existing wetland features from direct and indirect/adjacent activities and disturbances. The impact on wetland resources within the developed areas, as described above for the No Action Alternative (GMPA 2000), would also be the similar for the Final Plan Variant.

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Water resources would benefit from the demolition of housing, and removal of impervious surfaces and infrastructure within the South Hills, the Fort Scott, the Letterman, the Main Post and the PSHH Planning Districts. Under the Final Plan Variant, an additional one-acre of native plant habitat would be restored north of Battery Sherwood, at the base of the western Crissy Field bluffs. This could provide the potential of increasing the remnant coastal scrub and fresh water wetland seep vegetation communities within this area.

Additionally, the width of the lower Tennessee Hollow corridor (directly south of Doyle Drive) would be increased by approximately 3 acres, and four Mason Street warehouses would be demolished to further increase potential habitat (about 2 acres) for an expanded Crissy Field marsh. These areas are proposed for mixed-use/office/residential and mixed-use/visitor: cultural focus respectively under the No Action Alternative (GMPA 2000).

The removal of an additional 3 acres of paved surfaces and buildings within the lower Tennessee Hollow reach would also potentially enhance creek restoration efforts with the Tennessee Hollow corridor. An increased riparian habitat buffer within the lower reach of Tennessee Hollow could reduce potential sedimentation and erosion, promote increased wetland function, increase wetland flora and fauna richness. Similarly, the removal of additional impervious surfaces associated with the Mason Street warehouses could increase restoration opportunities for ensuring the long-term ecological health of the Crissy Field Marsh.

The removal of approximately 5 acres paved surfaces within the northern Fort Scott Planning District could also increase freshwater wetland restoration efforts in this area. The precise effects of the above actions would depend on the type and extent of vegetation treatment and site specific wetland restoration proposed, as these areas are designated under the VMP as landscape vegetation, which would not preclude future site-specific wetland restoration. Increasing this open space could reduce potential edge effect pressures (e.g. from invasive non-native plant species and other urban pressures) by ensuring at least a 150-foot riparian corridor buffer throughout approximately 80 percent of the corridor. Other beneficial impacts, consistent with the No Action Alternative (GMPA 2000), would result from the enhancement of Mountain lake and restoration of Dragonfly Creek and the three tributaries in Tennessee Hollow creek, the expansion of the Crissy Field

Marsh, and the demolition of housing, removal of impervious surfaces and the reduction of below ground infrastructure in segments of the South Hills Planning District. Overall, the Final Plan Variant would have greater beneficial effect on wetlands than the No Action Alternative (GMPA 2000).

Resource Consolidation Alternative

Under the Resource Consolidation Alternative, the potential for direct and indirect impacts on wetlands would be similar to that of the No Action Alternative (GMPA 2000). Although there would be substantially more construction and demolition under this alternative, the mitigation measures presented in this EIS would minimize the impact of these activities, and there would not be a net increase in new construction. In addition, existing building space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase. Water resources would also benefit from the demolition of housing, and removal of impervious surfaces and infrastructure in the South Hills Planning District and within the PSHH Planning District. The removal of Quarry Road would also potentially increase the viability of the creek restoration efforts with the Tennessee Hollow corridor, increasing the width of the central Tennessee Hollow tributary riparian and upland corridor. The conversion of developed areas into open space within the central Tennessee Hollow corridor would enhance creek restoration efforts potentially reducing sedimentation and erosion, promoting increased wetland function, and increasing wetland flora and fauna richness. The removal of paved surfaces and buildings within the West Washington Housing Area could also increase freshwater wetland habitat directly west of Compton Road. The precise effects of the above actions would depend on the type and extent of vegetation treatment and site specific wetland restoration proposed, as these areas are designated under the VMP as landscape vegetation, which would not preclude future site-specific wetland restoration. Other beneficial impacts would result from the enhancement of Mountain lake and restoration of Dragonfly Creek and the three tributaries in Tennessee Hollow creek, the expansion of the Crissy Field Marsh, and the demolition of housing, removal of impervious surfaces and the reduction of below ground infrastructure in segments of the South Hills Planning District. Overall, the Resource Consolidation Alternative would have the greatest beneficial effect on wetlands.

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Sustainable Community Alternative

Direct and indirect impacts on wetlands resulting from this alternative would be similar to but slightly less than those of the Final Plan Alternative. Demolition activities would be slightly lower than the No Action Alternative (GMPA 2000), but substantially higher for new (replacement) construction. Impacts could include the increased potential for habitat fragmentation, increased use levels, and potential natural resource conflicts in specific areas. The site-specific impacts on wetlands, and protective mitigation measures under this alternative would also be similar to those described in the Final Plan Alternative. Implementation of these measures and best management practices would minimize these impacts. Future site-specific planning and environmental review would also be completed.

Cultural Destination Alternative

Under the Cultural Destination Alternative, the potential for impacts would be similar to that of the Final Plan Alternative but more intense as this alternative proposes the greatest amount of new (replacement) construction, and second greatest amount of demolition, and overall use levels. In addition, existing space would continue to be leased, so activities associated with rehabilitation, business operations, residential uses, and recreational facilities would continue to increase. The site-specific impacts on wetlands, and protective mitigation measures under this alternative would also be similar to those described in the Final Plan Alternative. As with all of the alternatives, wetlands could be disturbed by demolition, construction, recreation, special events and other activities occurring adjacent to wetland habitat. Although these activities would be more intense under this alternative, implementation of best management practices and measures identified in this EIS would reduce impacts on wetlands.

Minimum Management Alternative

Under this alternative, restoration efforts would be restricted to those that are already being conducted. Many of the provisions identified in the GMPA or PTMP would not be implemented. The only major wetland restoration project that would be undertaken would be the Mountain Lake Enhancement Plan. Native plant communities would continue to occupy 70 acres, and ecological

restoration efforts would focus on only protecting and maintaining the integrity of existing habitat.

There would not be any demolition or new construction, so the loss of wetlands or stream corridors to new development would not occur. However, known losses to wetland resources would occur in 140 acres of the VMP native plant community zone, where restoration efforts would not be completed, and within remnant wetland habitat within the landscaped and forested areas of the Presidio. Losses to rehabilitation efforts necessary to restore the natural hydrologic processes and function within hydrologic resources, including Dragonfly creek, the three tributaries of the Tennessee Hollow creek, the dune slack north of the PSH and other wetland systems, would not occur. Any expansion that would be required to ensure the health of the Crissy Field marsh would not occur. Thereby, if the marsh closes for a period of time, altering the marsh environment's salinity and water inundation footprint and tidal frequency, impacts to wildlife vegetation and species would occur. Additionally, water quality, temperature, the concentrations of suspended sediments and nutrients would all be influenced and could affect reproduction of aquatic organisms. Activity levels and associated indirect impacts could increase, because existing space would continue to be leased. These combined would result in an adverse impact.

WATER QUALITY IMPACTS

All Alternatives

Erosion and sedimentation, discharges of other pollutants, and urban runoff could degrade the quality of water in wetlands and streams, and waters of the bay and ocean. These actions could degrade wetlands, streams, and associated resources adjacent to or downstream from demolition, construction and operational areas (including coastal riparian and wetland habitats in Area A).

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) has the potential to create indirect downstream impacts from erosion, sedimentation, and discharges of other pollutants resulting from demolition, new (replacement) construction, and various Presidio operations. Erosion and associated downstream sediment

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discharges could occur because of vegetation and soil disturbance from construction or demolition, or from increases in storm water runoff resulting from increased areas of impermeable surfaces. Pollution could also result from contaminants such as oil or grease entering the storm drain system and discharging into streams and wetlands.

Federal and state National Pollutant Discharge Elimination System (NPDES) permit requirements would address non point-source storm water pollution issues and other potential water quality impacts discussed above. The Trust would implement municipal pollution prevention activities, such as street sweeping and new development controls designed to prevent and reduce storm water and other water resource contamination. Regular monitoring and maintenance of oil/water separators would be performed to treat all storm water before discharge into Crissy Marsh and San Francisco Bay.

In addition, pavement would be removed and replaced with permeable surfaces as much as possible and other measures would be implemented to increase groundwater quality. The Presidio Stormwater Management Plan requires use of Best Management Practices and other measures to ensure that water flowing to creeks, the bay, marshes and the ocean meets water quality standards. Existing water resources would be further protected through the implementation of water conservation programs and waste disposal programs.

Finally, removal of undesignated trails (many on eroding soils or currently causing erosion of cultural and natural resources), and implementation of guidelines for maintaining trails such that they reduce erosion as called for in the Presidio Trails and Bikeways Plan would reduce indirect impacts to water resources.

All Remaining Alternatives (Except Minimum Management)

The remaining alternatives (except Minimum Management) would have greater potential than the No Action Alternative (GMPA 2000) to create indirect downstream impacts from erosion, sedimentation, and discharges of pollutants due to the higher levels of demolition, and in all but the Final Plan Variant, higher levels of new (replacement) construction, and operations. Continued implementation of the Presidio Stormwater Master Plan and the Presidio Trails and Bikeways Plan, together with implementation of

mitigation measures identified in this EIS would reduce indirect water quality impacts of these alternatives.

Minimum Management Alternative

There would be no new construction or demolition under this alternative, so there would be no indirect downstream impacts from erosion, sedimentation, and discharges of other pollutants resulting from demolition, new construction, and operations of proposed projects. However, pollution could result from contaminants such as oil or grease entering the storm drain system and discharging into streams and wetlands as a result of current management practices. Best Management Practices would be required to ensure that water flowing into creeks, the bay, marshes, and the ocean meet water quality standards.

MITIGATION MEASURES

The following measures would apply to all alternatives.

Adapted from the GMPA EIS Measures

NR-13 *Wetlands/Compliance.* As further details about site-specific activities affecting wetlands and stream corridors are developed, the Trust would undertake applicable compliance steps, including obtaining any necessary permits, under the Clean Water Act Section 401, 402, and 404 programs.

NR-14 *Visitor Management.* To reduce potential visitor impacts on the wetlands, adjacent storm drainages, and other areas meeting wetland criteria, visitor numbers and uses would be monitored on a recurring basis, and measures would be taken to reduce impacts as necessary. Informational leaflets, wayside signs, and regulatory measures would be employed as warranted.

New Mitigation

NR-15 *Best Management Practices.* The Trust would develop and employ Best Management Practices including but not limited to:

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Natural Resources

- Maintaining appropriate erosion and siltation controls during construction, and permanently stabilizing all exposed soil or fill;
- Initiating water conservation programs and waste disposal programs for Trust operations as well as for residents and tenants, including education and monitoring.
- Ensuring that all newly constructed impervious surfaces prevent, to the greatest extent feasible, increased water runoff volume and velocity, reduced water quality and reduced water infiltration.
- Ensuring protection of normal movement, migration, reproduction, or health of aquatic fauna, including low flow conditions;
- Properly maintaining structures or fill so as to avoid adverse impacts to aquatic environments and public safety;
- Placing excavated fill on non-sensitive upland sites, and stabilizing all material with compatible erosion control techniques; and
- Monitoring storm drain run-off into Crissy Field Marsh and implementing measures to reduce any high levels of organics, sedimentation and contaminants.

NR-16 *Future Design*. During the future site-specific planning and environmental review processes, projects would be designed to preserve and avoid unique geologic, subsurface and surface water features, such as semi and confined aquifer systems, during construction, and demolition activities to the greatest extent feasible. Future projects would also be designed or otherwise conditioned to achieve the following: prevent interference with groundwater recharge such that there is no net deficit in aquifer volume or a lowering of, or obstruction to the groundwater table; and prevent alterations in drainage patterns, currents or course of direction of water movements.

NR-17 *Demolition and Construction Activities*. During future site-specific planning and environmental review, proposed demolition, new (replacement) construction and intensive human activities would be sited at least 100 feet (or greater distance if deemed necessary to avoid indirect effects) from the edge of existing wetlands, seeps, riparian vegetation or from the top of bank of unvegetated stream channels where feasible. If this is not feasible, the following measures shall be used:

- install fencing or other barriers adjacent to affected wetlands, streams and associated habitats to prevent inadvertent human, pet or equipment access in wetland systems. Other barriers could include the planting of dense native vegetations;
- regularly inspect the affected areas to enforce compliance; and/or
- provide signage and/or other educational devices to encourage voluntary compliance.

NR-18 *Compensation*. If it is not feasible to avoid losses to wetland or associated groundwater resources, the Trust would compensate for lost extent and value by implementing a compensatory mitigation program with quantifiable performance criteria and monitoring to document success. Corrective actions would be implemented if restoration success is not demonstrated through an adaptive management approach until all performance criteria are attained.

NR-19 *Future Design*. During the planning process, projects would be designed to prevent alterations to drainage patterns or water movement, in a manner that would result in erosion or siltation on or off site; prevent substantial runoff water which could exceed the capacity of either existing or planned storm water drainage systems, or the infiltration rates of surrounding soils; and prevent additional sources of polluted runoff. (Also see Storm Drainage mitigation at the end of Section 4.6.3.)

4.3.3 VISUAL RESOURCES

METHODOLOGY

For this EIS analysis, the description of each alternative was reviewed to determine the extent to which changes in Trust Management Plan (PTMP) could affect visual resources in the Presidio. The GMPA EIS was reviewed to determine if there are applicable mitigations that could be carried forward into the PTMP alternatives. Although no mitigation measures were identified specifically to address impacts to visual resources in the GMPA, measures designed to reduce impacts on the NHLD, including guidelines for new construction and treatment of the Presidio's cultural landscape, and for the protection of native plant communities, including historic forest restoration

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and non-historic forest removal, would serve to protect and enhance visual resources (see pages 28 through 30 of the GMPA EIS).

As part of the adopted Presidio Vegetation Management Plan (VMP) scenic vistas would be improved, and the extent to which each of the alternatives would implement this portion of the VMP is analyzed. Elements of each alternative were also evaluated to determine the extent to which they would lessen impacts on visual resources.

POTENTIAL IMPACTS

CHANGE IN VISUAL CHARACTER

No Action Alternative (GMPA 2000)

Under the No Action Alternative (GMPA 2000), cultural and natural resources throughout the Presidio would be protected and enhanced, historic buildings that contribute to the Presidio's status as a National Historic Landmark would be rehabilitated for new uses, some non-historic buildings would be demolished to enhance open space, native plant communities and riparian corridors would be restored, wetlands expanded (i.e., Crissy Field Marsh) and the historic forest would be rehabilitated and preserved as part of the cultural landscape. A number of structures would be removed to increase open space and enhance the natural environment, including Wherry housing, MacArthur housing, the PX and Commissary, and wings of the PHSH. The Main Post parade ground would be restored, Mountain Lake would be enhanced, and vegetation resources would be protected and enhanced as identified in the VMP.

The removal of approximately 1.12 million sf of existing structures would have a positive effect on the visual quality of the Presidio by opening historic view corridors and, because the majority of the buildings that would be removed are not considered historic (e.g., Wherry housing), their demolition would not be considered a negative effect. That is, they would not be buildings that contribute substantially to the visual character of the Presidio's built environment, which is largely tied to its historic character. Areas where buildings would be removed (and not replaced with new structures) would generally be used to reestablish native plant communities, which would

enhance the natural character of these areas. In particular, the removal of Wherry housing to increase open space and restore critical habitat would open historic view corridors to and from the Presidio.

Further, the No Action Alternative (GMPA 2000) would implement the VMP, which includes forest management and removal components that would open historic view corridors from important viewpoints throughout the Presidio, including Inspiration Point, Washington Boulevard near Rob Hill, Lincoln Boulevard overlooking Crissy Field, coastal defense batteries, and the Golden Gate Bridge viewing area. Also as part of the VMP, non-native vegetation would be removed or modified to retain historic visual connections, such as between Infantry Terrace and the Main Post.

New construction would be limited, but, where allowed, it would be compatible with the historic setting through elements of massing, scale, materials, style, and color, in accordance with the Secretary of Interior's Standards for the Treatment of Historic Properties. This would ensure that the historic character of the Presidio is not changed.

Under this alternative, important characteristics of the historic forest, such as framed views, windbreaks, and visual screens, would be restored or maintained. Historic vistas, such as those from Inspiration Point and Rob Hill, would be restored, protected, and maintained, and would offer improved visual access to the Golden Gate and the San Francisco Bay. New building heights would not exceed that of existing adjacent buildings or key landscape features, such as bluffs and forests. This would ensure that key views are not blocked, such as those near Crissy Field. Furthermore, efforts would continue to enhance views (such as views to nearby landmarks such as the Golden Gate Bridge, Marin Headlands, Angel Island, Alcatraz, the Palace of Fine Arts, and the city skyline), to restore historic visual connections, and to provide screening from elements that disrupt historic associations. These efforts would result in a positive effect by improving existing and restoring historic views.

This alternative has the potential to increase light or glare in the Presidio, which would affect the character of the Presidio and day and nighttime views. To prevent the loss of dark conditions and of natural night skies, the Presidio would seek the cooperation of residents and tenants to prevent or minimize the

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intrusion of artificial light. The Trust restricts the use of artificial lighting to those areas where security, basic human safety, and specific cultural resource requirements must be met. Where artificial lighting is required, minimal impact lighting techniques and shielding of artificial lighting would be used where necessary to prevent the disruption of the night sky, natural cave processes, physiological processes of living organisms, and similar natural processes.

Final Plan Alternative

This alternative would reduce existing built space but would allow more development than would occur under the No Action Alternative (GMPA 2000). New built space beyond that considered in the No Action Alternative (GMPA 2000) could include infill in the Letterman Planning District and within the Fort Scott Planning District. Replacement construction for buildings that are demolished would be designed and limited to ensure that the association, feeling, and setting of the remaining elements of the historic cultural landscape would not be severed or impaired. Historic visual connections would be restored under this alternative and screening from elements that disrupt historic associations would be provided.

Like the No Action Alternative (GMPA 2000), there is potential for restoring historic views and creating positive visual changes with the removal of existing structures. In particular, the removal of Wherry housing to increase open space and restore critical habitat would open historic view corridors to and from the Presidio. Although there would be more new construction under this alternative all construction would be required to conform with the PTMP Planning Principles and District Guidelines which ensure that key views are not blocked, and the existing character is protected. Scenic views would be restored, maintained, and enhanced. Cultural resource mitigation measures further would ensure that development would be compatible with the character of existing historic structures in the Presidio and that the visual character of the Presidio would not be substantially altered.

Like the No Action Alternative (GMPA 2000), new construction under this alternative could introduce new light into the Presidio that could affect the character of the Presidio or day or nighttime views. Various controls

including requirements to shield light fixtures and restrictions on use of mercury lights would minimize potential adverse effects.

Final Plan Variant

The Final Plan Variant would result in less built space than either the No Action (GMPA 2000) and Final Plan Alternatives, and proposes no new construction, and greater building demolition. Under the Variant, the Presidio would minimize development, re-use historic buildings, adapt non-historic buildings to high priority uses, and expand open space.

Similar to the No Action Alternative (GMPA 2000), building removal would include the Wherry housing, the PX and Commissary to allow an expanded Crissy Field Marsh in Area B. The Final Plan Variant would also include additional demolition (i.e., East and West Washington apartments and historic warehouses along Crissy Field) to allow for enhanced native plant habitat restoration and expanded open space. With this demolition there is potential for restoring views and creating positive visual changes. The Final Plan Variant would have a beneficial effect on views by increasing open space in the south (e.g. Wherry housing site) as well as with the increase of the Crissy Field Marsh. Like the No Action Alternative (GMPA 2000), restoration of the Main Post parade ground, would result in a positive change to the visual character of the Main Post. The visual character of the Presidio would not be substantially altered. Scenic views would be restored, maintained, and enhanced. There would be no new sources of light or glare associated because there would be no new construction. Effects of light and glare would not change, or may decrease compared to existing conditions due to the reduction in developed uses.

Resource Consolidation Alternative

Under the Resource Consolidation Alternative, the Presidio would substantially increase open space in the south and focus the built environment in the northern portion of the Presidio, including new infill construction for mixed use and housing. Buildings would be rehabilitated for new uses, and the primary goal would be the reuse of existing structures along with compatible new construction. This alternative would include more building

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space than the No Action Alternative (GMPA 2000), but the overall square footage would be reduced compared to the existing conditions.

Similar to the No Action Alternative (GMPA 2000), building removal would include the Wherry housing, the PX and the Commissary to allow an expanded Crissy Field Marsh in Area B (subject to additional studies and environmental review) after removal of the PX and Commissary. This alternative would also include demolition in addition to that in the No Action Alternative (GMPA 2000), including removal of the entire PSHS, East and West Washington apartments, and selected demolition along Crissy Field to allow for native plant habitat and open space restoration. In the areas where significant demolition takes place, this alternative would convert some of the roads to trails and pathways. This alternative, like the No Action Alternative (GMPA 2000), also includes restoration of the Main Post parade ground, which would result in a positive change to the visual character of the Main Post.

A potentially negative effect of this alternative would be the increased amount of new construction when compared to the No Action Alternative (GMPA 2000), however, new building heights would not exceed that of existing adjacent buildings or key landscape features, so new construction would not block key views. This alternative also provides for the restoration, maintenance, and enhancement of views. Furthermore, implementation of cultural resource mitigation measures described in Section 4.2 would ensure that development would be compatible with the character of existing historic structures in the Presidio, and that the visual character of the Presidio would not be substantially altered.

Like the No Action Alternative (GMPA 2000), development under this alternative could introduce new light into the Presidio that could affect the character of the Presidio or day or nighttime views. At the same time, because it would increase open space, which would not have extensive lighting, some portions of the Presidio would be darker than under current conditions. New lighting fixtures would be shielded and use of mercury lights would be prohibited to ensure that adjacent properties, including residential and natural areas, are not adversely affected by new lighting.

Sustainable Community Alternative

This alternative would allow more building square footage than the No Action Alternative (GMPA 2000). Wherry housing would be removed under this alternative to enhance native plant habitat. New construction under this alternative would be sited and designed to protect the character and integrity of the NHLD, and would be limited to the replacement of existing structures of similar size in existing areas of development, as provided by the Trust Act. This alternative would also consider, through future site planning studies and environmental analysis, the feasibility and scope of expanding the Crissy Field Marsh into Area B.

Like the No Action Alternative (GMPA 2000), there is potential for restoring historic views and creating positive visual changes with the removal of existing structures. In particular, the removal of Wherry housing to increase open space and restore critical habitat would open historic view corridors to and from the Presidio. However, new building heights would not block key views, and would be compatible with existing historic development. Further, scenic views would be restored, maintained, and enhanced. Also, under this alternative, implementation of the mitigation measures described under the Cultural Resources section would ensure that development would be compatible with the character of existing historic structures in the Presidio, and that the visual character of the Presidio would not be substantially altered.

Like the No Action Alternative (GMPA 2000), development under this alternative could introduce new light into the Presidio that could affect the character of the Presidio or day or nighttime views. New lighting fixtures would be shielded and use of mercury lights would be prohibited to ensure that adjacent properties, including residential and natural areas, are not adversely affected.

Cultural Destination Alternative

Under this alternative, open space, historic forest areas, and recreational opportunities would be expanded. The historic character and integrity of the NHLD would be protected while allowing changes that would maintain the park's vitality.

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This alternative would allow more new (replacement) construction than the No Action Alternative (GMPA 2000). Like the No Action Alternative (GMPA 2000), Wherry housing would be removed under this alternative to enhance native plant habitat. Also under this alternative, new construction would be sited and designed to protect the character and integrity of the NHLD, and would be limited to the replacement of existing structures of similar size in existing areas of development, as provided by the Trust Act. This alternative differs from the No Action Alternative (GMPA 2000) in that housing in the South Hills Planning District would be removed to provide an additional 14 acres of landscaped area and 1 acre of native vegetation. This alternative would also include demolition beyond that in the No Action Alternative (GMPA 2000) in Fort Scott and the Main Post Planning Districts. Also under consideration for this alternative would be the feasibility and scope of expanding the Crissy Field Marsh into Area B, through future site planning studies and environmental analysis.

This alternative would have beneficial effects similar to the No Action Alternative (GMPA 2000) related to the removal of Wherry housing and the restoration of views from that area, as well as the restoration of the main parade ground. This alternative would also limit construction to the replacement of existing structures of similar size in already developed areas and ensure that new construction is sited and designed to protect the character and integrity of the NHLD. Landscaping or native plant restoration at these sites would provide additional open space in the South Hills Planning District, which would be a positive visual amenity.

A potentially negative visual effect of this alternative would be the increased amount of new construction when compared to the No Action Alternative (GMPA 2000), however, new building heights would not exceed those of existing adjacent buildings or key landscape features, which would ensure that new construction would not block key views. Also, this alternative would provide for the restoration, maintenance, and enhancement of views. Furthermore, implementation of the cultural resources mitigation measures described in Section 4.2 would ensure that development would be compatible with the character of existing historic structures in the Presidio and that the visual character of the Presidio would not be substantially altered.

Like the No Action Alternative (GMPA 2000), new construction under this alternative could introduce new light into the Presidio, which could affect the character of the Presidio or day or nighttime views. Because development intensity would be shifted to the northern portion of the Presidio, the increase in light would be more noticeable in the north, and there would be a corresponding reduction in light intensity in the south. New lighting fixtures would be shielded and use of mercury lights would be prohibited to ensure that adjacent areas are not adversely affected.

Minimum Management Alternative

Under the Minimum Management Alternative there would be no significant physical changes from existing conditions and no significant park enhancements would occur. Existing buildings would be rehabilitated and no new construction would occur. Therefore, there would be no potential for building design to be incompatible with the existing visual character of the Presidio. There would also be no demolition and therefore no reduction in built space and open space expansion as would occur under the No Action Alternative (GMPA 2000).

While the Minimum Management Alternative would not result in any changes to the Presidio that would change its character or result in the loss of historic views, neither would it result in the beneficial effects on views that would occur under the No Action Alternative (GMPA 2000). For example, Wherry housing would remain and the potential for the opening of historic views would be lost under this alternative. Only ecological restoration efforts that are currently underway would continue; historic and non-historic forest would be preserved and maintained in its present configuration. Restoration would not expand into new areas as identified in the VMP and native plant communities would not be expanded beyond the 70 acres currently occupied. Some historic views have been blocked by forests that have naturalized outside of historic forest boundaries. Without the ability to replace these naturalized forests with lower-growing, native species, the opportunity to restore these historic views would be lost.

There would be no new sources of light or glare and there would be no reduction in current lighting. Effects of light and glare would not change from existing conditions under this alternative.

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MITIGATION MEASURES

Adapted from the GMPA EIS Measures

The GMPA EIS does not include mitigation specific to visual resource impacts.

New Mitigation

Mitigation measures identified elsewhere in this document (specifically CR-5 through CR-6 and NR-1 and NR-7) would reduce visual resource impacts.

4.3.4 AIR QUALITY

METHODOLOGY

General Construction/Demolition Activities

Demolition and construction activities require use of heavy equipment, which would create fugitive dust particulate matter (PM₁₀ including PM_{2.5}), and emissions of other pollutants, such as nitrogen oxides (NO_x) carbon monoxide (CO), sulfur dioxide (SO₂), and reactive organic gases (ROG) from diesel fuel combustion. Construction emissions for individual projects would be intermittent and temporary and would occur on varying schedules and at varying levels of intensity; however, they could still cause adverse effects on local air quality.

The Bay Area Air Quality Management District (BAAQMD) has developed an analytical approach that obviates the need to quantitatively estimate these emissions (BAAQMD 1999). The BAAQMD recommends that a standard set of feasible PM₁₀ control measures be implemented for all construction activities. Because the BAAQMD has not designated PM_{2.5} management strategies, there are no specific recommendations for PM_{2.5}. Emissions of other contaminants (NO_x, CO, SO₂, and ROG) that would occur in the exhaust from heavy equipment are included in the regionwide inventory that is the basis for regional attainment and are not expected to impede attainment of maintenance of the ambient air quality standards. Demolition, renovation, or removal of asbestos containing building materials is subject to BAAQMD

Regulation 11, Rule 2. Through environmental review, permit compliance, and contracting processes, the Presidio Trust ensures that activities within its jurisdiction comply with such air quality rules. The BAAQMD recommended measures for dust control are shown in Table 35.

Consistency with Regional Clean Air Plans

The BAAQMD recommends use of specific criteria and methodologies for evaluating air quality impacts from implementation of plans (BAAQMD 1999). Conformity with the federally-mandated SIP is discussed in Chapter 5, Consultation and Coordination. The alternatives are evaluated for consistency with regional air quality plans and policies, specifically the 2000 Clean Air Plan (CAP), adopted December 20, 2000 (BAAQMD 2000). The consistency determination depends upon population growth, implementation of transportation control strategies, and planning for land use conflicts caused by sources of toxic air contaminants or odors. Quantification of future air pollutant emissions is not necessary to complete this analysis.

The CAP relies upon regionwide population growth projections to assess the emission inventory associated with regionwide transportation and energy demand, and is updated every 3 years. The basis for the population projections of the 2000 CAP is *Projections '98*, published by the Association of Bay Area Governments (ABAG). For the Presidio, *Projections '98* includes the housing and employment projections of the 1994 GMPA. Because population-based emissions from transportation and energy demand would vary proportionally with the housing and employment opportunities at the Presidio, any alternative providing housing or employment growth greater than that specified by the 1994 GMPA may be inconsistent with the assumptions used in the current 2000 CAP.

The CAP also relies upon implementation of transportation control measures (TCMs) by local jurisdictions. Although the Presidio is federally-managed land, to satisfy the general objectives of the GMPA in an environmentally responsible manner, the Trust has developed and is implementing TCMs to reduce air emissions from Presidio-related activities. The extent that each alternative would implement TCMs is reviewed. The CAP aims to minimize conflicts between land uses by prescribing adequate buffer zones to avoid

Table 35: Feasible Control Measures for Construction Emissions of PM₁₀

Fugitive Dust Control	The following controls should be implemented at all construction sites.
Basic Control Measures (all construction sites)	Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least two feet of freeboard. Water all active construction areas at least twice daily. Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas. Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. All "Basic" control measures listed above.
Enhanced Control Measures (sites greater than 4 acres)	Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.) Limit traffic speeds on unpaved roads to 15 mph. Install sandbags or other erosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible.
Optional Control Measures (sites near sensitive receptors)	Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. Limit the area subject to excavation, grading and other construction activity at any one time.

Source: BAAQMD 1996.

impacts related to toxic air contaminants or odors. Uses that would be sensitive to odors or toxic air contaminants would include residences, lodging uses, and childcare facilities. The extent that each alternative would provide appropriate separation between sensitive uses and potential producers of odors or toxic air contaminants is reviewed.

Potential Localized CO Violations

Motor vehicle use causes emissions of carbon monoxide. These emissions can, under certain circumstances, build up near congested intersections where numerous vehicles idle and cause violations of the ambient air quality standards. In the San Francisco Bay Area Air Basin, CO levels have, in the past, caused violations. However, CO concentrations in the San Francisco Bay Area have not violated the standards since 1991, and the region is no longer classified as a nonattainment area for this pollutant. Provided that future localized CO concentrations do not exceed the standards, the regionwide effects of carbon monoxide emissions do not require analysis.

Analysis of future localized CO concentrations depends upon alternative-specific vehicle activity at intersections provided by the transportation analysis for this EIS. The Caltrans-approved dispersion model, CALINE4, is used with guidance from the BAAQMD (BAAQMD 1999) to estimate localized CO concentrations near heavily congested intersections. Intersections operating at level of service (LOS) D or better are not normally expected to cause substantial CO buildup, because at these less congested intersections, the pollutant is better able to dissipate. At intersections operating at LOS E or F, carbon monoxide buildup is more likely, yet still uncommon. Detailed analysis is presented for select locations where project traffic (if more than an additional 100 vehicles per hour) would cause LOS to decline to D, E, or F. Poor future level of service or a substantial deterioration in performance induced by the alternatives are the considerations for selecting intersections.

Due to heavy highway traffic, potential violations in the year 2010 have been identified for certain locations in close proximity to either U. S. Highway 101 or U. S. Highway 1. Violations were predicted in the GMPA EIS at roadside

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locations along U. S. Highway 101 near the U. S. Highway 1 interchange and at the Golden Gate Bridge Toll Plaza, in Area A. No violations were projected for intersections internal to the Presidio Area B or in the surrounding neighborhoods. Because some of the alternatives would substantially affect future performance of intersections within the Presidio and the adjacent neighborhoods, the future localized CO concentrations could change. Table 36 shows the results of the analysis for localized CO concentrations.

Regional Emissions

Motor vehicle trips and stationary sources associated with development under the alternatives cause emissions of criteria pollutants ROG, NO_x, CO, and PM₁₀. Regional emissions caused by project-related traffic are estimated for each alternative using the BURDEN component of EMFAC2000, developed by the California Air Resources Board (CARB). The total vehicular emissions anticipated to occur in 2020 for the San Francisco subregion of the Bay Area are used as the basis for projecting the level of emissions that would be caused by each alternative, depending on the number of new vehicle trips related to the alternative. This takes into account the full range of vehicle trip types (e.g., home-work, home-commercial) and vehicle fleet composition (e.g., autos, buses, heavy trucks).

In the GMPA EIS, the total emissions of ROG, NO_x, and PM₁₀ due to mobile sources were found to be significant. Emissions related to the new vehicle trips generated by each of the alternatives are quantified in Table 37.

Each alternative would also result in emissions from the use of electricity and natural gas consumption. Future stationary and area sources that could be associated with the proposed uses in some alternatives would, in general, be minor and would not be likely to cause substantial emissions (examples of these sources would be heating facilities for housing, office, visitor services, and cultural/educational uses). These emissions would be a fraction of the emissions caused by project-related traffic. New stationary sources that might have more substantial emissions (e.g., independent power production facilities) would be subject to permitting requirements. Indirect emissions associated with electricity generation could also occur at plants that are outside of the San Francisco Bay Area Air Basin.

POTENTIAL IMPACTS

GENERAL CONSTRUCTION/DEMOLITION ACTIVITIES

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would result in approximately 1.12 million sf of demolished building space and 170,000 sf of replacement construction. Ongoing rehabilitation (with this alternative and all other alternatives) could also cause limited emissions, possibly requiring control. Mitigation measures calling for implementation of BAAQMD recommendations (Table 35) for construction and other ground disturbing activities and managing demolition activities would reduce this impact.

Final Plan Alternative

Moderate levels of demolition [approximately 1.07 million sf, or 95% of the No Action Alternative (GMPA 2000)] and a minimum level of new construction (approximately 710,000 sf, or about four times the amount of replacement construction that would occur under the No Action Alternative) would occur under this alternative over the life of the plan. This would be similar to, but more extensive, than activities that would occur under the No Action Alternative (GMPA 2000). Mitigation measures calling for implementation of BAAQMD recommendations would reduce this impact.

Final Plan Variant

Moderate levels of demolition [approximately 1.25 million sf, or 112% of the No Action Alternative (GMPA 2000)] and no new construction would occur under this alternative over the life of the plan. As a result, emissions generated by the Variant would be principally associated with proposed demolition and to a lesser extent building rehabilitation activities. Mitigation measures calling for implementation of BAAQMD recommendations would reduce this impact.

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Table 36: Predicted Localized CO Concentrations at Congested Intersections (ppm)

	No Action (GMPA 2000)	Final Plan	Final Plan Variant	Resource Consolidation	Sustainable Community	Cultural Destination	Minimum Management
1-Hour Average (ppm)							
Letterman/Presidio/Lincoln	4.0	4.2	4.1	4.2	4.2	4.2	4.2
Lombard/Presidio	4.2	4.3	4.2	4.3	4.4	4.3	4.4
Presidio/Pacific	4.2	4.2	4.2	4.2	4.3	4.2	4.2
Lyon/Lombard	4.0	4.1	4.0	4.1	4.1	4.1	4.1
14 th /Lake	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lincoln/25 th /El Camino del Mar	4.1	4.2	4.2	4.3	4.4	4.2	4.3
Lincoln/Merchant	4.1	4.1	4.1	4.2	4.2	4.1	4.1
Park Presidio/Lake	5.4	5.4	5.4	5.4	5.4	5.4	5.4
25 th /California	4.1	4.2	4.2	4.2	4.3	4.2	4.3
8-Hour Average (ppm)							
Letterman/Presidio/Lincoln	2.6	2.6	2.6	2.7	2.7	2.7	2.7
Lombard/Presidio	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Presidio/Pacific	2.6	2.7	2.6	2.7	2.7	2.7	2.7
Lyon/Lombard	2.6	2.6	2.6	2.6	2.6	2.6	2.7
14 th /Lake	2.5	2.6	2.5	2.5	2.6	2.6	2.6
Lincoln/25 th /El Camino del Mar	2.7	2.7	2.7	2.7	2.8	2.7	2.7
Lincoln/Merchant	2.6	2.6	2.6	2.7	2.7	2.6	2.6
Park Presidio/Lake	3.3	3.3	3.3	3.3	3.3	3.3	3.3
25 th /California	2.7	2.7	2.7	2.7	2.7	2.7	2.7

Source: EIP Associates, 2001.

Notes:

The California ambient air quality standards are 20 ppm (1-hr) and 9 ppm (8-hr). The national standards are 35 ppm (1-hr) and 9 ppm (8-hr). Concentration are based on CALINE4 output which are adjusted with future anticipated background CO concentrations of 3.5 ppm (1-hr) and 2.3 ppm (8-hr).

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Table 37: Estimated Average Weekday Emissions from Vehicle Trips

Pollutant	GMPA 2000 (lb/day)	Final Plan (lb/day)	Final Plan Variant	Resource Consolidation (lb/day)	Sustainable Community (lb/day)	Cultural Destination (lb/day)	Minimum Management (lb/day)
Average Weekday Vehicle Trips	33,822	44,407	36,451	44,204	50,331	47,999	49,519
Reactive Organic Gases (ROG)	175	230	189	229	260	248	256
Nitrogen Oxides (NO _x)	339	445	365	443	505	481	497
Carbon Monoxide (CO)	1,063	1,396	1,146	1,389	1,582	1,508	1,556
Particulate Matter (PM ₁₀)	16	21	17	20	23	22	23
Compared to GMPA 2000							
Net New Average							
Weekday Vehicle Trips	0	10,585	2,629	10,382	16,509	14,177	15,697
Reactive Organic Gases (ROG)	0	55	14	54	85	73	81
Nitrogen Oxides (NO _x)	0	106	26	104	166	142	157
Carbon Monoxide (CO)	0	333	83	326	519	446	493
Particulate Matter (PM ₁₀)	0	5	1	5	8	7	7

Source: EIP Associates, 2001

Notes:

Emission estimates based on use of the CARB EMFAC2000 model for the San Francisco Subregion.

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Resource Consolidation Alternative

A maximum level of demolition [approximately 1.91 million sf, or 170% of the No Action Alternative (GMPA 2000)] and moderate levels of new construction (approximately 1.25 million sf, or roughly seven times the amount of replacement construction that would occur under the No Action Alternative) would occur under this alternative over the life of the plan. This would be more intense than similar activities under the No Action Alternative (GMPA 2000). Mitigation would reduce this impact through implementation of BAAQMD recommendations.

Sustainable Community Alternative

A minimum level of demolition [approximately 890,000 sf, or 80% of the No Action Alternative (GMPA 2000)] and a minimum level of new construction [approximately 620,000 sf, or 3.6 times the amount of replacement construction that would occur under No Action Alternative (GMPA 2000)] would occur under this alternative over the life of the plan. This would be similar to the No Action Alternative (GMPA 2000). As with other alternatives, BAAQMD recommendations would reduce this impact.

Cultural Destination Alternative

Moderate levels of demolition [approximately 1.37 million sf, or 120% of the No Action Alternative (GMPA 2000)] and moderate levels of new construction (approximately 1.37 million sf, or eight times the amount of replacement construction that would occur under No Action Alternative) would occur under this alternative over the life of the plan. This level of activity would be more intense than under the No Action Alternative (GMPA 2000). BAAQMD recommendations would reduce this impact.

Minimum Management Alternative

No demolition or new construction would be associated with this alternative. Rehabilitation would cause only limited emissions.

CONSISTENCY WITH REGIONAL CLEAN AIR PLANS

No Action Alternative (GMPA 2000)

The 2000 CAP accounts for the adopted GMPA, which projected about 2,000 residents and 4,800 new jobs at the Presidio by 2010 (pages 160 and 167 of EIS in GMPA). (Note that the alternatives analysis in this EIS are for the year 2020). Should housing and employment growth occurring under the No Action Alternative (GMPA 2000) outpace the GMPA, emissions from regionwide transportation and energy demand would exceed those already considered in the CAP. Some facilities would be demolished under this alternative that would not be replaced. As a result, buildout of the No Action Alternative (GMPA 2000) would provide for about 1,660 residents and 6,460 employees. Because job growth could outpace the projections in the adopted GMPA, the emissions attributable to growth at the Presidio could be inconsistent with those assumed in the 2000 CAP. Consequently, attainment of the ambient air quality standards in the region may be delayed. However, future CAP revisions (anticipated to occur in 2003) would incorporate the growth anticipated under this alternative.

Along with the above growth analysis, the CAP relies on jurisdictions implementing certain transportation demand and land use management measures. The Presidio Trust Transportation Demand Management Program would implement the TCMs of the CAP. In addition the PTMP would coordinate land uses to provide buffer zones and avoid conflicts from toxic contaminants or odors. Therefore, these aspects of the alternative would be consistent with the CAP.

Final Plan Alternative

Housing and employment growth under this alternative (about 3,770 residents and 6,890 employees) could induce emissions from transportation and energy demand that would be inconsistent with the assumptions of the CAP. Similar to the No Action Alternative (GMPA 2000), future CAP revisions (anticipated to occur in 2003) would incorporate the long-term growth anticipated to occur through 2020 under this alternative. Also similar to the No Action Alternative (GMPA 2000), this alternative would coordinate land uses to avoid conflicts

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due to odors and toxic air contaminants and would implement TCMs contained in the CAP.

Final Plan Variant

Housing and employment growth related to this alternative (about 2,630 residents and 6,630 employees) could induce emissions that would be inconsistent with the assumptions of the CAP. However, future CAP revisions (anticipated to occur in 2003) would incorporate the growth anticipated to occur through 2020 under this alternative. In addition, this alternative would coordinate land uses to avoid conflicts due to odors and toxic air contaminants and would implement TCMs contained in the CAP.

Resource Consolidation Alternative

Housing and employment growth related to this alternative (about 2,230 residents and 8,480 employees) could induce emissions that would be inconsistent with the assumptions of the CAP. However, future CAP revisions (anticipated to occur in 2003) would incorporate the growth anticipated to occur through 2020 under this alternative. In addition, this alternative would coordinate land uses to avoid conflicts due to odors and toxic air contaminants and would implement TCMs contained in the CAP.

Sustainable Community Alternative

Housing and employment growth related to this alternative (about 3,330 residents and 7,520 employees) could induce emissions that would be inconsistent with the assumptions of the CAP. However, future CAP revisions (anticipated to occur in 2003) would incorporate the growth anticipated to occur through 2020 under this alternative. In addition, this alternative would coordinate land uses to avoid conflicts due to odors and toxic air contaminants and would implement TCMs contained in the CAP.

Cultural Destination Alternative

Housing and employment growth under the Cultural Destination Alternative (about 3,990 residents and 7,840 employees) could induce emissions that would be inconsistent with those assumed in the CAP. However, future CAP

revisions (anticipated to occur in 2003) would incorporate the growth anticipated to occur through 2020 under this alternative. In addition, this alternative would coordinate land uses to avoid conflicts due to odors and toxic air contaminants and would implement TCMs contained in the CAP.

Minimum Management Alternative

Housing and employment growth under the Minimum Management Alternative (about 3,600 residents and 7,820 employees) could induce emissions that would be inconsistent with the assumptions of the CAP. As with the No Action Alternative (GMPA 2000) future CAP revisions (anticipated to occur in 2003) would incorporate the growth anticipated to occur through 2020 under this alternative.

POTENTIAL LOCALIZED CO VIOLATIONS

No Action Alternative (GMPA 2000)

As shown in Table 36, future CO concentrations under this alternative would range up to 5.4 parts per million (ppm) for the 1-hour average and 3.3 ppm for the 8-hour average where Presidio traffic connects with traffic on the regional highway system. At all locations, future CO concentrations do not exceed the ambient air quality standards. Under this alternative, the Trust Transportation Demand Management (TDM) program would further reduce CO emissions.

All Remaining Alternatives

Please refer to the discussion under the No Action Alternative (GMPA 2000) and Table 36.

REGIONAL EMISSIONS

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would generate approximately 33,800 internal and external daily vehicle trips in 2020. At that time, these trips would cause about 175 lbs/day of ROG and 339 lbs/day of NO_x. TCMs would be implemented by the Trust through the TDM program to reduce the

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number and length of vehicle trips. The effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP as described above.

Final Plan Alternative

The Final Plan Alternative would generate up to 44,400 daily vehicle trips, about 10,600 trips more than the No Action Alternative (GMPA 2000). The increased emissions of NO_x and ROG from motor vehicle trips would be substantially above levels that would occur with the No Action Alternative (GMPA 2000) (106 lbs/day more of NO_x and 55 lbs/day of ROG). As with the No Action Alternative (GMPA 2000), TCMs in the TDM program would reduce trips, and the effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP.

Final Plan Variant

The Final Plan Variant would generate up to 36,500 daily vehicle trips, about 2,600 more trips than the No Action Alternative (GMPA 2000). The increased motor vehicle trips would not substantially increase regional emissions of ROG or NO_x above those that would occur with the No Action Alternative (GMPA 2000). As with the No Action Alternative, TCMs in the TDM program would be implemented to reduce air emissions from vehicle trips, and the effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP.

Resource Consolidation Alternative

The Resource Consolidation Alternative would generate up to 44,200 daily vehicle trips, about 10,400 more trips than the No Action Alternative (GMPA 2000). The increased motor vehicle trips would substantially increase regional emissions of NO_x and ROG when compared to the No Action Alternative (GMPA 2000) (up to 104 lbs/day more of NO_x and 54 lbs/day of ROG). As with the No Action Alternative (GMPA 2000), TCMs in the TDM program would be implemented to reduce air emissions from vehicle trips, and the effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP.

Sustainable Community Alternative

The Sustainable Community Alternative would generate up to 50,300 daily vehicle trips, about 16,500 trips more than the No Action Alternative (GMPA 2000). The increased motor vehicle trips would substantially increase regional emissions of ROG and NO_x [up to 85 lbs/day of ROG and 166 lbs/day of NO_x more than the No Action Alternative (GMPA 2000)]. As with the No Action Alternative (GMPA 2000), TCMs and TDM measures would reduce air emissions from vehicle trips, and the effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP.

Cultural Destination Alternative

The Cultural Destination Alternative would generate up to approximately 48,000 daily vehicle trips. Compared to the No Action Alternative (GMPA 2000), net new trips would be 14,200. The increased motor vehicle trips would cause a substantial increase in regional emissions of NO_x [142 lbs/day more] and ROG [73 lbs/day more] than the No Action Alternative (GMPA 2000)]. As with the No Action Alternative (GMPA 2000), implementation of TCMs and TDM measures would reduce air emissions from vehicle trips, and the effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP.

Minimum Management Alternative

The Minimum Management Alternative would generate approximately 49,500 vehicle trips per day. Compared to the No Action Alternative (GMPA 2000), approximately 15,700 net new trips would occur under this alternative. This would substantially increase ROG and NO_x emissions by 81 and 157 lbs/day respectively over the No Action Alternative (GMPA 2000). As with the No Action Alternative (GMPA 2000), TCMs would reduce air emissions from vehicle trips, and the effects of the emissions would be adequately reduced by maintaining consistency with the regional CAP.

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MITIGATION MEASURES

Measures Adapted from the GMPA EIS

The following measures are updated from the mitigation specified in the GMPA EIS to be consistent with the recommendations of the BAAQMD for construction. These measures would apply to all alternatives except Minimum Management.

NR-20 *Basic Control Measures.* To reduce construction-generated particulate matter (PM₁₀) emissions, construction contractors would implement as appropriate the BAAQMD's recommended control measures for emissions of dust during construction (see Table 35). Basic control measures are: (1) water all active construction areas at least twice daily; (2) cover all trucks hauling soil, sand, and other loose materials or require trucks to maintain at least 2 feet of freeboard; (3) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas; (4) sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas; and (5) sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

NR-21 *Transportation Control Measures (TCMs).* The Presidio Trust Transportation Demand Management Program would implement the TCMs of the 2000 CAP to minimize air emissions from Presidio-related activities. In addition consistent with the 2000 CAP, the Trust would coordinate land uses to provide buffer zones and avoid conflicts from toxic contaminants or odors.

New Mitigation

NR-22 *Deconstruction/Demolition Techniques.* To the extent feasible, the Trust would apply an environmentally effective approach, including a combination of deconstruction and demolition techniques, to remove outdated structures and to reduce PM₁₀ emissions from demolition activities.

4.3.5 NOISE

METHODOLOGY

Three major categories of noise are analyzed in this section: noise related to demolition and construction activities, noise from traffic throughout the Presidio, and noise from miscellaneous stationary sources or special events. The strategies used for noise control in the Presidio depend on the source of the noise. Local noise control for neighborhood surrounding the Presidio is provided through the San Francisco Noise Ordinance (Article 29 of the San Francisco Police Code, 1994). Traffic and highway noise, and measures of effects on noise-sensitive lands within the Presidio, are characterized using Federal Highway Administration criteria, as shown in Table 7 of the Natural Resources, Affected Environment Chapter.

General Construction/Demolition Noise

Demolition and construction activities would create intermittent impacts on the noise environment. This noise could at times be distinctive and disruptive of the natural noise environment of the Presidio. The impacts on land uses within the Presidio and in the nearby neighborhoods would vary widely according to the type of construction methods and equipment used as various components of each alternative are constructed. The sensitivity of the area or user experiencing the noise, and the distance between reception and noise source would also influence the perceived severity of noise.

Although the exact nature and schedule of demolition and construction activities associated with implementation of any alternative cannot be predicted at this time, it is foreseeable that demolition, grading, excavation, building fabrication and finishing, and associated truck traffic would occur. Demolition activities could include mechanical wrecking or deconstruction techniques and concrete crushing. Construction could also require use of impact tools such as pile drivers. At any one location, the effects of noise from demolition or construction would be short-term for the specific proposal being implemented. Typical noise levels from construction equipment would be between approximately 75 dBA and 100 dBA measured 50 feet from the source, depending primarily on the type of equipment (NPS 1994).

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The analysis of the potential impacts of demolition or construction noise relies on a comparison of the anticipated effects of each alternative with the limitations of the San Francisco Noise Ordinance. The ordinance limits construction noise during daytime hours to 80 dBA at 100 feet and during nighttime hours to five dBA above the ambient noise levels at the property line. This method of analysis is consistent with the approach used in the GMPA EIS.

Short-term construction activities, impact tool use, and demolition activities could be disruptive to park users and other people within close proximity of the activity. As determined in the GMPA EIS, erecting barriers around construction equipment and restricting access to construction sites would reduce noise impacts, but not to a level of insignificance to those closest to (i.e., within 250 feet) construction equipment (NPS 1994). Presidio tenants, recreational users, and certain residences within the city of San Francisco could experience significant impacts if the physical constraints of a particular site preclude provision of suitable buffer distance. In certain circumstances, restricting access within a 250-foot radius of all construction activities may not be possible. Examples of these circumstances are:

- where repair of infrastructure would occur near occupied buildings or noise sensitive areas (see Figure 25, Natural Resources, Affected Environment chapter);
- where rehabilitation work would occur at buildings adjacent to occupied uses; or
- where rehabilitation of stream drainages or habitat would occur near noise sensitive areas.

These effects were characterized in the GMPA EIS. Measures adapted from the GMPA EIS are included below with appropriate modifications. Additional mitigation is identified as warranted.

Traffic Noise

This impact addresses the dual circumstances of new development to either generate traffic that would cause increased noise, or place residences or other new sensitive uses in areas of the Presidio experiencing unacceptable noise from traffic. Traffic on the major highways and internal roadways of the

Presidio is the primary existing source of noise, and under each alternative it is anticipated to gradually increase compared to existing conditions. New traffic noise could affect noise sensitive areas of the Presidio (see Figure 25, Natural Resources, Affected Environment Chapter) and noise sensitive residences within the City of San Francisco.

The analysis of traffic noise impacts relies on a comparison of observed and modeled noise levels at locations where substantial traffic changes are expected to be induced by an alternative. For roadways internal to the Presidio and near noise sensitive areas, traffic volumes that would occur under each alternative were compared to determine if the alternative would cause a noticeable noise increase. To assess effects in the City of San Francisco near the Presidio gates, peak hour noise levels for each alternative are estimated for each gate. Future noise levels are predicted by using California reference vehicle noise levels and a Caltrans noise propagation model (Caltrans 1998). The results are shown in Table 38. If any alternative would cause noticeable traffic noise increases at any noise sensitive area (beyond those anticipated under the GMPA), the impact is identified and evaluated for significance.

Significance of impacts depends on the existing conditions. At some locations throughout the Presidio, existing noise conditions are known to approach or exceed the Noise Abatement Criteria (NAC) established by the Federal Highway Administration (FHWA) (see Table 7, Natural Resources, Affected Environment chapter). The GMPA EIS initially identified these areas (page 211, Final EIS), and the short-term noise measurements presented in Table 8 of the Natural Environment, Affected Environment chapter generally confirm the earlier findings. For locations experiencing noise that approaches or exceeds the FHWA NAC, a noticeable (greater than 3 dBA) noise increase caused by an alternative would warrant new mitigation for traffic noise.

The GMPA EIS (page 211, Final EIS) identified various locations internal to the Presidio where GMPA development would induce noise increases that would be above background levels, but would not be substantial. Examples of locations expected to experience increased noise from traffic internal to the Presidio are the areas along Lincoln Boulevard, Lombard Street, and Presidio Boulevard, and the San Francisco National Cemetery, Presidio Golf Course, Lobos Creek Valley, and forested areas used for passive recreation.

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Table 38: Traffic Noise Levels In Vicinity of Presidio Gates by Alternative (dBA)

Location	No Action (GMPA 2000)	Final Plan	Final Plan Variant	Resource Consolidation	Sustainable Development	Cultural Destination	Minimum Management
2020 PM Peak Hour $L_{eq}(h)$							
Mason St.	64.2	66.2	64.9	66.8	66.9	66.6	66.4
Gorgas Ave.	60.2	60.5	60.4	60.8	60.5	60.5	60.4
Lombard St.	67.0	67.7	67.4	67.7	68.2	67.7	68.2
Presidio Ave.	68.9	69.3	68.9	69.3	69.6	69.4	69.4
Arguello Blvd.	66.2	66.2	66.2	68.0	69.0	66.2	66.2
15th Ave.	60.8	64.5	62.1	55.3	62.5	64.3	64.4
Lincoln Blvd./25 th Ave.	68.0	68.5	68.6	69.2	69.4	68.3	69.0
Plaza West	62.2	62.2	62.2	64.5	64.5	62.2	62.2
Plaza East	67.4	67.4	67.4	67.4	67.4	67.4	67.4
Doyle Drive	64.7	65.6	64.8	61.8	67.1	66.0	65.7
Compared to No Action (GMPA 2000)							
Mason St.	-	2.0	0.7	2.6	2.7	2.4	2.2
Gorgas Ave.	-	0.3	0.2	0.6	0.3	0.3	-
Lombard St.	-	0.8	0.4	0.7	1.3	0.8	1.2
Presidio Ave.	-	0.4	-	0.4	0.7	0.5	0.5
Arguello Blvd.	-	-	-	1.8	2.8	-	-
15th Ave.	-	3.7	1.3	-5.5	1.7	3.5	3.6
Lincoln Blvd./25 th Ave.	-	0.4	0.5	1.1	1.4	0.2	1.0
Plaza West	-	-	-	2.3	2.3	-	-
Plaza East	-	-	-	-	-	-	-
Doyle Drive	-	0.9	-	-2.9	2.4	1.3	1.0

Source: EIP Associates, 2001.

Notes:

Traffic noise levels in terms of $L_{eq}(h)$ for 2020 p.m. peak hour traffic at 50 feet from the centerline of the roadway at the gate. Includes all pass-through traffic, inbound and outbound.

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The GMPA EIS also identified the following districts where potential future development within the Presidio could be exposed to highway noise above the FHWA NAC:

- East Washington Housing and Kobbe Avenue Housing along Highway 1;
- PHSH residences along Park Presidio;
- Fort Scott housing along U. S. Highway 1 and north of U. S. Highway 101 (this includes Storey Avenue and Armistead Road Housing);
- Religious Activities Center (building #682);
- Mountain Lake Park along Park Presidio and U. S. Highway 1;
- Riley Avenue Housing along U. S. Highway 101;
- Letterman Planning District;
- Main Post offices on Montgomery Street along U. S. Highway 101;
- Main Post PX/Commissary;
- Harmon Hall (building #649);
- San Francisco National Cemetery along U. S. Highway 101;
- World War II Memorial; and
- Office uses at the west end of Crissy Field.

The short-term noise measurements presented in Table 8 of the Natural Resources, Affected Environment Chapter indicate that the following locations outside Presidio gates have existing traffic noise levels approaching or exceeding the FHWA NAC:

- City residences on Marina Boulevard near Lyon Street and Doyle Drive;
- City residences on Lyon Street at Francisco Street and Richardson Avenue;
- City residences on Presidio Avenue; and
- City residences on Lincoln Boulevard at El Camino del Mar and 25th Avenue.

Current Trust practices are intended to respond to existing excessive noise conditions when appropriate. To protect new development from unacceptable exterior noise environments, as discussed in the Affected Environment Chapter, new multi family residential units (lodging, apartments, or other attached dwellings) within the Presidio would be constructed according to standards equivalent to Title 24 of the California Code of Regulations.

Implementation of these standards would provide suitable insulation to protect dwelling interiors from excessive exterior noise. If current practices and adapted GMPA EIS measures modified to apply to the PTMP would not be sufficient to protect noise sensitive areas from new traffic noise, additional mitigation is identified.

Noise from Stationary Sources or Special Events

Stationary, or fixed, sources of noise could be located in almost any developed area of the Presidio at any given time. Ongoing activities that could require either short- or long-term use of stationary noise sources (e.g., mechanical equipment, landscaping equipment, electrical transformer systems, loading dock operations) include operation and/or maintenance of Presidio buildings, landscaping, and other infrastructure. Similar to the effects that would be caused by construction-related noise sources, the exact nature of stationary noise sources that would be associated cannot be predicted at this time. However, it is foreseeable that under any alternative, increased noise from building heating and ventilation equipment, site landscaping maintenance, and trash and freight loading would occur around newly occupied uses.

Analysis of stationary-source noise impacts is based on a programmatic review of the proposed uses, the surrounding noise-sensitive areas likely to be affected, and the potential ability of the proposed uses to be designed and operated in a manner that would avoid noise conflicts. The comparison is based on the limitations of the San Francisco Noise Ordinance (Article 29 of the San Francisco Police Code, 1994), which generally specifies that noise exceeding ambient noise levels by 5 dBA or more at the property line would be considered excessive. The GMPA EIS (page 212 Final EIS) noted that the future noise levels within the Presidio would increase due to the future development, but they would not violate the limits of the San Francisco Noise Ordinance. As such, the GMPA EIS did not identify mitigation measures for stationary sources. If current practices would not be sufficient to protect noise-sensitive areas from noise related to foreseeable stationary sources, additional mitigation is identified.

Additional stationary noise sources could be associated with special events that would be held periodically at suitable locales, for limited durations. The majority of these special events are expected to be smaller outdoor seminars,

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lectures, festivals, exhibits, demonstrations, or hands-on participation that would have limited or no substantial noise effects. As with the noise effects from stationary sources discussed above, if current practices would not be sufficient to reduce noise from foreseeable special events, additional mitigation is identified.

POTENTIAL IMPACTS

GENERAL CONSTRUCTION/DEMOLITION NOISE

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would involve the demolition of Wherry housing, a portion of the PSHH, and other existing structures, along with construction of approximately 170,000 sf of replacement uses over the life of the plan. For various construction activities, composite noise levels for overlapping operation of multiple pieces of equipment were identified. Noise levels would be attenuated by distance such that for activities occurring more than 250 feet from receptors would not be expected to exceed 80 dBA. Noise impacts on Presidio tenants, recreational users, and residents could be reduced to below 80 dBA by restricting access within 250 feet. Certain activities would be limited to daytime hours to minimize disruption. Furthermore, additional analysis would be conducted before initiating projects such as the rehabilitation of stream drainages along Tennessee Hollow and Lobos Creek or reconstruction of Doyle Drive (NPS 1994).

Strategies adapted from the GMPA EIS to require compliance with the San Francisco Noise Ordinance (e.g., construction of barriers around active sites and equipment, closure of certain sites during construction) would reduce construction and demolition noise (refer to mitigation measures presented at the end of this section).

Final Plan Alternative

This alternative would have similar potential to disrupt Presidio tenants, recreational users, and residences within the City of San Francisco as the No Action Alternative (GMPA 2000), due to demolition activities, and greater

potential for construction-related disturbances. Strategies adapted from the GMPA EIS would reduce construction and demolition noise.

Final Plan Variant

Demolition activities under this alternative would have similar potential to disrupt Presidio tenants, recreational users, and residences within the City of San Francisco as the Final Plan Alternative. However, because no new construction would occur, this alternative would eliminate potential disruptions that could be caused by construction noise. Strategies adapted from the GMPA EIS would reduce demolition noise.

Resource Consolidation Alternative

This alternative would have greater potential than the No Action Alternative (GMPA 2000) to disrupt Presidio tenants, recreational users, and residences within the City of San Francisco, because the levels of demolition and new construction would be greater than under the No Action Alternative (GMPA 2000). Strategies adapted from the GMPA EIS would reduce construction and demolition noise.

Sustainable Community Alternative

This alternative would have similar potential to disrupt Presidio tenants, recreational users, and residences within the City of San Francisco as the No Action Alternative (GMPA 2000) because the levels of development would be similar to those that would occur under the No Action Alternative (GMPA 2000). Compared to the No Action Alternative, demolition noise associated with removal of PSHH wings would not occur, and increased construction noise internal to the Presidio in the areas around the Main Post and East Housing would occur. Strategies adapted from the GMPA EIS would reduce construction and demolition noise.

Cultural Destination Alternative

This alternative would have greater potential to disrupt Presidio tenants, recreational users, and residences within the City of San Francisco because the levels of demolition and new construction would be greater than under the No

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Action Alternative (GMPA 2000). Strategies adapted from the GMPA EIS would reduce construction and demolition noise.

Minimum Management Alternative

No new construction or demolition would occur under the Minimum Management Alternative. No substantial construction noise would occur from rehabilitation activities that would continue under this alternative.

TRAFFIC NOISE

With all alternatives, certain locations where existing noise conditions are known to approach or exceed the FHWA NAC (see Table 7, Natural Resources, Affected Environment chapter) would continue to experience adverse traffic noise without additional mitigation measures. Noise levels associated with traffic volume increases that would occur at Presidio gates are summarized in Table 38. Where substantial increases in traffic noise are anticipated to occur additional mitigation is identified.

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would provide for a net reduction in the amount of built space at the Presidio. Nonetheless, as vacant buildings are occupied, additional vehicle trips would be generated and associated traffic noise would increase over time. As shown in the bulleted list under the methodology section (see “Traffic Noise”), several locations within and adjacent to the Presidio would experience noise levels that exceed the FHWA NAC. Implementation of mitigation to address vehicle noise reduction would be adequate for managing traffic noise.

Final Plan Alternative

Like the No Action Alternative, there would be an overall net reduction in built space at the Presidio; however, there would be an increase in projected vehicle trips and associated traffic noise. Certain sensitive areas within the Presidio would be adversely affected by traffic volume increases, which would increase noise levels above those expected under the No Action Alternative (GMPA 2000). This increase in traffic noise would be noticeable

(greater than 3 dBA) at the following on-site locations which are already projected to exceed NAC under the No Action Alternative (GMPA 2000):

- Riley Avenue Housing nearest to Sheridan (FHWA Noise Category C),
- Portion of San Francisco National Cemetery nearest Park and Lincoln (FHWA Noise Category A), and
- World War II Memorial on Kobbe at Lincoln (FHWA Noise Category A).

Compared to the conditions that would occur under the No Action Alternative (GMPA 2000), no off-site (City) locations would experience noticeable traffic noise increases except for locations near the PHSH. However, on 14th and 15th Avenues, the future traffic caused by this alternative would not cause noise levels approaching or exceeding the NAC, so the impact would be less than significant.

Rehabilitation of Riley Avenue Housing would conform to current practice of meeting standards equivalent to Title 24, which would provide an acceptable interior noise environment. Implementation of measures calling for periodically monitoring and mitigating traffic noise at the San Francisco National Cemetery and the World War II Memorial would ensure that noise levels are acceptable at sensitive sites. This measure specifies future analysis of noise management strategies (e.g., sound barriers or berms, vehicle restrictions, traffic calming) in an effort to maintain future noise levels below the NAC.

Final Plan Variant

The Final Plan Variant would create no new construction in any of the planning areas. However, noise from traffic increases would have a limited affect on certain sensitive areas within the Presidio above those expected under the No Action Alternative (GMPA 2000). This increase would be noticeable (greater than 3 dBA) at the following on-site locations which are already projected to exceed NAC under the No Action Alternative:

- Riley Avenue Housing nearest to Sheridan (FHWA Noise Category C), and

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- World War II Memorial on Kobbe at Lincoln (FHWA Noise Category A).

Compared to the conditions that would occur under the No Action Alternative (GMPA 2000), no off-site (City) locations would experience noticeable (greater than 3 dBA) traffic noise increases.

Rehabilitation of Riley Avenue Housing would conform to current practice of meeting standards equivalent to Title 24, which would provide an acceptable interior noise environment. Additionally, periodic monitoring of traffic noise levels to protect the World War II Memorial would ensure that noise levels are acceptable.

Resource Consolidation Alternative

The Resource Consolidation Alternative would increase land uses at Fort Scott, Crissy Field, and Letterman Planning Districts, so traffic noise would tend to increase in the northern half of the Presidio.

Certain sensitive areas within the Presidio would be adversely affected by traffic volume increases that would occur on the internal road network beyond those expected under the No Action Alternative (GMPA 2000). This increase would be noticeable (greater than 3 dBA) at the following on-site locations which are already projected to exceed NAC under the No Action Alternative:

- Riley Avenue Housing nearest to Sheridan (FHWA Noise Category C), and
- World War II Memorial on Kobbe at Lincoln (FHWA Noise Category A).

Compared to the conditions that would occur under the No Action Alternative (GMPA 2000), no City locations would experience noticeable (greater than 3 dBA) traffic noise increases.

Rehabilitation of Riley Avenue Housing would conform to current practice of meeting standards equivalent to Title 24, which would provide an acceptable interior noise environment. Additionally, periodic monitoring of traffic noise

levels to protect the World War II Memorial would ensure that noise levels are acceptable.

Sustainable Community Alternative

The Sustainable Community Alternative land uses would largely follow the patterns of the No Action Alternative (GMPA 2000) and traffic noise would tend to be distributed similarly.

Certain sensitive areas within the Presidio would be adversely affected by traffic volume increases that would occur on the internal road network under this alternative. This increase would be noticeable (greater than 3 dBA) at the following on-site locations which are already projected to exceed NAC under the No Action Alternative:

- Riley Avenue Housing nearest to Sheridan (FHWA Noise Category C),
- Portion of San Francisco National Cemetery nearest Park and Lincoln (FHWA Noise Category A), and
- World War II Memorial on Kobbe at Lincoln (FHWA Noise Category A).

Compared to the conditions that would occur under the No Action Alternative (GMPA 2000), the following additional locations could experience traffic noise increases: Baker Beach Housing and Infantry Terrace Housing within the Presidio nearest to Lincoln or Arguello Boulevards, respectively, City locations near Arguello Gate, and Inspiration Point. Because the noise increases at each of these locations would not exceed 3 dBA (e.g., a noticeable change), the impact would be less than significant.

Rehabilitation of Riley Avenue Housing would conform to current practice of meeting standards equivalent to Title 24, which would provide an acceptable interior noise environment. Additionally, periodic monitoring of traffic noise levels, and instituting measures to protect the San Francisco National Cemetery and the World War II Memorial would ensure that noise levels are acceptable.

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Cultural Destination Alternative

The Cultural Destination Alternative would include increased use at Fort Scott, PHSH, Crissy Field, and Letterman Planning Districts, so traffic noise would tend to increase in the northern half of the Presidio. This increase would be noticeable (greater than 3 dBA) at the following on-site locations which are already projected to exceed NAC under the No Action Alternative:

- Riley Avenue Housing nearest to Sheridan (FHWA Noise Category C), and
- Portion of San Francisco National Cemetery nearest Park and Lincoln (FHWA Noise Category A).

Compared to the conditions that would occur under the No Action Alternative (GMPA 2000), no off-site (City) locations would experience noticeable (greater than 3 dBA) traffic noise level increases except for locations near the PHSH. However, on 14th and 15th Avenues, the future traffic caused by this alternative would not cause noise levels approaching or exceeding the NAC, so the impact would be less than significant.

Rehabilitation of Riley Avenue housing would conform to current practice of meeting standards equivalent to Title 24. This would provide a suitable interior noise environment for occupants of the Riley Avenue housing. Periodic monitoring of traffic noise levels, and instituting measures to protect the San Francisco National Cemetery and the World War II Memorial would ensure that noise levels are acceptable.

Minimum Management Alternative

Under the Minimum Management Alternative, existing buildings would be rehabilitated and reused. No building demolition would occur and thus there would not be a reduction in the amount of built space at the Presidio (which would occur under all other alternatives except Cultural Destination). This would tend to increase traffic noise throughout the entire Presidio when compared to the No Action Alternative (GMPA 2000). Traffic noise increases would occur at certain sensitive areas within the Presidio (e.g., the San Francisco National Cemetery, the World War II Memorial) and mitigation would be implemented to appropriately protect these sensitive uses. Noise

within the adjacent neighborhoods would also increase; however, the resulting noise levels would not exceed NAC or noticeably increase above those that would occur under the No Action Alternative (GMPA 2000).

NOISE FROM STATIONARY SOURCES OR SPECIAL EVENTS

No Action Alternative (GMPA 2000)

The No Action Alternative (GMPA 2000) would involve development of new uses that would generate increased noise from sources such as building operations equipment and increased human activity. For example, heating and ventilation systems would generate a steady level of low-level noise, and the population visiting, working, and living at the uses within the Presidio would generate more noise from human activity. Additionally, for limited durations, special events could occur outdoors that would cause focused human activity and possibly use of portable public address systems to amplify voices or music. This alternative (or any other alternative) would not include major stationary sources of noise or major sound amplification systems for outdoor special events. The resulting noise levels would not exceed the limitations of the San Francisco Noise Ordinance.

All Remaining Alternatives

Noise from stationary sources and special events would be comparable under all of the remaining alternatives. Please refer to the discussion above for the No Action Alternative (GMPA 2000).

MITIGATION MEASURES

Measures Adapted from the GMPA EIS

The following GMPA EIS measures are recommended to protect areas of the Presidio and the adjacent neighborhoods from construction and traffic noise.

NR-23 *General Construction/Demolition Noise.* During construction, contractors and other equipment operators would be required to comply with the San Francisco Noise Ordinance (San Francisco Municipal Code, Section

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2907b), which requires that each piece of powered equipment, other than impact tools, emit noise levels of not more than 80 A-weighted decibels (dBA) at 100 feet. To reduce noise impacts, barriers would be erected around construction sites and stationary equipment such as compressors; this would reduce noise by as much as 5 dBA. To further reduce noise impacts on visitors, some construction sites would be temporarily closed, and appropriate barriers placed at a distance of 250 feet from the sites.

NR-24 *Traffic Noise Reduction*. Vehicle traffic throughout the Presidio represents the major source of existing and future noise, especially from U. S. Highways 101 and 1. Although the Trust cannot control the level of noise produced by privately owned vehicles, it can control which types of transit vehicles are used at the Presidio. The Trust would use and encourage other city and transit providers to select transit vehicles that produce less noise pollution. Energy-conserving government vehicles would be used by maintenance and other divisions. If possible, electric or other alternative vehicles would be used to reduce noise levels.

New Mitigation

The following measure would apply to all alternatives except No Action Alternative (GMPA 2000) and Minimum Management.

NR-25 *Traffic Noise Monitoring and Attenuation*. Noise levels would be periodically monitored at the San Francisco National Cemetery and the World War II Memorial. Noise attenuation measures would be instituted, if feasible, if noise levels exceed the Noise Abatement Criteria standards. Examples of attenuation measures include sound barriers or berms, vehicle restrictions, and traffic calming.