

4.3. VISUAL RESOURCES

4.3.1 Impact Methodology

This section identifies the methodology used to assess potential visual resources impacts resulting from implementing any of the transformation alternatives. The visual impact assessment methodology was based in part on the *Visual Resources Assessment Procedure for US Army Corps of Engineers* (USACE 1988). Visual impacts were assessed by estimating the amount of visual change to the basic visual resource components of water, landform, vegetation, and human-made elements as a result of the project. Visual resource components typically are measured in terms of the amount of change in design elements, such as form, line, color, texture, and scale in the landscape. Within this context, the visual changes were evaluated in terms of the degree to which they may be visible to the viewer—foreground, middle ground, and background views—and the general sensitivity of the view to landscape alterations.

To accurately assess the potential impacts on the visual resources at the proposed project sites, a standard methodology was established for evaluating existing conditions and potential visual impacts and for formulating proposed mitigation measures. This methodology, composed of a five-part visual impact assessment process, is outlined below.

Step one: Review visual resources-related documentation available for the islands of O‘ahu and Hawai‘i in general and for the proposed project sites in particular. Visual resources-related sections of various general and specific plans were used to identify sensitive viewing areas near SBCT-related project sites. These documents were also used to develop the factors determining significance, as described below. Step one also included examining aerial photography (geo-referenced) of each SBCT project site, and its immediate surrounding area. The proposed boundary of each project was superimposed on the appropriate aerial photograph(s), and critical viewing points were established. These points were selected based on anticipated visual exposure from areas accessible to the general public, such as highways, recreational areas, housing and other public areas, and took into account terrain, vegetative cover, and intervening structures.

Step two: Develop a terrain analysis model for each SBCT project location. Digital elevation model (DEM) data were used to generate line-of-site profiles and perspective views from each of the designated viewing points identified in step one. Each line-of-sight diagram and perspective view was examined to determine if any of the proposed project sites were visible from the viewing point. Through a process of elimination, a final set of critical viewing points was established for further investigation. As these viewpoints identified the most likely locations where visual impacts were still possible, they served as reference points in conducting field observations.

Step three: Conduct field reconnaissance at each of the designated viewing points identified in step two. At each location, the view was observed and such features as landforms, water resources, land uses and use intensity, and general vegetation/ecosystem patterns were noted. Also noted were any human-made objects considered unique to the surrounding area. Photographs were taken at each of the designated points from the perspective most likely to

be experienced by the viewing public. Field observation showed that, in general, this would most likely be from surrounding roadways. A rating was applied to each view based on visual sensitivity, as follows:

- High sensitivity describes views that are rare, unique, or in other ways special, such as in remote or pristine areas. Examples include national and state forests and parks, wilderness areas, wild and scenic rivers, and designated scenic trails and overlooks. Human-made environments with visual value and integrity, such as historic districts, can also be highly sensitive.
- Medium sensitivity describes views that are secondary in importance or are similar to others in the region or locale. The visual character of these areas is likely to have been altered by roadways, vehicles, utility lines, and other structures that contrast with the surroundings. Examples of locations with medium sensitivity include areas that are not designated as scenic but are protected or popular areas of recreational or cultural significance.
- Low sensitivity describes views that the public can be expected to have little or no concern about changing. Little value may be ascribed to the views, or they may be similar to many others in the area. For this EIS, visual sensitivity is considered low for all areas not identified as having medium or high sensitivity.

Step four: Analyze photographs to determine what was observable from each viewing point and to verify site features noted in step three. Based on this analysis, a determination was made concerning which of the SBCT project sites were likely to result in potential impacts on visual resources. Photographs were taken to illustrate the view from each critical viewing location. These panoramas were used to identify the foreground (0 to ¼-½ mile [0 to 0.2-0.8 kilometer]), middle ground (¼-½ to 3-5 miles [0.2–0.8 to 5-8 kilometers]) and background (3-5 miles to infinity [5-8 kilometers to infinity]) of each of the views.

Step five: Identify specific impacts at each site based on existing and proposed conditions and recommend potential mitigation measures. Each impact was described and a determination of severity was applied based on the degree to which impacts exceeded the significant factors described below. For each of the significant impacts, a mitigation measure was developed. Each mitigation measure is designed to minimize the impact on visual resources during construction or future operation and maintenance phases for each of the SBCT-related projects.

4.3.2 Factors Considered for Impact Analysis

The factors considered in assessing potential impacts on visual resources are set largely by the technical procedures used. For this project, these procedures were adapted in part from *Visual Resources Assessment Procedure for US Army Corps of Engineers* (USACE 1988). These procedures served to outline the visual impact assessment process as undertaken for this project. The evaluation of potential impacts was based on each project's potential to alter the visual character of the project area.

Factors considered in determining whether an alternative would have a significant impact on visual resources include the extent or degree to which its implementation would result in the following:

- Permanently alter a site so that a sensitive viewing point or vista is obstructed or adversely affected or if the scale or degree of change appears as a substantial, obvious, or disharmonious modification of the overall view;
- Prevent or substantially impair the view from a sensitive viewpoint for the duration of project construction;
- Introduce physical features that are substantially out of character with adjacent developed areas; or
- Be inconsistent with the visual resource policies of the Honolulu and Hawai'i County General Plans, the O'ahu Development/Sustainable Community Plans or Hawai'i Coastal Zone Management Program policies.

In addition to these factors, public concerns expressed during the scoping process were also considered in the impact analysis. These concerns included the general visual impact of the Proposed Action, as well as the specific visual impact of military convoys on public roadways.

4.3.3 Summary of Impacts

Table 4-2 lists the types of visual resources impacts associated with the Proposed Action, Reduced Land Acquisition, and No Action Alternative. General descriptions of the impacts are also provided.

Proposed Action (Preferred Alternative)

Visual impacts from implementing the Proposed Action vary at each of the installations depending on the location and the nature of the activity proposed. No significant impacts with regard to consistency with relevant planning documents or guidance are expected to occur at any of the installations under the Proposed Action.

Significant Impacts

There are no significant impacts on visual resources under the Proposed Action or alternatives that cannot be mitigated to less than significant.

Significant Impacts Mitigable to Less than Significant

Impact 1: Impairment of view during the construction phase. The Proposed Action at SBMR would result in significant but mitigable impacts on views at McCarthy Flats and the SRAA during the construction phase. This impairment would result from a change in the general appearance of each of these areas by using earth-moving equipment, transporting and storing materials on-site, erecting temporary fencing and implementing erosion-control measures, and constructing buildings and target systems at project sites. Less than significant impacts of this type would occur at DMR, KTA, and PTA.

**Table 4-2
Summary of Potential Visual Impacts**

Impact Issues	SBMR			DMR			KTA/KLOA			PTA			Project-wide Impacts		
	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA	PA	RLA	NA
Impairment of view during the construction phase	⊗	⊗	○	⊙	⊙	○	⊙/○	⊙/○	○/○	⊙	⊙	○	⊗	⊗	○
Modification of existing view	⊗	⊗	○	⊗	⊗	○	⊙/○	⊙/○	○/○	⊗	⊗	○	⊗	⊗	⊙
Alteration of the landscape character	⊗	⊗	○	⊙	⊙	○	⊙/○	⊙/○	○/○	⊙	⊙	○	⊗	⊗	○
Consistency with visual resource policies	⊙	⊙	○	⊙	⊙	○	⊙/○	⊙/○	○/○	⊙	⊙	○	⊙	⊙	○
Impairment of view from visible fugitive dust	⊙	⊙	○	⊙	⊙	○	⊙/○	⊙/○	○/○	⊙	⊙	○	⊙	⊙	○
Alter nighttime light and glare	⊙	⊙	○	⊙	⊙	○	⊙/○	⊙/○	○/○	⊙	⊙	○	⊙	⊙	○

This table summarizes project-wide impacts. For installation-specific impacts see Chapters 5 – 8. In cases when there would be both beneficial and adverse impacts, both are shown on this table. Mitigation measures would only apply to adverse impacts.

LEGEND:

- ⊗ = Significant
- ⊗ = Significant but mitigable to less than significant
- ⊙ = Less than significant
- = No impact
- + = Beneficial impact
- N/A = Not applicable
- PA = Proposed Action
- RLA = Reduced Land Acquisition
- NA = No Action

Regulatory and Administrative Mitigation 1. Existing natural features, including terrain and vegetative cover, will be conserved where practicable to screen the proposed project sites. Where practicable, permanent screening will be achieved with native tree and shrub plantings that complement existing natural and ornamental plantings, earthen berms that mimic the color and texture of the surrounding area, fencing designed to fit in with the surrounding area, or some combination of these measures in accordance with the Installation Exterior Architectural Plan.

Impact 2: Modification of the existing view. Potential significant but mitigable impacts on existing views are expected to occur at SBMR, DMR, and PTA as a result of trail construction at each installation. Each of these trails would be constructed through areas of agricultural land or open space and would be visible from major roadways or areas otherwise determined to be visually sensitive. Use of the trails for military convoys would reduce the number of military vehicles on public roadways and would beneficially affect views from major highways and other nearby visually sensitive areas, such as coastal parks and beaches.

Installing antenna support structures at PTA would also result in potential significant and mitigable impacts on existing views. Less than significant impacts on existing views would

occur at KTA. Construction of the antennas and sheds would also modify the views at DMR and PTA.

Regulatory and Administrative Mitigation 2. Existing site conditions will be enhanced where practicable to help screen SBCT-related projects from the surrounding area. Where practicable, mitigation measures will be designed to complement the existing view. Existing natural features, including terrain and vegetative cover, will be conserved where practicable. Screening will be constructed of materials that mimic the color and/or texture of the surrounding area where practicable. Where practicable, the Army will use tree and shrub plantings that complement existing natural and ornamental plantings, earthen berms that mimic the color and texture of the surrounding area, and fencing materials designed to fit in with the surrounding area, or some combination of these measures in accordance with the Installation Exterior Architectural Plan.

Additional Mitigation 2. The Army proposes to construct the proposed military vehicle trails to conserve existing natural features, including terrain and vegetative cover, to the extent practicable. Use of roadbed materials that contrast sharply with existing conditions will be avoided to the extent practicable. To avoid creation of a discordant linear feature, the road alignment would, where possible, follow the natural contours of the land. Cut slopes would be minimized or avoided, where practicable. Cut slopes would be blended into the landscape by rounding the edges of the slope, differential orientation of the slope, and the road bed alignments where practicable. Use of these techniques would be varied based on the specific conditions, including depth of the cut, orientation of the slope, and type of material (e.g., dirt slope and rock slope).

Where practicable, the Army proposes to enhance existing site conditions to help screen the proposed tower and support shed from the surrounding area. The tower site will be developed to conserve existing natural features, including terrain and vegetative cover, to the extent practicable. The equipment shed would be located to maximize use of natural screening if possible. If necessary, additional screening will be installed by either planting vegetation or the screening will be constructed of materials that mimic the color and/or texture of the surrounding area where practicable. If possible, materials used for construction of the tower and equipment shed will be nonreflective, weathered, or otherwise painted to blend with the natural surroundings.

Impact 3: Alteration of landscape character. Potential significant and mitigable impacts on the landscape character would occur at SBMR under the Proposed Action as a result of development in the SRAA. Current agricultural and open space land uses would be replaced in part by the proposed facilities and would be visible from certain foreground and middleground views from the Lyman Road corridor, the Kalākaua Golf Course, and adjacent housing areas. Less than significant impacts of this type would occur at DMR, KTA, and PTA.

Regulatory and Administrative Mitigation 3. Mitigation measures identified in Impacts 2 and 3 would also mitigate impacts to the alteration of landscape character. Impacts on the

landscape character would be mitigated by maintaining terrain and vegetative cover. Permanent vegetative screening would be established to obscure operations.

Reduced Land Acquisition Alternative

Impacts under the RLA Alternative would be similar to those described above for the Proposed Action. Although less acreage would be acquired at SBMR, the disturbance during construction and the alteration of the landscape from development in the SRAA would still represent a significant and mitigable impact on visual resources. Mitigation would be as described above for the Proposed Action. Constructing QTR2 on existing training ranges at PTA would not result in any different overall impacts on visual resources at PTA from those described above under the Proposed Action. This is because the QTR2 would be constructed on existing ranges that already affect visual resources.

No Action Alternative

The baseline of current conditions and training exercises at all of the facilities would continue under No Action. The Army would continue to operate and maintain its range and training area facilities in order to meet its training mission requirement. Invariably, the level of training would change occasionally in response to this requirement, and, consequently, the visual impact as a result of these changes might be altered as well. The level of use of the installation's training assets is not anticipated to alter the physical character of the landscape itself, and no impacts are expected to the six visual resources impact issues.