

## CHAPTER 13.

# VISUAL RESOURCES

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This section describes the applicable existing visual conditions and resources on Guam by geographical area. While the focus is on the visual resources on those lands being considered under the proposed action, it also includes areas within the general region of influence. Figure 13.1-1 shows where all of the various areas and scenic points of interest are throughout Guam and described in this section.

Visual resources include scenic areas, vistas or thoroughfares and locations that provide natural-appearing or aesthetically-pleasing places or views. This includes natural views such as shorelines, seascapes, cliffs and man-made views such as unique buildings, landscaping, parks, and other types of cultural features. Typically, visual resource descriptions focus on those that are recognized as highly valued. For instance, they may be specific places, vistas, and scenic overlooks identified by a visitor's association. However, visual resources are also recognized as views and vistas that people are accustomed to seeing and often take for granted as a general part of the landscape.

Visual resources are an important part of the quality and sensory experience of an area. Users often encounter an area first and foremost through a visual interaction or their 'view' of a place. Views are generally composed of, and often described in terms of foreground, middle-ground and background depending on the site. For analysis purposes, visual resources are composed of the following:

- Dominant landscape features (e.g., a tall water tower in a landscape otherwise composed of low vegetation and one or two story buildings)
- Diversity (e.g., rows of crops adjacent to an urban area with the mountains as a backdrop)
- Elements of line, color, form, and texture
- Distinctive visual edges (e.g., a housing tract adjacent to a forested area).

### 13.1 AFFECTED ENVIRONMENT

#### 13.1.1 North

Northern Guam's topography is generally flat to gently rolling with abrupt cliff lines reaching downward to the shoreline. This is particularly the case on the north and west sides of this area. Much of northern Guam is thickly vegetated with green hues that accentuate the flora of the area. Dominant man-made features include the Finegayan water tower and the Naval Computer and Telecommunications Station (NCTS) communications facilities – i.e., 'golf ball' antennae. Dominant natural features include Mount Santa Rosa (the highest point on northern Guam) and the surrounding cliff lines. The northeastern area can generally be categorized as a rural to suburban landscape while the northwestern area is generally more rural in appearance. A view of northern Guam from offshore presents an almost continuous landscape of flora with limestone walls extruding along the shoreline covered under the abundant vegetation.

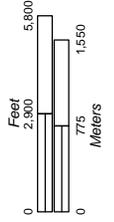
**Figure 13.1-1**

**Visual Resources of Guam**

**Legend**

-  Military Installation
-  Route Number
-  Visual Resources

**Source:**  
Lotz and Lotz, 2001, 2004



### 13.1.1.1 Andersen Air Force Base (AFB)

Andersen AFB is composed of runways, buildings, facilities, and housing areas all surrounded by moderately to heavily vegetated forest. Due to the relatively flat topography and moderate to heavy vegetation, the surrounding communities of Dededo and Yigo have limited views into Andersen AFB. One exception to this is the views afforded from Mount Santa Rosa. From this point, sweeping 360-degree views can be seen of the entire north area, including distant views of Andersen AFB facilities and surrounding landscape.

#### North Ramp Area

As illustrated in Figure 13.1-2, the existing North Ramp Area consists of flat runways and low-sloped aviation ramps, and adjacent base facilities. This area is surrounded by a landscape made up primarily of natural-appearing low-growth vegetation that extends outward to the cliffs and shoreline to the north and east, and the more developed base facilities mixed with natural-appearing vegetation to Highway 9 to the south. Most of the facilities in the North Ramp Area are either hangars, fuel tanks, or one-to-two story buildings that are situated well above the cliff line. Therefore, views of this area from offshore are primarily of the heavily vegetated limestone cliffs.



**Figure 13.1-2. Aerial View of the North Ramp Area looking from the Northeast to the Southwest with Heavily Vegetated Cliff line in the Foreground**

*Source: EDAW 2008.*

#### *Tarague Embayment Overlook*

Tarague Embayment Overlook faces east towards the Pacific Ocean. The overlook offers a view of the nearby cliffs and Tarague Beach. The Tarague Embayment Natural Trail traverses Tarague Embayment Overlook and is only accessible overland through military-controlled property. See Volume 2, Chapter 9, Recreation, for more information on trails on Guam.

### *Pati Point Overlook*

Pati Point Overlook not only offers views of the shoreline and cliffs, but also of the Pati Point Marine Preserve area. The nearby limestone forests show prominently in this viewshed and are protected as part of the Pati Point Natural Area only accessible overland by trail through military-controlled property.

### South Ramp Area

The South Ramp Area (Figure 13.1-3 and Figure 13.1-4) is located on the south side of the Andersen AFB runways. This area is composed of Air Force facilities (hangars, warehouses, and one-to-two story buildings) surrounded by family housing. The area adjacent to the runways and associated facilities can generally be described as a low density urban to suburban landscape with a unified streetscape and landscape features. Low vegetation (grass, shrubs and small street trees) is predominant, as larger canopy trees are often damaged during typhoon events.



**Figure 13.1-3. Aerial View of the South Ramp Port of Debarkation (APOD) at South Ramp 7 Viewed from the North Looking South**

*Source: EDAW 2008.*



**Figure 13.1-4. Aerial View of South Ramp and the Andersen AFB Housing Area Viewed from the Southwest Looking Northeast**

*Source: EDAW 2008.*

#### *Palm Tree Golf Course*

The Palm Tree Golf Course is located in the South Ramp Area between the Terminal and Heritage Room and the Anao Conservation Reserve. The golf course is part of Andersen AFB and provides a view of the northeastern shoreline and the Pacific horizon (Figure 13.1-5). A view of the Pati Point cliff ridge is also provided from the golf course. The Palm Tree Golf Course is located on military-controlled property.



**Figure 13.1-5. A View at the Palm Tree Golf Course Looking North Toward the Pacific Ocean and Pati Point**

*Source: AFCEE 2005.*

### Air Force Munitions Storage Area (MSA)

The MSA is located between Andersen Main Base (which includes both the North Ramp and South Ramp areas) and Andersen Northwest Field (NWF) (Figure 13.1-6). The MSA site is located on relatively flat ground and consists of roadways and earth covered magazines arranged in a large grid pattern across the landscape. Land surrounding this area and in between the roads and earth covered magazines is dominated by dense and natural-appearing vegetation. Therefore, in most locations, long-range views are obscured due to the heavy vegetation growing on this site.



**Figure 13.1-6. Aerial View of Andersen MSA in the Foreground Looking East Toward Tarague Beach, Adjoining Cliffs, and Andersen Main Base in the Distance**

*Source: EDAW 2008.*

On the northeastern side of the MSA lies the Tarague Beach Scenic Vista. This scenic viewpoint offers views of Ritidian Point and its nearby shoreline (Figure 13.1-7 and Figure 13.1-8).



**Figure 13.1-7. View of Tarague Beach and Ritidian Point from the Tarague Beach Scenic Vista**

*Source: EDAW 2007.*



**Figure 13.1-8. The Road to Tarague Beach Provides a Panoramic Ocean View**

*Source: Google Earth 2008.*

### *Tarague Beach Scenic Vista*

Tarague Beach (refer to Figure 9.1-1) is located about one mile northeast of the Andersen MSA. The beach area provides a wide range of coastal views, including the reefs and surrounding limestone cliffs (Figure 13.1-9). This area is only accessible overland through military-controlled property.



**Figure 13.1-9. A View of Ritidian Point from Tarague Beach**

*Source:* Google Earth 2008.

### Northwest Field

NWF, located in the northwestern sector of Andersen AFB, contains several old runways within a setting of dense tropical vegetation (Figure 13.1-10). The landscape is similar to that of the MSA, featuring a thickly vegetated landscape dominated by wide canopy trees and shrubs that generally block long distance views (Figure 13.1-11). Along the adjacent coastline lie several scenic points of interest that provide recognized scenic and recreational value, such as Ritidian Point and Uruno Point. The views at Ritidian Point and Uruno Point are discussed in Section 13.1.1.3.



**Figure 13.1-10. Aerial View of Northwest Field Looking North**

*Source: EDAW 2008.*



**Figure 13.1-11. A Typical View from Within the Northwest Field Area**

*Source: EDAW 2008.*

### 13.1.1.2 Finegayan

The Finegayan area is composed of a relatively flat to gently rolling landform, much of which is covered by dense vegetation. Limestone outcrops and green vegetated cliffs dominate the coastline. While there are a few open vistas, the terrain and dense tropical vegetation blocks most long distance views of the surrounding landscape and Philippine Sea beyond.

#### NCTS Finegayan

The NCTS Finegayan area is composed of Navy communication facilities surrounded by low grasslands, shrubs and densely forested areas (Figure 13.1-12, Figure 13.1-13, Figure 13.1-14, and Figure 13.1-15). Wide open vistas from and into this area are limited due to the terrain and vegetative canopy. Nevertheless, there are locations along Highway 3 that afford views into and of the NCTS area and facilities. Figure 13.1-16 is a view looking north into the north part of NCTS as viewed from Route 3. This picture is a clear illustration of how thick and ‘wall-like’ the vegetation is in NCTS along this portion of Highway 3. Figure 13.1-17 is a view looking northwest into the central part of NCTS as viewed from Highway 3. The open landscape and low buildings surrounded by the perimeter fence are evident along this stretch of the roadway. Figure 13.1-18 is a view looking northward along Highway 3 adjacent to South Finegayan. From this vantage point the two exiting water tower/tanks can be seen in the foreground and background with the FAA parcel in between them.



**Figure 13.1-12. A South-Looking Aerial View of NCTS Finegayan with the Philippine Sea in the Distance and Route 3 in the Left of the Picture**

*Source: EDAW 2008.*



**Figure 13.1-13. NCTS Finegayan Communications Facilities**

*Source: EDAW 2007a.*



**Figure 13.1-14. NCTS Finegayan Interior Roadways and Facilities**

*Source: EDAW 2007b.*



**Figure 13.1-15. The North Part of NCTS Finegayan Features Dense Vegetation**  
*Source: EDAW 2007b.*



**Figure 13.1-16. View from Route 3 Looking Northward into the North Part of NCTS**  
*Source: EDAW 2009.*



**Figure 13.1-17. Panoramic View from Route 3 Looking Northwestward  
Into the Central Part of NCTS**

*Source: EDAW 2009.*



**Figure 13.1-18. View from Route 3 Looking Northward with  
South Finegayan Water Tower in Foreground and NCTS Finegayan Water Tower in  
Background as Seen from Route 3 looking North. FAA Parcel lies in Between the two.**

*Source: EDAW 2007b.*

### *Double Reef*

Double Reef and North Double Reef (refer to Figure 9.1-1) are located offshore of NCTS Finegayan (Figure 13.1-19). This area is considered one of the most pristine coastal areas (and dive locations) on Guam and is only accessible overland by trail through military-controlled property.



**Figure 13.1-19. Ocean from NCTS Finegayan toward Double Reef**

*Source:* The Jim Anna Chronicles 2009.

### *Haputo Beach and Haputo Point Overlook*

Haputo Beach (refer to Figure 9.1-1) is located on NCTS Finegayan where it too is only accessible to military-affiliated personnel. Haputo Beach has been designated as part of the Haputo Ecological Reserve Area. The trail to this Reserve Area provides views of the dense limestone forest. In addition, there is an archaeological site near Haputo Beach which was once the location of an ancient Chamorro village known as Hilaan. There are latte stones scattered along the trail that add cultural value to the natural landscape. The Haputo Point lookout provides a view overlooking the Haputo Beach below (Figure 13.1-20).



**Figure 13.1-20. A View of Haputo Beach**

*Source: EDAW 2007.*

### South Finegayan

The South Finegayan site lies approximately one mile south of NCTS Finegayan. It consists of an existing Navy housing area on the eastern side of the parcel and natural appearing vegetation to the west along the coastal cliff line. With the exception of the communications facilities, South Finegayan has a similar landscape character to NCTS Finegayan but includes extensive grasslands previously developed for Department of Defense (DoD) use (Figure 13.1-21). There is a similar scenic effect between NCTS Finegayan and South Finegayan from the aerial view, but the ground-level view is slightly different due to the shorter vegetation that dominates the plant community at South Finegayan. Because of this views from Route 3 into South Finegayan are relatively open and are similar to those into central NCTS. Views from the ocean are similar to those of NCTS, i.e., they are primarily of heavily vegetated limestone cliffs which tend to obscure the existing man-made development.



**Figure 13.1-21. A Typical View from Within the South Finegayan Housing Area**

*Source: Google Earth 2008.*

#### 13.1.1.3 Non-DoD Land

##### Ritidian Point Scenic Vista

Ritidian Point is located at the northwestern most part of Guam. It was once a restricted military area controlled by the Navy but is now open to the public. The vantage point of Figure 13.1-22 shows undisturbed scenic features including dense tropical green foliage on a flat limestone plateau and sheer cliff line with distant views of deep blue ocean waters. The Guam National Wildlife Refuge is situated within the Ritidian Point area and consists of 371 acres (ac) (150 hectares [ha]) of native forest and 401 ac (162 ha) of marine habitat, and a long stretch of white-sand beach (Figure 13.1-23).



**Figure 13.1-22. View of Ritidian Point**

Source: Google Earth 2008.



**Figure 13.1-23. Ritidian Point Beach Area**

Source: Google Earth 2008.

### Uruno Scenic Vista

Uruno Scenic Vista is located approximately 2.5 miles (mi) (4.2 kilometers [km]) south of Ritidian Point. Uruno Point offers views of the northern Guam shoreline and cliffs. In addition, an extended view south towards central Guam is offered at this scenic point.

Several scenic points east of the South Finegayan area provide panoramic views of the Philippine Sea to the west and some partial views of Dededo Village to the east. Ague Point (refer to Figure 9.1-1) is located approximately one mile east South Finegayan. The point is situated between Hilaan Beach and Haputo Beach providing views of the Philippine Sea. Tanguisson Point (refer to Figure 9.1-1) is located about one mile to the north of Two Lovers Point (also known as Puntan dos Amantes). Tanguisson Point provides an expansive view looking down to Tanguisson Beach. Views from the beach toward Tanguisson Point are also considered by many to be striking, as a canopy of dense foliage covers the vertical cliffs. Guma Fahou is situated on the north side of Tanguisson Beach along the coastline. It is a scenic beach used for fishing, snorkeling and picnics. This is a popular site due to the crystal clear water and the unique limestone boulders in the water (Figure 13.1-24).



**Figure 13.1-24. A View of the beach at Guma Fahou**

*Source: Google Earth 2008.*

### Mount Santa Rosa Scenic Vista

Mount Santa Rosa, which is located approximately 1.5 mi (2.4 km) to the south of the Andersen AFB main gate, is an extinct volcano surrounded by an elevated petrified coral formation. The highest point in northern Guam, it offers a panoramic view of Guam's northern plateau including dense limestone forests, portions of Andersen AFB, and Pati Point (Figure 13.1-25). On a clear day, visitors can see the island of Rota approximately 25 mi (40 km) to the north.



**Figure 13.1-25. A View of Andersen AFB and Pati Point from Mount Santa Rosa Scenic Vista**

*Source: EDAW 2009.*

#### 13.1.1.4 Off Base Roadways

The proposed action includes on base roadway construction projects that would be implemented by the DoD. An affected environment description for on base roadway construction projects is included beneath the appropriate subheadings in other sections of this chapter. The following section describes the affected environment for off base roadway construction projects that would be implemented by the Federal Highway Administration (FHWA).

This section describes existing visual quality of the proposed roadway improvement corridors based on methodologies established by the Federal Highway Administration's (FHWA) *Visual Impact Assessment for Highway Projects* (1981). This methodology divides the views into landscape or character units that have distinct but not necessarily homogenous visual character. Typical views, called key viewpoints, are selected for each unit to represent the views to/from the project. The view of the motorist is also considered as a separate character unit.

Existing visual quality from the viewpoints is judged by three criteria: vividness, intactness, and unity. Descriptions for the three criteria are:

- **Vividness:** The memorability of the landscape components as they combine to form striking or distinctive patterns.
- **Intactness:** The integrity of visual order in the view and its freedom from visual encroachment.

- Unity: The visual coherence and composition of the landscape viewed to form a harmonious visual pattern.

These criteria provide a method for describing the form, line, color, and texture of the components found within a view. As in all things aesthetic, “beauty is in the eye of the beholder;” therefore, there is a subjective component to this or any visual analysis evaluation. However, as outlined in the FHWA methods, the use of these descriptors allows for a basis for understanding the evaluator’s rationale behind a visual quality determination. It is important to note that visual character terms are descriptive and non-evaluative, meaning that they are based on defined attributes that are neither good nor bad by themselves. Changes in visual character cannot be described as having good or bad attributes until compared with viewer responses to the change.

The proposed roadway improvement projects within the North Region are located along existing Routes 1, 3, 9, 28, and 15. The following subsections describe the nature of each roadway improvement type within the North Region.

#### Military Access Point Projects

Four military access point (MAP) projects are proposed within the North Region. Because these projects are located within Department of Defense (DoD) land, in which photographing is not permitted, typical views are not included in this report; however, descriptions are included here.

The visual character and quality of each of the MAP locations is similar to the adjacent roadway network. These point locations are generally off of main routes by a short distance, usually less than 1.0-mile (1.6-kilometer [km]). In most cases, the MAPs are existing gates already part of the visual environment and include low buildings, roadways, fencing, and security gates. Table 13.1-1 identifies the existing visual quality for each MAP.

**Table 13.1-1. Existing Visual Quality for Military Access Point Projects – North Region**

Guam Road Network (GRN) #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
38	3	MAP 2, Naval Computer and Telecommunications Station (NCTS) Finegayan (Commercial Gate); 0.5–mi (0.3-km) west of Route 9, across from Chalan Kareta	Moderate	Moderate	Moderate	Moderate
39	3	MAP 3, NCTS Finegayan (Main Gate); 0.9–mi (1.4 km) north of Bullard Avenue	Moderate	Moderate	Moderate	Moderate
41	3	MAP 5, South Finegayan (Residential Gate); existing Control Tree Drive	Moderate	Moderate	Moderate	Moderate
42	9	MAP 6, Andersen Air Force Base (AFB) (North Gate); between Route 3 and Route 1	Moderate	Moderate	Moderate	Moderate

#### Pavement Strengthening Projects

Because pavement strengthening projects cover many different corridors on the island, the existing visual character of the specific corridor varies depending on the location. One common thread is the presence of the roadway within the view, particularly for those traveling on the roadway. Development adjacent to the

roadway would have a direct influence on the character of the roadway with the urban character of the denser developed corridors versus the rural character of the roadways through forested sections.

As with character, the overall visual quality of a corridor varies depending on its specific location. In general, the more urban areas have a moderate to moderately low visual quality, given the development patterns along the roadway and the level of maintenance of many of the strip commercial areas. Many of these areas have a moderate to moderately low vividness, moderately low intactness, and moderate unity. Residential areas tend to have higher visual quality, in the moderate range, with moderate vividness, intactness, and unity. Rural areas generally have a moderate to moderately high overall visual quality, with moderate to moderately high vividness, intactness, and unity.

Pavement strengthening projects within the North Region of the island are listed in Table 13.1-2, and typical views for these project corridors can be found in Figure 13.1-26. The North Region is less mountainous than the southern volcanic portion of the island. Development in this region is less dense and more suburban in nature, with primarily single-family residential on lots interspersed with forested areas.

**Table 13.1-2. Existing Visual Quality for Pavement Strengthening Projects – North Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality ( $V + I + U/3$ )
			Vividness	Intactness	Unity	
8	3	Route 1 to Route 28	Moderate	Moderately Low	Moderate	Moderate
22A	9	Andersen AFB North Gate to Route 1 (Andersen AFB Main Gate)	Moderate	Moderate	Moderate	Moderate
23	1	Chalan Lujuna to Route 9	Moderate	Moderate	Moderate	Moderate

The overall visual quality of the North Region is moderate, with moderate vividness, intactness, and unity. The overall visual quality in this region relies in part on the less developed, more forested nature of the areas adjacent to the roadways. Where development has occurred, it tends to be less dense and less of a presence in the landscape.

#### Bridge Replacement Projects

No replacement bridge projects are located in the North Region.



Figure 13.1.1-26  
Typical Views for Pavement Strengthening Projects - North Region

### Roadway and Intersection Widening Projects

In the North Region, five intersection improvement and road widening projects are proposed, as listed in Table 13.1-3. Typical views for the corridors can be seen in Figure 13.1-27. Descriptions of the character of the individual corridors or intersection areas are described below.

**Table 13.1-3. Existing Visual Quality  
for Roadway and Intersection Widening Projects – North Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
9	3	NCTS Finegayan to Route 28	Moderate	Moderate	Moderate	Moderate
10	3	NCTS Finegayan to Route 9	Moderate	Moderate	Moderate	Moderate
22	9	Route 3 to Andersen AFB (North Gate)	Moderate	Moderate	Moderate	Moderate
57	28	Route 1 to Route 3	Moderately High	Moderate	Moderate	Moderately High
117	15	Route 15/29 Intersection	Moderate	Moderate	Moderately Low	Moderate

- GRN #9, Route 3 from Naval Computer and Telecommunications Station (NCTS) Finegayan to Route 28: The existing road corridor is a two-lane corridor with grassy, mowed shoulders. A substantial power line parallels the road. Development adjacent to the roadway consists of residential, with a rural appearance, and large areas that are forested. The existing visual quality for the route is moderate, with moderate vividness, intactness, and unity.
- GRN #10, Route 3 from NCTS Finegayan to Route 9: The existing visual character of this corridor is very similar to that described in GRN #9. It is along the same roadway (Route 3) and has the same two-lane configuration as the previous project. The overall visual quality of the road is moderate, with moderate vividness, intactness, and unity.
- GRN #22, Route 9 from Route 3 to the Andersen Air Force Base (AFB) North Gate: The existing visual character for the road corridor is that of a two-lane road, with forested areas on one side and either forested or scattered residential on the other side. A large power line parallels the road on one side. The overall visual quality of the corridor is moderate, with moderate vividness, intactness, and unity.
- GRN #57, Route 28 from Route 1 to Route 3: The existing Route 28 is a two-lane road. The southern section of the road, beginning at the intersection with Route 1, is primarily residential, with single- and multi-family residential on both sides of the roadway and several small commercial stores included in the mix. As the road stretches first north then west, the residential area becomes more spread out on larger lots, and the forest takes up a bigger presence in the view. The overall visual quality of the roadway is moderately high, with moderately high vividness, moderate intactness, and moderate unity.
- GRN Project #117, Route 15/29 Intersection: Routes 15 and 29 are narrow two-lane roads with surrounding residential development. The overall visual quality of the area is moderate, with moderate vividness, moderate intactness, and moderately low unity.

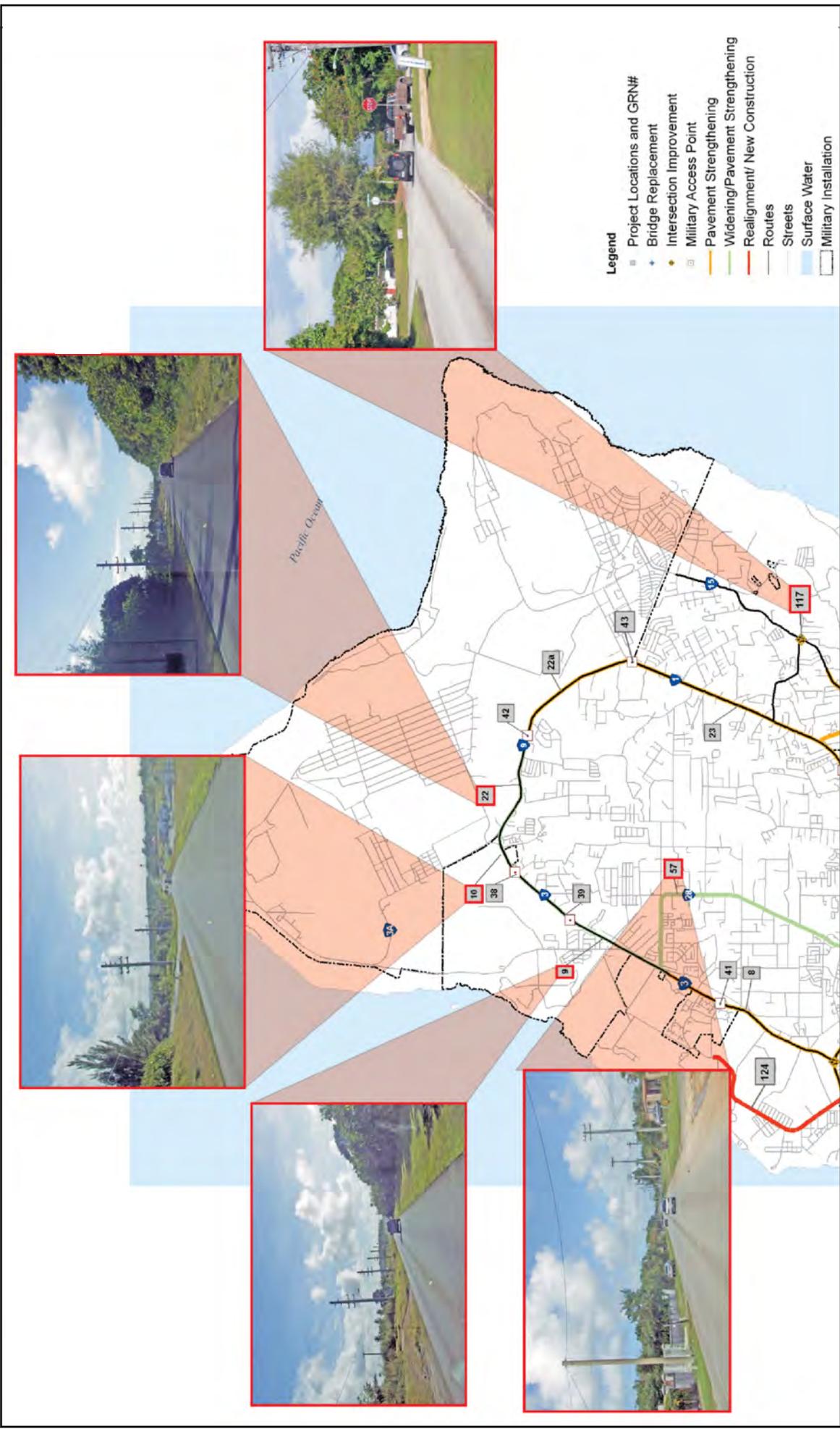


Figure 13.1-27  
Typical Views for Roadway and Intersection Widening Projects - North Region

### Road Realignments and New Road Projects

In the North Region, a new roadway (i.e., Finegayan Connection [GRN #24], is proposed. The alignment for the new roadway would begin at the Route 1/16 intersection. This intersection would be widened along Route 1 to accommodate new turn lanes. The new roadway generally travels north from this intersection through forested and non-forested areas. Many dirt roads, both formal and informal roads, crisscross the area of the new alignment. The most prominent of these is Tanguisson Road. Little development currently exists along the proposed alignment.

The general visual quality of the area is moderately high, with a moderately vividness, moderate intactness, and moderately high unity, as summarized in Table 13.1-4. Existing views for the project area can be seen in Figure 13.1-28.

**Table 13.1-4. Existing Visual Quality  
for Road Realignment and New Road Projects – North Region**

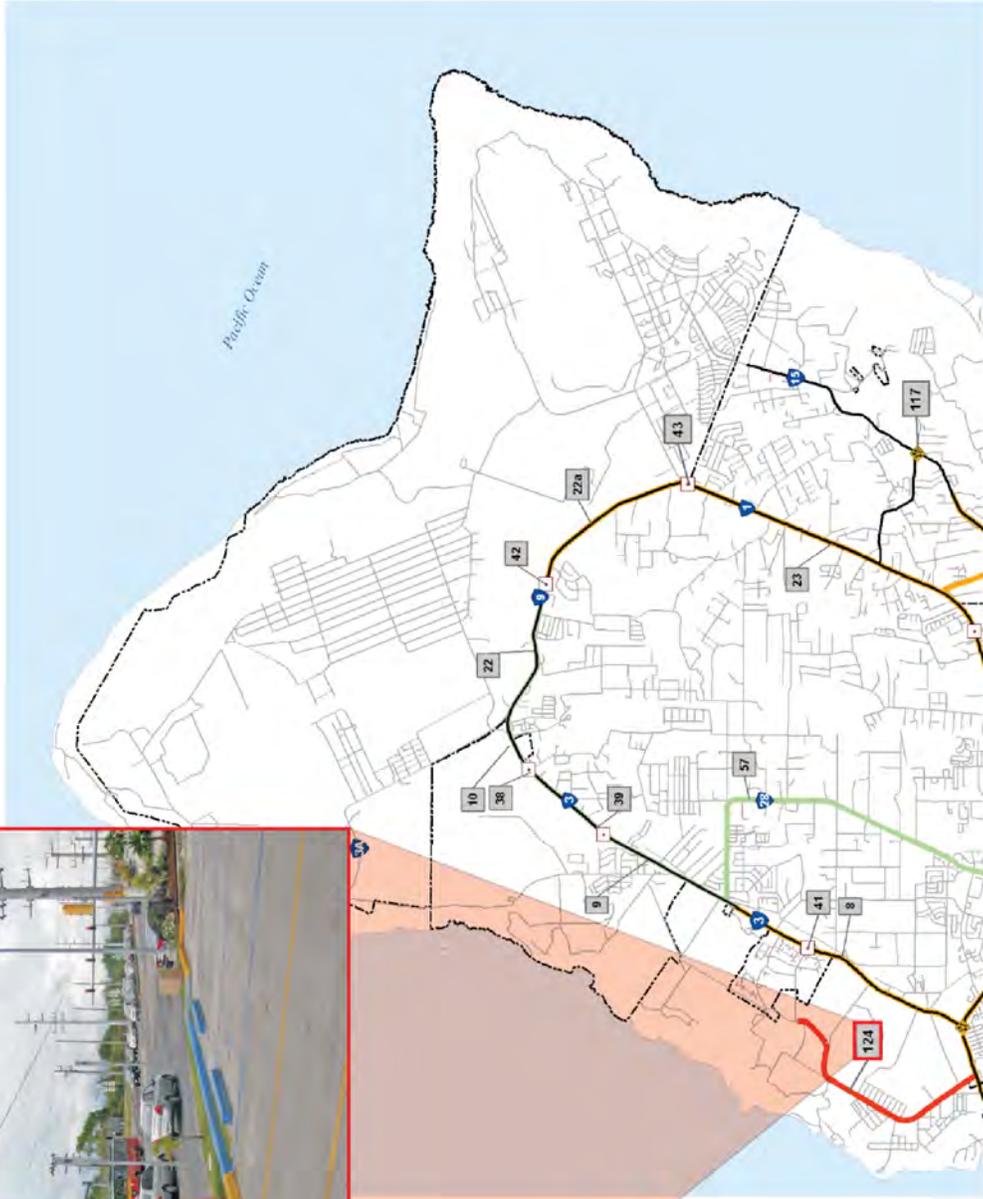
GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
124	New	Finegayan Connection	Moderately High	Moderate	Moderately High	Moderately High

#### **13.1.2 Central**

Of the three areas, Central Guam is the most populated, and overall its landscape can generally be characterized as primarily urban and suburban in nature. The Tumon Bay area (tourist center) and Hagatna (central business district) along the eastern shoreline are urban environments with multi-story buildings visible from many locations throughout the area. These high-rise buildings provide a distinctly urbanized sense of a place from the street level as well as views from the ocean or coastline. Many of Guam's most populated residential communities are located in this area and take on a mainly suburban appearance – including one to two story single family homes, associated roadways, and numerous and strip malls.

##### **13.1.2.1 Andersen South**

Located about 4 mi (6.4 km) south of Andersen AFB, Andersen South is an abandoned Air Force housing area now used as a joint services ground training site. The abandoned structures, which are situated adjacent to Route 15 along a relatively small portion on the southwest side of the site, are used for urban warfare training (Figure 13.1-29, Figure 13.1-30, Figure 13.1-31, and Figure 13.1-32). The remainder (and majority) of the Andersen South site is largely composed of an old road network and a few dispersed facilities that are surrounded by moderate-to-dense vegetation. Andersen South and the surrounding community of Yigo are situated on relatively flat topography and thus do not afford much in the way of views from adjacent roadways which are blocked by the dense vegetation.



- Legend**
- Project Locations and GRN#
  - Bridge Replacement
  - ◆ Intersection Improvement
  - Military Access Point
  - Pavement Strengthening
  - Widening/Pavement Strengthening
  - Realignment/ New Construction
  - Routes
  - Streets
  - Surface Water
  - Military Installation



Figure 13.1.1-28  
Typical Views for Road Realignment and New Road Projects - North Region



**Figure 13.1-29. View of Andersen South Gate from Route 15**

*Source:* EDAW 2008.



**Figure 13.1-30. View of Andersen South from Route 15**

*Source:* Matthew Chong Photo Gallery 2008.



**Figure 13.1-31. View of Abandoned Housing and Overgrowth at Andersen South**  
*Source: Google Earth 2008.*



**Figure 13.1-32. View of Abandoned Housing at Andersen South**  
*Source: EDAW 2009.*

### 13.1.2.2 Non-DoD Land

#### Scenic Points in Western Central Guam

##### *Two Lovers Point*

Two Lovers Point, also known as Puntan dos Amantes, is one of the most legendary scenic points on Guam (refer to Figure 9.1-1). It is not only famous for the ancient legend involving two young lovers but also for its dramatic views from the cliff top. It is a ‘pay-to-view’ area and popular tourist attraction. Views from south to north are Tumon Bay, the Philippine Sea, and the west-facing cliffs to the north (Figure 13.1-33).



**Figure 13.1-33. An Aerial View of Two Lovers Point Looking South with Tumon Bay Visible on the Far Right Side of the Picture**

*Source:* Google Earth 2008.

##### *Tumon Bay*

Tumon Bay is located at the center of Guam between South Finegayan and Apra Harbor on the western coast (Figure 13.1-34). The bay is a marine preserve with extensive coral barrier reef and a long white sandy beach. It also serves as Guam’s primary tourist district drawing hundreds of thousands of tourists a year to the numerous hotels lining the length of the bay (Bureau of Statistics and Plans 2006). Resultant hotel and commercial development along Tumon Bay has resulted in a highly urbanized cityscape alongside the natural features of the beach and bay.



**Figure 13.1-34. View of Tumon Bay Looking South from Two Lovers Point**

*Source:* EDAW 2009.

Tumon Bay also provides onlookers a panoramic view of the bay from the ocean. The many vertical structures offer a completely different perspective in contrast to the natural landscape. Because of its extensive tourist-oriented development, the streetscape in the Tumon Bay area tends to be more modern and urbanized than other areas of Guam (Figure 13.1-35 and Figure 13.1-36).



**Figure 13.1-35. Street View of Tumon Bay Tourist District**

*Source:* Google Earth 2008.



**Figure 13.1-36. Panoramic View of a part of the Tumon Bay Tourist District**

*Source: Guampedia 2008.*

### Scenic Points in Eastern Central Guam

#### *Pagat Point*

Pagat Point is located to the east of Andersen South. It provides views of the rugged eastern coastline and the remnants of a preContact Chamorro village (Figure 13.1-37). This area contains high cliffs and a rocky coastline with adjacent deep blue waters. Further to the south, a view to Sasayan Valley is provided (Figure 13.1-38).



**Figure 13.1-37. A View of Pagat Point**

*Source: Dzer's Guam Pictures 2008.*



**Figure 13.1-38. A View of the Sasayan Valley and Beyond Pagat Point**

*Source: EDAW 2009.*

#### *Guam International Country Club*

The Guam International Country Club is located west side of Andersen South and offers a panoramic view of landforms within and around the village of Dededo (Figure 13.1-39).



**Figure 13.1-39. A Panoramic View of the Guam International Golf Course**

*Source: Onward Resort and Golf 2008*

#### *Marine Corps Drive (Route 1)*

Route 1, also known as Marine Corps Drive, is situated on the northeastern side of Guam, providing a significant transportation connection from Andersen AFB to Apra Harbor. Due to its path through several villages and the downtown area, Route 1 provides primarily urban and suburban views through most of central Guam (Figure 13.1-40).



**Figure 13.1-40. Typical Streetscape of Marine Corps Drive (Tamuning)**

Source: Google Earth 2008.

### 13.1.2.3 Barrigada

The Barrigada area is located in the eastern portion of central Guam, west of Guam International Airport and Route 16, and east of Route 15. The NCTS or Navy Barrigada site and adjacent Andersen AFB Communications Annex are in this area. These sites are relatively flat and vary from mowed grassland to dense, naturally-appearing vegetation. Rural and suburban lands surround the Barrigada sites. Due to the relatively flat topography and moderate to heavy vegetation, the surrounding community of Barrigada has limited views into the Navy and Air Force Barrigada sites. One exception to this are the views afforded from Mount Barrigada just north of Navy Barrigada.

The Admiral Nimitz Golf Course is located on the southern end of Navy Barrigada and extends outward to touch the Air Force Barrigada site further to the south. Though the golf course is operated by the Navy, it is accessible to the public. The golf course is not readily visible from any point in the surrounding community. Views from the golf course are generally of manicured greens with a backdrop of either dense vegetation or in a few cases distant views through open areas (Figure 13.1-41).



**Figure 13.1-41. A View of the Admiral Nimitz Golf Course Looking East**

*Source: Google Earth 2008*

### Non-DoD Land

#### *Mount Barrigada*

Mount Barrigada is located in east-central Guam approximately 1.5 mi (2.4 km) east of Guam International Airport and just north of Navy Barrigada. Mount Barrigada is at an elevation of 650 feet (ft) (198 meters [m]) above sea level. The Pacific Presbyterian Church, the site of a scenic vista situated on Mount Barrigada, provides views of the airport, as well as the villages of Barrigada, Tamuning and Dededo. Further east, there is a second scenic vista which provides views of Mangilao village and Mount Santa Rosa to the north.

#### *Mangilao Golf Course*

Most of Guam's golf courses are well known for their scenery and well maintained fairways. Located at the central eastern coastline of Guam, Mangilao Golf Course provides visitors with views of the Pacific Ocean and cliff lines along the fairways (Figure 13.1-42). Thousand Steps, an extremely steep trail linking Mangilao Golf Course with a beach below, also offers expansive ocean views.



**Figure 13.1-42. An Aerial View of Mangilao Golf Course and its Surrounding Vegetation**

*Source: Google Earth 2008.*

*Taguan Point*

Taguan Point is located on the eastern side of central Guam, northeast of Mangilao Golf Course (Figure 13.1-43). It offers a panoramic view of the Pacific Ocean. Dense foliage covers the seashore along the ridge in shapes that resemble ocean waves.



**Figure 13.1-43. An Oceanic View at Taguan Point**

*Source:* Google Earth 2008.

#### *Fadian Point*

Fadian Point is located on the central eastern side of Guam about 2 mi (3.2 km) away from Taguan Point to the south. Fadian Point is famous for its view of the Pacific Ocean and steep sloping ridgeline and cove. Seashore vegetation such as Nigas, a salt-tolerant shrub, cover the rugged limestone surface offering a unique scene.

#### *University of Guam / Guam Community College*

The University of Guam is a distinct man-made feature along the east coast of Guam. These low-rise buildings and large green spaces were sited relative to the natural landform and cliff line so that the Pacific Ocean can be viewed from the campus.

#### *Pago Bay*

Pago Bay is located in southeast Guam, in Yona Village. The Pago Bay Overlook provides a natural panoramic view of the shallow bay and adjacent cliff line. This area has attracted several resort and housing developments to the area (Figure 13.1-44).



**Figure 13.1-44. A View of Pago Bay**

*Source:* Google Earth 2008.

#### 13.1.2.4 Piti/Nimitz Hill

##### Asan Bay Overlook

The Asan Bay Overlook is located in the War in the Pacific National Historical Park on the southwest coast of Guam. The historical park consists of several units including the Asan Bay Overlook, Piti Guns Unit, Asan Beach Unit, and the Mount Chachao/Mount Tenjo Unit. The site provides a panoramic view of the shoreline and Philippine Sea.

##### Asan Beach Unit

The Asan Beach Unit is located in the War in Pacific National Historical Park approximately one mile from the Asan Bay Overlook. A panoramic ocean view is available as well as a mountain view of the Asan Point Ridge.

#### 13.1.2.5 Off Base Roadways

The proposed action includes on base roadway construction projects that would be implemented by the DoD. An affected environment description for on base roadway construction projects is included beneath the appropriate subheadings in other sections of this chapter. The following section describes the affected environment for off base roadway construction projects that would be implemented by the FHWA.

The proposed roadway improvement projects in the central region are located along existing Routes 1, 8, 8A 10, 15, 16, 25, 26, and 27, and Chalan Lujuna Road. The following subsections describe the nature of each roadway improvement type within the Central Region.

### Military Access Point (MAP) Projects

Six MAP projects are proposed within the central region. Because these projects are located within DoD land, in which photographing is not permitted, typical views are not included in this report; however, descriptions are included here.

The visual character and quality of each of the MAP locations is similar to the adjacent roadway network. These point locations are generally off of main routes by a short distance, usually less than 1.0-mi (1.6-km), except for MAP 10 off Route 15, which is located 1.16 mi (1.87 km) from the main route. In most cases, the MAPs are existing gates that are already part of the visual environment and include low buildings, roadways, fencing, and security gates. Table 13.1-5 identifies the existing visual quality for each MAP planned within the Central Region.

**Table 13.1-5. Existing Visual Quality for Military Access Point Projects – Central Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
44	1	MAP 8, Andersen South (Main Gate); on Turner Street	Moderate	Moderate	Moderate	Moderate
46	15	MAP 10, Andersen South (Secondary Gate); 1.16 mi (1.87 km) east of Route 26 on unnamed road	Moderately High	Moderate	Moderately High	Moderately High
47	16	MAP 11, Navy Barrigada; at Sabana Barrigada Drive	Moderate	Moderate	Moderate	Moderate
48	8A	MAP 12, Navy Barrigada; extension of north/south road from Route 16/Sabana Barrigada Drive to Route 8A	Moderate	Moderately High	Moderately High	Moderately High
49	15	MAP 13, Air Force Barrigada; new access road from Fadian Point Road	Moderately High	Moderate	Moderately High	Moderately High
49A	15	MAP 13A, Air Force Barrigada; new access road from Fadian Point Road	Moderately High	Moderate	Moderately High	Moderately High

### Pavement Strengthening Projects

Pavement strengthening projects within the central region of the island are listed in Table 13.1-6, with typical views seen in Figure 13.1-45. In general, the central area is the most densely developed area on the island and includes the capitol, main commercial areas, and resorts. Because of the volcanic past of the southern portion of the island, the southern sections of the Central Region have river crossings that are not found in the limestone areas in the North Region.

The overall visual quality of the central region is generally moderate to moderately low, with moderate to moderately low vividness, low intactness, and moderate unity. Because much of this region is developed, it is the pattern and level of maintenance of the development that give this region its overall visual quality. In general, development consists of strip commercial, single-family residential, and multi-family residential along many of the corridors. There are isolated high-rise structures along some of the main roadway. Many of the roads in this region are four- to six-lane roadways, with limited or no sidewalk or streetscape design that might provide visual relief to the scale of the roadway.

This region also has some of the most scenic roadside development on the island. The portions of Route 1 (i.e., Marine Corps Boulevard) between the Governor's Complex and the Port Area have scenic views of the blue waters of the Philippine Sea along grassy benches with palm trees punctuated with forested knobs that jut into the Sea. These areas have a moderately high to high overall visual quality, with a moderately high to high vividness and moderately high intactness and unity.

**Table 13.1-6. Existing Visual Quality for Pavement Strengthening Projects – Central Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
6	1	Route 27 to Chalan Lujuna	Moderate	Moderate	Moderate	Moderate
7	1	Route 3 to Route 27	Moderate	Moderate	Moderate	Moderate
11	Chalan Lujuna	Route 1 to Route 15	Moderately High	Moderately High	Moderate	Moderately High
12	15	Chalan Lujuna to Smith Quarry	Moderately High	Moderate	Moderately High	Moderately High
13	1	Route 11 to Asan River	Moderately High	Moderately Low	Moderate	Moderate
14	1	Asan River to Route 6	Moderate	Moderate	Moderate	Moderate
15	1	Route 6 to Route 4	Moderately High	Moderate	Moderately High	Moderately High
17	8	Tiyan Parkway/Biang Street to Route 10	Moderate	Moderate	Moderate	Moderate
18	16	Route 27 to Route 10A	Moderate	Moderate	Moderate	Moderate
19	16	Route 10A to Sabana Barrigada Drive	Moderate	Moderate	Moderate	Moderate
20	16	Sabana Barrigada Drive to Route 8/10	Moderate	Moderate	Moderate	Moderate
21	27	Route 1 to Route 16	Moderate	Moderate	Moderately Low	Moderate
30	10	Route 15 to Route 8	Moderate	Moderate	Moderate	Moderate
31	8A	Route 16 to Naval Communication Area Master Station (NAVCOMS) Barrigada	Moderate	Moderately High	Moderately High	Moderately High
32	15	Route 10 to Chalan Lujuna	Moderately High	Moderate	Moderately High	Moderately High
33	1	Route 8 to Route 3	Moderate	Moderate	Moderate	Moderate

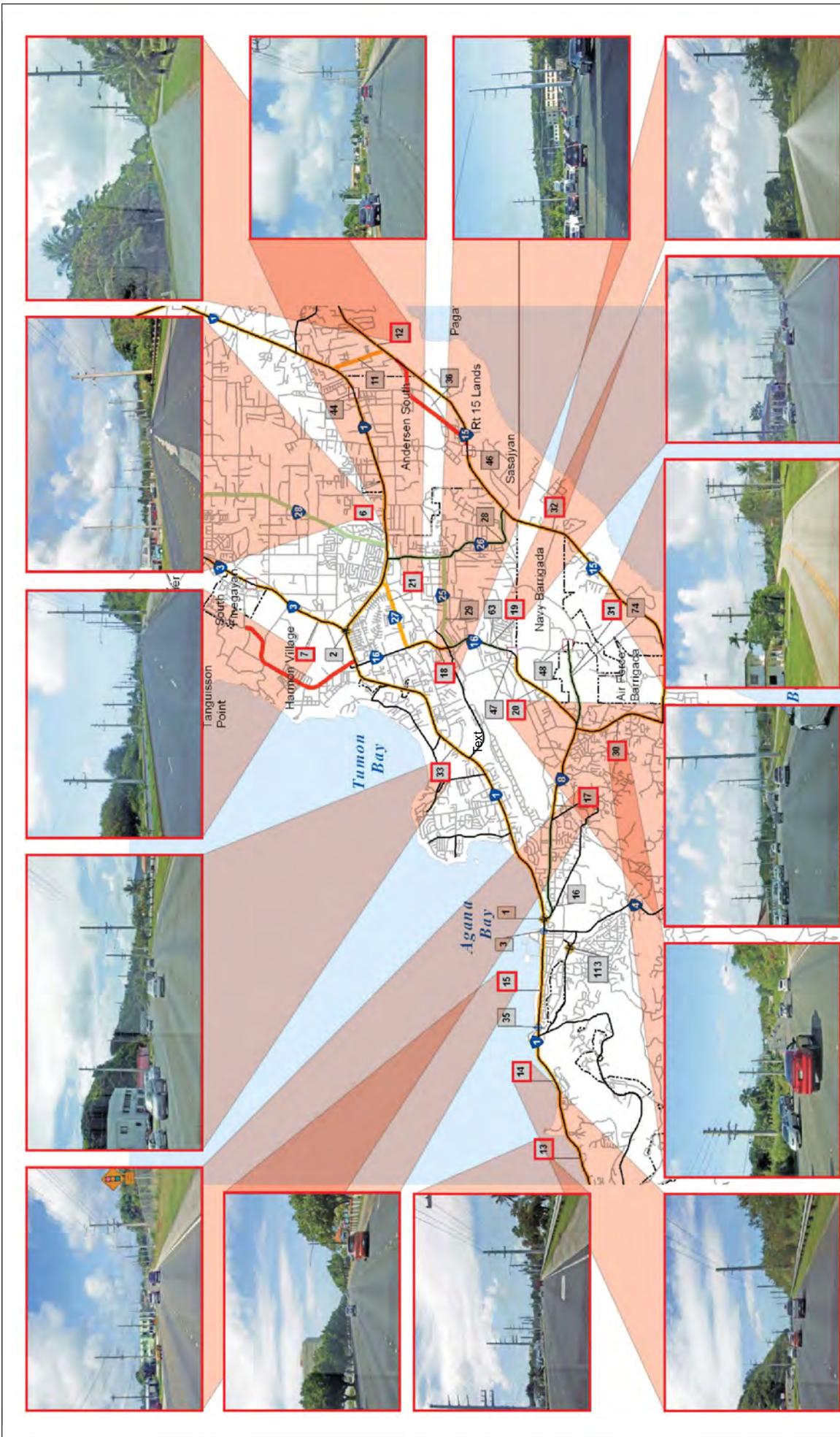


Figure 13.1-45  
Typical Views for Pavement Strengthening Projects - Central Region

### Bridge Replacement Projects

The proposed bridge replacement projects are located along Route 1 (i.e., Marine Corps Drive); two are within the Central Region. The bridges are each associated with a river channel, and there are similarities between the locations. One common thread is the presence of the roadway and the bridge railings within the view, particularly for those traveling on Route 1. Most river crossings have much vegetation associated with the river banks. The vegetation along the channel often blocks views to the bridges from outside of the roadway, so the bridges are generally not a viewable element in the landscape.

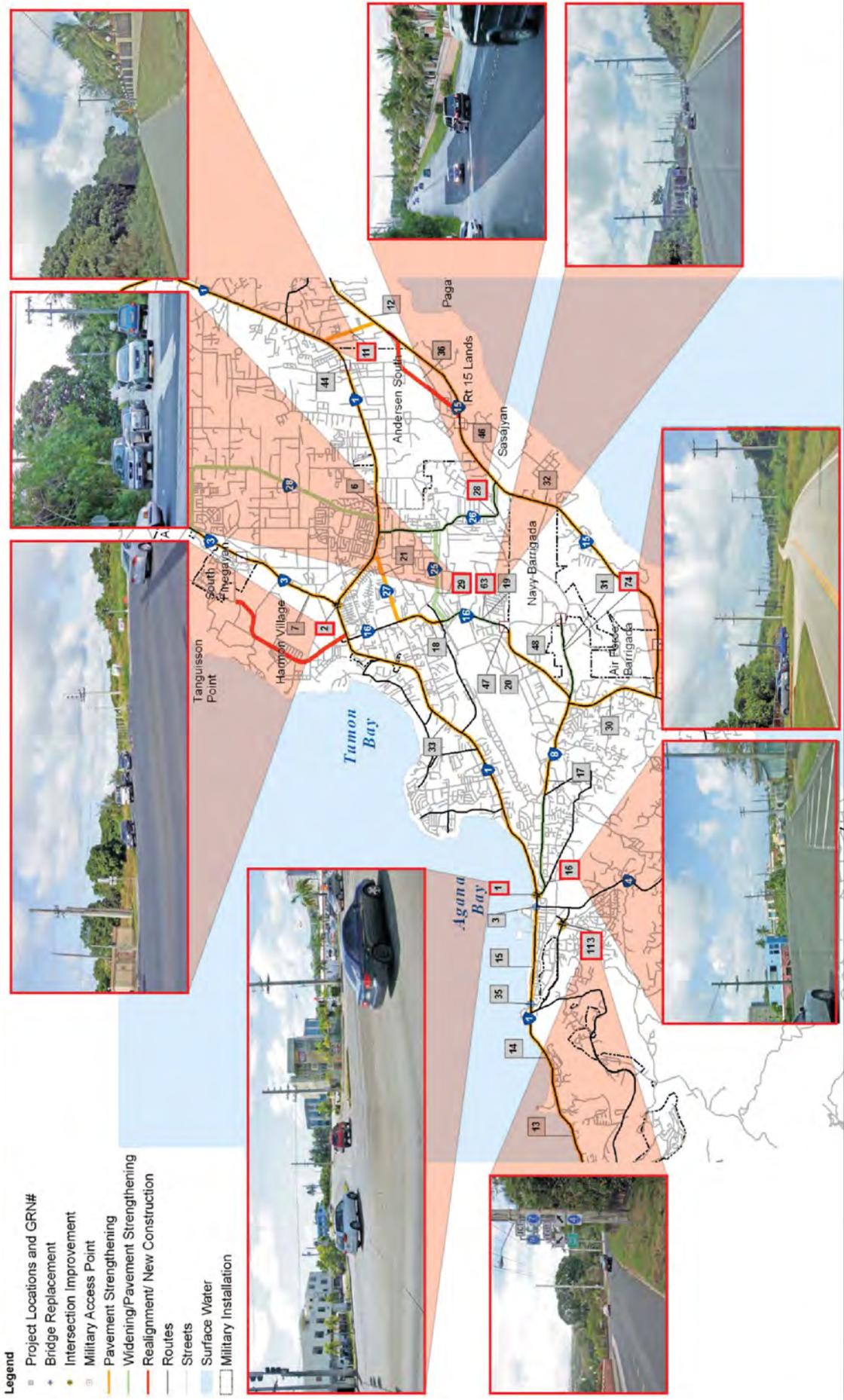
Development along the roadway, adjacent to the river channels, would have a direct influence on the visual character of the bridge setting, with an urban character in the more densely developed areas versus the rural character in the forested sections. The replacement bridge and general visual characteristics are listed in Table 13.1-7, and typical views of the existing bridge can be seen in Figure 13.1-46.

**Table 13.1-7. Existing Visual Quality for Bridge Replacement Projects – Central Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
3	1	Agana Bridge Replacement	Moderate	Moderate	Moderate	Moderate
35	1	Fonte Bridge Replacement	Moderately High	Moderate	Moderate	Moderate

As with character, the overall visual quality of a corridor varies depending on its specific location. In general, more urban areas have a moderate to moderately low visual quality, given the development patterns along the roadway and the level of maintenance of many of the strip commercial areas. Many of these areas have a moderate to moderately low vividness, moderately low intactness, and moderate unity. Residential and rural areas tend to have higher visual quality, in the moderate range, with moderate vividness, intactness, and unity.

- **Agana Bridge:** The Agana Bridge is located in the downtown area near the Route ¼ intersection, near the Chamorro Village tourist site. The riverbanks are heavily vegetated with trees and shrubs that effectively screen the views to the bridge from adjacent properties. Reconstruction of the bridge would require the removal of some of this vegetation. The existing visual quality of the Agana Bridge crossing is moderate, with moderate vividness, intactness, and unity.
- **Fonte Bridge:** The Fonte Bridge is located closer to the developed areas on the island and is adjacent to one of the cemeteries on the island. The bridge railing provides some opening, but not to the extent of the Atantano Bridge. As with the Sasa Bridge, utilities are suspended across the bridge and can be seen from the banks on the downstream side of the bridge. The visual quality of the bridge and area is moderate, with moderately high vividness, moderate intactness, and moderate unity.



- Legend**
- Project Locations and GRN#
  - Bridge Replacement
  - Intersection Improvement
  - Military Access Point
  - Pavement Strengthening
  - Widening/Pavement Strengthening
  - Realignment/ New Construction
  - Routes
  - Streets
  - Surface Water
  - Military Installation



Figure 13.1-46  
Typical Views for Roadway and Intersection Widening Projects - Central Region

### Roadway and Intersection Widening Projects

The proposed road widening or intersection improvement projects in the Central Region are summarized in Table 13.1-8. Typical views can be seen in Figure 13.1-47.

**Table 13.1-8. Existing Visual Quality  
for Roadway and Intersection Widening Projects – Central Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
1	1	Route 1/8 Intersection	Moderate	Moderate	Moderately Low	Moderate
2	1	Route 1/3 Intersection	Moderately High	Moderately High	Moderate	Moderately High
16	8	Tiyan Parkway/Route 33 (east) to Route 1	Moderate	Moderate	Moderate	Moderate
28	26	Route 1 to Route 15	Moderately High	Moderately High	Moderately High	Moderately High
29	25	Route 16 to Route 26	Moderately High	Moderately High	Moderately High	Moderately High
63	16	Route 10A to Sabana Barrigada Drive	Moderate	Moderate	Moderate	Moderate
74	8A	Route 16 to NAVCAMS Barrigada	Moderately High	Moderately High	Moderate	Moderately High
113	7	Route 7/7A Intersection	Moderately High	Moderate	Moderately High	Moderately High

- GRN #1, Route 1/8 Intersection: The Route 1/8 intersection is located in a heavily developed area of the island, with multi-story buildings and commercial properties. The area is highly developed. The overall visual quality of the area is moderate, with moderate vividness, moderate intactness, and moderately low unity.
- GRN #2, Route 1/ 3 Intersection: The Route 1/3 intersection is to the northern side of the island where the area is characterized by more suburban residential development and open forested land. The overall visual quality of the area is moderately high, with moderately high vividness, moderately high intactness, and moderate unity.
- GRN #16, Tiyan Parkway (Route 33 East) to Route 1: The area traversed by Route 8 is very developed with multi-story commercial and residential properties. The general visual quality of the roadway is moderate, with moderate vividness, intactness, and unity.
- GRN #28, Route 26 from Route 1 to Route 15: Route 26 is through a heavily residential area of the island. The current configuration is a two-lane road with grassy shoulders. The general visual quality of the roadway is moderately high, with moderately high vividness, moderately high intactness, and moderate unity.
- GRN #29, Route 25 from Route 16 to Route 26: The current Route 25 is a narrow two-lane road that winds through a residential area of the island. In some locations, trees along the roadway overhang the roadway, adding to the overall visual quality of the roadway. The general visual quality is moderately high, with moderately high vividness, intactness, and unity.



Figure 13.1.1-47  
Typical Views for Road Realignment and New Road Projects - Central Region

- GRN #63, Route 16 from Route 10A to Sabana Barrigada Drive: Route 16 is in a heavily developed area. It is currently a four-lane road with turn lanes. It also has one of the only grade-separated intersections (with Route 10A) on the island. The overall visual quality of the roadway is moderate, with moderate vividness, intactness, and unity.
- GRN #74, Route 8A from Route 16 to NAVCAMS Barrigada: Route 8A is a narrow two-lane road. Near its intersection with Route 16, commercial businesses quickly give way to single-family residential, including an elementary school. Farther east on the road, less development can be found. The existing overall visual quality for the roadway is moderately high, with moderately high vividness, moderately high intactness, and moderate unity.
- GRN #113, Route 7/ 7A Intersection: Because this intersection sits on an elevated area, the views from the intersection area provide some distant views to the water and nearby hills. In addition, a park located at the intersection adds open space to this densely developed area on the island. The overall existing visual quality of the intersection is moderately high, with moderately high vividness, moderate intactness, and moderately high unity.

### Road Realignments and New Road Projects

Within the central region, one road realignment is proposed, which is the relocation of Route 15 (GRN #36). The portion of Route 15 that would be relocated is situated in the northeastern area of the island. Typical to the island, the area on either side of the existing alignment is forested. Large portions of the new alignment would be on Andersen South. Approximately 66% of this new alignment would cut through the forested area. The remaining 33% would be through an area that once served as military housing, which has since been removed. Old roads and cleared areas remain in this area. Typical views for the project area can be seen in Figure 13.1-48.

The general visual quality of the area is moderately high, with a moderate vividness, moderately high intactness, and moderately high unity. These are summarized in Table 13.1-9. The high ratings are due to the forested areas surrounding the roadway. The forest limits the views out while providing a green screen along the roadway, so the memorability of the area (vividness) has a lower rating (at moderate), while the lack of encroaching elements and the composition of the view have higher ratings (at moderately high). The old housing areas have a lower visual quality (i.e., moderate overall) than the forested area, with moderately low vividness, moderate intactness, and moderate unity.

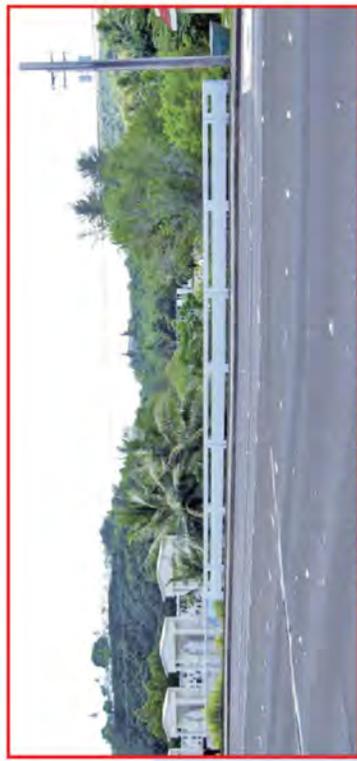
**Table 13.1-9. Existing Visual Quality  
for Road Realignment and New Road Projects – Central Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
36	15	Route 15 Realignment	Moderate	Moderately High	Moderately High	Moderately High

### **13.1.3 Apra Harbor**

#### 13.1.3.1 Harbor

Apra Harbor is considered to be one of the best ports in the Pacific Ocean. A unique visual element of the harbor is the integration of man-made and natural landscape. The southern part of Apra Harbor is currently occupied by the Naval Station and no primary scenic sites are open to the public.



- Legend**
- Project Locations and GRN#
  - Bridge Replacement
  - Intersection Improvement
  - Military Access Point
  - Pavement Strengthening
  - Widening/Pavement Strengthening
  - Realignment/ New Construction
  - Routes
  - Streets
  - Surface Water
  - Military Installation



Figure 13.1.1-48  
Typical Views for Bridge Replacement Projects - Central Region

The most valuable visual resources are distant views of the harbor from inland locations, such as Nimitz Hill. The Glass Breakwater is a partially man-made breakwater that along with the Orote Peninsula provides the boundaries of the harbor (Figure 13.1-49).



**Figure 13.1-49. Aerial View of Orote Peninsula and Outer Apra Harbor**

Source: Google Earth 2008.

#### 13.1.3.2 Naval Base Guam

There are several scenic points and vistas associated with the Naval Base, however, accessibility to these areas are restricted to military personnel only.

##### Orote Point Scenic Vista

Orote Point is located at the westernmost point of Orote Peninsula. The Orote Point Scenic Vista, which is about 4 mi (6.4 km) east of the Naval Station front gate, provides unobstructed views of the deepwater port to the south (Figure 13.1-50). It is also the location of the Spanish Steps, which provide a trail to the beach below. The views at Orote Point are not limited to the overlook. Upon descending the Spanish Steps, a sea-level view of the harbor is provided. Visitors, who are restricted to military personnel, come here to enjoy the crystal water and observe the rock formations (Figure 13.1-51).

##### Tipalao/Dadi Beach

Dadi Beach is located at the south end of the Tipalao Housing Area, approximately 1.3 mi (2.1 km) from the Naval Base Main Gate. Dadi Beach offers a wide range of views of Agat Bay and its neighboring shoreline (Figure 13.1-52). Thick tropical vegetation grows along the beach forming a natural wall blocking the view looking inward from the ocean. Just to the north of Dadi Beach is the Tipalao area which consists of a housing area and adjacent beach.



**Figure 13.1-50. View from Orote Point, the Top of the Spanish Steps**  
Source: Google Earth 2008.



**Figure 13.1-51. Below the Orote Point Overlook**  
Source: Google Earth 2008.



**Figure 13.1-52. Dadi Beach**

Source: Google Earth 2008.

### 13.1.3.3 Non-DoD Land

#### Cabras Island Scenic Vista

Cabras Island is a finger-like reef island that has been extended by the Glass Breakwater, which forms the shoreline of Apra Harbor with Orote Peninsula. Cabras Island offers a view of the west coast of Guam. A perspective of Two Lovers Point and even farther towards Ritidian Point is available from this vantage point.

#### Mount Chachao Scenic Vista

Mount Chachao is one of the designated units in the War in Pacific National Historical Park. Mount Chachao is linked with Mount Alutom and Mount Tenjo, which form the highest terrain that United States (U.S.) forces captured in 1944. Historically, Mount Chachao provided the Japanese defenders with a view of American troops landing at Asan Beach. Today, an overview of Apra Harbor and Orote Point is provided at this summit (Figure 13.1-53).



**Figure 13.1-53. View from Mount Chachao Scenic Vista**

Source: Google Earth 2008.

#### 13.1.3.4 Off Base Roadways

The proposed action includes on base roadway construction projects that would be implemented by the DoD. An affected environment description for on base roadway construction projects is included beneath the appropriate subheadings in other sections of this chapter. The following section describes the affected environment for off base roadway construction projects that would be implemented by the FHWA.

The following subsections describe the nature of the proposed road improvement projects in the Apra Harbor Region.

##### Military Access Point Projects

Only one MAP project is proposed within the Apra Harbor Region. Because the project is located within DoD land, in which photographing is not permitted, typical views are not included in this report; however, descriptions are included here.

The visual character and quality of the MAP location is similar to the adjacent roadway network (i.e., Route 1). The proposed project includes improvements to an existing MAP location. Table 13.1-10 identifies the existing visual quality the proposed MAP project.

**Table 13.1-10. Existing Visual Quality for Military Access Point Projects – Apra Harbor Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
50	1	MAP 14, Naval Base Guam; at Route ½A intersection	Moderate	Moderate	Moderate	Moderate

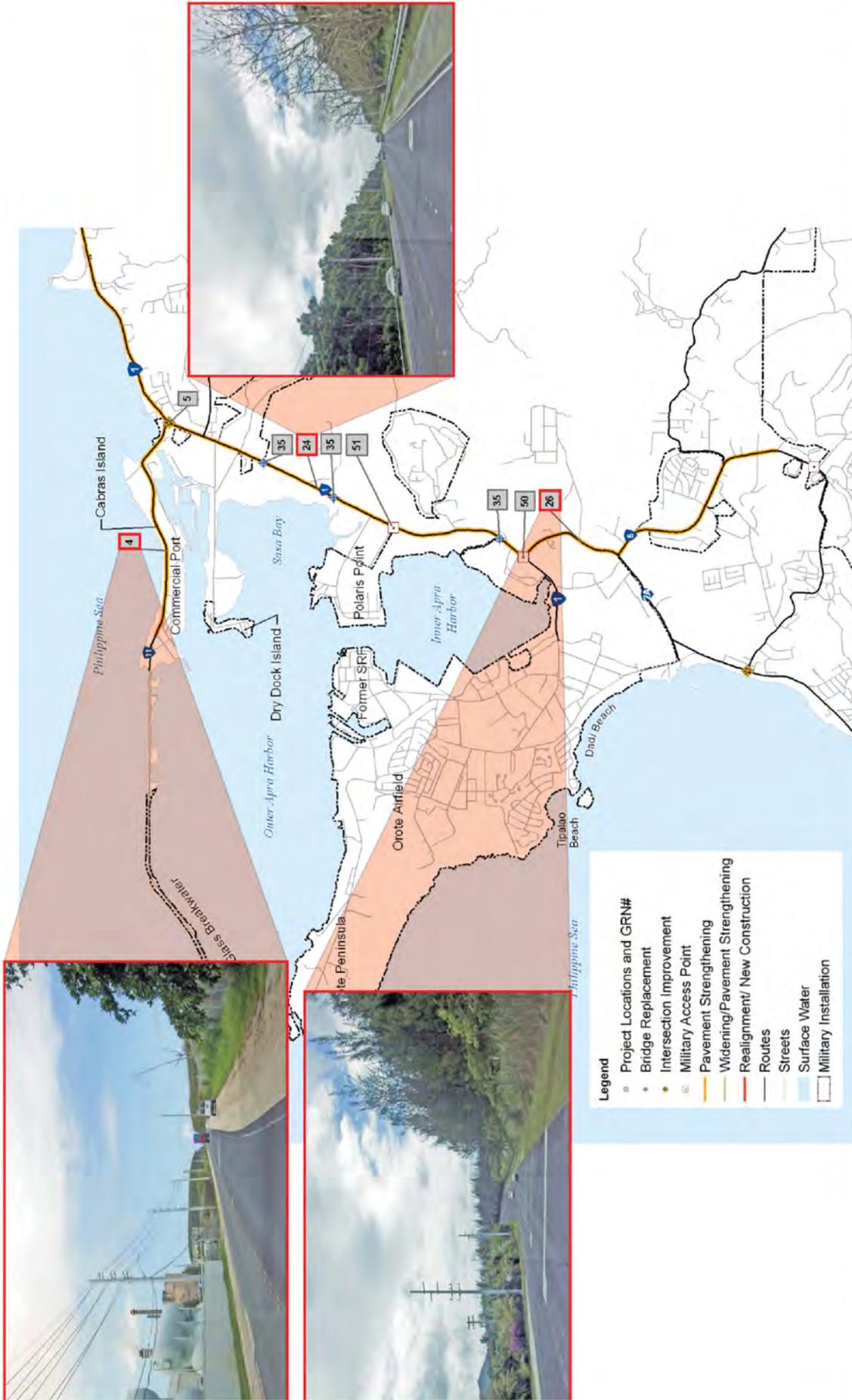


Figure 13.1-54  
Typical Views for Pavement Strengthening Projects - Apra Harbor Region

### Pavement Strengthening Projects

There are three pavement strengthening projects within the Apra Harbor Region, as shown in Table 13.1-11. Typical views for the region can be found in Figure 13.1-54. The Apra Harbor Region is one of the most industrialized locations on the island. Two prominent features that are found here and can be seen at least as far away as the resorts in Tamuning are the concrete silos and the power plant for the island. Large portions of the land adjacent to the roadway are paved for shipping containers and truck storage. Because the port area juts out into the Philippine Sea, the ocean is a prominent element, particularly along the north side of Route 11.

**Table 13.1-11. Existing Visual Quality  
for Pavement Strengthening Projects – Apra Harbor Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
4	11	Port to Route 1	Moderately Low	Moderately Low	Moderately Low	Moderately Low
24	1	Route 2A to Route 11	Moderate	Moderate	Moderate	Moderate
26	2A	Route 5 to Route 1	Moderately High	Moderately High	Moderate	Moderately High

Given the industrial nature of the area, the existing visual quality of the region is generally low. The overall vividness of the area is low, with low intactness and unity. Views out to sea tend to increase the vividness of the area, but the industrial development, truck facilities, and shipping containers that make up the port area overwhelm the positive qualities and contribute to the low vividness.

### Bridge Replacement Projects

Three bridge replacement projects are proposed along Route 1 in the Apra Harbor Region. The existing visual quality for the bridge areas is summarized in Table 13.1-12, and typical views can be seen in Figure 13.1-55.

**Table 13.1-12. Existing Visual Quality for Bridge Replacement Projects – Apra Harbor Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
35	1	Atantano Bridge Replacement	Moderately High	Moderately High	Moderate	Moderately High
35	1	Laguas Bridge Replacement	Moderately High	Moderate	Moderate	Moderate
35	1	Sasa Bridge Replacement	Moderate	Moderately Low	Moderate	Moderate

- **Atantano Bridge:** This bridge is located in a rural area along Route 1, with little development adjacent to the riverbanks. Views from the bridge are to forested areas on either side of the bridge. The general visual quality in the bridge area is moderately high, with moderately high vividness, moderately high intactness, and moderate unity. The open railing of the bridge affords travelers on Route 1 views out into the surrounding landscape, increasing the visual quality of the bridge area.
- **Laguas Bridge:** The bridge over the Laguas River is located in an area of less development, and there are no adjacent structures in the bridge area. The existing visual quality of the bridge area is moderate, with moderately high vividness, moderate intactness, and moderate unity.

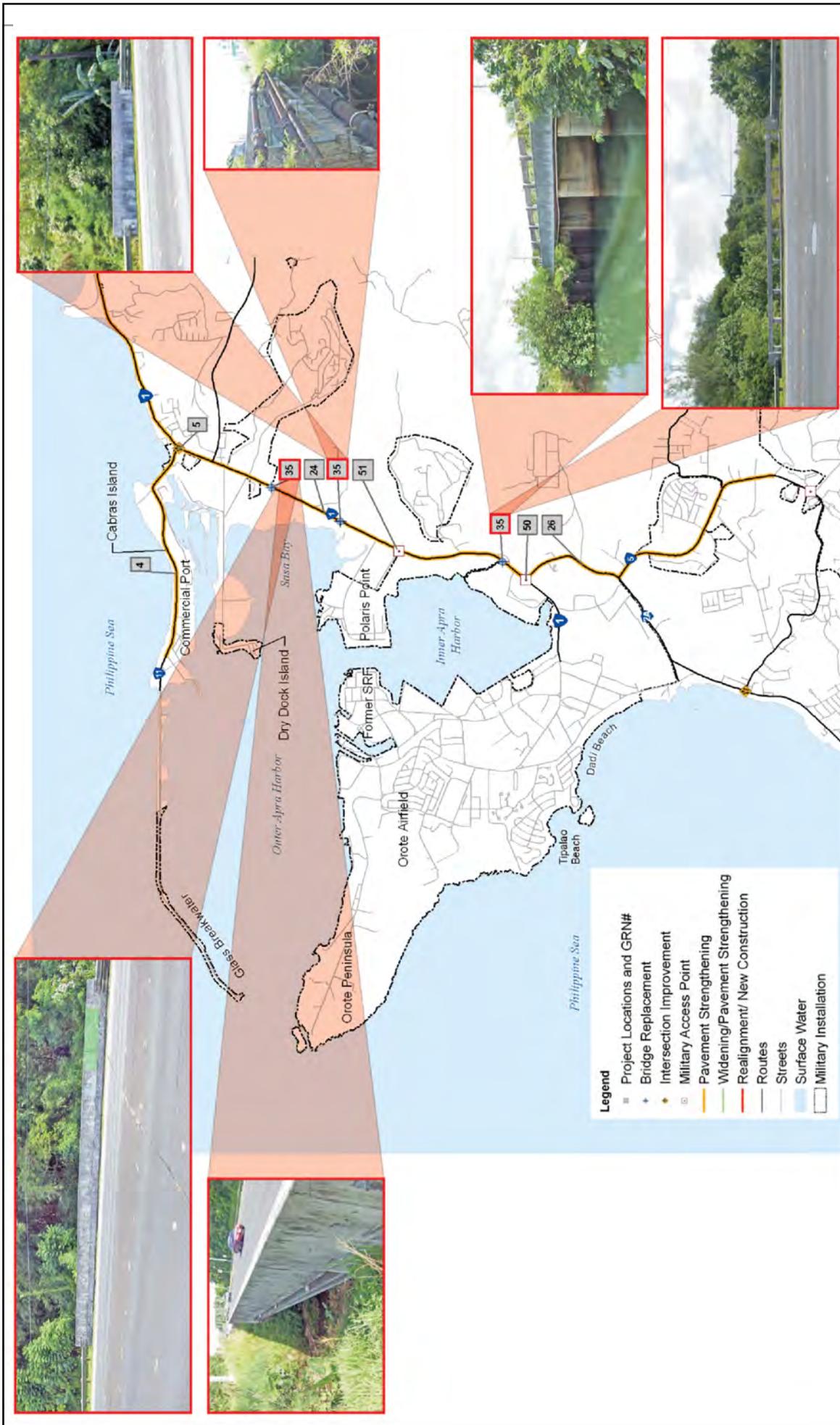


Figure 13.1-55  
Typical Views for Bridge Replacement Projects - Apra Harbor Region

- Sasa Bridge: The Sasa Bridge is also located in an area without large-scale development. The surrounding landscape is well forested. The bridge itself has a substantial number of utilities hanging off the bridge, which detracts from the overall visual quality of the area. The visual quality of the area is moderate, with moderate vividness, moderately low intactness, and moderate unity.

#### Roadway and Intersection Widening Projects

There is one intersection improvement project within the Apra Harbor Region at the Route 1/11 (GRN #5). The Route 1/11 intersection in the port area has an industrial character to the west but an undeveloped and forested area to the east. Because of the presence of the power plant, there are many large utility poles along the roadways. The overall visual quality for the Route 1/11 intersection is moderate, with moderate vividness, moderate intactness, and moderately low unity.

The existing visual quality for the project area is summarized in Table 13.1-13, and typical views for the intersection can be seen in Figure 13.1-56.

**Table 13.1-13. Existing Visual Quality  
for Roadway and Intersection Widening Projects – Apra Harbor Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality ( $V + I + U/3$ )
			Vividness	Intactness	Unity	
5	1	Route 1/11 Intersection	Moderate	Moderate	Moderately Low	Moderate

#### Road Realignments and New Road Projects

There are no proposed road realignment or new road projects proposed within the Apra Harbor Region.

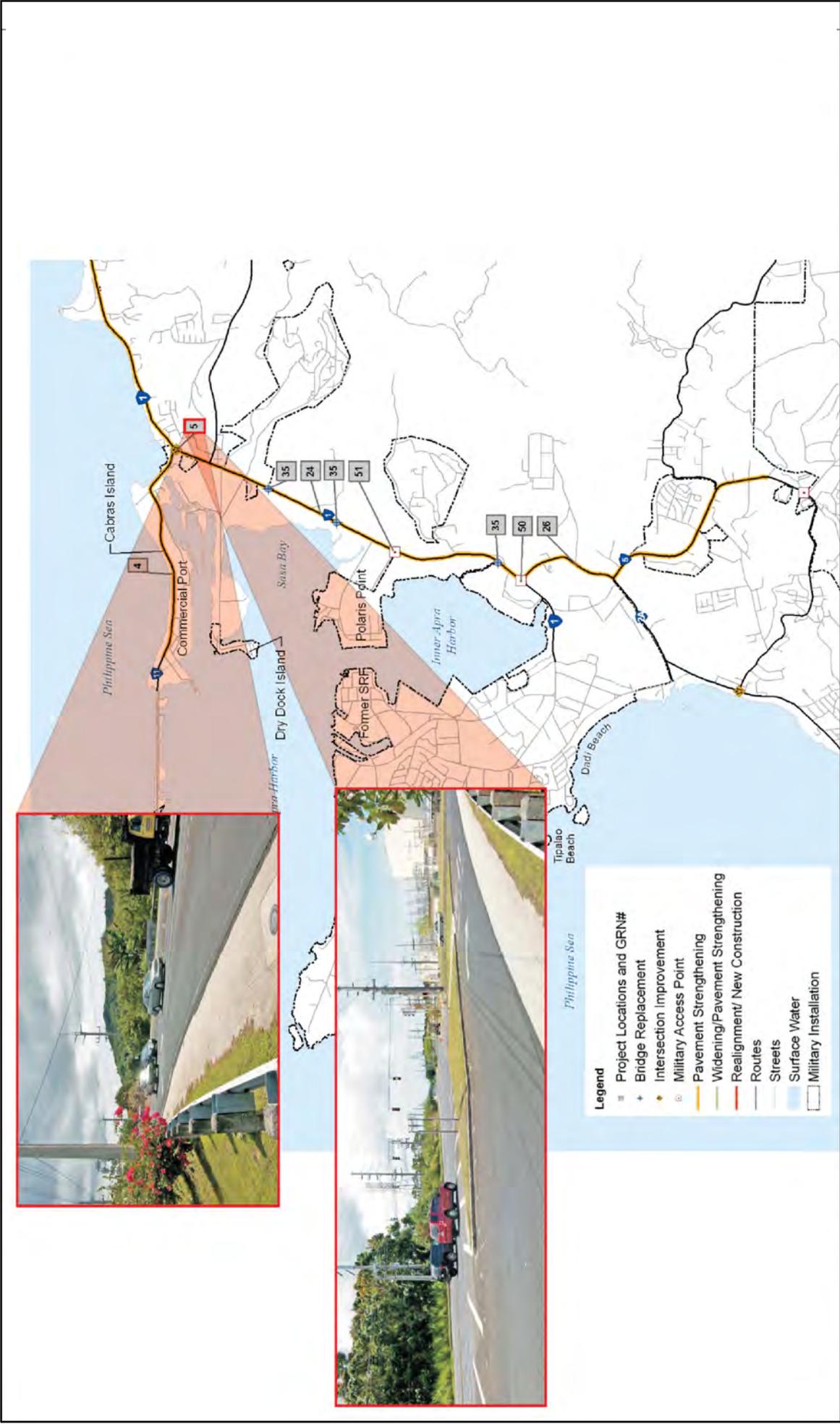


Figure 13.1-56  
Typical Views for Roadway and Intersection Widening Projects - Apra Harbor Region

### 13.1.4 South

#### 13.1.4.1 Naval Munitions Site

The Naval Munitions Site (NMS) is located on the southwestern side of Guam and is primarily used as a weapons storage area. NMS is located in a large bowl-shaped valley that is surrounded by rugged terrain and several mountain peaks. Generally speaking, the southern half of Guam can be characterized as having much more topographic relief than the northern half of the island and is much more sparsely populated. Because of these factors, as well as its interior location and more isolated environment overall, NMS is almost entirely out of the public's view. Views from within the northern part of the area are a blend of a naturally appearing landscape, interspersed with areas of earth covered magazines. The southern area of NMS is mountainous and very rugged terrain, and with the exception of some jeep roads, there are almost no man-made features covering the landscape. Located within NMS, Fena Valley Reservoir is the largest water body on the island of Guam and provides the potable water supply for central and southern Guam (Figure 13.1-57). Like the rest of NMS, Fena Valley Reservoir is restricted to no public access.



**Figure 13.1-57. Fena Valley Reservoir**

*Source:* Google Earth 2008.

Along the west side of the NMS boundary is a sequence of mountains including Mount Alifan, Mount Almagosa, Mount Lamlam and Mount Humuyong Manglo. The greenery in this area complements picturesque mountain views (Figure 13.1-58). The view from Mount Humuyong Manglo Overlook encompasses the Fena Valley Reservoir. Mount Lamlam is the tallest mountain on Guam, rising to an elevation of 1,334 ft (407 m) above sea level. The summit overlook provides a 360-degree view of the island and the surrounding ocean. In addition to the mountain lookout sites, there are several waterfalls and springs within the Southern Mountains group that provide valuable scenic views.



**Figure 13.1-58. A View of Southern Mountains from Mount Lamlam**

*Source:* Google Earth 2008.

Mount Alifan is located at the northwestern edge of NMS. It is part of the Southern Mountain Group and it climbs to 768 ft (234 m) above sea level providing a panoramic view of Agat Bay and the Orote Peninsula. Japanese Lookout is a scenic point located at the top of Mount Alifan.

#### 13.1.4.2 Non-DoD Land

##### Facpi Point Lookout

Facpi Point is located at the tip of Facpi Island in southwestern Guam approximately 1.5 mi (2.4 km) from Sella Bay. Facpi Point provides a view of the Umatac ridgeline and a panoramic view of corals and caves during low-tide (Figure 13.1-59).



**Figure 13.1-59. A View of Facpi Point**

*Source:* Google Earth 2008.

##### Sella Bay Overlook/Spanish Bridge and Oven

The Sella Bay Overlook is situated approximately one mile away from the Cetti Bay Overlook (description below). Both are located on Route 2 near the village of Agat (Figure 13.1-60).

Cetti Bay Overlook

Cetti Bay is situated on southwestern side of Guam. The Cetti Bay Overlook provides a wide range of views to the bay area and even farther south to Cocos Island as well as Cocos Lagoon (Figure 13.1-61). The low, natural-appearing groundcover allows a clear, unobstructed panoramic view looking out to the Philippine Sea.



**Figure 13.1-60. A View of Sella Bay Looking Towards the Philippine Sea**

*Source: Google Earth 2008.*



**Figure 13.1-61. A View of Cetti Bay**

*Source: Google Earth 2008.*

### Fouha Bay Scenic Vista

Fouha Bay is located north of Umatac Village on the southwestern coast of Guam about 0.5 mi (0.8 km) to the south of Cetti Bay. The Fouha Bay Scenic Vista provides a view of Fouha Bay and the Philippine Sea (Figure 13.1-62).

### Talifak Spanish Bridge

Talifak Spanish Bridge, located on the southwestern side of Guam, bridges the Talifak River. The bridge is a historic asset built during the Spanish occupation of Guam. The aesthetic value of the Talifak Bridge is highly appreciated by many, with not only its unique arch shape but also the visual harmony between the bridge and its surroundings (Figure 13.1-63).



**Figure 13.1-62. A View of Fouha Bay**

*Source:* Google Earth 2008.



**Figure 13.1-63. Talifak Spanish Bridge**  
 Source: Google Earth 2008.

13.1.4.3 Off Base Roadways

The proposed action includes on base roadway construction projects that would be implemented by the DoD. An affected environment description for on base roadway construction projects is included beneath the appropriate subheadings in other sections of this chapter. The following section describes the affected environment for off base roadway construction projects that would be implemented by the FHWA.

Military Access Point Projects

Only one MAP project is proposed within the south region. Because the project is located within DoD land, in which photographing is not permitted, typical views are not included in this report; however, descriptions are included.

The visual character and quality of the MAP location is similar to the adjacent roadway network (i.e., Route 12). Table 13.1-14 identifies the existing visual quality of the proposed MAP project.

**Table 13.1-14. Existing Visual Quality for Military Access Point Projects – South Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
52	12	MAP 16, Naval Munitions Site	Moderate	Moderate	Moderate	Moderate

Pavement Strengthening Projects

Like the north region, the South Region is more suburban to rural in character; however, the South Region has a more volcanic past that is reflected in its appearance today. In general, it has more dramatic topographic relief in some locations. These steeper areas also tend to be more forested, given the difficulty in building in these locations. The pavement strengthening projects for the South Region are listed in Table 13.1-15, and the typical views for these projects can be seen in Figure 13.1-64.

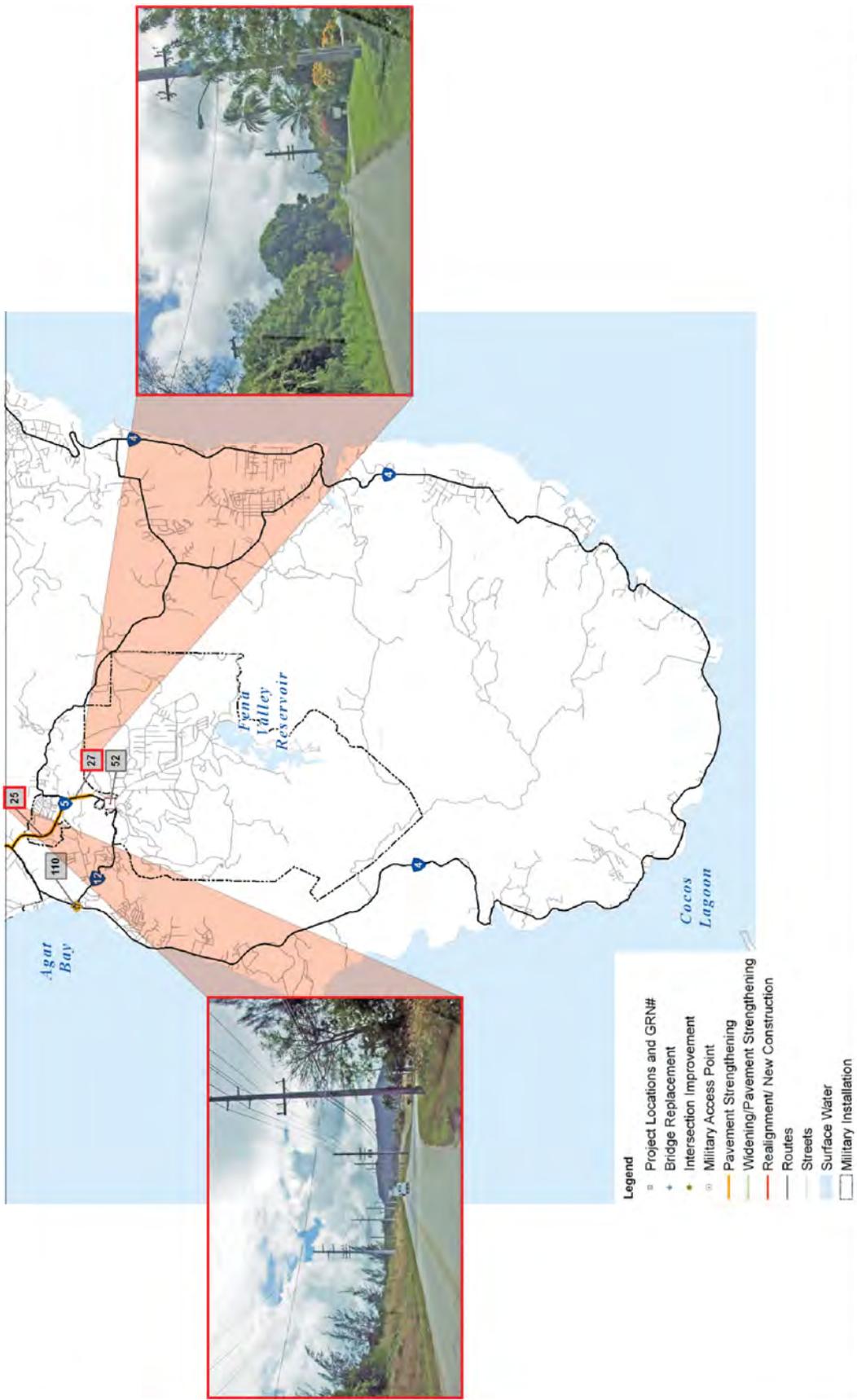


Figure 13.1-64  
Typical Views for Pavement Strengthening Projects - South Region

**Table 13.1-15. Existing Visual Quality for Pavement Strengthening Projects – South Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
25	5	Route 17 to Route 2A	Moderate	Moderate	Moderate	Moderate
27	5	Harmon Road to Route 17	Moderately High	Moderately High	Moderate	Moderately High

The overall visual quality for the South Region is moderately high overall, with moderately high vividness, moderately high intactness, and moderate unity. The overall visual quality rating is based on the general rural appearance along the roadways, as well as the forested areas.

#### Bridge Replacement Projects

No replacement bridge projects are located in the South Region.

#### Roadway and Intersection Widening Projects

There is one intersection improvement project within the South Region at the Route 2/12 intersection. This intersection has a mix of commercial and residential development. At the intersection, the roads are multilane to accommodate turning movements. There are distant views between the surrounding landscaping and under the power lines to the ocean. The overall visual quality of the intersection is moderate, with moderate vividness, moderately low intactness, and moderate unity. The existing visual quality for the project area is summarized in Table 13.1-16, and typical views can be seen in Figure 13.1-65.

**Table 13.1-16. Existing Visual Quality  
for Roadway and Intersection Widening Projects – South Region**

GRN #	Route Number	Segment Limits	FHWA Visual Assessment Criteria			Overall Visual Quality (V + I + U/3)
			Vividness	Intactness	Unity	
110	2	Route 2/12 Intersection	Moderate	Moderately Low	Moderate	Moderate

#### Road Realignments and New Road Projects

There are no proposed road realignment or new road projects proposed within the south region.

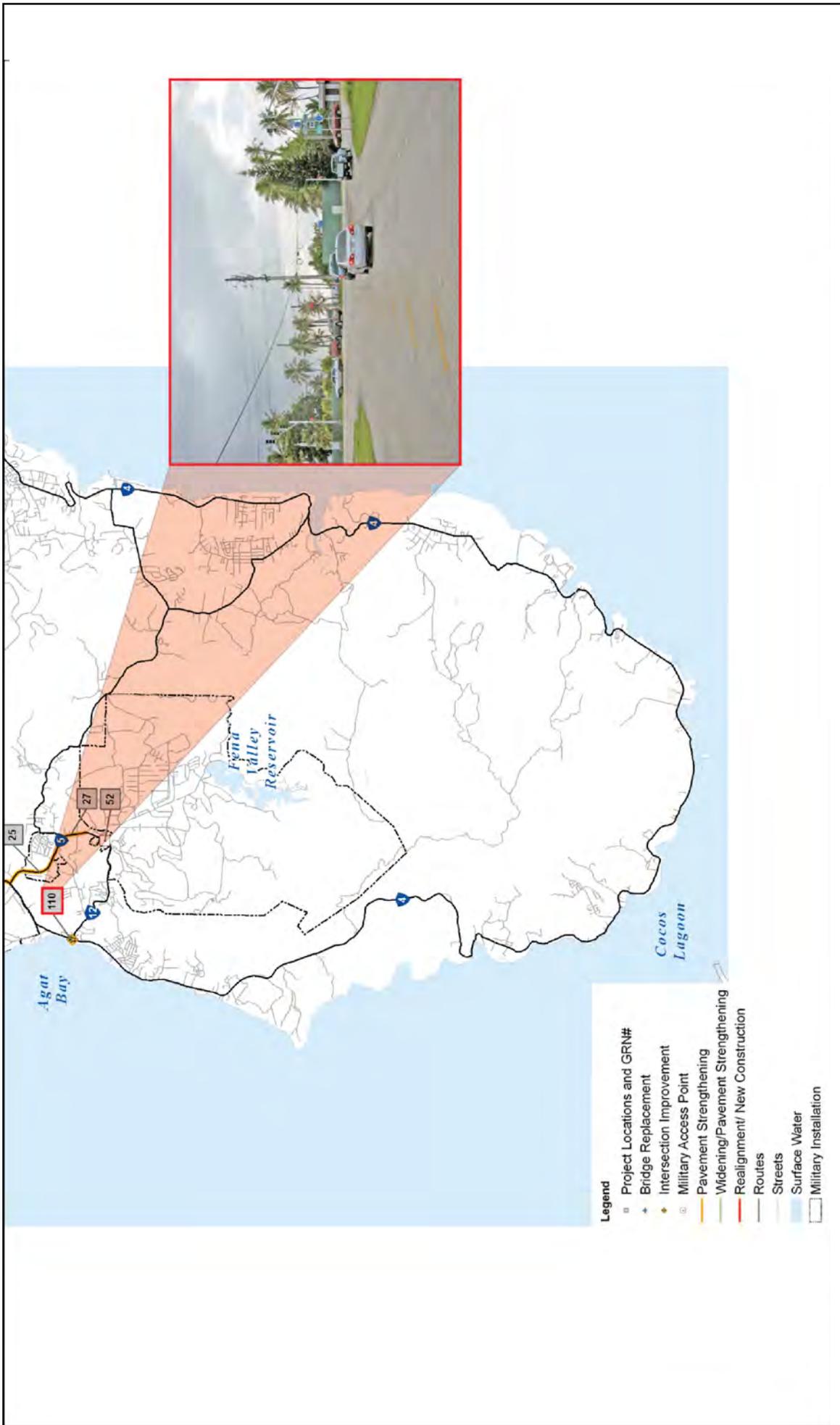


Figure 13.1-65  
Typical Views for Roadway and Intersection Widening Projects - South Region

## 13.2 ENVIRONMENTAL CONSEQUENCES

This description of environmental consequences addresses all components of the proposed action for the Marine Corps on Guam. The components addressed include: Main Cantonment, Training, Airfield, and Waterfront. There are multiple alternatives for the Main Cantonment, Training-Firing Range, Training-Ammunition Storage, and Training-NMS Access Road. Airfield and Waterfront do not have alternatives. Although organized by the Main Cantonment alternatives, a full analysis of each alternative, Airfield, and Waterfront is presented beneath the respective headings. A summary of impacts specific to each alternative, Airfield, and Waterfront is presented at the end of this chapter. An analysis of the impacts associated with the off base roadways is discussed in Volume 6.

### 13.2.1 Approach to Analysis

#### 13.2.1.1 Methodology

Information on visual resources was gathered through on-site visits, background research, and participation in stakeholder and public meetings. The analysis of potential impacts to visual resources is based on the long term (operational) effects – i.e., after construction has occurred and all buildings, facilities, and structures are in place. Construction-related activities related to the development of the Marine Corps facilities would be relatively minimal in their impacts (i.e., earth-moving equipment clearing vegetation and constructing facilities).

#### 13.2.1.2 Determination of Significance

For the purpose of this EIS/OEIS, the proposed action and alternatives would cause a significant impact to visual resources if they:

- Would substantially alter the views or scenic quality associated with particularly significant and/or publicly recognized vistas, viewsheds, overlooks, or features;
- Would substantially change the light, glare, or shadows within a given area; and
- Would substantially affect sensitive receptors – i.e., viewers with particular sensitivity (or intolerance) to a changed view (e.g., a hillside neighborhood with views of a relatively undisturbed, naturally-appearing landscape)

Significant impacts that cannot be mitigated to less-than-significant levels are considered unavoidable.

A discussion is presented for each significance criterion listed that would be triggered by the alternatives.

#### 13.2.1.3 Issues Identified during Public Scoping Process

No visual resource issues regarding the proposed action were raised at the April 2007 public scoping meetings.

### 13.2.2 Alternative 1

#### 13.2.2.1 North

##### Andersen AFB

The North Ramp Area would see the largest amount of new development at Andersen AFB for proposed airfield functions associated with the proposed action, including the addition of several new hangars, warehouses, administrative buildings, maintenance facilities, parking areas, and new ramp space to accommodate Marine Corps aviation needs. The new buildings would range in height from approximately 20 to 60 ft (6 to 18 m). Figure 13.2-1 shows the primary area of proposed Marine Corps development at

the North Ramp Area. The additional Marine Corps facilities would add a substantial amount of new buildings and infrastructure to an area already dominated by a similar landscape – i.e., active runways, ramps, hangars, etc. Additionally, public views into this area can only be seen from the distant point on Mount Santa Rosa; and from that distance the North Ramp Marine Corps expansion area would blend into the rest of the Air Force facilities and paved areas. Therefore, any impacts to visual resources are anticipated to be less than significant.



**Figure 13.2-1. Aerial View of the North Ramp Area with Depiction of Where Most New Development would be Located**

Neither the Tarague Embayment Overlook nor the Pati Point Overlook would be impacted in any way by the North Ramp Area development.

#### South Ramp Area

The Air Mobility Command (AMC) Campus proposed for the South Ramp Area of Andersen AFB would include the addition of several buildings and parking areas to accommodate Marine Corps and Air Force air embarkation needs. The new buildings would be no more than two stories (approximately 25 ft [8 m] high). Figure 13.2-2 and Figure 13.2-3 show the primary area of proposed development at the South Ramp Area. Similar to the North Ramp Area, but to a lesser degree, the additional facilities would add a few new buildings and infrastructure to an area already dominated by a similar landscape – i.e., active runways, ramps, hangars, etc. Also similar to the North Ramp, public views into the South Ramp Area can only be seen from the distant point on Mount Santa Rosa; and from that distance the South Ramp AMC Campus expansion area would blend into the rest of the Air Force facilities and paved areas. Therefore, any impacts to visual resources are anticipated to be less than significant.

There would be no visual impacts to the Palm Tree Golf Course as part of the AMC Campus development.



**Figure 13.2-2. Aerial View Looking East South with Depiction of Where the Proposed New AMC Campus Would be Located Adjacent to South Ramp**



**Figure 13.2-3. Aerial View Looking Northwest Northeast With Depiction of Where the Proposed New AMC Campus Would be Located Adjacent to South Ramp**

### Air Force MSA

Several new earth covered magazines are proposed for MSA1, including roads and associated infrastructure. These facilities and infrastructure would be in keeping with the current features of the area. Furthermore, there are no public views into MSA1. Therefore, no impacts to visual resources are anticipated from the expanded facilities at the MSA1.

### Northwest Field

Proposals related to NWF include intermittent aviation-related training activities; no permanent facilities are proposed. Therefore, no impacts to visual resources are anticipated.

### Finegayan

Under Alternative 1 of the Main Cantonment alternatives, development of the Finegayan area would result in substantial alteration of much of the existing landscape. The mostly vegetated Federal Aviation Administration (FAA) property and Harmon Area and relatively open visual character of the southern half of NCTS and South Finegayan would be completely transformed into a relatively dense area with numerous buildings, roads, parking lots, sidewalks, and landscaping. While this would represent a major change over the existing visual conditions and interior views at Finegayan, it would be expected to be less than significant because most of the property is already under DoD ownership and there are few if any sensitive views or receptors that currently exist on these sites.

Public views from Highway 3 into the areas proposed for development would take on a more urban/suburban character. The major changes would be on the FAA and Harmon properties, where naturally-appearing, densely-forested landscape would be replaced with a mix of housing (two stories) and barracks (four stories). Views of the proposed development on South Finegayan from Highway 3 and NCTS would be altered but not quite as striking because of the existing naval facilities already located on these sites.

Figure 13.2-4 shows the future northward looking view of South Finegayan (foreground) and the FAA parcel and NCTS Finegayan (middle ground) from Highway 3, respectively. Figure 13.2-5 shows the future northward looking view of NCTS Finegayan from Highway 3. Figure 13.2-6 shows the future northward looking view of the northern extent of the proposed developed area at NCTS Finegayan from Highway.

None of the public views into the Finegayan area are of any particular significance, e.g., a recognized vista or overlook. However, because the proposed development would result in a substantial change to the existing landscape along a major and well-traveled public roadway it is anticipated that it would have a significant impact to visual resources. These impacts could be reduced to a level less than significant with mitigation measures in place.

Haputo Beach, Double Reef, and North Double Reef would not be affected by the proposed development on Finegayan, however Haputo Point Overlook could be adversely impacted. Adverse impacts to this overlook could be lessened to a level of less than significant with mitigation.

### Non-DoD Land

None of the recognized viewpoints, vistas, or overlooks located on non-DoD lands would be expected to be impacted by the various developments being proposed in the north area because of the distances and vegetation between them.



**Figure 13.2-4. Alternative 1: View from Route 3 Looking Northward with New Family Housing in the Foreground and Middle Ground and the Main Cantonment in the Background (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-5. Alternative 1: Panoramic View from Route 3 Looking Northwestward into the Central Part of NCTS with New Warehouse in the Foreground (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-6. Alternative 1: View from Route 3 Looking Northward into the North Part of NCTS (RESULTING VIEW)**

*Source:* EDAW 2009.

#### 13.2.2.2 Central

##### Andersen South

Under the non-firing training functions, development of Andersen South and land adjacent to Route 15 for non-fire and live-fire training would result in moderate to substantial alteration of the existing landscape. Currently, publicly accessible views (primarily from Highway 1 and 15) into these areas are very limited due to the relatively flat topography and dense vegetation. Interior views within Andersen South would be of a large-scale, busy training environment with organized activities running in parallel throughout the complex. Derelict and overgrown buildings, and old crumbling roadways would be replaced with a network of facilities and infrastructure serving the multiplicity of required training functions. While this would represent a major change over the existing visual conditions and interior views at Andersen South, it would be expected to be less than significant because of the property is already under DoD ownership and there are no sensitive views or receptors that currently exist on this site.

##### Non-DoD Land

Regardless of the live-fire training alternative — Alternative A: Route 15 relocation; Alternative B: no road relocation — views from Highway 15 would likely be the most affected by the proposed development to this area. Essentially, views would change from primarily a densely vegetated landscape on both sides of Highway 15 to views composed of cleared areas, berms, structures, buildings, roadways, parking areas, fencing, and entry gates. Additionally, the ranges would require relatively large cleared areas, which would likely result in opening up ocean views to the east which currently do not exist. In any case, the proposed non-firing and live-fire training and ranges would represent a major change over the

existing visual conditions. None of the public views into these areas are of any particular significance, e.g., a recognized vista or overlook. However, because the proposed development would result in such a substantial and dramatic change to the existing landscape along a major and well-traveled public roadway it is anticipated that it would have a significant impact to visual resources. These impacts could be reduced to a level less than significant with mitigation measures in place.

#### Barrigada

No development is proposed for Barrigada under Main Cantonment Alternative 1, therefore, no impacts are anticipated.

#### 13.2.2.3 Apra Harbor

##### Harbor

There would be a variety of different in-water and waterfront improvements carried out under the proposed action. The visual appearance of all of the improvements (wharves and associated shore-side supports facilities) would be similar to and in keeping with the visual conditions of the current harbor environment. Therefore, no impacts are anticipated.

#### Naval Base Guam

The various projects proposed for Navy Base under the proposed action (Apra Clinic, Dog Kennel, U.S. Coast Guard relocation, etc.) are in keeping with the overall visual appearance at the Navy Base. Therefore, no impacts are anticipated.

#### 13.2.2.4 South

The projects and activities proposed within the South area are the 11 new earth-covered magazines (ECM) and maneuver training at NMS. The new ECMs, including roads and associated infrastructure would be adjacent or near the existing ECMs for both alternatives. It is expected that this new development would result in clearing of vegetation and the addition of manmade structures, thus increasing the amount of modified landscape in this otherwise natural-appearing environment. However, this area is entirely under DoD ownership and it is mountainous with very rugged terrain, therefore, public views into the area are very limited. Furthermore, these facilities and infrastructure would be in keeping with the current features of the area. Therefore, no impacts to visual resources are anticipated from the expanded facilities at NMS.

#### 13.2.2.5 Summary of Impacts

Impacts to visual resources would be less than significant due to operations under Alternative 1 of the Main Cantonment alternatives, the airfield areas on Andersen AFB, and the ammunition storage alternatives at the NMS. Significant impacts to visual resources would occur at Route 15 due to operations of either of the Training Range Complex alternatives.

#### 13.2.2.6 Potential Mitigation Measures

Potential mitigation measures include the following:

- To alleviate the impact on public views, develop and implement a landscape plan focused on retention of mature specimen trees during construction (where possible) and the establishment of a full suite of vegetation in keeping with Guam's native flora.
- To alleviate the impact on public views, use native flora to create a natural-appearing "screen" around the cleared range areas, outside of the firebreaks/perimeter roads..

### 13.2.3 Alternative 2 (Preferred Alternative)

#### 13.2.3.1 North

##### Andersen AFB

The impacts under Alternative 2 would be the same as those described for Alternative 1.

##### Finegayan

The impacts under Alternative 2 would be nearly identical to those described for Alternative 1. The primary difference as it affects visual resources is that under Alternative 2 the Harmon property would not be developed and more of NCTS would be; in particular, additional development to the north along approximately half a mile of Highway 3 would be altered from its current status (natural-appearing landscape) to a landscape that is light industrial in appearance – warehouses, parking lots, vehicle maintenance areas, etc. Figure 13.2-7 identifies the northern extent of the proposed developed area at NCTS Finegayan, which would accommodate the Army Air and Missile Defense Task Force (AMDTF) administration and operations complex, and the Marine Logistics Group operations and support facilities, as well as the Commercial Gate. The proposed development would represent a major change over the existing visual conditions.

Public views from Highway 3 into the areas proposed for development would take on a more urban/suburban character. The major changes would be on the FAA and Harmon properties, where naturally-appearing, densely-forested landscape would be replaced with a mix of housing (two stories) and barracks (four stories). Views of the proposed development on South Finegayan from Highway 3 and NCTS would be altered but not quite as striking because of the existing naval facilities already located on these sites.

Figure 13.2-7 shows the future northward looking view of South Finegayan (foreground) and the FAA parcel and NCTS Finegayan (middle ground) from Highway 3, respectively. Figure 13.2-8 shows the future northward looking view of NCTS Finegayan from Highway 3. Figure 13.2-9 shows the future northward looking view of the northern extent of the proposed developed area at NCTS Finegayan from Highway with new facilities in the foreground and water tower/tank in the background.

None of the public views into the Finegayan area are of any particular significance, e.g., a recognized vista or overlook. However, because the proposed development would result in a substantial change to the existing landscape along a major and well-traveled public roadway it is anticipated that it would have a significant impact to visual resources. These impacts could be reduced to a level less than significant with mitigation measures in place.

As previously noted, none of the public views into the Finegayan area are of any particular significance, e.g., a recognized vista or overlook. However, because the proposed development would result in a substantial change to the existing landscape along a major and well-traveled public roadway, particularly in the northern portion of NCTS Finegayan, it is anticipated that it would have a significant impact to visual resources. These impacts could be reduced to a level less than significant with the same mitigation measures in place as described for Alternative 1.

##### Non-DoD Land

The impacts under Alternative 2 would be the same as those described for Alternative 1.



**Figure 13.2-7. Alternative 2: View from Route 3 Looking Northward with New Family Housing in the Foreground and Middle Ground and the Main Cantonment in the Background (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-8. Alternative 2: Panoramic View from Route 3 Looking Northwestward into the Central Part of NCTS with New Warehouse in the Foreground (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-9. Alternative 2: View from Route 3 Looking Northward into the North Part of NCTS with New Facilities in the Foreground (RESULTING VIEW)**

Source: EDAW 2009.

13.2.3.2 Central

Andersen South

The impacts under Alternative 2 would be the same as those described for Alternative 1.

Non-DoD Land

The impacts under Alternative 2 would be the same as those described for Alternative 1.

Barrigada

The impacts under Alternative 2 would be the same as those described for Alternative 1.

13.2.3.3 Apra Harbor

Harbor

The impacts under Alternative 2 would be the same as those described for Alternative 1.

Naval Base Guam

The impacts under Alternative 2 would be the same as those described for Alternative 1.

13.2.3.4 South

The impacts under Alternative 2 would be the same as those described for Alternative 1.

### 13.2.3.5 Summary of Impacts

Impacts to visual resources are the same as for Alternative 1 with the addition of more development and an increased visual impact at Finegayan.

### 13.2.3.6 Potential Mitigation Measures

Same as Alternative 1.

## 13.2.4 Alternative 3

### 13.2.4.1 North

#### Andersen AFB

The impacts under Alternative 3 would be the same as those described for Alternative 1.

#### Finegayan

The impacts under Alternative 3 would be similar to, but reduced from those described for Alternative 1. The primary difference as it affects visual resources is that under Alternative 3 the FAA property would not be developed for housing and related supporting facilities (they would be developed at Barrigada instead – refer to Section 13.2.4.2, Central, Barrigada below).

Figure 13.2-10 shows the future northward looking view of South Finegayan (foreground) and the FAA parcel and NCTS Finegayan (middle ground) from Highway 3, respectively. Figure 13.2-11 shows the future northward looking view of NCTS Finegayan from Highway 3. Figure 13.2-12 shows the future northward looking view of the northern extent of the proposed developed area at NCTS Finegayan from Highway with new facilities in the foreground.



**Figure 13.2-10. Alternative 3: View from Route 3 Looking Northward with New Family Housing in the Foreground, Undeveloped FAA Parcel in the Middle Ground and Main Cantonment in the Background (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-11. Alternative 3: Panoramic View from Route 3 Looking Northwestward into the Central Part of NCTS with New Warehouse in the Foreground (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-12. Alternative 3: View from Route 3 Looking Northward into the North Part of NCTS with New Facilities in the Foreground (RESULTING VIEW)**

*Source: EDAW 2009.*

As previously noted, none of the public views into the Finegayan area are of any particular significance, e.g., a recognized vista or overlook. However, because the proposed development would result in such a substantial and dramatic change to the existing landscape along a major and well-traveled public roadway it is anticipated that it would have a significant impact to visual resources. These impacts could be reduced to a level less than significant with the same mitigation measures in place as described for Alternative 1.

### Non-DoD Land

The impacts under Alternative 3 would be the same as those described for Alternative 1.

#### 13.2.4.2 Central

### Andersen South

The impacts under Alternative 3 would be the same as those described for Alternative 1.

### Barrigada

Under Alternative 3, approximately half of the Navy and Air Force Barrigada properties would be developed for housing and related supporting facilities. While both of these areas primarily consist of mowed grass and low shrubs with antennae and associated facilities and structures, a large portion of both are currently heavily vegetated and appear in a more natural state. Development at the Barrigada areas would occur in both the previously disturbed and the densely vegetated areas, thus replacing much of the low and shrub-type landscape, as well as the naturally-appearing landscape with one that is more suburban.

Potentially sensitive receptors include people traveling along Highways 15 and 16, residents of Barrigada Heights in the north adjacent to Navy Barrigada, residents of Barrigada neighborhoods to the east and south of Air Force Barrigada, and viewers from Mount Barrigada. Proposed buildings and structures are not expected to be more than two stories high and the area would generally be in keeping with other land uses in the nearby vicinity, which are residential neighborhoods. Nevertheless, this development would result in a substantial modification to the existing landscape causing a significant impact to visual resources. However, these impacts could be expected to be reduced to a level less than significant with mitigation measures in place.

### Non-DoD Land

The impacts under Alternative 3 would be the same as those described for Alternative 1.

#### 13.2.4.3 Apra Harbor

### Harbor

The impacts under Alternative 3 would be the same as those described for Alternative 1.

### Naval Base Guam

The impacts under Alternative 3 would be the same as those described for Alternative 1.

#### 13.2.4.4 South

The impacts under Alternative 3 would be the same as those described for Alternative 1.

#### 13.2.4.5 Summary of Impacts

Impacts to visual resources would include adverse impacts due to development at Barrigada. All other impacts would be the same as Alternative 1.

#### 13.2.4.6 Potential Mitigation Measures

To alleviate the impact on public views, develop and implement a landscape plan focused on retention of mature specimen trees during construction (where possible) and the establishment of a full suite of vegetation in keeping with Guam's native flora.

To alleviate the impact on public views, use native flora to create a natural-appearing “screen” around the cleared range areas, outside of the firebreaks/perimeter roads.

### 13.2.5 Alternative 8

#### 13.2.5.1 North

##### Andersen AFB

The impacts under Alternative 8 would be the same as those described for Alternative 1.

##### Finegayan

The impacts under Alternative 8 would be similar to, but reduced from those described for Alternative 1. The primary difference as it affects visual resources is that under Alternative 8 the Harmon area would not be developed for housing and related supporting facilities (they would be developed at Barrigada instead – refer to Section 13.2.5.2, Central, Barrigada below).

Figure 13.2-13 shows the future northward looking view of South Finegayan (foreground) and the FAA parcel and NCTS Finegayan (middle ground) from Highway 3, respectively. Figure 13.2-14 shows the future northward looking view of NCTS Finegayan from Highway 3. Figure 13.2-15 shows the future northward looking view of the northern extent of the proposed developed area at NCTS Finegayan from Highway with the new water tower/tank in the background.



**Figure 13.2-13. Alternative 8: View from Route 3 Looking Northward with New Family Housing in the Foreground and Middle Ground, and Main Cantonment in the Background (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-14. Alternative 8: Panoramic View from Route 3 Looking Northwestward into the Central Part of NCTS with New Warehouse in the Foreground (RESULTING VIEW)**

*Source: EDAW 2009.*



**Figure 13.2-15. Alternative 3: View from Route 3 Looking Northward into the North Part of NCTS with New Facilities in the Foreground (RESULTING VIEW)**

*Source: EDAW 2009.*

As previously noted, none of the public views into the Finegayan area are of any particular significance, e.g., a recognized vista or overlook. However, because the proposed development would result in such a substantial and dramatic change to the existing landscape along a major and well-traveled public roadway it is anticipated that it would have a significant impact to visual resources. These impacts could be reduced to a level less than significant with the same mitigation measures in place as described for Alternative 1.

#### Non-DoD Land

The impacts under Alternative 8 would be the same as those described for Alternative 1.

### 13.2.5.2 Central

#### Andersen South

The impacts under Alternative 8 would be the same as those described for Alternative 1.

#### Barrigada

Under Alternative 8, all of the Air Force Barrigada property would be developed for housing and related supporting facilities. While much of this area is composed of mowed grass and low shrubs with antennae and associated facilities and structures, a large portion is currently heavily vegetated and appears in a more natural state. Development of Air Force Barrigada would occur in both the previously disturbed and the densely vegetated areas, thus replacing much of the low and shrub-type landscape, as well as the naturally-appearing landscape with one that is totally suburban.

Potentially sensitive receptors include people traveling along Highway 15, residents of Barrigada neighborhoods to the east and south of Air Force Barrigada, and to a lesser extent viewers from Mount Barrigada. Proposed buildings and structures are not expected to be more than two stories high and the area would generally be in keeping with other land uses in the nearby vicinity, which are residential neighborhoods. Nevertheless, this development would result in a substantial modification to the existing landscape causing a significant impact to visual resources. However, these impacts could be expected to be reduced to a level less than significant with mitigation measures in place as described under Alternative 3.

#### Piti/Nimitz Hill

The impacts under Alternative 8 would be the same as those described for Alternative 1.

#### Non-DoD Land

The impacts under Alternative 8 would be the same as those described for Alternative 1.

### 13.2.5.3 Apra Harbor

#### Harbor

The impacts under Alternative 8 would be the same as those described for Alternative 1.

#### Naval Base Guam

The impacts under Alternative 8 would be the same as those described for Alternative 1.

### 13.2.5.4 South

The impacts under Alternative 8 would be the same as those described for Alternative 1.

### 13.2.5.5 Summary of Impacts

Impacts to visual resources would include adverse impacts due to development at Barrigada. All other impacts would be the same as Alternative 1.

### 13.2.5.6 Potential Mitigation Measures

Same as Alternative 3.

## **13.2.6 No-Action Alternative**

Under the no-action alternative, Marine Corps units would remain in Japan and would not relocate to Guam. No construction, dredging, training, or operations associated with the military relocation would

occur and the Marine Corps would not meet readiness, mission and international treaty obligations. Existing operations on Guam would continue. Therefore, implementation of the no-action alternative would maintain existing conditions, and there would be no impacts associated with the proposed action and alternatives. Existing operations at the proposed project areas would continue. Therefore, the no-action alternative would not have significant impacts to visual resources. Implementation of the no-action alternative would not meet the mission, readiness, national security and international treaty obligations of the Marine Corps.

**13.2.7 Summary of Impacts**

The Marine Corps build-up would result in substantial changes to the visual environment at specific locations on Guam. None of the affected areas are publicly recognized vistas, viewsheds, overlooks, or features of particular significance. However, the changed visual environment would affect public views by substantially modifying naturally-appearing landscapes located adjacent to public roadways. These changes to the visual environment, while substantial in scale and potentially significant in nature, would be expected to be brought to a level of less than significant with mitigation measures in place. Table 13.2-1 summarizes the potential impacts of each Main Cantonment alternative evaluated. Table 13.2-2 summarizes the potential impacts of each Firing Range alternative evaluated. Tables 13.2-3 and 13.2-4 summarize the impact at NMS for the Ammunition Storage Alternatives and the Access Roads Alternatives, respectively. A summary of potential visual impacts due to Other Training, Airfield, and Waterfront is provided in Table 13.2.2-5. A text summary follows the summary tables.

**Table 13.2-1. Summary of Main Cantonment Impacts – Alternatives 1, 2, 3 and 8**

<i>Main Cantonment Alternative 1 (North)</i>	<i>Main Cantonment Alternative 2 (North)</i>	<i>Main Cantonment Alternative 3 (North/Central)</i>	<i>Main Cantonment Alternative 8 (North/Central)</i>
<b>Construction</b>			
NI <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>	NI <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>	NI <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>	NI <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>
<b>Operation</b>			
SI-M <ul style="list-style-type: none"> <li>The mostly vegetated former FAA and Harmon parcels and relatively open visual character of the southern half of NCTS and South Finegayan would be completely transformed into a densely developed area with numerous buildings, roads, parking lots, sidewalks, and landscaping. While this would represent a major change over the existing visual conditions and interior views at Finegayan, most of the property is already under DoD ownership and there are few, if any, sensitive views or receptors that currently exist on these sites.</li> </ul>	SI-M <ul style="list-style-type: none"> <li>The impacts would be almost the same as for Alternative 1. The primary difference is that the Harmon parcel would not be developed and more of NCTS would be. As seen from Route 3, the major changes would be on the former FAA and Harmon parcels, where naturally-appearing, densely forested landscape would be replaced with a mix of housing and barracks. Views of the proposed development on South Finegayan from Route 3 would be altered but not would not be quite as striking due to existing naval facilities.</li> </ul>	SM-I <ul style="list-style-type: none"> <li>Impacts to NCTS and South Finegayan would be similar to, but reduced from, the impacts described under Alternative 1. However the former FAA parcel would not be developed. Approximately half of the Navy and Air Force Barrigada properties would be developed for housing and related supporting facilities. While both areas primarily consist of mowed grass and low shrubs with antennae and associated facilities and structures, a large portion of both areas are currently heavily vegetated and appear in a more natural state.</li> <li>Development would occur in both previously disturbed and densely vegetated areas, thus replacing much of the low and shrub-type landscape, as well as naturally-appearing landscape with one that is more suburban.</li> </ul>	SM-I <ul style="list-style-type: none"> <li>Impacts to NCTS and South Finegayan would be similar to, but reduced from the effects described under Alt 1. The primary difference is that the Harmon property would not be developed for housing and related supporting facilities (they would be developed at Barrigada). All of the Air Force Barrigada property would be developed. The effects to Air Force Barrigada would be similar to those described under Alternative 3 but would occur over a larger area.</li> <li>There would be no impacts to the Navy Barrigada property.</li> </ul>

Main Cantonment Alternative 1 (North)	Main Cantonment Alternative 2 (North)	Main Cantonment Alternative 3 (North/Central)	Main Cantonment Alternative 8 (North/Central)
<p>NI</p> <ul style="list-style-type: none"> <li>None of the recognized viewpoints, vistas, or overlooks on non-DoD lands would be expected to be impacted by the various developments being proposed in the north area because of the distances and vegetation between them.</li> </ul>	<p>NI</p> <ul style="list-style-type: none"> <li>None of the recognized viewpoints, vistas, or overlooks on non-DoD lands would be expected to be impacted by the various developments being proposed in the north area because of the distances and vegetation between them.</li> </ul>	<p>NI</p> <ul style="list-style-type: none"> <li>None of the recognized viewpoints, vistas, or overlooks on non-DoD lands would be expected to be impacted by the various developments being proposed in the north area because of the distances and vegetation between them.</li> </ul>	<p>NI</p> <ul style="list-style-type: none"> <li>None of the recognized viewpoints, vistas, or overlooks on non-DoD lands would be expected to be impacted by the various developments being proposed in the north area because of the distances and vegetation between them.</li> </ul>

Legend: SI = Significant impact, SI-M = Significant impact mitigable to less than significant, LSI = Less than significant impact, NI = No impact.

**Table 13.2-13.2-2. Summary of Training Impacts – Firing Range Alternatives**

Firing Range Alternative A (Central)	Firing Range Alternative B (Central)
<b>Construction</b>	
<p>NI</p> <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>	<p>NI</p> <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>
<b>Operation</b>	
<p>SI-M</p> <ul style="list-style-type: none"> <li>Development of land adjacent to Route 15 for live-fire training would result in moderate to substantial alteration of the existing landscape. Publicly accessible views into these areas are limited due to the relatively flat topography and dense vegetation. Regardless of the live-fire training alternative, views from Route 15 would likely be the most affected; views would change from a primarily a densely vegetated landscape on both sides of Route 15 to views composed of cleared areas, berms, structures, buildings, roadways, parking areas, fencing, and entry gates. The ranges would require relatively large cleared areas, resulting in opening up ocean views to the east which currently do not exist.</li> </ul>	<p>SI-M</p> <ul style="list-style-type: none"> <li>Development of land adjacent to Route 15 for live-fire training would result in moderate to substantial alteration of the existing landscape. Publicly accessible views into these areas are limited due to the relatively flat topography and dense vegetation. Regardless of the live-fire training alternative, views from Route 15 would likely be the most affected; views would change from a primarily a densely vegetated landscape on both sides of Route 15 to views composed of cleared areas, berms, structures, buildings, roadways, parking areas, fencing, and entry gates. The ranges would require relatively large cleared areas, resulting in opening up ocean views to the east which currently do not exist.</li> </ul>

Legend: SI = Significant impact, SI-M = Significant impact mitigable to less than significant, LSI = Less than significant impact, NI = No impact.

**Table 13.2-3. Summary of Training Impacts – Ammunition Storage Alternatives**

Ammunition Storage Alternative A (South)	Ammunition Storage Alternative B (South)
<b>Construction</b>	
<p>NI</p> <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>	<p>NI</p> <ul style="list-style-type: none"> <li>There would be no impacts from construction.</li> </ul>
<b>Operation</b>	
<p>NI</p> <ul style="list-style-type: none"> <li>There would be no impacts from operations.</li> </ul>	<p>NI</p> <ul style="list-style-type: none"> <li>There would be no impacts from operations.</li> </ul>

Legend: SI = Significant impact, SI-M = Significant impact mitigable to less than significant, LSI = Less than significant impact, NI = No impact.

**Table 13.2-4. Summary of Training Impacts – NMS Access Roads Alternatives**

<i>Access Road Alternative A (South)</i>	<i>Access Road Alternative B (South)</i>
<b>Construction</b>	
NI <ul style="list-style-type: none"> <li>• There would be no impacts from construction.</li> </ul>	NI <ul style="list-style-type: none"> <li>• No construction.</li> </ul>
<b>Operation</b>	
NI <ul style="list-style-type: none"> <li>• There would be no impacts from operations.</li> </ul>	NI <ul style="list-style-type: none"> <li>• There would be no impacts from operations.</li> </ul>

**Table 13.2-5. Summary of Other Training, Airfield, and Waterfront Component Impacts**

<i>Other Training (North/Central/South)</i>	<i>Airfield (North)</i>	<i>Waterfront (Apra Harbor)</i>
<b>Construction</b>		
NI <ul style="list-style-type: none"> <li>• There would be no impacts from construction</li> </ul>	NI <ul style="list-style-type: none"> <li>• There would be no impacts from construction.</li> </ul>	NI <ul style="list-style-type: none"> <li>• There would be no impacts from construction</li> </ul>
<b>Operation</b>		
SI-M <ul style="list-style-type: none"> <li>• Development of Andersen South for non-fire training would result in moderate to substantial alteration of the existing landscape. Publicly accessible views into these areas are limited due to the relatively flat topography and dense vegetation. Views from Route 15 would likely be the most affected; views would change from a primarily a densely vegetated landscape on both sides of Route 15 to views composed of cleared areas, berms, structures, buildings, roadways, parking areas, fencing, and entry gates.</li> </ul>	LSI <ul style="list-style-type: none"> <li>• The proposed Marine Corps facilities would add a substantial amount of new buildings and infrastructure to an area already dominated by a similar landscape—i.e., active runways, ramps, hangars, and etc. There are limited public views from a distance on Mount Santa Rosa.</li> <li>• The North Ramp Marine Corps expansion area would blend into the rest of the Air Force facilities and paved areas. No impacts anticipated from the Tarague Embayment Overlook nor the Pati Point Overlook.</li> <li>• facilities would add a substantial amount of new buildings and infrastructure to an area already dominated by a similar landscape—i.e., active runways, ramps, hangars, and etc. There is a limited public views from a distance on Mount Santa Rosa.</li> </ul>	NI <ul style="list-style-type: none"> <li>• The visual appearance of all the improvements (wharves and associated shore-side supports facilities) would be similar to, and in keeping with the visual conditions of the current harbor environment.</li> <li>• The proposed components of the project (Apra Clinic, Dog Kennel, U.S. Coast Guard relocation, and etc.) would be keeping with the overall visual appearance at the Navy Base.</li> </ul>

*Legend:* SI = Significant impact, SI-M = Significant impact mitigable to less than significant, LSI = Less than significant impact, NI = No impact.

**13.2.8 Summary of Potential Mitigation Measures**

Mitigation measures would include implementing a landscape plan focused on retention of mature specimen trees during construction, the establishment of a full suite of vegetation in keeping with Guam’s native flora, and using native flora to create a natural-appearing “screen” around the cleared range areas, outside of the firebreaks/perimeter roads..

**Table 13.2-6. Summary of Potential Mitigation Measures**

<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>Alternative 8</i>
<ul style="list-style-type: none"> <li>• To alleviate the impact on public views, use native flora to create a natural-appearing “screen” around the cleared range areas, outside of the firebreaks/perimeter roads for the Main Cantonment</li> <li>• Implement a landscape plan focused on retention of mature specimen trees during construction</li> <li>• Minimize open areas along the perimeter of the Range Complex and non-fire training area if security requirements permit.</li> </ul>	<ul style="list-style-type: none"> <li>• To alleviate the impact on public views, use native flora to create a natural-appearing “screen” around the cleared range areas, outside of the firebreaks/perimeter roads for the Main Cantonment</li> <li>• Implement a landscape plan focused on retention of mature specimen trees during construction</li> <li>• Minimize open areas along the perimeter of the Range Complex and non-fire training area if security requirements permit.</li> </ul>	<ul style="list-style-type: none"> <li>• To alleviate the impact on public views, use native flora to create a natural-appearing “screen” around the cleared range areas, outside of the firebreaks/perimeter roads for the Main Cantonment</li> <li>• Implement a landscape plan focused on retention of mature specimen trees during construction</li> <li>• Minimize open areas along the perimeter of the Range Complex and non-fire training area if security requirements permit.</li> </ul>	<ul style="list-style-type: none"> <li>• To alleviate the impact on public views, use native flora to create a natural-appearing “screen” around the cleared range areas, outside of the firebreaks/perimeter roads for the Main Cantonment</li> <li>• Implement a landscape plan focused on retention of mature specimen trees during construction</li> <li>• Minimize open areas along the perimeter of the Range Complex and non-fire training area if security requirements permit.</li> </ul>

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