



UNITED STATES MARINE CORPS

MARINE CORPS AIR STATION
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StaO 11012.2
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28 DEC 1998

STATION ORDER 11012.2

From: Commanding Officer
To: Distribution

Subj: BASE EXTERIOR ARCHITECTURE PLAN (BEAP)

Ref: (a) MCO P11000.12C Facilities Planning & Programming
Manual

Encl: (1) Base Exterior Architecture Plan as of 19 Jun 98 w/o
Appendices

1. Purpose. To establish guidelines for design and development of exterior architectural and landscape features on the Air Station,

2. Background. Reference (a) establishes the basic policies and objectives to develop a Master Planning document. This document presents in graphic, narrative, and tabular form an analysis of the present composition and function of the Air Station and the optimum plan for its orderly and comprehensive development. Enclosure (1) is a significant section of this Master Plan.

3. Action. The enclosure is a comprehensive document that should be read in its entirety. Some dynamic aspects are noted below:

a. The appendices were not included as they are oversized documents and color representations. Please contact the Supervisory Planner at the Facilities Management Department to view these pages.

b. It is the Air Station's policy to have all common utilities placed underground.

4. Certification. Reviewed and approved this date.

C. J. TURNER

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Marine Corps Air Station

Yuma, Arizona

Base Exterior
Architecture Plan

July 31, 1998

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1.0 Introduction

Marine Corps Air Station (MCAS) Yuma is located in southwestern Arizona on the lower Colorado River and is within the boundaries of the City of Yuma. Yuma, Arizona lies in the Lower Sonoran Desert and is a farming valley surrounded by rugged mountains.

MCAS Yuma encompasses approximately 3,000 acres. The MCAS mission is to “Provide aviation ranges, support facilities, and services that enhance the combat capability of Marine Corps and other military forces to defend the nation’s interests.”

MCAS Yuma is home to nearly 5,000 Marines. The groups assigned to this Station include: the Marine Aircraft Group 13 comprised of Marine Attack Squadrons 211, 214, 311 and 513, the Marine Aviation Logistics Squadron 13, Marine Aviation Weapons and Tactics Squadron 1, the Marine Wing Support Squadron 371, the Marine Air Control Squadron 1, the Marine Fighter Training Squadron 401 and the Light Armored Vehicle Test Directorate.

MCAS Yuma has existed in some form since 1928 and has a variety of different building types and landscape themes. The challenge at MCAS Yuma is to standardize the architecture and landscaping.

The purpose of the Base Exterior Architecture Plan (BEAP) for MCAS Yuma is to organize the functional and visual aspects of the built environment to create a strong image for the Station. Key factors influencing development are the desert climate, increasing air and support operations, rising maintenance costs and energy and water conservation. Responding to these factors, the BEAP focuses on functional and visual improvements that will create a more pleasant environment conducive to work, living and recreation, while reducing maintenance requirements and conserving energy and water resources.

1.1 Existing Conditions

An inventory and analysis of existing facilities was conducted to establish a background for current and future architectural and landscape improvements. These facilities were evaluated in the context of how they relate to the built and natural environments.

1.1.1 General Observations

MCAS Yuma has gone through several changes since the preparation of the 1988 Master Plan Update. These changes include new building construction, as well as the renovation of older existing facilities. While the overall perception of the

Station is of a clean and well-organized facility, there is still room for aesthetic improvement.

Several areas on the Station are attractive with well-maintained and manicured buildings such as the grounds around the parade deck and the Station Headquarters. These areas should be maintained and could act as a model for other areas on the facility.

Many buildings at MCAS Yuma were built prior to the energy conservation era that began in the mid-1970's. These buildings have little protection from the desert sun or desert climate. There is the potential for both architectural improvements (e.g., awnings, overhangs, tinted windows, shade screens, heat reflecting paints and roofing materials), and landscape improvements (e.g., shade trees and strategically located lawns). These items can improve exterior appearance, energy efficiency and promote integration with the natural environment

1.1.2 Manmade Factors

The buildings at MCAS Yuma tend to be very similar in size and design in order to facilitate ease of construction and reduce cost. The simplicity of these buildings is the result of their simplified and efficient construction methods. Environmental or aesthetic concerns were not a significant priority during the design and construction of these structures.

1.1.3 Constructed Elements

Structures

With the exception of the multistory Bachelor Enlisted Quarters (BEQ) or the Bachelor Officer Quarters (BOQ), the majority of the buildings on Station are single-story rectangular structures constructed of wood, steel framing or masonry block. Siding is typically wood, metal or asbestos transit board siding. The older buildings, of World War II vintage, have gabled roofs, timber or metal siding, and overhangs on all 4 sides. Newer buildings are more modern-looking, constructed with flat roofs, concrete block or metal siding and have minimal overhangs. The new buildings have taken on a variety of forms and masses that tend to diminish the older buildings.

Some areas of the Station are unified by consistent use of an accent color. The theater area is a good example of this concept, which should be applied to all Community Support District buildings to create a powerful and more definable identity.

Streetscape

The streetscape at MCAS Yuma has a rural residential character near the main gate. A commercial character permeates the PX/Commissary and BEQ/BOQ area. The area near the flightline provides an industrial or warehouse and office setting. As shown in Appendix A-2, *Streetscape*, there are few areas on MCAS Yuma where streetscapes have been designed into the right-of-way, although progress is being made. Streetscapes border the front of Avenue 3E, Quilter and Hart Streets at the main gate, O'Neill Street at the north gate and a few other isolated strips.

There are several aspects of the physical environment which comprise the MCAS Yuma streetscape including: street widths, building setbacks, walks and walkways, signs, site furnishings, planting and landscaping, traffic elements with their associated hazards, and bike trails.

Several portions of streets throughout MCAS Yuma are traffic hazards due to poorly marked shoulders and pavement, or the lack of walkways. This is noted along the west end of O'Neill Street and a few areas along Hart Street. Also, the west end of O'Neill Street, near the flightline, has poor sight distance configurations for traffic and pedestrians. Numerous other intersections throughout MCAS Yuma could use better pedestrian crossing markings and crosswalks.

Parking

With a few exceptions, existing parking within MCAS Yuma is generally adequate to meet current needs, as shown in Appendix A-3, *Parking*. Station personnel who live Off-Station must drive personal vehicles to and from work and are able to find suitable parking on a typical workday. Adequate parking is also provided to residents who live On-Station in the BEQ/BOQ or housing area.

For a variety of reasons, many people choose to drive in their cars rather than walking to their destination. This creates a mini parking-jam at a few locations, especially around the lunch hour. Examples include the PX, Commissary, and the fast food areas.

There are several areas on the Station where parking configurations are not delineated. These unmarked parking areas lead to a random pattern of parking and potentially inefficient or inconvenient use of the available parking spaces. It is suspected that the lack of defined parking spaces also contributes to the parking on some vacant lots that were not intended to be parking areas. The implementation of the guidelines identified in this BEAP should alleviate these problems.

Walks and Walkways

The pedestrian circulation system within MCAS Yuma is somewhat fragmented, and improvements would make them more user friendly. Shade trees, curbs and wider sidewalks would encourage heavier use, even in the summer. As shown in Appendix A-4, *Pedestrian and Bicycle Plan*, there are corridors of fairly heavy pedestrian use where an updated pedestrian circulation system would be beneficial. This is especially true along O'Neill, Hart and Quilter Streets. These same pedestrian corridors also provide the potential for bicycle paths. Several years ago, the City of Yuma constructed an asphalt bike path from 32nd Street to the north gate on the west side of Avenue 3E. Currently, this bike path is used more frequently by joggers and walkers, which creates potential conflicts with bicyclists. This is the most popular route for those bicycling to the Station and would make a great route if extended into the main gate and down either Hart or Quilter Street. Current plans propose for the bike path to be extended to the main gate when Avenue 3E is widened.

The U.S. Marine Corps encourages personnel to be physically fit. The creation of jogging paths is a natural extension of this philosophy and encourages more jogging with enhanced safety. Currently, personnel must use the roadways or lawn areas adjacent to the roadways, which can create a traffic hazard. Because of reduced traffic volume, the paths should make use of areas between the operation/administrative areas and family housing.

Signs

a) Directional/Informational

The purpose of a Directional/Informational sign is to guide and direct residents, visitors and Station personnel to areas within the housing and to community support areas.

The signs located throughout the Station are in need of standardization. The design, color, size, and materials used in these informational signs are inconsistent throughout MCAS Yuma.

b) Regulatory Street Signs

The purpose of regulatory street signs are to guide and direct vehicle operators within MCAS Yuma. These signs address speed limits, warnings, turns, lane usage, parking, disabled access and street identification. For the most part, these regulatory signs on MCAS Yuma conform to the standards set by the United States Department of Transportation (USDOT).

Site Furnishings

Site furnishings are those outdoor furnishings that support outdoor recreation and pedestrian uses. The intent of site furnishing is to make outdoor areas more pleasant, safe, and comfortable, and provide more opportunities and amenities along the pedestrian routes.

A visual survey of the site furnishings within MCAS Yuma indicates that current facilities should be coordinated to provide a more unified neighborhood appearance. The use of materials that have high solar reflectivity should be maximized in this hot desert environment. Mailboxes located in residential areas exist in a variety of "Grouped-Style" arrangements and are not shaded or screened from view.

As shown in Appendix A-5, *Site Furnishings*, there are 4 types of activity nodes at MCAS Yuma:

Type 1	School bus stop
Type 2	Active pedestrian use areas
Type 3	Passive pedestrian use areas
Type 4	Other, such as flagpoles and monuments

These 4 types of nodes could be integrated with the pedestrian/bicycle corridors and landscaped with large shade trees.

MCAS Yuma has numerous trash bins and dumpsters located throughout the Station that would benefit from an aesthetic upgrade or screening. Additionally, better fitting lids will reduce the odor problem during the hotter months.

Planting and Landscaping

In the central areas of the MCAS Yuma site, mature street trees exist, although placement in some cases was made without consideration to the tree's ultimate mature size. The existing street tree pattern is choppy and has large gaps. Also, the use of plant materials for screening unsightly views has been implemented with some success, though it should be continued and built upon. Appendix A-6, *Landscape*, details the areas where trees, turf and landscaping currently exist.

The family housing area has numerous trees and landscaping that soften the desert environment. Landscape plantings within the bachelor housing area, and the rest of MCAS Yuma, have been implemented to a much lesser degree. The landscape in these areas needs to be improved and xeriscaping would work well.

Traffic

The streets of MCAS Yuma are laid out in a grid-like fashion. The internal circulation system offers numerous alternative travel routes for most vehicular and pedestrian trips. There are 3 main east-west streets, O'Neill Street, Quilter Street and Hart Street. O'Neill Street is entered at the North Gate and curves around the flightline, giving access to airside facilities. Quilter Street is between the flightline and the Main Gate. Hart Street also terminates at the Main Gate.

The primary north-south street, Martini Avenue, is terminated at Worley Street in the north by a closed service Station. There are many shops and offices in this area and pedestrians freely cross Martini Avenue south of the service Station. It is recommended that the dead end at the closed service Station be removed to allow Martini Street to continue through.

Most intersections are controlled by stop signs. The speed limit is 25 miles per hour (mph), with 15 mph limits in the family housing and other special areas.

Based on discussions and observations, the existing traffic network is generally working well. However, several opportunities for improvements were identified that will enhance traffic safety and convenience. These resulted in recommendations offered in the MCAS Yuma Traffic and Circulation Study.

1.1.4 Environmental Factors

Solar Radiation

The hot, sunny days of summer at MCAS Yuma create an environment where direct radiation is responsible for the majority of heat gain and increased cooling costs for buildings and facilities. As a result, MCAS Yuma places more emphasis on protecting against excessive heat gain in the summer than on providing for passive solar exposure during the winter.

The intense summer heat, large size of some buildings, inadequately insulated older buildings and higher humidity levels from July through September create a tremendous strain on cooling systems. Reflected solar radiation from buildings, as well as vast unused areas of pavement, also intensify the heat.

Temperature/Climate

The climate of MCAS Yuma is characterized by hot summers and mild winters. Relative humidity is low for most of the year, with the exception of winter and late summer. Typical temperatures in July range from a high of 108 degrees Fahrenheit (F), to a low of 78 degrees F. In January, the typical high may reach 68 degrees F, with the low around 38 degrees F.

Wind

In general, wind is not a major factor at MCAS Yuma. Wind speeds at MCAS Yuma range from 0 through 6 miles per hour and occur 50.8 percent of the time, and from 6 through 16 miles per hour 47 percent of the time. There are occasional gusts which approach an 80 mph velocity. These conditions should be factored into structural design calculations for buildings or other structures. Most wind events occur during the spring months of March through May, or during down drafts from thunderstorms in July, August and September. While these winds can produce gusts in excess of 35 mph, the number of days that this occurs per year is minimal.

Rain/Humidity

The average annual rainfall for the MCAS Yuma Region is 2.92 inches per year. December through March is a period of occasional rainfall brought in by storms off the Pacific Ocean. July begins the 3 month monsoon season which lasts through September. The monsoon is characterized by some humidity and occasional brief heavy downpours from thunderstorms. The majority of Yuma's rainfall is received in July, August and December through March.

Hydrology and Flood Hazard

Yuma Mesa, on which MCAS Yuma is located, is naturally elevated from 50 to 80 feet above adjacent valleys and floodplains, which reduces any large scale flood hazard.

MCAS Yuma consists largely of impervious areas which can create local flooding after a heavy rain. Drainage for the site is to the west, off Station, into the East Main Canal, which flows into the Colorado River. The grade of the streets is generally flat, and water remains where it falls because there are few curbs and gutters to direct flow.

1.1.5 Geology

Soils

MCAS Yuma consists entirely of Superstition-Rositas soil association. The soils are characterized as deep and sandy and are generally located on mesas and dunes. The soils are formed in old sandy alluvium and in many places have been reworked by wind to form hillocks and low dunes. Slopes are generally less than 2 percent on the Station grounds. These soils are susceptible to wind erosion when disturbed or when impacted by concentrated drainage flows.

Seismicity

Yuma is located within Zone 4 of the United States Department of Commerce's 1978 Earthquake Intensity rating system. The ratings are listed below:

Zone

- 1 Reasonable expectancy of earthquake damage
- 2 Expected minor damage
- 3 Expected moderate damage
- 4 Major destructive earthquakes may occur

The area is part of the San Andreas Fault system. The Station is located on the northeast margin of the Salton Trough extending from California to Mexico. Its closest portion to MCAS Yuma is about 5 miles to the south.

Topography

The Yuma area encompasses the upstream area of the Colorado River delta. MCAS Yuma lies within the Lower Sonoran Desert section of the Basin and Range Province. The desert areas to the east of Yuma are characterized by generally elongated, low, rugged mountains separated by extensive desert plains. The Colorado River travels across the region in a series of narrow valleys or canyons, through the mountains, and across broader alluvial valleys and plains.

1.1.6 Erosion

Several areas show signs of water erosion near some of the steeper slopes around the radar towers and the area south of family housing. For the most part, this erosion is minimal and not a major concern at this time. Some soil stabilization in areas of loose sand and dune areas would help to reduce blowing particulates on windy days.

1.1.7 Wildlife and Vegetation

Environmental

Neither MCAS Yuma nor the Cannon Air Defense Complex (CADC) are designated by the U.S. Fish and Wildlife Service as Critical Habitat for any plant or animal species. There are no species of wildlife that are found exclusively within the limits of MCAS Yuma or the CADC. However, one species designated as a Species of Special Concern by the U.S. Fish and Wildlife is the Flat-tailed Horned Lizard (FTHL) (*Phrynosoma mcalli*) which does exist in the CADC. The CADC is part of the Yuma Desert FTHL management area. (Keeny and Peebles, 1973)

Plants

Although much of the Station is surrounded by agricultural development, which has replaced a portion of the natural desert environment, there are still sections of natural desert landscape. The remaining desert vegetation consists of low shrubs such as Bursage (*Ambrosia dumosa*), Creosote Bush (*Larrea tridentata*), and Galleta Grass (*Hilaria rigida*).

Mammals

Wildlife species known to occupy the area include: The Round-tailed Ground Squirrel (*Spermophilis tereticaudus*), Desert Kangaroo Rat (*Dipodomys deserti*), Desert Cottontail (*Sylvilagus audubonii*), Black-tail Jackrabbit (*Lepus californicus*), and the Coyote (*Canis latrans*).

Birds

Several species of birds utilize the area as a migratory pathway during the spring and fall, they include the Brown Pelican (*Pelecanus occidentalis*), Bald Eagle (*Haliaeetus leucocephala*), and the Peregrine Falcon (*Falco peregrinus*). There is also a variety of owl species that inhabit the Station.

1.2 Use Districts

Districts are defined as areas established by specific uses or combinations of uses within MCAS Yuma and are a key component of its urban form distinguished by continuity of appearance of land use. Coordinated physical elements such as architectural style, color schemes, signage, lighting and landscaping can do much to identify and enhance the image of a District.

These elements can also be used to distinguish specific Districts, while at the same time unifying the Station as a whole. MCAS Yuma has 8 basic Districts that have specific functions. These Districts include:

- Flightline District
- Station Support District
- Training District
- Supply District
- Headquarters District
- Bachelor Housing District
- Family Housing District
- Community Support District

The design theme and elements of each District must be recognized and preserved as the Station grows and changes.

As shown in Appendix A-1, *Districts*, these districts tend to be bounded by the existing streets on the Station. A detailed account of each of the 8 land use districts is presented below.

The Flightline District includes all maintenance facilities and aircraft hangars adjacent to the flightline beginning at Marontate Avenue and north and west of O'Neill Street. Other maintenance facilities include those along O'Neill Street and land operational and utility facilities along Vaupell and Frazier Avenues. The functions of these buildings are typically limited to direct support and maintenance for aircraft.

The Training District is bounded by O'Neill and Aldrich Streets and Halstead Avenue. This area is primarily used for aviation training and support. Such activities include pilot training and flight simulation, strategic and electronic warfare training, professional military education and technical aircraft maintenance training courses.

The Station Support District acts as the administration support for the Station. The District is divided into 4 sections and is dispersed throughout the Station. It includes a diverse group of buildings, such as the Demineralized Water Facility, the Motor Transport Platoon Administration, and the Communication Center & Ground Electrical Maintenance. The Station Support District is the largest district of the 8 Station Districts.

The Supply District is located in the northeast section of the Station. This district is bounded by Marontate Avenue, O'Neill Street, Shaw Avenue, and Quilter Street. The dominant building is the two-story warehouse/administration building. Buildings in this district are generally used to provide logistical support, serve as arrival and departure points for general supplies and provide for the warehousing of vehicles, vehicle parts and aircraft parts.

The Headquarters District is centered between the Main Gate, Thomas Avenue, Quilter and Hart Streets. This area contains the Station Headquarters building as well as the parade deck. The Headquarters is home to the Station Commanding Officer, Public Affairs and other command support functions. This area is the main focal point of the Station and creates a first impression for visitors and arriving personnel.

For the purposes of the BEAP, the Bachelor Housing District refers to the bachelor enlisted quarters (BEQ) and bachelor officer quarters (BOQ). Two BEQ/BOQ Housing Districts occur on the main Station area. The largest district is defined by Worley and Quilter Streets and Narr and Shaw Avenues. The second district occurs along Martini Avenue, south of Hart Street and immediately west of the Officer's/SNCO Club. A variety of architectural styles, layouts, and densities exist on base for these 2 districts. Living quarters for personnel on temporary duty to MCAS Yuma are also available in this district.

The Family Housing District includes all family residential quarters on the Station. The District is located in the southeast quadrant and is primarily serviced by Keith Avenue and Goodsell Avenue. Although the Family Housing District is not the focus of this BEAP's study area, these housing areas are located on the Station and guidelines for these have been established in the Comprehensive Neighborhood Plan.

The Community Support District essentially covers the remainder of the Main Station area. It includes areas west of the Station Headquarters to the flightline and Support District as well as the areas south of the parade deck to the family housing area. The Commissary and Post Exchange complex represents an important anchor in this district. Other Morale, Welfare, and Recreation (MWR) facilities constitute a substantial portion of the district, as does the clinic, chapel complex, and Officer's/SNCO Club.

1.3 Theme

1.3.1 The unique climate of this desert Station requires that architectural and landscaping techniques address the harsh conditions of long hot summers and little rainfall. While the Lower Sonoran Desert may appear to be a rather bleak environment, it is actually home to a number of plants that will grow well in an urban setting. There are also a number of building techniques and materials that can be used to mitigate the heat of summer. The goal of this BEAP is to address these issues of compatibility with the natural environment, while minimizing energy and maintenance costs and enhancing the visual attractiveness and quality of life of MCAS Yuma.

1.3.2 The Station's architectural style is varied. The structures accommodate a wide range of uses and for the most part have been constructed for utilitarian purposes over a number of decades. There is not a single definable architectural style;

however, there are 2 styles that seem more prominent. One of these styles is the “Spanish” motif which is best represented by the Station Headquarters building. The second style which is demonstrated by several of the structures built during the last 10 years portrays an architectural character whose forms, details and materials, visually and environmentally respond to the desert climate. This style is most frequently referred to as “Southwest Contemporary,” an example of this style is the Child Development Center Facility.

1.3.3 The “Spanish” style combines wood frame or masonry construction with a stucco exterior and a clay tile gabled roof. Windows and entryways are typically recessed to provide shade. The use of arches are common for window treatments, building entries or to create a colonnade. Stucco coloring tends to vary from shades of off-white, beige or yellows. The stucco finish typically has a light to medium texture which provides a smooth clean look to the architecture. The detailing and proportion of the Spanish style provides a sense of size and mass of a structure that relates to the human scale. This makes it an appropriate style for areas of close and frequent pedestrian activity. Roofing types are usually composed of red clay tiles or other roof materials which simulated the texture and detail of clay tile roof.

1.3.4 The architectural style designated as “Southwest Contemporary” does reflect many of the desirable characteristics of the Spanish architectural styles; however, it expands the architectural vocabulary with the use of bold façade treatments and the incorporation of a variety of modern construction materials. This style lends itself to the Station’s architecture because it can be adapted to buildings of various sizes and configurations. The incorporation of architectural elements such as columns, arches and gables can add character to a building or define an entryway. The use of materials such as split-faced or textured block, and various stucco patterns are the most common construction materials and can be used to provide variety and visual interest to a building’s facade. When the roof system is visible from the pedestrian level, the use of standing seam metal is common. On larger structures the metal roofing material is occasionally used as a decorative element for the façade. Window configurations reflect the contemporary forms of the structures and are often recessed or treated with structural elements such as overhangs or deep vertical reveals that shade the windows. The use of window glazing materials which are designed to minimize heat gain and glare are conducive to the modern character of this architectural style.

1.3.5 The “Spanish” theme is predominately focused towards the Headquarters District. All other Districts are to incorporate design elements associated with the Southwest Contemporary architectural style.

2.0 Structures

2.1 General Intent

The intent of these Structures Guidelines is to identify design elements that will enhance the convenience, function, safety and aesthetic appeal of the buildings required to accommodate the day-to-day military activities of the Station.

2.2 Proportion/Scale Guidelines

The proportion and scale of all structures will vary within each of the District uses. However, all buildings should be compatible with the internal uses of the building. For example, the Flightline and Support Districts are comprised of large-scale structures in order to house and maintain aircraft and supporting equipment. The Administration and Housing Districts are more pedestrian oriented.

2.2.1 All structures within the Headquarters, Community Support and Bachelor Housing Districts shall be scaled to the pedestrian level.

2.2.2 Building facades should enable people to gage its relative size and character in relationship to the size of the human body, and must display character and scale that conveys a sense of community. Multiple wall materials or combination of textures will humanize larger buildings by diversifying the facade.

2.2.3 All buildings shall use elevations created by windows, relief, or the use of color in an effort to enhance the Station character.

2.3 Orientation Guidelines

Building orientation relates to each building's position relative to the sun and predominant wind direction.

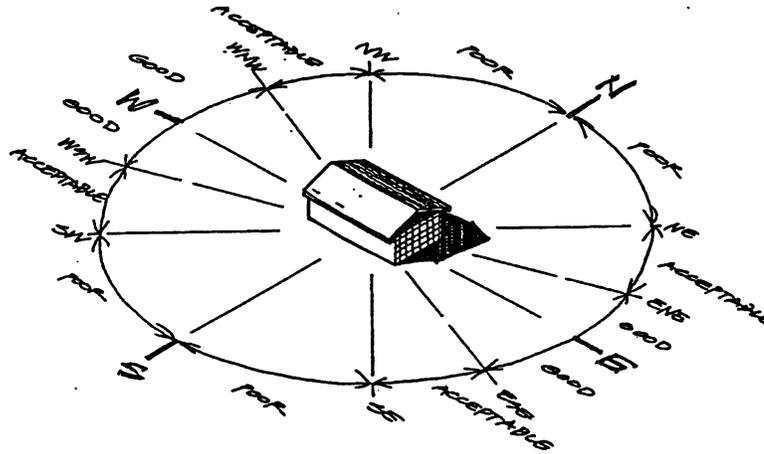
To assure proper winter heat gain and summer shade control, all structures shall meet the following criteria:

2.3.1 All newly constructed buildings should have the long axis of a building facing north/south. This will allow the building to conserve energy by decreasing solar radiation and enhancing wind circulation.

2.3.2 Structures shall include windows, doors, overhangs, and other thermal devices to conserve energy and enhance occupant comfort without full dependency of electrical devices.

- 2.3.3 All structures shall provide shade on the south face with the use of deep overhangs and recesses.

Building
Orientation



2.4 Building Materials and Textures Guidelines

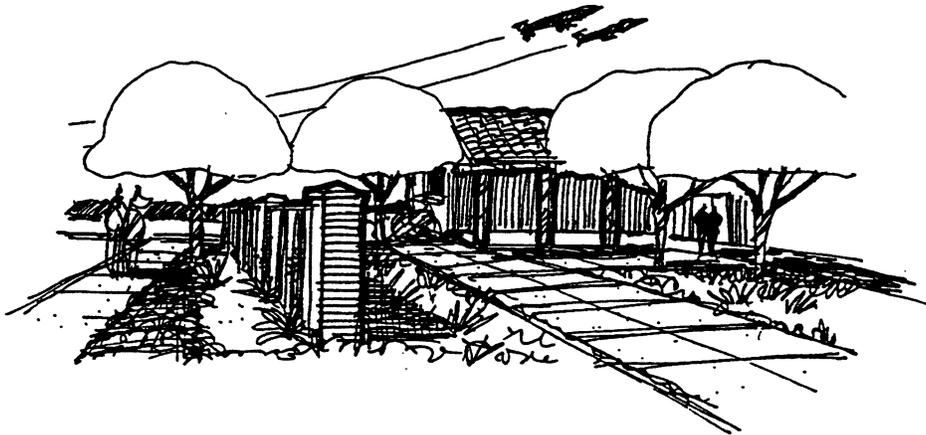
Exterior building materials are directly related to a building's energy saving qualities, maintenance costs, life expectancy and aesthetic appeal. Textures can be helpful in this task and add to a building's appearance and it's contribution to the community's sense of place.

To assure consistency on the Station, the following guidelines are provided.

- 2.4.1 Exterior building materials and textures shall be consistent with the overall architectural theme of the District and enhance the building's appearance.
- 2.4.2 Exterior building materials shall promote minimal building maintenance.
- 2.4.3 Exterior building materials shall be selected based upon their appropriateness to the building type, the climate, current local construction techniques and budget constraints and availability.
- 2.4.4 Exterior building materials shall incorporate the color scheme for that particular District to enhance the perception of continuity, even though each building within a particular District may use various exterior materials.

- 2.4.5** Split faced Concrete Masonry Unit (CMU), concrete (poured in place and precast), stucco and tilt-up concrete panels shall be used as primary exterior finish materials. Slump block shall not be used as an exterior building. The split faced CMU can provide a base for a much taller structure while enabling the designer to achieve human scale.
- 2.4.6** Avoid the use of metal panels as an exterior building material in the Headquarters, Community Support and Bachelor Housing Districts. Metal panels (corrugated) shall only be used in the Supply, Flightline or Station Support District.
- 2.4.7** The use of wood as an exterior treatment must be approved by the Station architect. Wood has the tendency to warp, twist and rot when exposed. The use of wood must be incorporated into the design such that it will not deteriorate prematurely or create a high maintenance requirement.
- 2.4.8** All buildings utilizing a light colored exterior shall use a medium to heavy texture in order to reduce glare. Buildings with a minimum amount of texture shall be toned down in color to diffuse glare.
- 2.4.9** All columns shall be made of a durable material (e.g., concrete).

Textures &
Materials



2.5 Building Color Scheme Guidelines

The color program at MCAS Yuma shall be guided by the requirements of function, the need to establish standards of appearance having wide appeal and to salvage the maximum portion possible of existing work. MCAS Yuma strives to follow a design philosophy that is responsive, responsible and defensible. The color program is based on a commitment to design principles which are requirements based, logical, appropriate and conservative. The objective is design excellence that contributes to the overall environment while reflecting quality, character and supports the following:

- a) **Marine Corps Image:**
Architecture for MCAS Yuma should be reflective and supportive of characteristics of the Marine Corps image: timeless, dignified and serious. The Marine image is honest, rational and is respectful of being one part of a larger whole.
- b) **Cost Effectiveness:**
Architecture for MCAS Yuma must be economical and cost effective by providing necessary scope, function and quality at the lowest reasonable life cycle cost. For color, the Station must be able to maintain at a reasonable and realistic cost in labor and materials, the original appearance of painted surfaces.
- c) **Functional Requirements:**
MCAS Color program must support and reinforce the functional requirements served by the facilities. MCAS Yuma is a multifaceted installation. The actual use of the facilities will be an activity or tenant which is part of a system command which will want to maintain its distinct identity (e.g., squadrons assigned to hangars) yet it must fit within the Station whole or district it is located in. In selecting color, the designer must note that where appearance is the primary consideration, colors shall be selected to provide a reasonable amount of diversity within the contexts and constraints of a unified whole. The colors shall be carefully chosen and coordinated to assure satisfactory results under the varying conditions of use encountered in each district.
- d) **Functional Areas:**
For color selections based on function, apply standards established by regulations or higher authorities. In areas where latitude in color selection is allowed by this BEAP, provide a limited range in the appropriate colors to serve both function and appearance. Where appearance is the primary consideration, the color program should reflect current practices appropriate for the type of installation.

DESIGN GUIDELINES

Develop a color scheme in all buildings that will promote the uniform and coordinated appearance for the entire Station. The proposed color scheme shall address the following surfaces:

Walls:	basic surface	stucco/plaster CMU concrete Metal Siding
	fascias	Metal Siding wood metal encased wood gutters flashing
	miscellaneous	Balconies railings/handrails stairs/ladders window shades
	columns/posts	concrete metal wood
	exposed frames	metal concrete
	Roofs	roofing
	trim	fascias gutters flashing
	accessories	screens smoke stacks trellis/lattice work
Openings	doors/windows	metal frames wood frames aluminum frames door panels

2.5.1 Color Selection:

Appendix D, *Color Chart* exhibits the standards for exterior colors at MCAS Yuma. These colors are appropriate for industrial, administration, educational, personnel and service buildings which tend to be large in size and require a measure of visual weight to appear structurally sound. The following colors are included:

- a) Medium beige color #33617 is the primary field color applicable to all Community and Recreational buildings. It may be used for trim color on masonry structures.
- b) Off white color #37778 shall be the primary field color in all districts. The secondary field color #37886 may also be used.
- c) Beige color #23617 is another primary field color.
- d) Canyon red #20152 can be used as trim color for all structures. Burgundy color #30160 shall be used on all Community Support District structures.
- e) Dark tan #20040 is a secondary field color for Group C and is a trim for masonry buildings.
- f) Flightline trim color is #25109.
- g) Masonry shall be integral color “golden rod.”

2.5.2 Color Coordination:

Many buildings, not including those in group A industrial buildings, can be painted any of the primary field colors. For best appearance, color should be applied to a group of buildings and not interspersed at random with other colors. The richer colors are particularly applicable to Group C, quarters and recreation buildings, while the whites and tans are suitable for administration, educational and medical buildings.

2.5.3 Color Architectural Materials:

Building materials, such as metal siding, factory finished metal trim and integral color masonry, should match with the exterior colors in the BEAP. Where emphasis is desirable, the dark tans and canyon red trim colors are recommended. In special areas of the Flightline District, blue trim is allowed. Colors such as purple and orange should be avoided. Precast or cast in place concrete materials should be composed of natural aggregate and left exposed. Built up roofing is to be white, gray or beige. Metal roofing is to be canyon red. Masonry integral color is to be the "golden rod." Where masonry is painted, use the primary field color for its group.

2.5.4 Building Groups

Within the 8 use districts identified in this BEAP there are a wide range of building types. These color guidelines are designed to provide a uniform and carefully coordinated appearance within the district, yet recognize and support the identity of the various functions of the building types. Since building types cross all districts, colors will be based on building type not necessarily the district they are in.

The building types are grouped as follows:

- Group A: Industrial Buildings
- Group B: Administrative and Institutional Office Buildings
- Group C: BEQs, BOQs, Mess halls, Commissary
- Group D: Community Facilities and Miscellaneous Outdoor Features
- Group E: Towers/Tankers/Miscellaneous Accessory Structures

Group A: Industrial Buildings:

1. MCAS Yuma has many industrial type facilities ranging from warehousing to nearby mechanical shops. The majority of these types are located in the Flightline District where conditions are crowded and where considerable soiling by smoke, dirt and other industrial contamination may be encountered. For the purpose of color treatment, industrial facilities are considered to include aircraft hangars, engine maintenance shops, power plants, water/sewage plants, warehouses, garages, car washes and fire stations. These facilities are strictly functional in nature, and often have an inherent beauty in their rough architecture forms which negates the need for bright colors. Additionally, there is a great deal of miscellaneous color in these areas already for high visibility, safety and identification of equipment, thus color for the sake of color is not desirable.

2. The primary field color shall be #37778 for those buildings within the Flightline District. An optional secondary field color for use on those buildings located in other districts may be considered. Trim, including doors, windows, frames and exterior structural steel and other surfaces where appearance is a consideration, shall be #20152.
3. Alternate colors: Use primary field color #23617 for supply/office buildings away from shops.
4. Morale support structures such as vending areas are to use #33617.
5. Industrial structures constructed of masonry shall use integral color units with color based on “golden rod” color. Existing gray concrete masonry unit buildings currently not painted, shall not be painted. Those buildings of standard smooth masonry which have been previously painted shall use the primary field color #37778.
6. Safety colors: Safety colors shall follow the Navy Safety and Fire Protection Codes. Fire Red is required for small sheds or enclosures containing fire fighting equipment. Bright yellow is specified for small paint storage sheds or where flammable substances may be kept. Similarly black and yellow striping will be applied to mark against hazards, low beams, dead ends, curbing, pit and platform edges, and obstructions in general.
7. Ducts, frames, steel ladders, walkways, and above roof exposed structural frames shall use trim color #25109. Smoke stacks, roof vents, ducts and similar items on roof shall be a similar color to complement the basic color. Where extreme temperatures are a concern, coatings are to be heat resistant. Tall items in vicinity of flight areas considered to be an aviation hazard shall be in conformance to applicable regulations governing color.

Group B: Administrative and Institutional Office Buildings

1. This Group includes administrative office buildings, banks, post offices, medical clinic buildings, and educational buildings. Where these buildings are masonry, the primary base color will be integral to masonry units. Typically, these buildings include wood, metal, concrete columns, patios, entry ways and trim, which are to receive a light color, such as white or the secondary field color #23617. All metal trim elements, such as railings, gutters, and flashing may have a contrasting trim color such as #20040 to harmonize with the masonry or stucco.

2. Where administrative, educational, and medical buildings are stucco, wood, or other composition material, primary field color #37778 is preferred. Bright colors are to be avoided or used with restraint.
3. Banks, post offices and telephone offices are typically masonry and should be treated similar to Number 2 above. Where located next to high traffic areas or next to exchanges, secondary field color #33617 may be used for trim. If structures are stucco, wood or other material that requires painting, the primary field color may be #37778 with trim to be white or #20152.

Group C: BEQs, BOQs, Messhalls, Commissary

1. The use of color is an important part in promoting quality of life for personnel living and using facilities in Group C. Use of bright colors on the exteriors of buildings devoted to living quarters, food services and recreation is desirable.

On stucco, wood, metal, and painted masonry the primary field colors shall be #3778 and #23617 and are to be chosen for visual effects appropriate to these structures. Exposed concrete portions of buildings are to be kept neutral in tone.

2. New structures with masonry walls are to use CMU units with integral color "golden rod" with trim color #20152.
3. Shades, awnings and stairs should #20040 with trim color #20152 used on metal railings, trellis and other metal trim.
4. For accessory structures and items, see Group E buildings below and other miscellaneous outdoor details like tanks, trash enclosures, etc.

Group D: Community Facilities and Miscellaneous Outdoor Features

1. Community facilities, such as the theater, clubs, exchanges, the gymnasium and commissary, are used for social activities by MCAS Yuma personnel and their dependents. These buildings typically have special decorative elements which require special treatment. The primary field color shall be #33617.
2. A reasonable number of decorative elements may be selected for these buildings. Bright accents can be appropriate in signs, marquees, canopies, awnings, wall graphics, and the like. These should be handled with restraint to eliminate any garish or cheap appearances. Trim colors available are #30160 and #20040. Avoid decorative use of Navy Safety colors which would conflict with their functional application.

3. Chapels have a particular significance and are treated separately. For stucco, wood, concrete and painted masonry, primary field color #37778 is preferred. Structures of integral color masonry shall be golden rod, with trim for siding, steeples, and other exterior details to be white.
4. Miscellaneous outdoor features: Metal outdoor features such as lampposts, fences, trash enclosures, and the like shall be #20040. Wood items shall be #33617.

Group E: Tanks, Towers and Miscellaneous Outdoor Features:

1. These items will typically occur as part of a building or group of buildings from other groups, occasionally as isolated features. In all cases, few colors and high durable finishes are the primary consideration for this group. Colors shall be durable, use pigments that are highly resistant to fading, fumes and deterioration from exposure to sun/heat/cold cycles.
2. Where good appearance is important, such as with miscellaneous railings, walkways, metal ladders, waste bins, trash enclosures, and small storage tanks adjacent to buildings, a single color compatible with the Station building color is to be selected. For structures that have large surface areas, such as ducts, space frames, or other similar items, use colors to minimize size.
3. In areas around BEQs, BOQs and other Group C buildings where large tanks may become outstanding features of the landscape, use color that will suitably harmonize with adjacent surroundings. Support structures of tanks may match the tank if this will improve the appearance.
4. Color for tall tanks or towers that constitute an aviation hazard must be per applicable regulations.

2.6 Roof Design and HVAC Screening Guidelines

A variety of roof designs exist throughout the Station. Most buildings have mechanical equipment, stacks, and/or vents that penetrate the roof.

In an effort to make the Station's buildings more visually appealing, the following guidelines are provided.

- 2.6.1** New structures shall use a minimum 3:12 roof pitch within the Headquarters and Community Support Districts. Other roof types such as flat or low sloped roofs are not permitted in these Districts.

- 2.6.2** Clay tiles which match the existing clay tile roofs shall be used on all renovations and new construction in the Headquarters and Community Support Districts. The use of simulated clay tile roofing systems must be approved by the Station architect.
- 2.6.3** The preferred roofing system is a metal standing seam roof system within all Districts with the exception of the Headquarters and Community Support Districts.

Screening

- 2.6.4** There shall be no roof mounted Heating, Ventilation, and Air Conditioning (HVAC) equipment on any new structure. If HVAC or other equipment is deemed necessary to be mounted on the roof, all equipment must be screened.



Before

Mechanical Equipment Screens



After

- 2.6.5** All unused equipment that penetrates a building roof shall be removed.
- 2.6.6** All ventilation, intakes and mechanical equipment shall be screened from public view.
- 2.6.7** Continuous screening shall be allowed for areas that are adjacent to each other on a single structure. The height of a screen used to obstruct the view of mechanical and electrical building equipment shall be adequate to effectively screen said equipment from the ground level and maintain an aesthetic which is proportional to the building..
- 2.6.8** All screening height shall not be less than the top of the equipment to be screened.

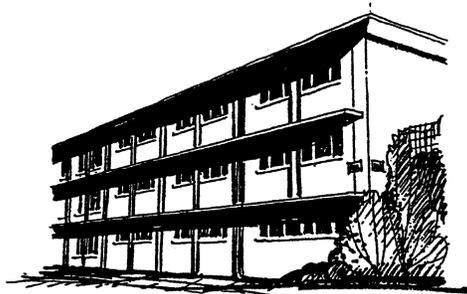
2.6.9 The use of planting materials is acceptable for screening ground level HVAC equipment provided that maintenance and safety issues are observed.

2.7 Facades

Factors such as scale, materials, color, massing, form, proportions, spatial relationships and supporting site components contribute to a coherent architectural facade. A facade should accent the building's entry, be aesthetically appealing, and be consistent with the character of the surrounding architecture. A coherent architectural facade fosters a "sense of order" and a "sense of arrival." In order to improve future facade designs, the following guidelines shall be used.

- 2.7.1** Consistent use of materials and a similarity in massing and building height shall be used to promote order, with an emphasis on the horizontal component of the building. This may be accomplished by horizontal banding from grout lines, precast concrete inlays, metal panels, color, split faced or smooth concrete masonry units.
- 2.7.2** The Headquarters and certain structures in the Community Support Districts have a "Spanish" architectural theme. This theme shall be continued for all facade renovations or new construction in these districts.
- 2.7.3** The Headquarters, Bachelor Housing and the Community Support Districts shall have a higher level of facade detail than other districts on the Station.
- 2.7.4** A distraction to facades and the architectural character of the building is the use of applied components such as, squadron logos, or slogans, painted on the building facade. All structures shall adhere to the signage component of these guidelines for display of logos and slogans.
- 2.7.5** The front facade shall shade the building accesses from the sun and rain

Facades



2.8 Windows, Lighting, and Doors Guidelines

It is important for the Station to conserve energy while maintaining comfort. Therefore, the Station will promote passive energy saving techniques whenever possible.

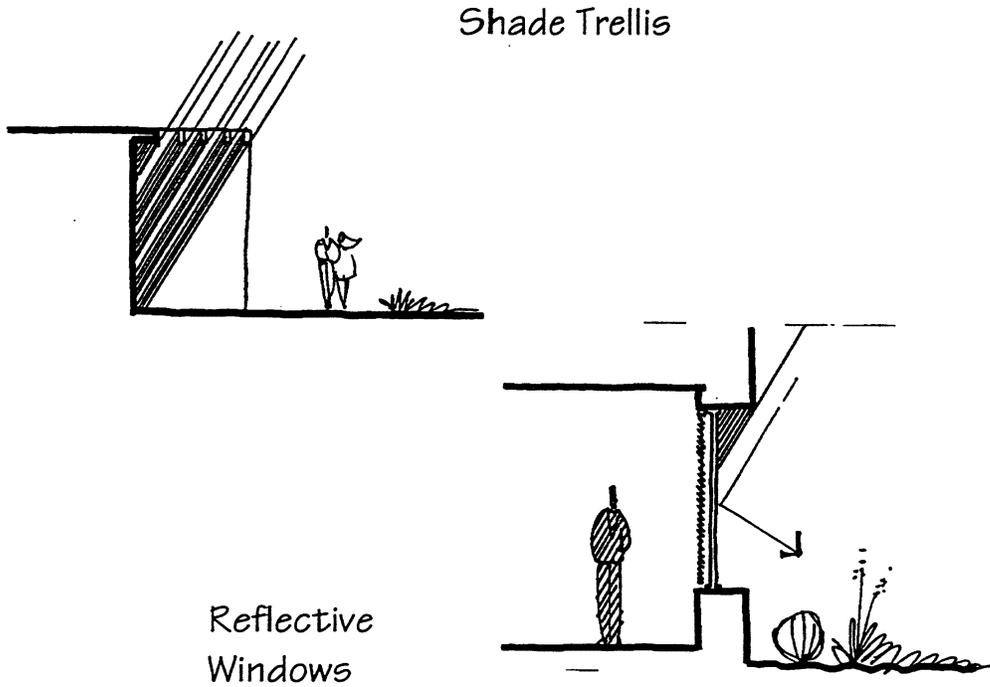
Windows/Lighting

- 2.8.1 Use double pane, or thermal designed glass such as solar bronze glass for all windows. Do not use reflective glass at building entrances or doors.
- 2.8.2 Use north facing skylights and clearstories for diffused interior lighting.
- 2.8.3 Do not use mylar films or paint to mitigate heat gain, glare or other solar related problems on glass.
- 2.8.4 When applicable, awnings shall be used in an effort to provide shade and weather protection, define the entrance and enhance the human scale of the building.

Doors/Facades

- 2.8.5 When a building lacks a distinctive entrance or facade, the use of a canopy or awning will allow adequate protection from the climate and also provide the architectural feature necessary to enhance the overall character of the structure.
- 2.8.6 The entrance door and adjacent windows shall be in scale with the overall building mass. Entries must be recessed deep into the building or protected by the use of an awning, canopy or vestibule to control the loss or gain of heat and cooling.
- 2.8.7 The building entrance shall be the focal point of all architectural elements. It should be highly visible and recognizable to both pedestrians and motorist.

- 2.8.8** Placement of an entrance door shall be on the north face of the building when possible. This will allow the building to accept less heat gain during the summer months.



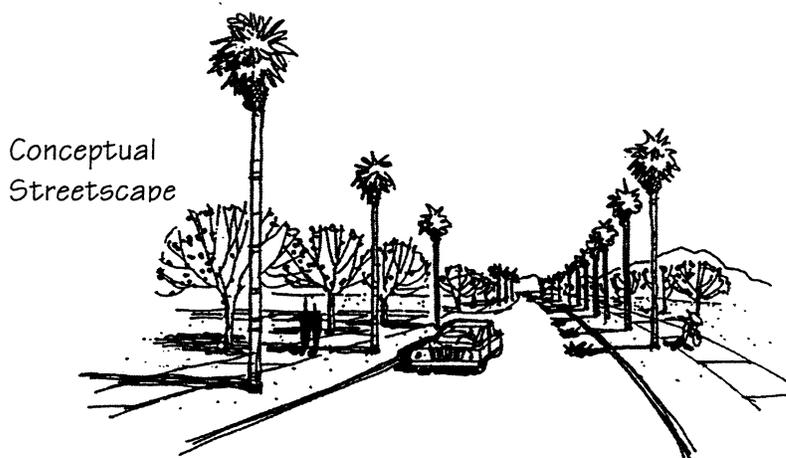
3.0 Streetscape Guidelines

3.1 General Intent

The streetscape can be defined as the visual image perceived by commuters and/or pedestrians as they travel along a route. The image of a streetscape is created by the arrangement and relationships of the physical elements which occur along the streets. In order to have a functional, safe and aesthetically pleasing streetscape, there are a number of design principles that should be implemented. These include: appropriate site lines, continuity and uniformity, visual containment and aesthetic identity. The incorporation of these design principles at this Station will vary depending on the constraints associated with a specific site and the practicality and/or feasibility as to how these principles can be applied.

Sitelines: The sitelines refers to the viewing distance and the peripheral view of the various elements encountered while utilizing a travel route. This includes the forward view of the travel lane, which enables a person to become oriented and anticipate what is ahead. It also includes the visual sitelines associated with peripheral street elements such as cross streets and shoulder conditions. Safe sitelines must account for the visibility, speed and reaction time of the traveler.

Continuity and Uniformity: A safer travel route will be provided if a user can pay attention to the changing variables (e.g., other traffic) without being distracted by various and random features within their field of view. An effective streetscape enables the user to anticipate what is going to happen as they move along a corridor. The user can quickly identify where to look for information, or potential conflicts as they travel along a route.



Visual Containment: An important component of establishing a positive streetscape is the containment of the field of view for the user. Visual containment is most often achieved by providing vegetative or constructed screens along the edges of a street and parallel to the travel route. These screens help define the travel route and also obstruct the views of parking, service and utility areas that are adjacent to the roadway. By screening these peripheral views, there will be less distractions to the attention of the users.

Aesthetic Identity: The use of hardscape elements, landscape treatments and lighting can be used to create an identity or visual image for the streetscape. Establishing an aesthetic identity develops a positive impression of the setting, and can also be an important means of defining the use of certain areas (e.g., districts) or the function of the travel corridor.

3.2 Existing Street Hierarchy

The Streetscape Guidelines have separated the existing streets into three categories. These categories are developed based on the function and the traffic counts of the Station's roadways and is defined below.

3.2.1 Primary Streets

Primary streets are the major collectors which facilitate the majority of the Station's traffic. They serve as the spine for the Station's circulation system. The roadways defined as Primary Streets include:

East/West Primary Streets

- O'Neill Street
- Quilter Street
- Hart Street
- Loesh Street

North/South Primary Streets

- Thomas Avenue
- Shaw Avenue
- Martini Avenue

3.2.2 Secondary Streets

Secondary streets are connector streets which serve as links to the facilities and the primary roadways. These streets do not carry traffic volumes as high as the primary roadways.

East/West Secondary Streets

- *Spears Street*
- *Worley Street*
- *Aldrich Street*
- *Crowe Street*
- *Jensen Street*
- *Post Street*
- *Debruhl Street*
- *Reilly Street*

North/South Secondary Streets

- *Galbreath Avenue*
- *Narr Avenue*
- *Alward Avenue*
- *Halstead Avenue*
- *Yaupell Avenue*
- *Frazier Avenue*
- *Parks Avenue*

3.2.3 Service/Access Roads

The remaining roadways, drives and access lanes are categorized as service and access roads. These travel lanes are typically not named as roadways. They usually provide access to a specific building, or function where they connect parking or loading areas to the secondary roadways. Service and access roads occur within almost every block and usually do not serve as a through street. The design guidelines which govern these roadways are identified in Section 4.0, Parking Guidelines.

3.3 Primary Streets Streetscape Design Guidelines

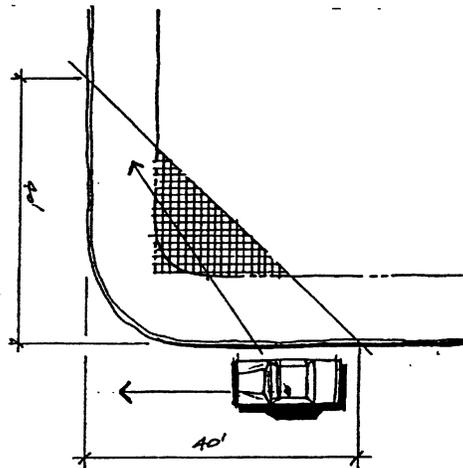
It is important that the primary streets be perceived by the public and Station personnel as the major routes through the Station. This is accomplished by creating a memorable streetscape which reinforces their recognition of the primary travel routes. The primary roadways can help the first time visitor become oriented to the Station. When properly designed, they can also serve as a unifying element which improves the image of the Station, and portrays an orderly and structured operation.

Primary Streets, Hardscape Elements

The hardscape elements will include all the above ground constructed elements associated with the roadways corridors. Examples of these include the pavements, walkways, curbs, walls and other facilities or amenities that are a part of the built elements of a roadway system. In order to further define the primary streets as the most significant travel corridors for the Station, the following guidelines shall be implemented.

- 3.3.1** The primary roads shall provide 2-way traffic with a minimum of 1 clear travel lane in each direction. The minimum width of a travel lane shall be 16 feet.

- 3.3.2** Access to and from a primary road will be controlled. Cross street intersections with the primary roads will be limited to primary and secondary roadways and significant access drives only.
- 3.3.3** All connecting roadways and drives shall intersect in a perpendicular (90 degree) configuration to the primary collector.
- 3.3.4** Traffic control at all newly created intersections with the primary collector shall be defined by an approved traffic analysis report.
- 3.3.5** Cross streets shall create 4-way intersections with roadways which align directly across from one another. T-intersections which occur opposite each other must be staggered in a fashion which is safe and does not impede the traffic movement along the primary roadway. The minimum distance between offset intersections shall be determined by an approved traffic analysis report, prepared specifically for each new drive location.
- 3.3.6** Site distance triangles are required to maintain safe viewing distances of oncoming traffic at each drive and roadway intersection connecting to a primary roadway. They shall comply with the following guidelines.
- a) The dimensions of the site visibility triangle for a primary road is to be 40 feet along the primary roadway from the intersecting roadway and 40 feet back from the face of the curb on the primary roadway along the intersecting roadway or driveway.



- b) There are to be no obstructions over 18 inches above the top of the curb within the boundaries of the sight distance triangles. This includes non-regulatory signs, utility equipment, walls, plantings, etc.

- c) Tree plantings are allowed within the site visibility triangles provided all foliage and branches are pruned and maintained at a height of 7 feet above street level. This is to ensure a clear line of sight for individuals whom are merging onto a street from a drive or adjoining street.

3.3.7 On-street parking is not permitted on primary roadways.

3.3.8 All primary roads are to be paved with material and a section design recommended by a geotechnical report identifying traffic loads and soil conditions. The secondary roadways are to be crowned and sloped to ensure positive drainage.

3.3.9 Concrete valley gutters shall be provided to carry drainage through intersections in a fashion conducive to an overall drainage plan, and to eliminate standing water in intersection gutters.

3.3.10 All primary roads are to be edged with a concrete vertical curb and a gutter. The curb height is to be 6 inches and the gutter width is to be 18 inches. Where bicycle paths are designated, the use of rolled curbing may be required.

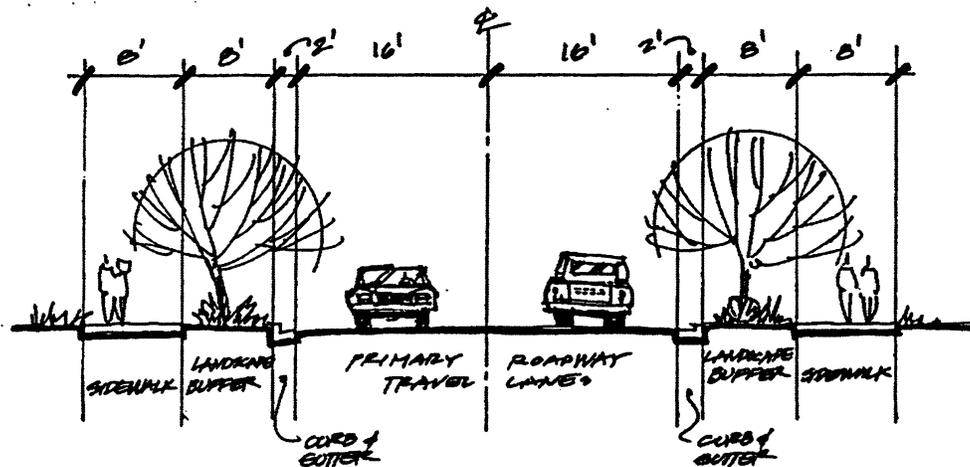
3.3.11 Maintain a minimum 2 foot setback between the primary street curbs and any fixed objects such as signs, hydrants, utility poles fences, etc.

3.3.12 Establish a bicycle system along the primary streets. The bike route should be continuous and connect frequent destinations (See Section 5.0, Walkways/Pathways Guidelines for bike path information).

- a) The preferred means for providing a bicycle system is to provide an 8 foot wide concrete pathway which is shared with pedestrians. This pathway should be installed when the width adjacent to the primary roadway allows for a minimum 8 foot separation between the back of curb and the pathway. This separation should be landscaped to enhance the feeling of separation of the cyclists and the pedestrians from the vehicular traffic of the roadway.
- b) A second option to be utilized when there is insufficient room for the separate pathway is to add an additional 4 foot width of pavement to each side of the roadway, and stripe this additional pavement as bike lanes. Signage and pavement graphics to designate the bicycle routes should also be provided.

3.3.13 Provide sidewalks on both sides of all primary roads.

- a) Separate the walkway from the roadway when there is adequate space available. In areas where separation is possible, maintain an 8 foot open space area and provide an 8 foot walkway and bicycle route. It is preferred to have 8 foot sidewalks on both sides of primary roadways.
- b) If there is inadequate space for the above mentioned system, provide 5 foot wide sidewalks adjacent and flush with the back of curb along all primary roads.



Preferred Streetscape Section

3.3.14 Provide for accessible curb ramps and crosswalks at all walkway and roadway intersections. The configuration and slopes of all sidewalk ramps shall comply with the most recent ADA guidelines.

3.3.15 Low masonry screen walls shall be provided to screen all parking areas from the primary roadways. The color texture and style of these screen walls shall be consistent for the entire length of a primary roadway.

- a) Screen walls are to be constructed from 8 inch wide integral colored concrete masonry units.
- b) The texture is to be split-faced block with the roughed edge facing towards the primary roadway.
- c) The height of the wall is to be a minimum of 3 feet above the area being screened.

- d) The color of the block is to be verified with the Station architect and is to remain consistent for the entire length of the primary roadway.

3.3.16 Tall screen walls shall be provided to eliminate the views from the primary roadways into service yards and/or storage areas.

- a) These walls shall be a minimum height of 6 feet tall and a maximum height of 8 feet tall. The height will be approved based on the materials which are being screened and the limitations of the site.
- b) The block type, texture and color are to be consistent with the wall design designated for a particular primary roadway.

3.3.17 Street lights are required at the intersections for all primary roadways.

- a) Street lights are to be located and specified to ensure safe visibility at the intersections. The placement, photometrics and foot candle levels are to be recommended by a registered electrical engineer, and approved by the Facilities Management Department (FMD).
- b) The poles are to be square tubular anodized aluminum poles with a permanent bronze finish.
- c) The fixtures are to be shoe box type fixtures with a finish that is consistent with the poles.
- d) All lighting is to comply with the Yuma County Zoning Ordinance Outdoor Lighting Regulations Section 1109.00.

3.3.18 Utility lines (electric, telephone, cable TV, etc.) ~~should~~^{SHALL} be removed and placed underground. These lines can be placed under the roadway pavement, or in adjacent open space areas, if space is available. Pad mounted transformers should be placed in accordance to the design and safety requirements of the associated utility company. The above ground electrical equipment shall be screened when possible.

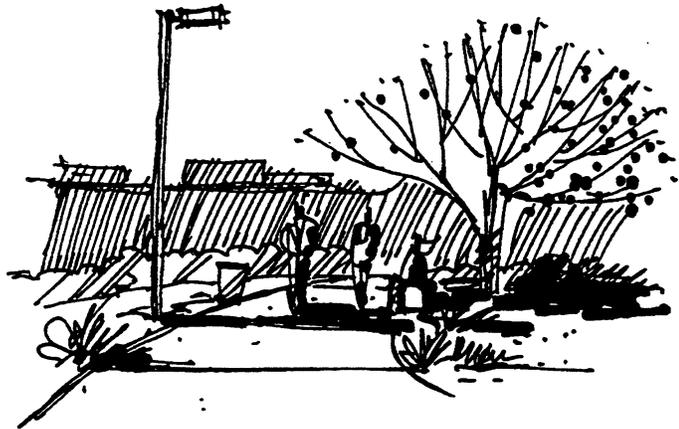
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3.4 Primary Streetscapes, Softscape Elements

The softscape elements include the landscape treatments and plant materials that will be incorporated into the design of the streetscape. The purpose of these landscape treatments is to define and enhance the visual image of the street.

- 3.4.1** Street tree plantings should be established if they are nonexistent or reinforced where existing trees are located. If new landscape-treatments are being added as a part of a roadway improvement project, the new plant materials shall correspond to the plant pallet of the adjacent uses provided the plants are acceptable species included on the approved plant list.
- 3.4.2** The tree spacing along the primary roadways should be uniform and rhythmic. Canopy trees should be placed a maximum of 40 feet on center in order to provide a near crown to crown canopy when the trees mature. Palm trees shall be placed a maximum of 30 feet on center.
- 3.4.3** The plant materials placement should maintain a safe distance from the back of curb to avoid excessive pruning of overhanging limbs.
- 3.4.4** Locate the trees in proximity to the walkways so that the pedestrians can benefit from the shade of the trees.

Shaded
Walkway



- 3.4.5** Anticipate the future growth of the trees and locate the trees in areas that will minimize interference with overhead power lines by the tree canopy, or underground utilities by the tree's root structure.
- 3.4.6** Select tree types that are indigenous to the arid climate of Yuma (See Appendix B, *Plant Matrix* for acceptable species).
- 3.4.7** In order to encourage and accelerate the development of the trees, provide an automatic underground irrigation system. This system should be designed with emitter placement that allows the system to be adjusted as the trees mature, encouraging a better established root system (See Section 9.0, Planting Guidelines for irrigation system requirements).

3.4.8 Shrub plantings are to be used along the primary streetscapes to reinforce the visual definition of the landscape treatment. There are a variety of functions that shrub plantings can achieve including screening, pedestrian/vehicular separation, added variety, color and texture, etc. There is also an added cost to the maintenance associated with shrub plantings that must be considered during the design phase.

- a) Shrubs should be utilized as a screen to parking areas, or other areas where undesirable views need to be screened. The shrubs can be used in addition to the masonry walls previously identified, provided there is room for the shrubs to grow. When being planted as a screen, the shrubs should be spaced 2 to 3 feet apart for varieties that will grow to a 3 to 4 foot height, and 3 to 5 feet apart for shrubs which will grow taller than 4 feet (See Appendix B, *Plant Matrix* for recommended species.) When a hedge affect is desired the spacing of the shrubs should be uniform and linear. When there is more space available to accommodate landscape treatments, a staggered pattern could be used.
- b) Shrub plantings can also be used for accent and decorative purposes. When open space areas along the streetscape are adequate, a random spacing of mixed varieties of shrubs can be installed. Opportunities to utilize flowering shrubs, or bold foliage shrub plantings should be considered in the planting design. The use of flowering shrubs in areas near pedestrian walkways or seating areas should be encouraged to provide color and fragrance in areas where they can be appreciated.

3.4.9 Groundcovers are to be used to improve the visual appearance of the ground plain, and provide erosion protection from both wind and precipitation. The groundcovers are divided into 2 categories. The first is vegetative groundcovers, which include plant materials and turf. The second is inert groundcovers, which include the rock mulches or stones applied as a cover to the landscaped areas of a project.

- a) Vegetative groundcovers are to be limited for the streetscape treatments. Areas appropriate for this type of treatment include areas where accent plantings or additional color is desirable. This would include treatments at intersections where plantings may be increased as a part of the visual emphasis around monument signage, or as a treatment within the height restricted areas of a site visibility triangle.

- b) Vegetative groundcovers are also appropriate for the streetscape in areas of pedestrian nodes or pedestrian seating areas. Flowering groundcover plants should be utilized in these areas where the observers have an opportunity to appreciate the plants.
- c) Vegetative groundcovers may also be used as a means for reducing erosion, or provide bank protection along the roadways. The maximum slope to be treated by a vegetative groundcover is a 3 to 1 slope that has a maximum length of 20 feet. Steeper or longer slopes must be treated with other erosion control methods such as rock placement, retaining walls or other material.

3.5 Secondary Streetscape Design Guidelines

The priority assigned to the image of the secondary roadways is reduced from the primary roads. However, safety and convenience issues must still be addressed. The majority of the streetscape image for the secondary streets will be derived from the various landscape treatments associated with the facilities which align these roadways. The design guidelines for the secondary roadways are as follows:

3.5.1 Secondary Street Hardscape Elements

The hardscape elements of the secondary streets will be associated with the roadway pavement, the curbing and the sidewalks.

- 3.5.2** Secondary roads shall provide 2-way or 1-way traffic. The minimum width of a travel lane for 2-way traffic shall be 12 feet. The minimum width of a travel lane for a 1-way road is 16 feet.
- 3.5.3** Cross street intersections with the secondary roadways will include, primary roads, other secondary roads, parking access drives and service access drives. All connective roadways and drives are to intersect the secondary roadways in a perpendicular (90 degree) configuration.
- 3.5.4** Traffic control with any primary collector shall be defined by an approved traffic analysis report. Traffic control with secondary and lesser roadways shall include the use of stop signs as a minimum.
- 3.5.5** Cross streets shall create 4-way intersections with roadways which align directly across from one another.
- 3.5.6** Site distance triangles are required to maintain safe viewing distances of oncoming traffic at each drive and roadway intersection. The site distance triangle shall be as follows:

- a) The dimensions of the site visibility triangle for a primary road shall be 40 feet by 40 feet.
- b) The dimensions for intersections with other secondary roadways are to be 30 feet by 30 feet.
- c) The dimensions for driveways and service access roads shall be 25 feet by 25 feet.

3.5.7 On-street parking is permitted on secondary roadways where it is currently existing. No new on-street parking is permitted. (See Section 4.0, Parking Guidelines for additional on-street parking requirements.)

3.5.8 All new roadway projects are to be designed in accordance with a geotechnical report prepared specifically for the segment of roadway being developed.

3.5.9 Concrete valley gutters shall be provided to carry drainage through intersections in a fashion conducive to an overall drainage plan, and to eliminate standing water in intersection gutters.

3.5.10 All secondary roads are to be edged with a concrete vertical curb and a gutter. The curb height is to be 6 inches and the gutter width is to be 18 inches. Where bicycle paths are designated, the use of rolled curbing is required.

3.5.11 Maintain a minimum 2 foot setback between the secondary street curbs and any fixed objects such as signs, hydrants, utility poles, fences, etc.

3.5.12 When space allows, provide sidewalks on both sides of the roadway. If there is inadequate space, sidewalks shall be provided as a minimum on one side, and the width of the sidewalk is to be a minimum of 5 feet.

3.5.13 Provide for accessible curb ramps and crosswalks at all walkway and roadway intersections. The configuration and slopes of all sidewalk ramps shall compile with the most recent ADA guidelines.

3.6 Secondary Streetscapes, Softscape Elements

Like the primary streetscapes, softscape elements, the landscape treatments and plant materials will be incorporated into the design of the streetscape. The purpose of these landscape treatments is to define and reinforce the principles of the streetscape treatments defined earlier (See Section 3.4, Primary Streetscapes, Softscape Elements for design guidelines).

4.0 Parking Guidelines

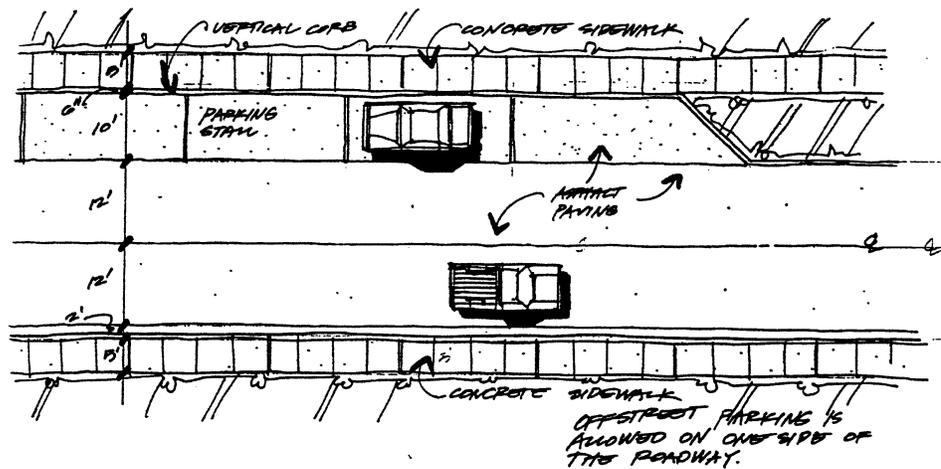
4.1 General Intent

The intent of these parking guidelines is to identify design elements that will enhance the convenience, function, safety and aesthetic appeal of the parking areas required to accommodate the parking demands of the Station's activities. The appearance of the parking areas has a significant impact on the overall appearance of the Station. Implementation of these guidelines, combined with the guidelines for landscaping and screening, will improve the safety and visual appeal of the Station.

4.2 On-Street Parking Guidelines

On-street parking should be considered as a last resort for accommodating the parking needs of a particular facility. Any newly constructed project must accommodate its parking requirements within designated parking areas not associated with on-street parking. Existing on-street parking should be eliminated if possible. If no other options are available, adherence to the following guidelines is required.

- 4.2.1 There shall be no on-street parking on any Station primary roadway (See Section 3.0, Streetscape Guidelines for identification of primary roadways).
- 4.2.2 There shall be no perpendicular on-street parking.
- 4.2.3 On-street parking can occur on secondary roadways, but it shall be parallel or angled (30 degree, 45 degree or 60 degree) to the roadway.



On-Street Parking Dimension

- 4.2.4** On-street parking shall only occur on 1 side of a secondary street.
- 4.2.5** On-street parking is not permitted where it would interrupt the continuation of a sidewalk or designated bikeway.
- 4.2.6** The drainage of any on-street parking area shall correspond to the drainage patterns of the adjacent street. The drainage from the parking area shall not create a negative impact on the roadway drainage. The minimum slope of the parking areas shall be 1 percent and the maximum slope shall be 10 percent. All parking areas, interface of the parking area, and the street shall maintain a positive drainage flow.
- 4.2.7** All on-street parking areas shall have 6 inch by 18 inch concrete vertical curbs along all non-street edges of the parking area (excluding access ramps and drainage curb cuts). 6 inches of the curb shall be exposed above the finished grade of the parking surface.
- 4.2.8** A concrete sidewalk shall be placed at the back of curb. This walkway shall provide direct access to the entry of the building being facilitated by the on-street parking.
- 4.2.9** All parking spaces shall be clearly defined by striping that indicates the individual parking stalls.
- 4.2.10** The dimensions for a parallel parking space shall be 24 feet long and 10 feet wide.
- 4.2.11** Angled parking spaces shall be 10 feet wide. The stall depth shall be as follows: 30 degree parking - 19.25 feet deep, 45 degree parking - 21.5 feet deep and 60 degree parking 22.5 feet deep.
- 4.2.12** No part of any vehicle shall overhang into a sidewalk or landscape area by more than 1.5 feet. In areas where the car overhangs into a sidewalk area, the walks shall be widened to accommodate a minimum of 4 feet unobstructed pedestrian area.
- 4.2.13** All on-street parking areas shall be at least 50 feet from any intersection or driveway. In no case shall a parked vehicle obstruct the site distance triangle.

4.3 Off-Street Parking Guidelines

Any new facilities developed on this Station shall accommodate the parking needs for that facility by utilizing parking areas that are off-street and adjacent to the new structure. Remodeling existing facilities shall also address the parking needs of the proposed use. Parking areas associated with a significant remodeling project shall be modified to address the requirements listed in these guidelines.

4.3.1 Required Parking Spaces

The required number of parking spaces needed for each facility shall be determined by the Planning Branch of FMD.

4.3.2 Parking access drives abutting primary and secondary roadways of this Station shall conform to the following guidelines.

- a) The minimum width for a 2-way drive is 24 feet.
- b) The throat width of the driveway will vary depending if the drive is designated as 1-way or 2-way. The minimum width for a 1-way drive is 14 feet. The minimum width for a 2-way drive is 24 feet.
- c) There shall be no more than 2 access drives serving a parking area off of a particular roadway.
- d) The minimum distance of an access drive from a intersection radius shall be 50 feet.
- e) All parking lot driveways shall be paved with concrete or asphalt pavement.
- f) All parking lot driveways shall be edged by concrete curbing, 6 inches by 18 inches deep, with an exposed vertical height of 6 inches.
- g) All driveways shall intersect with the adjacent street in a perpendicular (90 degree) manner.
- h) All driveways shall have traffic striping and be signed for traffic control. The specific requirements will vary, and should be described by a traffic engineering report prepared specifically for the proposed improvement.
- i) All parking lot drives fronting onto a primary or secondary roadway shall have a 35 foot by 35 foot site distance triangle. An unobstructed view shall be maintained within the area of the site distance triangle.

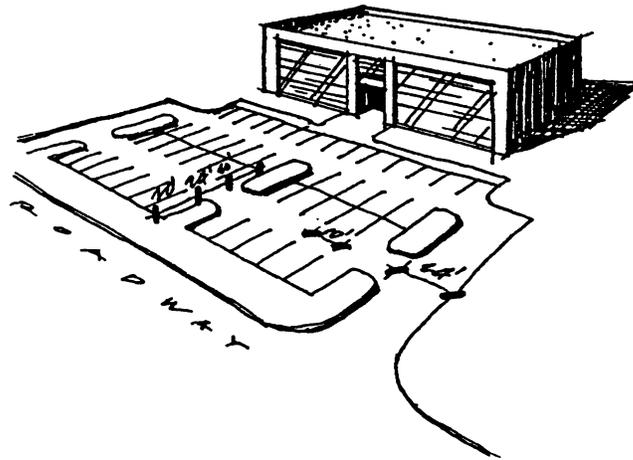
- j) When a driveway intersects with an existing or proposed sidewalk, accommodations for accessible ramps and/or a continuous sidewalk shall be provided.

4.3.3 Parking Areas

Parking lots shall provide safe, convenient, efficient and attractive parking for Station personnel and the public. Parking areas shall comply with the following guidelines.

- a) Locate parking areas to the sides and rear of buildings to allow for an attractive landscaped area facing the street. Where this is not possible, provide sufficient screening along the street side of the parking area (See Section 7.0, Site Screening for screening requirements).
- b) In order to minimize paved areas, which contribute to overall heat gain, parking areas should be arranged in an efficient and cost-effective manner. Review the opportunities for shared use of parking areas between various facilities.
- c) All parking spaces shall be a minimum of 10 feet by 20 feet. Of this, a minimum of 10 feet by 18.5 feet shall be pavement, except for handicapped spaces (See Section 4.3.4, Handicapped Parking Facilities for details).

Off-Street Parking
Dimensions



- d) The front of a parking space is allowed to overhang 1.5 feet (maximum) onto on-site landscaped areas or on-site sidewalks if bumper curbs are provided. If the parking space overhangs an on-site sidewalk, the sidewalk shall be wide enough to maintain a 4 foot (minimum) clear walkway. Parking spaces shall not encroach into street right-of-way or roadway easements.

- e) Parking spaces adjacent to walls shall have wheelstops which provide a minimum of 3 feet from the face of the wheelstop to the building to ensure that vehicles cannot make contact with the wall.

4.3.4 Handicapped Parking Facilities

Federal and State legislation has created the “Americans With Disabilities Act” (ADA) which establishes strict requirements for handicapped person accessibility. Where the provisions of these guidelines and Federal or State laws differ, the more stringent requirements will apply. Variation from these standards shall be revised and approved by the FMD.

- a) All new Station developments shall provide for handicapped parking spaces in the minimum quantities provided in the following chart:

<u>Total number of parking spaces</u>	<u>Required minimum number of handicapped parking spaces</u>
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
Over 200	2 percent or a minimum of 6 spaces whichever is greater

- b) Handicapped parking spaces shall be located to provide the most convenient access to the accessible entry of the proposed (or existing) facilities.
- c) Space Dimensions: The minimum required depth of a parking space shall be 20 feet. As a minimum, each car handicapped space shall consist of a space 8 feet wide with a striped adjacent access lane of 5 foot width. ADA guidelines require that 1 in every 8 spaces, but not less than 1, shall be “van accessible” which consists of an 11 foot parking space with an adjacent, striped, 5 foot wide access lane (See Appendix E-1, *Layout Detail*).
- d) Marking Handicapped Spaces: Each parking space for physically disabled persons shall be outlined with yellow paint. The parking space shall also be marked with a wheelchair symbol on the finished parking surface in white paint with a light blue background (See Appendix E-2, *Symbol Detail*). The space shall also be posted with a permanent sign located not less than 3 feet and not more than 6 feet above the paved surface. The sign shall be of a color

and design approved by the State Department of Transportation bearing the universally accepted wheelchair symbol and the caption “RESERVED PARKING” (See Appendix E-3, *Signage Detail*). There shall at least 1 sign for each handicap parking space. Van accessible spaces must have a “VAN ACCESSIBLE” sign below the normal handicapped sign (See Appendix E-4, *Van Signage Detail*).

- e) **Handicapped Access Ramps:** All parking areas shall provide access ramps for the handicapped. The ramp slope shall be the least possible and in no case shall any ramp be steeper than 1 vertical to 12 horizontal (1:12). The minimum clear width of any ramp shall be 36 inches.

4.3.5 Parking Lot Surfacing

All parking lot areas shall be paved or treated with an inert material in order to reduce the levels of dust and erosion. Pavement sections should be determined by a geotechnical engineer based on soil conditions and proposed use.

Parking areas intended for motorcycle parking shall be paved with Portland Concrete Cement.

4.3.6 Parking Lot Drainage

All parking areas shall be sloped to ensure positive drainage and avoid ponding or bird baths on the paved surfaces.

- a) Slopes: 1 percent minimum – 10 percent maximum.
- b) Concentrated flows which flow off the parking areas into landscape and/or retention areas must be accommodated by an appropriate apron treatment as to avoid erosion of slopes or undermining of the pavement. Rock swales or concrete flumes should be used. The design of these items is to be coordinated with the landscape design.

4.3.7 Curbing and Wheel Stops

Concrete curbing shall be provided around the entire perimeter of all parking areas. A 6-inch by 18-inch vertical concrete curb with 6 inches exposed above finished grade is required along the perimeter and between parking areas and the street right-of-way. Other barriers, such as concrete block screen walls, may be constructed in-lieu of this curb, if they provide a substantial barrier and are approved by FMD. Landscaped earthen berms do not meet this requirement.

4.3.8 Fire Equipment Access

All developments shall provide access for the Station's fire equipment vehicles and personnel per the following guidelines. (The Fire Department may revise these guidelines as individual situations require).

a) Driveway Width and Turning Radii

- A 24-foot (minimum) wide driveway is required for fire truck access.
- Turning radii of 20-feet is required at all entrances, and interior driveway intersections where fire equipment access is required.

b) Building Access for Fire Equipment

- Buildings shall be located so that fire trucks may be parked within 150 feet of the farthest point on the ground floor of the building. This 150-foot dimension is measured along the route a person would follow from the truck to a given point on the building.
- Retention areas shall not be considered part of the required access.
- Provide a minimum of 13-foot, 6-inch vertical clearance for a fire equipment access route.
- There shall be a minimum 10-foot setback from fire lanes.
- Any roadway intended for fire equipment access shall not have a grade greater than 8 percent.
- No parking signs shall be posted for fire lanes.

4.3.9 Parking Area Landscaping

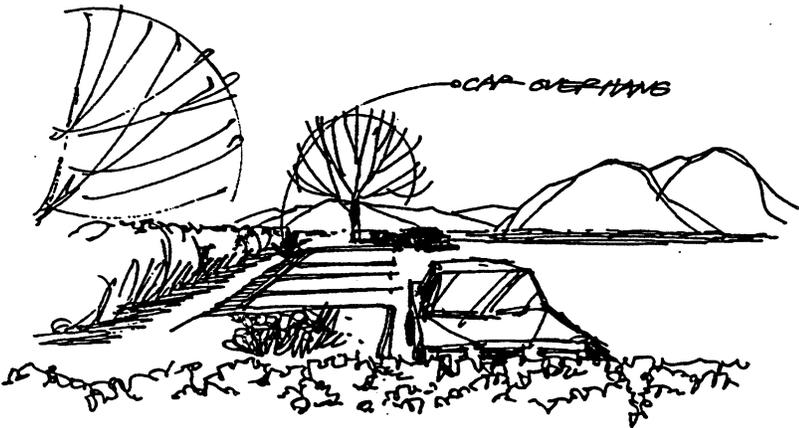
The addition of landscape treatments to the parking areas provides a number of benefits. The trees not only improve the comfort level of the automobiles which park within the shade, but also reduce the heat gain caused by large expanses of parking pavement.

The addition of trees in the parking areas also enhances the visual appeal of the Station. The trees will soften the impact of large parking areas and with the foliage, and seasonal color create a more pleasant setting for Station personnel and visitors. The following guidelines address the required landscape treatments for the parking areas:

- a) A minimum of 10 percent of the interior area of each parking lot shall be landscaped with trees, shrubs and groundcovers chosen from the approved plant list. The required area shall be measured as a percentage of the total area within the perimeter curb of the parking lot, including any associated access drives, loading areas or similar features.

- b) No more than 10 parking stalls shall be contiguous without being separated from the next group of stalls by a planted landscape island, a minimum of 5 feet wide. These islands shall be planted with a minimum of 1 - 15 gallon shade tree, and 5 - 1 gallon shrubs, chosen from the approved plant list. The remaining surface area of the island shall be covered with an inert groundcover.
- c) Where an island contains a pedestrian walk, the island shall be a minimum of 10 feet wide.
- d) A planting buffer area shall surround each parking lot. Said buffer shall provide screening of parking areas from public streets through berming, screen walls and landscaping.
- e) The perimeter buffer shall contain a minimum of 1- 15 gallon shade tree, 20 -5 gallon shrubs, and 20 -1 gallon groundcover plants for every 30 linear feet of buffer area. The remaining surface area shall be treated with an approved inert groundcover.

Parking Lot
Landscape



5.0 Walkways/Pathways Guidelines

5.1 General Intent

MCAS Yuma has significant pedestrian activity between the barracks, community support, recreation and the airfield areas of the Station. The goal of these guidelines is to provide user friendly pedestrian circulation facilities to encourage walking as a primary mode of transportation around MCAS Yuma. Walking will help reduce the impact of automobiles, reduce energy consumption and improve the health of employees and residents.

In order to provide pedestrian circulation facilities to encourage walking as a primary mode of transportation at MCAS Yuma, (consistent with the current master plan), the following guidelines are provided:

5.1.1 Pedestrian Walkway Types

A pedestrian walkway system should be designed as a hierarchical network that provides different levels of use and convenience based upon the volume of pedestrian traffic and trip purpose. These walkways can be divided into 4 separate types; primary, secondary, tertiary and recreational running routes.

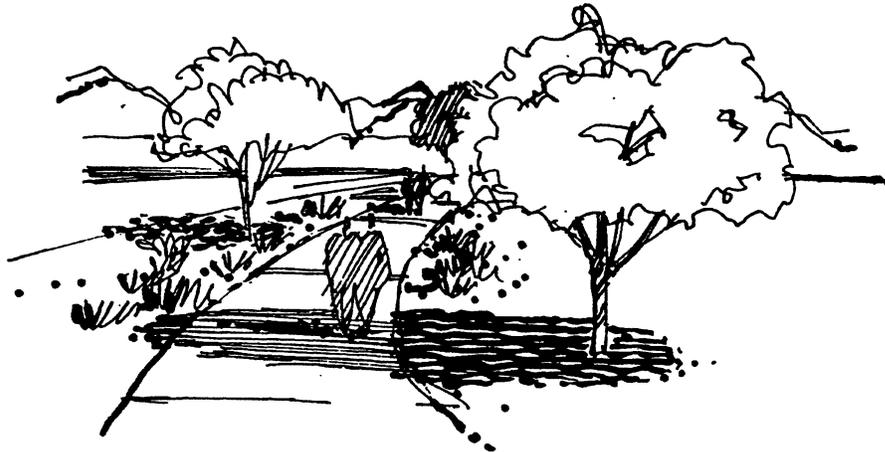
- a) Primary Walks (both pedestrian and bicycle) shall be 8 feet wide and have specified concrete paving, a safe lighting level, and a high frequency of pedestrian amenities.
- b) Secondary Walks shall be 5 feet wide and have specified concrete paving, moderate lighting levels, and necessary pedestrian amenities, such as benches and trash receptacles.
- c) Tertiary Paths (separated from vehicular traffic where possible) shall be 4 feet wide, consist of compacted inert materials, such as gravel or stabilized decomposed granite, have a natural landscape character along the pathway, and provide a scenic character.
- d) Recreational Running Routes shall conform with those designated in the pedestrian network plan.

5.2 Pedestrian Walkways Guidelines

5.2.1 Pedestrian facilities shall take advantage of views, open spaces and other varied visual experiences.

- 5.2.2 Locate pedestrian walkways away from incompatible uses, such as large storage areas, busy streets and/or service areas.
- 5.2.3 Provide a separation between walkways and vehicular traffic, where possible, to minimize the primary pedestrian hazards, such as moving vehicles and unseen obstacles in the line of travel.
- 5.2.4 All pedestrian walkways shall provide lighting for nighttime safety.
- 5.2.5 All walkways shall be constructed of a safe and durable walking surfaces, and be smooth, dry and level, where possible. Steep inclines and steps should be avoided.
- 5.2.6 Walkways shall be designed to provide pedestrian amenities, such as plazas, courtyards, benches and lighting to encourage pedestrian travel. These amenities should be designed to meet their particular functional requirements, such as places for rest and relaxation, and contain elements for user comfort and enjoyment.
- 5.2.7 Provide a means of directional communication through appropriate signage on all walkways.
- 5.2.8 Pedestrian circulation facilities shall be constructed or modified to accommodate handicapped users. Minimum Design Standards shall be utilized to ensure all new project facilities conform to ADA Requirements.

Pedestrian
Walkway



5.3 Ramp Guidelines

Any walkway surface with a slope gradient in excess of 5 percent is considered a ramp. Ramps serve the same function as steps, but are not functional for handicapped pedestrians.

- 5.3.1 Ramps shall not have a slope gradient greater than 12, 1:12 or 8.3 percent.
- 5.3.2 The ramp's surface finish material shall match the walkway's.
- 5.3.3 Design all ramps to conform with the ADA requirements.
- 5.3.4 Ramp handrails detailing and colors shall match stairway handrails where possible.
- 5.3.5 The maximum length of ramps shall be 30 feet between landings. Landings shall be at least as wide as the clear width leading to it, with a minimum length of 60 inches. If there is a direction change at the landing, the landing shall have a 60 inches square clear space minimum.

5.4 Steps Guidelines

Stairways are not desirable in major pedestrian circulation systems because of obvious problems with handicapped accessibility. Steps shall only be used when the utilization of ramps is not possible. Steps associated with walkways shall incorporate the following requirements:

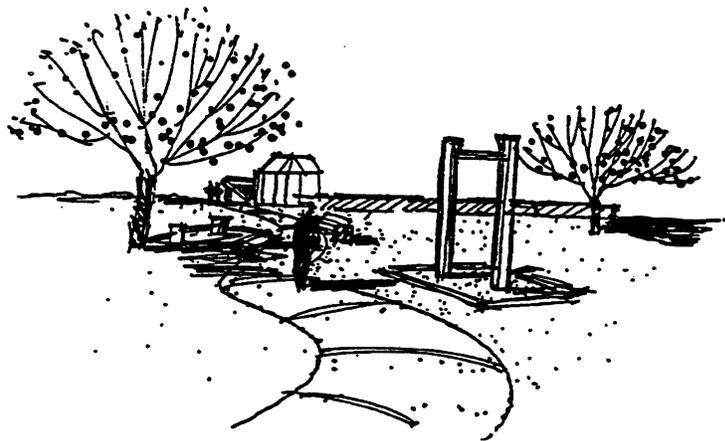
- 5.4.1 A safe level of lighting shall be provided in all stairways.
- 5.4.2 The tread surface should be non-slip and pitched downgrade to drain at 1/8 inch per foot.
- 5.4.3 The nosing of the treads should be chamfered 3/4 inch or rounded 1 inch.
- 5.4.4 The color of the steps should contrast with adjacent paving.
- 5.4.5 Extend handrails a minimum of 18 inches beyond the top and bottom steps.

5.5 Paving Materials and Finishes Guidelines

- 5.5.1 All major pedestrian routes and walkways adjacent to roads shall have non-skid hard surfaces, such as broom finished concrete or brick.

- 5.5.2 Brick and concrete pavers or a stamped pattern in a concrete base may be used in special areas such as plazas, buildings entries, courtyards, patios, crosswalks and medians. Colored concrete may be applied in special areas to enhance interest or add character to the pedestrian space.
- 5.5.3 The maximum cross slope for all walkways shall comply with ADA Guidelines which is a 2 percent maximum.
- 5.5.4 Recreational pathways may be decomposed granite, earth, grass or tree bark to make jogging or running more comfortable.
- 5.5.5 Repairs to the existing walkways and newly constructed walkways shall be finished to conform with the original finish.

Recreational
Path



5.6 Separation Between Pedestrian and Vehicular Traffic Guidelines

Landscaping, berming and walls shall be incorporated as part of the buffer between pedestrian and vehicular traffic to provide safety and convenience to both the pedestrian and motorist. The following guidelines shall be incorporated wherever possible:

- 5.6.1 An 8 foot wide planting/berming space shall separate a walk parallel to a primary street.
- 5.6.2 A 6 foot wide planting/berming space shall separate a walk parallel to a secondary street where possible. When no separation is possible, the walkway may be located adjacent to the street at the back of the curb line.
- 5.6.3 Tertiary walks should be located as far from vehicular traffic as possible.

5.6.4 All planting/berming space separations should be landscaped as required in the planting section.

5.6.5 Parkway separations of less than 6 feet wide shall be avoided to preserve street tree planting and reduce maintenance problems.

5.7 Designated Bicycle Routes Guidelines

Bicycle routes will permit an additional method of commuting between activity areas and other destinations. Bicycles shall be allowed on primary walkways and streets that have designated bicycle paths. The Station bike route network will promote the connection of primary walkways to existing “on-street” bike lanes.

5.7.1 All “on-street” 1-way bike lanes shall be striped with highway standard striping and marked (stenciled as a bikeway every 100 feet according to USDOT Standards).

5.7.2 Bike lanes shall be a minimum of 4 feet wide (for a 1-way bikeway) from the inside edge of the gutter.

5.8 Intersection Guidelines

5.8.1 All pedestrian traffic shall be channeled to designated crosswalks that provide safe and convenient street crossings at traffic signal intersections.

5.8.2 Mid-block crossings between intersections shall be avoided where possible because of their inherent safety problems.

5.9 Crosswalk Guidelines

5.9.1 Crosswalks shall be utilized where needed to provide for, and promote a safe continuous walkway.

5.9.2 Crosswalks shall be designed with a clear and generous crosswalk pattern of a reflective bright white color either applied or set into the pavement.

5.9.3 At all intersections where the walkways are raised, provide ADA accessible curb-cut ramps.

6.0 Signage

6.1 General Intent

The implementation of a unified Station-wide signage system will enhance the visual image of the Station, and add to the safety and convenience for the public and Station personnel. To communicate effectively, a sign must be legible, attractive and harmonious with its surroundings. Consideration must be given to its location, the layout and organization of the message, the design of the supporting structure and compatibility with other signs at the Station. Establishing and implementing a coordinated signing system that utilizes a consistent visual theme of materials, color, texture and lettering will improve the visual appearance of the Station.

The goals and objectives for a signing plan is to develop a system that provides clear, simple and aesthetically acceptable signs for various applications. Objectives are to:

- a) Effectively communicate necessary information.
- b) Convey the message or information clearly, provide useful information and be visually comprehensible. The sequence and hierarchy of information that is communicated must correspond to user needs.
- c) Establish a signing system that is coordinated, consistent, flexible and economical.
- d) Provide a sense of continuity through coordinating signs with one another in order to unify their appearance. The sign system should be flexible in order to easily permit changes in messages without excessive cost.
- e) Minimize the number of signs. Remove signs that are redundant, or that can be effectively placed on buildings or combined with other signs, fixtures or furnishings. Install signs only where they are absolutely necessary. This will significantly reduce the perception of visual clutter that is often associated with sites with such a large number of uses.
- f) Locate signs where they will be visible. Street signs should be located to provide warning in advance or critical decision points. Entry signs should be integrated with the surrounding environment of the entrance. Signs attached to buildings should be composed with existing architectural features and colors, and generally located near the building entrance.

6.2 Signage Design Guidelines

The sign guidelines will establish a coordinated overall signing system and theme for MCAS Yuma.

6.2.1 Informational Sign Guidelines

Informational signs guide, or give information and direction to the motorist or pedestrian in, around or out of MCAS Yuma. This guidance is in relation to all buildings, units, specific uses, etc. The legibility and positioning of informational signs as well as the ordering of information on them is critical to their effectiveness. Station main entry signs are considered satisfactory and are not considered for a redesign at this time. All other informational signs shall conform to the Design Guidelines for informational signage construction, materials, lettering type and size, color, installation techniques and locations, etc.

6.2.2 Regulatory Sign Guidelines

Regulatory signs encompass the rules governing travel and parking at MCAS Yuma. They include speed limit signs, parking signs and other traffic regulatory signs.

All traffic regulatory signs shall conform to the standards set forth in the USDOT's, *Manual of Uniform Traffic Control Devices for Streets and Highways*, prepared by the Federal Highway Administration. This document provides federal standards for design, shapes, colors, dimensions, symbols, work messages, lettering, illumination, reflecting surfaces, locations installation height and construction of all regulatory signs.

6.2.3 Building Number Identification Sign Guidelines

Building Number Identification Signs are to be mounted on the building in a prominent location that provides a clear view of the number for a person driving or walking toward the building. There may be several primary directions from which a visitor would approach a building. The view of the building number must be visible from all the primary directions of access.

- a) The placement of the building identification number must be approved by the FMD.
- b) Except when otherwise approved by FMD, the building number shall be mounted at a height of 10 feet. If the 10 foot height is not possible, the building number sign is to be mounted no lower than 8 feet high and no higher than 12 feet high.

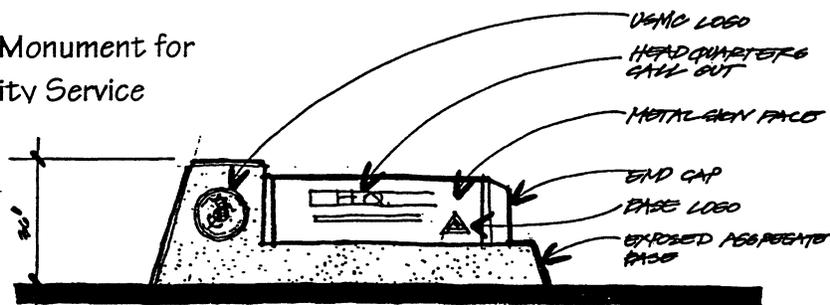
- c) The sign panel is to be 1/8-inch thick aluminum with the dimension of 18 inches tall and 34 inches long. The panel is to be mechanically attached to the building walls.
- d) The background color shall be black. The letters shall be white, reflective in nature, and be made of die cut sheet vinyl. The font for the numbers shall be Helvetica Medium. The ratio of stroke width to symbol height is to be 1 to 6. The height of the numbers is to be 12 inches. The arrangement of the building number is to be centered on the panel.

6.2.4 Building Monument Sign Guidelines

Where appropriate and approved by the Station architect, certain structures are to have a building monument sign. This signage provides a monument style base, and identifies the name of the facility.

- a) The building monument signs are to be located at the ground level to the right of the buildings primary entry. The sign is to be placed so that an individual using the primary entry sidewalk can view the signage, and the building's front door as they approach the building.
- b) The building monument sign is to be constructed with an integral colored exposed aggregate concrete base, a metal sign face and tube steel end caps. All metal components shall be painted to correspond to the approved district color palette. The Marine emblem shall be cast in bronze and inset into the concrete base (See Concept Sketch).

Building Monument for
Community Service



6.2.5 Directional/Informational Signage Guidelines.

Directional and Informational Signage shall be required throughout the Station, when needed. These signs shall comply with the following guidelines:

- a) All directional and informational signs are to be fabricated from metal components. The size and type of sign will vary depending on the information that is portrayed. The signage background and posts shall be painted to correspond to the trim colors designated for each District with lettering that provides a high contrast with the background color (See Appendix F-2, *Directional/Information Signage*).

6.2.6 Squadron Logos on Hangar Guidelines

Squadron tenant identification "logo" signs as they currently exist on MCAS Yuma aircraft squadron hangars will be restricted to signage design guidelines as described in this section of the MCAS Yuma BEAP. Painting directly on buildings or structures with the identification logo of the individual squadrons is permitted. However, the dimensions of the logo shall not exceed a 15 foot by 15 foot envelope, and a limit of 1 logo painted on the hangar for each squadron.

FMD must approve all locations, dimensions and artwork of "logo" signs prior to application.

6.2.7 Reserved Parking Guidelines

There is a need to designate certain parking spaces for high level officers or special use designations. These spaces are to be identified by 1 of 2 methods.

- a) When available the concrete wheel stop can have a graphic painted on it to designate a reserved space. The area to be painted shall be limited to a 4 inch wide by 2 foot long strip. The background is to be white and the lettering is to be black. The remainder of the wheel stop is to be left unpainted.
- b) Individual post mounted reserve parking signs shall be limited to the spaces designated for the commanding officers at or above the squadron level, and the highest ranking enlisted person for the squadron. These signs shall be centered at the curbside of the parking space. However, they shall not be located in an area that obstructs the pedestrian access along any sidewalk, or is subject to being impacted by the overhang of a vehicle.
- c) The use of graphic designations on the pavement surface of a parking area is prohibited.

6.2.8 Letters and Characters Guidelines

The type and style are critical in effective sign communication. Helvetica medium letters shall be utilized as a standard for all signs in order to ensure uniformity, clarity, prompt acknowledgment, and quick comprehension.

Spacing for letters and words shall be normal spacing in accordance with the standard typography guidelines. Letter spacing should be increased as the distance increases. Do not utilize wide spacing or tight spacing, and do not spread letters apart in order to fill up the width of a line. Word spacing should be proportionate to the letter spacing used. The number of messages on a sign should be limited to no more than 5 in order to provide quick comprehension.

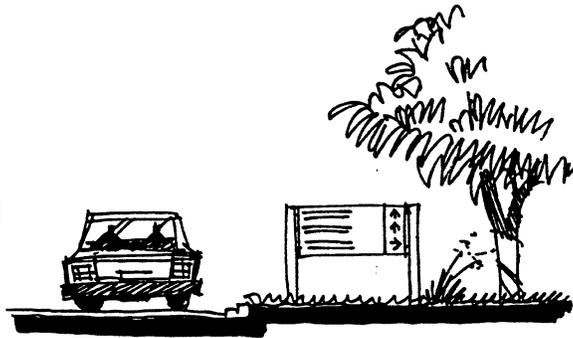
6.2.9 Character Size Guidelines

The character size is determined by the distance from which it is to be legible. The standard for determining the appropriate letter size is to provide 1 inch of the letter height of an upper case letter for each 50 feet of viewing distance. For example, a message to be legible from a distance of 200 feet, a 4 inch letter height should be used. Letters shall not exceed 6 inches in height.

6.2.10 Sign Placement Guidelines

- a) A sign shall be placed so that there is a clear line-of-sight from the point of desired reading. The placement of a sign is also determined by visibility and safety determinants.
- b) Signs shall not be placed where they will block the motorist's view from pedestrian activity.
- c) Signs shall be positioned consistently in relationship to the roadways, walkways or buildings they serve.
- d) A vehicular-oriented sign shall be placed perpendicular to approaching traffic.
- e) A vehicular-oriented sign shall be placed a minimum of 2 feet from the street in densely developed areas and 6 feet for less dense areas.
- f) The height of a directional sign shall be 52 inches from the pavement surface, so that the center line of the main panel is at the optimum viewing height for a person seated in an automobile. If visual obstructions prevent sign placement at this height, the sign may be raised but must not exceed a 10 degree angle from the natural line of vision.

Directional
Signage



- g) Regulatory signs, such as stop signs, shall be mounted 7 feet from the pavement surface to the bottom of the sign.

Specific information concerning traffic regulatory signage is denoted in the USDOT's, *Uniform Traffic Control Devices for Streets and Highways*.

6.2.11 Reading Distance Guidelines

The distance that signs are located from the point of desired reading varies with the speed of the approaching driver. The speed of the approaching driver is determined by the legal speed limit for the certain area.

20 MPH:	100 feet
25 MPH:	175 feet
30 MPH	250 feet

6.2.12 Materials Guidelines

Information signs are constructed of a modular "post and panel" system with interchangeable message panels providing flexibility for building relocations. The finish is to offer superior weathering properties relating to color, stability and surface toughness as compared to coatings which tend to chalk under exposure to sunlight.

- a) The standard finish for information and building signs shall be a powder coat painted finish for all metal surfaces.

- b) The lettering on these informational signs will be self-adhering precut vinyl, with font style, and height as specified in this section.
- c) The signposts will be mounted in concrete post holes to a depth appropriate for the sign size and weight.
- d) The surface for a regulatory sign shall be a brand reflective sheeting with high intensity grade to provide visibility at night.
- e) All materials and installations shall conform to USDOT Traffic Control Standards.

7.0 Site Screening

7.1 General Intent

The intent of these Site Screening Guidelines is to identify design elements that will enhance the convenience, function, safety and aesthetic appeal of the Station. Due to the openness of the Station and many operational uses, there are numerous opportunities to screen undesirable views and elements. Areas of concern are parking lots, storage and maintenance yards, operational service courts, dumpster enclosures, utility substations and mechanical equipment systems. These elements can benefit from the use of screening (e.g., fences, walls and planting). An added advantage of screening is micro climate wind control, and a general cooling effect in the hotter months of the year.

Implementation of these guidelines, combined with landscaping and structures guidelines, will improve the overall visual appeal, and sense of place of the Station.

7.2 Items and Areas to be Screened

There are a number of options to be utilized for screening purposes. The selection of an appropriate option will be contingent on the space available, the desired image, project budget and projected maintenance costs.

7.2.1 All walls 6 feet or greater shall be designed by a registered architect, structural or civil engineer to ensure structural integrity.

7.2.2 All walls shall be high enough to be an effective screen for the pedestrian.

7.2.3 The placement of a wall shall take into account the distance from the structure being enclosed. Verify the safe and necessary setback distances required by utility agencies to facilitate the maintenance, and operational activities associated with their equipment.

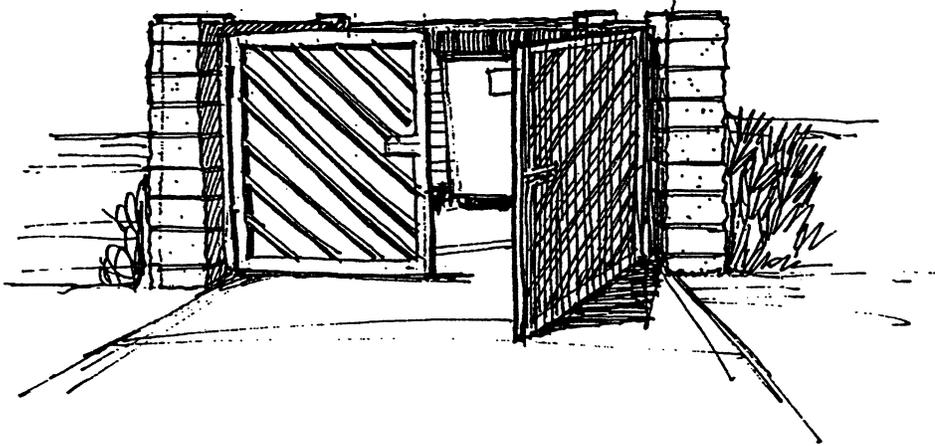
7.3 Concrete and Masonry Walls Guidelines

7.3.1 Cast-in-place concrete shall be steel reinforced with a minimum thickness of 6 inches. All poured concrete walls shall have a finish that is consistent with adjacent and/or corresponding architecture.

7.3.2 Masonry block is suitable for screen walls. The size, color and texture of the block can vary but it must be coordinated with the design theme of the project. Screening elements are to complement the site or streetscape design.

- 7.3.3 When masonry walls are used for screening dumpster locations, steel bollards shall be installed to protect the masonry from damage by the operators of the disposal equipment.

Permanent
Screen

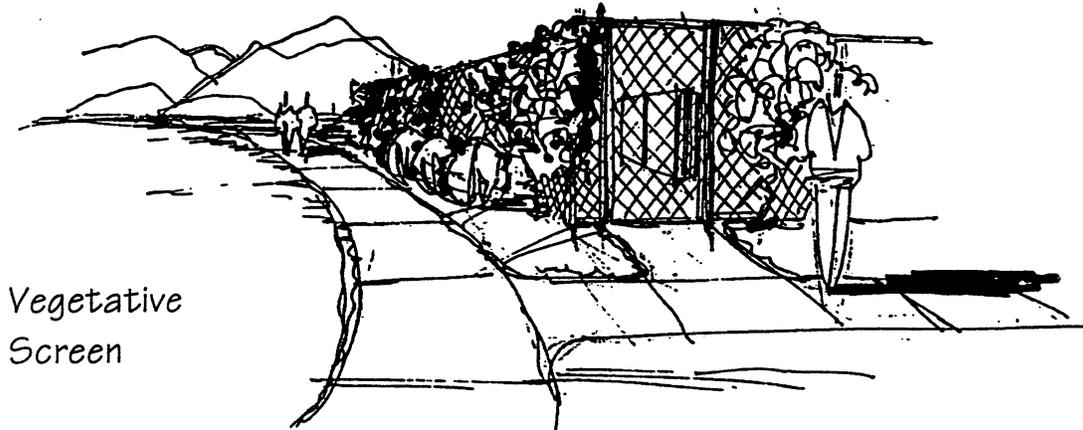


- 7.3.4 All dumpster screens are to include metal panel gates to close off the view of the dumpster. The design finish and color of the gate shall match the architecture of the project. The gate is to be firmly secured and anchored to the wall to provide easy and long term operation.

7.4 Fencing Guidelines

- 7.4.1 Where security and safety have a priority, fencing shall be used. The type of fence selected shall be a durable quality and designed to accommodate wind loads when a screen material is used.
- 7.4.2 To create an opaque screen when chain link fencing is used, vegetation in the form of vines shall be planted to grow over the fencing.
- 7.4.3 Acceptable fencing materials include chain link, welded wire, and vinyl clad chain link. All fence finishes are to be factory applied. These fence materials must use a suitable screening material to serve as a visual screen.
- 7.4.4 The use of wood or other natural materials for fencing is not permitted.

- 7.5.4** The desired height and width of a trimmed hedge is to be determined during the design phase. The maintenance required to maintain the hedge form must also be considered if this type of screen is recommended.
- 7.5.5** The use of plant species with thorns shall not be used adjacent to pedestrian walkways. Where pedestrian control and/or security is an issue, the use of thorny plants can serve as a formidable deterrent.
- 7.5.6** All vegetative screens are to be irrigated by an automatic underground irrigation system.
- 7.5.7** All plants used to create a vegetative screen must be in accordance to the species identified on the plant materials list, or have growth characteristics suitable for the desert environment.



7.5 Vegetative Screening Guidelines

The use of plants as a screening material can provide a variety of screening options. Formal or informal screens can be developed with plant materials. They can also create a very dense screen, or provide a partial open screen. The use of vegetative screens must account for the available space for the growth of the plant material, and the continued maintenance and irrigation costs. Vegetative buffers can be used for visual and/or climatic control.

- 7.5.1** A vegetative buffer used for screening purposes shall be a minimum of 20 feet wide. This type of buffer is to reinforce an informal setting which is conducive to desert style landscape treatments. Shrubs are to be spaced in a random pattern and layered. As the shrubs mature, they will create a visual barrier and provide effective screening.
- 7.5.2** A vegetative buffer can also be used as a wind row, or as a screen for creating shade. The width of these types of buffers will vary. When being used as a wind row, the plantings should combine both trees and shrubs, which will provide a taller and more dense barrier.
- 7.5.3** Plant materials can be utilized as a hedge to create a dense vegetative buffer. The minimum width of a landscape area suitable for a hedge planting is 3 feet. The growth patterns and mature size of the vegetation being utilized must be considered when the width and height of the hedge is being determined. Only use plant materials conducive to the frequent prunings associated with shaping a hedge.

8.0 Site Furnishing

8.1 General Intent

A wide variety of site furnishings is commonly found on the Station. These site furnishings include both utilitarian items, such as benches, bus shelters, trash containers, fences and drinking fountains. They also include more symbolic elements, such as flagpoles, memorials and historic military equipment displays. With proper planning and design, site furnishings can fulfill their intended function, and also contribute positively to the overall visual quality, image and identity of the Station.

The goal of the Site Furnishing Guidelines is to define a group of elements that support the Station design theme in relation to each other in terms of material, color, form, and design detail, and have durability for the desert environment. All new projects should include pedestrian amenities and site furnishings in their design. Specific guidelines to achieve this goal include the following.

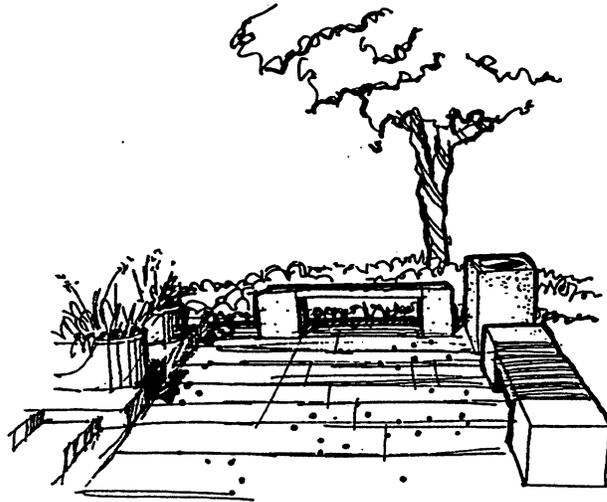
8.2 Site Furnishings Guidelines

- 8.2.1 Coordinate all site furnishings to achieve unity in appearance among the various elements through repetitive use of materials, color and design detail. Furnishings should be compatible with signage, lighting and other streetscape components.
- 8.2.2 The design theme should utilize sandblasted concrete, unit masonry with a stucco finish or metal.
- 8.2.3 All site furnishings shall be colored to blend with the surrounding architecture, and the desert setting or design theme. The number of different styles of furnishings should be minimized and the designs made relatively simple. The form and materials of elements selected should provide for easy maintenance.
- 8.2.4 The location of site furnishings often depends on user considerations, as well as functional requirements of the elements themselves. Furnishings should respect user comfort, convenience and enjoyment. Where possible, compatible furnishings should be grouped together to make a cohesive design setting.
- 8.2.5 Provisions for the handicapped shall be incorporated into all site furnishings design, placement and construction.

8.3 Seating Guidelines

- 8.3.1 Seating shall be located in high pedestrian use areas such as plazas, entries and bus stops. It is appropriate to orient seating towards a view or high activity area.
- 8.3.2 Benches should be located 2 feet from walkways so as not to impede pedestrian traffic flow.
- 8.3.3 Benches and other forms of seating should be a natural gray concrete, or a material and/or color which shall attempt to match the adjacent architecture.
- 8.3.4 The concrete should be sandblasted, or include integral material that mimics the concrete masonry units used on the adjacent architecture. Seat heights should be 18 to 20 inches, with a depth of 12 to 18 inches. Benches with backrests should be provided where long term seating is anticipated. The use of modular metal furnishing is encouraged as long as the material has a permanence similar to concrete, and is durable and comfortable during the hot months of the year.

Site
Furnishings



8.4 Table Guidelines

- 8.4.1 Picnic tables shall be an 8 foot long natural gray concrete table. The table and seat tops should be a smooth surface and other surfaces should be a medium sandblasted finish. The builder shall provide a 2 foot clear space from the adjacent walkway edge, and a paved surface around the table for ease of access and maintenance.

8.4.2 The tables may also consist of perforated metal panels, painted to match the area's accent color. However, consideration must be given to the fact that these tables can endure a large amount of abuse from users and a high degree of weathering from the elements.

8.5 Drinking Fountain Guidelines

8.5.1 Drinking fountains shall be located near outdoor eating areas, restrooms, recreation areas and walkways where potable water is available.

8.5.2 Drinking fountains shall be handicapped accessible and placed on a 4 by 4 foot concrete pad. They shall also be a natural gray concrete pedestal type with a medium sandblast finish. An alternative material can include metal fixtures that are painted, or coated to match the accent or trim color of the adjacent buildings or lighting fixtures and are weather tolerant.

8.6 Trash Container Guidelines

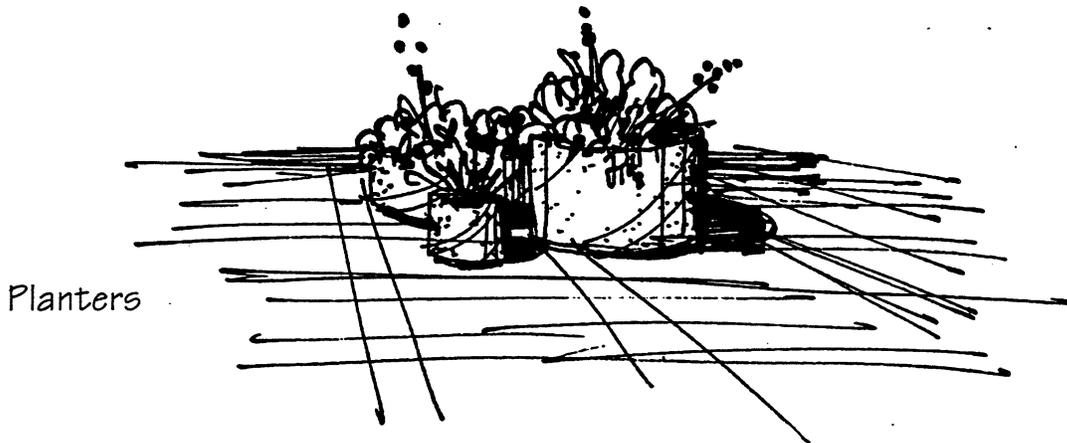
8.6.1 Trash containers shall be located along walkways, near building entrances, seating areas and heavily used outdoor areas. The trash containers shall be 3 foot high by 23 inches in diameter. They should be a natural gray cast concrete with a medium sandblasted finish. The lid shall be a dark bronze anodized spun aluminum lid with anchor chain and spring fastener. The color of the metal lid can also mirror the accent or trim color of the adjacent architecture. The liner shall be made of galvanized steel.

8.7 Bollard Guidelines

8.7.1 Bollards should be located in areas where separation is required between vehicular, pedestrian and bicycle circulation. Bollards should be an 8 inch diameter design made of natural gray concrete with a medium sandblasted finish. Overall height should be approximately 43 inches and removable bollards are permitted. Another alternative can include metal bollards painted or coated to reflect the trim or accent color of the adjacent architecture.

8.8 Planter Guidelines

8.8.1 Planters should be located in areas where permanent planting in the ground is not possible such as paved plaza areas or building entries. Planters should be a simple square design made of natural gray concrete with a medium sandblasted finish. Drain holes should be provided in the bottom of planters. Irrigation must be included in all planters.



8.9 Tree Grate Guidelines

8.9.1 Tree grates should be located in large paved areas where heavy pedestrian use is expected, particularly in courtyards and plazas. Tree grates should be a 4 foot square natural gray concrete grate with a medium sandblasted finish. Tree grates can also be made of steel with a heat-fused coating 1/8 inch thick, and a color to match the trim or accent of the design district the tree grate is found in.

8.10 Bicycle Rack Guidelines

8.10.1 Bicycle racks should be conveniently located in accessible and visible locations near building entrances and other high use areas. Locate the racks out of the flow of pedestrian traffic. Bike racks should consist of a ribbon type of rack or other simple geometric shape. The color should be a dark bronze factory finish or an accent color to match the architecture or other colored metal surfaces. Bike racks should be installed with a surface flange mounted and in-ground anchoring.

8.11 Flagpoles, Monuments, Memorials, and Military Equipment Display Guidelines

8.11.1 Displays should be located in high profile areas where a large sector of Station users and visitors can enjoy such monuments. The location of all military equipment displays and flagpoles must be approved by FMD. All plaques should have descriptive signage associated with them, and be made of bronze set into a concrete monument base. Flagpoles should be round tapered black or gray anodized or treated aluminum pole. The height and dimensions of the pole should be determined by the size of the flag to be displayed. A hierarchy of flagpoles is necessary, recognizing the rank and command structure. Flagpoles will not be installed without the clear consent of the FMD.

8.12 Bus Shelter Guidelines

8.12.1 Locate bus shelters only where justified by level of use. A minimum 8 square feet per person of shelter area should be provided.

8.12.2 Place shelters a minimum 4 feet from curbs and contiguous with a walkway system. Do not obstruct walks or streets with any part of the shelter.

8.12.3 Provide barrier-free access to the bus shelter.

8.12.4 Provide wind protection with tinted panels and vent the top and bottom of the shelter for air circulation.

8.12.5 Orient shelters facing north or east when possible to minimize impacts of sun light.

8.13 Public Telephone Guidelines

8.13.1 Locate telephones in highly visible areas that are easily accessible and frequented by large numbers of people (Community Support and Bachelor Housing Districts).

8.13.2 Provide paved access and integrate with wall system where possible.

8.13.3 Use fully modular public telephone systems.

8.14 Site Lighting Guidelines

- 8.14.1** Site lighting shall encourage the conservation of energy while increasing nighttime safety, utility, security and productivity. Through regulation of the types, kinds, construction and installation of outdoor electrically powered illuminating devices, these goals can be achieved.
- 8.14.2** All fixtures shall be “fully shielded” in such a manner that light rays emitted by the fixture, either directly from the lamp or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where light is emitted.
- 8.14.3** “Outdoor light fixture,” is defined as outdoor artificial illuminating devices, lamps and other devices, permanent or portable, used for illumination or advertisement, shall include, but are not limited to, search, spot or flood lights for buildings and structures, recreational areas, parking lot lighting, landscape lighting, billboards and other signage and street lighting.
- 8.14.4** “Partially shielded,” is defined as fixtures which are shielded in such a manner that the bottom edge of the shield is below the plane of the center line of the lamp reducing light above the horizontal plane.
- 8.14.5** Top-Mounted: All outdoor advertising sign lighting fixtures used to illuminate a sign shall be mounted on the top of the sign structure. Such fixtures shall comply with the following shielding requirements, which minimize undesirable light emission into the night sky affecting airplane pilot’s views.

<i>Fixture Lamp Type</i>	<i>Shielding Requirement</i>
Low pressure sodium (A)	Fully Shielded
High pressure sodium	Fully Shielded
Metal halide (B)	Fully Shielded
Fluorescent	Fully Shielded (C)
Quartz (D)	Fully Shielded
Incandescent 150 W or less	None
Any light source of 70W or less	None
Glass tubes filled with neon, argon, krypton	None

- 8.14.6** Metal halide lighting used primarily for display purposes shall not be used for security lighting after 11:00 p.m. Metal halide lamps shall be installed only in enclosed luminaries. These lamp fixtures shall be “filtered” by a glass, acrylic or translucent enclosure of the light source (quartz glass does not meet this requirement).

- 8.14.7** Outdoor advertising signs of the type constructed of translucent materials and wholly illuminated from within do not require shielding. Dark backgrounds with light lettering and warm white and natural lamps are preferred to minimize detrimental effects.
- 8.14.8** For purposes of this BEAP, quartz lamps shall not be considered an incandescent light source.
- 8.14.9** An outdoor advertising sign illuminated by any type of bottom-mounted outdoor lighting system or fixture, which is installed at or on the lower portion of any outdoor advertising sign or fixture, shall be prohibited unless said lighting fixture is shielded to confine the light to the sign face.
- 8.14.10** Mercury vapor lamps and fixtures are prohibited for use as outdoor lighting.
- 8.14.11** Public or private recreational facilities, which are illuminated with outdoor lighting fixtures conforming to these regulations, may operate at any time with such illumination. Outdoor recreational facilities not conforming to these regulations shall not be illuminated after 11:00 p.m. except to conclude a specific recreational or sporting event, or any other similar activity conducted at or in the facility which was in progress under such illumination prior to 11:00 p.m.
- 8.14.12** The electrical illumination of outdoor advertising signs including those internally illuminated, is prohibited between the hours of 11:00 p.m. and sunrise.
- 8.14.13** Outdoor lighting fixtures used to illuminate a flagpole shall be mounted on the top of the flagpole structure and adhere to the shielding requirements outlined in 8.14.2. In cases where it is impossible to light a flagpole structure from the top, bottom-mounted lights shall be connected to a timer which extinguishes all but the minimal light source necessary to illuminate the flag between the hours of 11:00 p.m. and sunrise.

9.0 Planting Guidelines

9.1 General Intent

Two overall principals must be addressed when activities associated with upgrading the landscape treatment of this Station are implemented. These principles should be incorporated with any new design of proposed facilities, the re-establishment of older landscape treatments, and the regular maintenance of the Stations open space areas. Each of these activities should address the philosophy of “sustainable” landscape treatments and the incorporation of “xeriscape” design principles. When properly applied to the Station-wide landscape program, these principles will provide landscape improvements that maximize their value in terms of aesthetic, functional, environmental and economic objectives.

The approach to creating a sustainable landscape treatment requires an understanding and an appreciation for the unique climatic and environmental conditions found at MCAS Yuma. The proposed landscape treatments must endure the harsh conditions of this low desert region. A sustainable landscape treatment will be created by selecting plant materials which are naturally adapted to the desert conditions, installing plant materials in areas where their natural growth patterns can occur and maintaining them in a fashion that encourages their natural development.

The opportunity to improve the visual setting of the Station with an effective landscape treatment is an objective of this Station. The possibility of a Station-wide comprehensive landscape implementation program is unlikely. Therefore, these guidelines recommend practical landscape treatments that can be realistically implemented and maintained on new or existing projects.

9.2 Station-Wide Landscape Theme Guidelines

Adhering to the principles of sustainability and xeriscape design the Station-wide landscape theme is to be responsive to the Lower Sonoran Desert’s life zone. All exterior open space areas which are associated with new construction, reconstruction or a renovation project are to be landscaped in accordance to these guidelines.

9.2.1 A landscape and irrigation plan must be submitted to FMD for approval prior to the installation of any landscape treatments. The landscape plan shall show the type, size, location and quantities for all proposed plant materials.

9.2.2 The installation of the landscape treatment for a project is to occur in conjunction with the construction of the project. The landscape design must be installed and the irrigation system fully operational before substantial completion is granted.

- 9.2.3** Plant materials selected shall be native plants and/or arid plant species that are suitable for this desert environment (see the attached list for suggested suitable plant types). The plants selected must be able to grow and maintain a vigorous condition with the practical use of supplemental irrigation water.
- 9.2.4** Plant selection must be responsive to the intended use for the plant. The foliage type, the size and configuration of the plant, and its tolerance of reflective heat conditions or micro-climatic conditions must be considered for each plant selection. The minimum container size for groundcover plants and shrubs shall be 1 gallon. The minimum container size for trees shall be 15 gallon. Larger size material can be used when appropriate or requested by FMD.
- 9.2.5** The placement of plant materials and particularly shade trees to provide shade on buildings walkways and parking areas should be implemented when practical. This means of passive energy efficiency is to be incorporated into the landscape designs whenever feasible.
- 9.2.6** For energy conservation, plant trees on the south and west sides of buildings and outdoor gathering areas to provide summer shade. This will also reduce air conditioning requirements by shading the building. Do not block the sun's access to existing or potential solar collectors. If vines are used for solar screening, plant them on trellises on the south and west sides of buildings.
- 9.2.7** The use of long-lived plants is preferential. With the limited resources available for initial installation and long term maintenance, plants which have a proven longevity and desert adaptability are more cost effective.
- 9.2.8** All ground plain areas are to be treated in order to reduce erosion from wind and drainage. Appropriate groundcovers include vegetative groundcovers and inert materials, such as, decomposed granite, crushed rock, gravel, river run rock, etc.
- 9.2.9** All new landscape installations are to include an underground automatic irrigation system. The type of water distribution equipment utilized for the system will vary depending on the specific application site conditions and maintenance availability.
- 9.2.10** The plant's growth and rooting characteristics must be considered during plant selection. Plants should not be installed where root damage could occur to structures, pavements or utilities.

9.3 Turf Area Guidelines

Maintenance of turf areas is an increasing burden on water resources and maintenance costs. Although turf areas are pleasing landscape elements, their use is to be for areas deemed necessary to offset their maintenance. Turf should be confined to courtyards and open space areas that serve as recreational areas, high pedestrian generated activity nodes and the parade grounds. Large areas of turf shall be confined to the Bachelor Housing, Headquarters and Community Support Districts only.

The use of turf in the Training District is to be approved by the FMD prior to design or planting, and should only be used in limited entry or courtyard areas. Turf in parking lot islands and adjacent to streets is to be removed and replaced with inert groundcovers and appropriate plantings. In addition, the following guidelines are to be followed.

- 9.3.1 In the Headquarters and Community Support Districts, preserve lawns at the parade deck and recreation fields.
- 9.3.2 In the Community Support District, preserve turf in recreation areas, and limit turf adjacent to buildings to areas only necessary to provide a pleasing setting relative to the activity of the facility. This will tend to be subjective and will require the approval of the FMD.
- 9.3.3 In the Bachelor Housing District, limit or reduce the size of turf to common areas. However, turf is considered important in these areas as a means of providing the personnel with a sense of relaxation.
- 9.3.4 All lawn areas shall be physically delineated and controlled by a curb, walk or concrete landscape header.
- 9.3.5 Bermuda grass is the most successful grass in the desert, although it becomes dormant in the winter and turns brown. Where a green appearance is important, such as at the parade deck, the lawn can be over seeded in the fall with winter rye grass seed within the Bachelor Housing, Headquarters and Community Support Districts.

9.4 Irrigation Installation Guidelines

All new and/or upgraded landscape areas are to be served by an underground automatic irrigation system which is to be fully operational prior to planting. The design and installation of the system is to comply with the following guidelines.

- 9.4.1 All irrigation systems and landscaped areas shall be designed, constructed and maintained to promote water conservation and prevent water overflow or seepage into the street, sidewalk or parking areas.
- 9.4.2 An underground drip emitter system or bubblier system is to be utilized for all landscaped areas with the exception of lawn areas.
- 9.4.3 All lawn areas shall be watered with conventional automatic irrigation systems using low precipitation rate pop-up heads to achieve 100 percent coverage.
- 9.4.4 A pressure-type vacuum breaker shall be installed on all irrigation systems.
- 9.4.5 All equipment is to be compatible. Do not mix head or valve types within the system.
- 9.4.6 The manufacturer's recommendations and specifications shall be followed for the installation and maintenance of all irrigation equipment.
- 9.4.7 Use solid state controllers. Provide battery back-up for power failures.
- 9.4.8 Water lawns between 2 a.m. and 8 a.m.
- 9.4.9 An automatic programmable irrigation controller is to be included with each irrigation system. The number of Stations will vary depending on the conditions of the areas being irrigated.
- 9.4.10 Program automatic irrigation systems to operate in shorter, closely spaced cycles rather than one long time span to avoid run-off. Do not over water. Adjust the amount of water necessary to promote healthy plant material with the seasons of the year.
- 9.4.11 Design and install the irrigation system in a manner that separates the watering cycles for the trees from the shrubs and groundcovers. This will enable the system to run longer and provide deeper soakings for the trees and shorter, but more frequent, waterings for the shrubs.
- 9.4.12 When available and appropriate for the area being irrigated, the use of non-potable water shall be utilized for irrigation water.

9.5 Maintenance Guidelines

The continuous maintenance of all the landscaped areas is an essential consideration that must be accounted for during the programming design and installation phases of a project. Opportunities to reduce the long term maintenance effort shall be evaluated on a case by case basis. The installation of any new facility will increase the demand for maintenance. However, if any project is maintained in a proper fashion, the return on the investment will be realized by an attractive, safe and pleasant environment. The following guidelines are general considerations that must be established to have an effective landscape maintenance program.

- 9.5.1** Each separate project, or each facility's setting will have unique characteristics which would impact a landscape maintenance program. A detailed site specific maintenance procedure manual shall be prepared for each new landscape or irrigation installation project.

This manual shall identify fertilization requirements for installed plant materials, landscape establishment procedures, pruning and lawn care techniques, and operational and procedure for maintaining an effective and efficient irrigation system.

- 9.5.2** Pruning shall be done only where necessary for public safety, maintenance of views and healthy growth of plants. The natural form of the plant shall be maintained at all times. Do not prune plants into spheres, squares or other geometric shapes. Adhere to the following guidelines:

- a) Remove dead, diseased or injured wood.
- b) Make clean cuts when branches are broken by the wind.
- c) Remove all stubs. The cut of a pruned limb shall be parallel and cut close to the trunk or from which the limb was cut.
- d) Pruning practices shall be in accordance to current industry practices, and shall be done to control growth and enhance the vigor of the plant materials.
- e) All overhanging limbs, branches or foliage that impends the unobstructed use of pedestrian ways, bikeways or travel lanes shall be removed.
- f) Any plant materials whose foliage has grown or is overhanging within a site visibility triangle shall be removed or trimmed.

9.5.3 With attentive maintenance, the general health of plants will be improved and their ability to resist disease and insects will be increased. The following practices shall be followed:

- a) Check plants for infestation on a monthly basis.
- b) Give immediate attention to pest problems.
- c) When chemical controls are necessary, apply only to affected area in the smallest quantity possible.
- d) Obtain advice from a qualified professional and/or utilize desert plant books.

9.5.4 Planting Maintenance Guidelines identify how to maintain the designed landscape in an attractive condition. In so doing, the long term maintenance should have a clear relationship between the original landscape design, and the ongoing maintenance practices.

- a) Use industry accepted maintenance practices in all turf areas. Do not mow lawn when it is wet. Edge all areas at the time they are mowed. Loosen and aerate lawn surface once a year to promote water penetration. Renovate and dethatch lawn areas every 2 to 3 years.
- b) Do not neglect dormant lawns. Provide lawns with deep infrequent watering at least once a month if there is no rainfall.
- c) Soil tests of all lawn and planting areas which are showing signs of stress or slow growth should be done by a qualified agronomic testing firm. Test for salts, pH and boron at a minimum. Adjustments to the fertilization practices shall be made according to the results of these tests.
- d) The regularly scheduled application of a pre-emergent weed control solution shall be applied as recommended by the manufacture. This preventative weed control measure will save significant time and cost over providing weed removal after the weeds have germinated and are growing.
- e) Weeding shall be done on a regular basis to remove any undesirable plant species. The use of a systemic herbicide shall be used to kill off significant weed infestation. The use of soil sterilants is not permitted unless special circumstances are deemed necessary by FMD.
- f) Deep and infrequent waterings shall occur for all trees. Per these guidelines, the trees are to be on separate irrigation stations from the shrubs and groundcovers to enable this type of watering.

- g) In no case shall trees be “topped.” This is detrimental to the tree’s health and will compound the pruning and maintenance costs in the long term.
- h) Periodically inspect and adjust tree guides and tree stakes and remove when the tree demonstrates its stability. Adjust and realign any tree stake ties that are girdling or disrupting the natural development of the trees growth.
- i) Do not girdle the trunks or stems of trees and shrubs by the use of a motorized whip-type weed trimmer. Provide plastic protectors at the base of any trees or shrubs in areas that are trimmed in this fashion or hand trim the areas around these plant materials.

9.5.5 Irrigation Maintenance Guidelines

- a) Each irrigation system shall be manually operated periodically and inspected for missing, broken or damaged heads, malfunctioning valves, or any other condition which hampers the correct operation of the system.
- b) Each overhead spray system shall be observed on a regular basis and adjustments made to any head which throws water onto roadways, walks or out of intended areas of coverage.
- c) All backflow prevention devices shall be inspected annually.
- d) Quick coupler flange packing shall be inspected and replaced if necessary every 3 years.
- e) Gate and ball valves shall be opened and closed a few times every 6 months to clear calcium deposits.
- f) If repairs are necessary on the irrigation controllers (time clocks), they should be done by a certified manufacturer’s representative.

9.6 Inert Groundcovers

Inert groundcovers include rock, gravel and decomposed granite. These materials are to be used to cover the ground surface and assist in the reduction of wind and drainage erosion. These materials can also serve as a decorative treatment that enhances the visual appeal of the Station.

9.6.1 All non-turf areas are to be treated with an inert groundcover.

- 9.6.2 All areas being treated with an inert groundcover are to receive an application of a pre-emergent herbicide to control the germination of weeds and undesirable volunteer plant species.
- 9.6.3 Decomposed granite is to match the color of the granite which is found on the majority of the Station. The color is most often referred to as "desert gold."
- 9.6.4 The size of the granite is to be 3/4 inch minus and placed at a minimum depth of 2 inches.
- 9.6.5 The maximum slope for the application of decomposed granite is 25 percent (4:1). Any slope that exceeds this limit must be treated in a fashion such that erosion is not a problem. The use of an industry accepted stabilizing agent to reduce erosion is acceptable.
- 9.6.6 The use of native rock or river run rock is recommended as an accent for the surface treatment. This material can also be used for preventing erosion in drainage swales or on side slopes. Colors and sizes can vary.
- 9.6.7 The use of plastic sheeting for weed control under any inert material is not permitted.
- 9.6.8 Large rocks and boulders used as landscape accents, erosion control or retaining barriers shall be indigenous to the Yuma area. Surface or quarried boulders can be utilized. When boulders are placed as a landscape accent, they shall be buried by 1/3 of their mass to provide a more natural appearance and to insure their stable placement..

