California State University Monterey Bay

Landscape Maintenance Plan September 2008

Reference Documents

CSUMB Master Plan 1997 (Sasaki Associates, Inc. Steven Sutherland & Associates)

CSUMB Master Plan Update 2002 (MIG, Inc.)

CSUMB Storm Water Master Plan 2006 (Schaaf & Wheeler)

Marina Coast Water District Procedures, Guidelines, and Design Requirements, Latest Revision 2007

CSUMB Landscape Maintenance Contract 2008

California State University Monterey Bay

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1.0 Executive Summary

1.1 Context

California State University Monterey Bay is located on the Central Coast, adjacent to the towns of Seaside and Marina, in the dune-covered landscape of the former military base Fort Ord. Its particular geographic location near the mouth of the Salinas River creates a micro-climate that is unique to the area and that poses some opportunities and significant constraints to landscape development and maintenance.

Coastal dune landscape at Seaside near CSUMB.

Since 2007 a significant effort has been underway to improve the overall image of the CSUMB campus to include new and refreshed landscaping, new and refurbished buildings as well as demolition of old military facilities. Recruitment and retention are two of the major goals of the overall program. Additional components include enhanced operational efficiencies, reduced energy cost and well-maintained facilities. This holistic approach will better enable faculty and students to maximize their efforts in achieving academic excellence across the board.

1.2 Campus Landscape History

The campus landscape development at CSU Monterey Bay can roughly be divided into three phases of five years (Lustrum):

1. The first Lustrum (approx 1995-1999)

2. The second Lustrum (approx 2000-2004)

3. The third Lustrum (2005 onwards)

1.3 Campus Landscape 1995-1999

This initial period marked a significant phase of campus-building which saw spaces such as the north dormitory quad, and several garden spaces, mostly around dormitories being developed. Plants selected were generally woody shrubs native to the central coast.

Pros: the plants selected, being adapted to the local climate, have generally survived the cold winds and fog.

Cons: the plants being woody shrubs, lend themselves to severe pruning which have resulted in 'table-top' and 'topiary' like shapes, which was not the original planting intention. Also, when pruned heavily, the shrubs tend not to flower as they would normally do in the wild - giving the campus a green appearance, but with little flowering.

Main Quad landscape planted in 1997.

1.4 Campus Landscape 2000-2004

This second period of campus landscape development saw targeted landscape improvements associated with specific existing and new buildings, such as the University Center, Student Services Center, Visitor Center, and Chapman Science Academic Center. The design and construction of the Crescent Meadow, a central landscape space was an investment in the future campus core. Learning from the earlier experience, plants selected were more a mixture of shrubs, grasses and groundcovers, generally native to the central coast, but otherwise climate-adapted.

Pros: the plants selected, once again being adapted to the local climate, have generally survived the cold winds and fog. Grasses, even though heavily pruned once a year, bounce back in the spring with new leaves. The plants selected have added more color to the campus landscape than the first generation of planting.

Cons: the growth rate for even some native plants has been limited by the environmental factors, leading to patchiness in planting areas.

Student Services Building landscape planted in 2000.

Alumni Visitor Center landscape planted in 2002.

1.5 Campus Landscape 2005 onwards

The current period of campus landscape improvements has to date also largely associated with existing and new buildings, such as the Administration Plaza (Buildings 1, 2, & 3), and the Tanimura & Antle Family Memorial Library. New initiatives however have focused on the important entrance landscape sequences such as the 5th Avenue Roundabout, as well as pedestrian connections across campus, such as the University Center Pathway Meadow.

Administration Plaza landscape redesigned and planted in 2008.

Recent and current planting strategies have been focused on introducing more climate-adapted varieties of plants with more color and flowering presence.

Continuing research indicates that finding a combination of plants that a) can survive the chilly ocean winds, b) require very low maintenance, c) are not invasive-classified, and d) that flower in different colors tends to limit the overall selection. Further discussions about environmental constraints can be found in the chapter on Zone-based Plant Palettes, and Recommended Plant Lists in the Appendix.

5th Avenue Entrance & Roundabout landscape planted in 2008.

2.0 Concept

2.1 Approach

The mission statement of CSU Monterey Bay embodies the desire of the university to be a place bringing together the coastal and inland communities of the central coast, in the pursuit of learning. Diversity is thus key to the mission of the university.

While the 1997 Master Plan (Sasaki, Sutherland et al) and the 2002 Master Plan update (MIG) identified umbrella goals and objectives with respect to landscape strategies, the aim of the Landscape Maintenance Plan is to produce a 'working document' that outlines specific strategies, tasks, concepts, and guidelines for the implementation of those strategies. It is a working document in that it can be added to, subtracted from, and modified in order to retain its relevance as a ready reference manual for CSUMB Facilities Management & Planning, consulting designers, as well as volunteer organizations.

Some of the original master planning goals and objectives included the need to incorporate native habitat into future site design, and the need for "highly memorable route(s) between architectural anchors on campus". At the same time, the CSUMB Vision statement refers to a diverse and multicultural audience, and the intent of this Maintenance Plan is that the natural and physical surroundings should celebrate such diversity.

2.2 Sustainability

The 1997 Master Plan defined a broader view of sustainability beyond just technical conservation, local sourcing and physical regeneration, and that included individual and collective expression and programs and facilities that were unique, effective, and sustainable.

This notion of sustainability, translated into the landscape, both native and designed, encompasses economic, operational and ecological sustainability issues.

While ecological sustainability in the landscape can be summarized as the ability of campus landscape to support resource conservation and complement natural ecological systems, economic sustainability in the landscape can be described as:

- The ability of the campus landscape to remain vibrant in a manner that increases student recruitment and supports student retention. Students come to study at CSUMB from all over California and beyond – and they arrive with varying cultural notions of landscape, but with the common idea that while a landscape may become dormant, it should not appear to be patchy and deteriorated.

- The ability of campus facilities staff, both in-house and contract-based, to maintain the designed landscapes effectively and economically. It is a given that all campus landscapes, more so in the high maintenance / priority areas must be maintained. Unmaintained landscapes, native or not, give the appearance of a lack of resources and/or a lack of attention.

It should also be pointed out here a native California landscape which thrives on its own does so due to a variety of ecological factors which work in conjunction to support it in that particular biome or ecotone. Transferring this native landscape type or even its individual plant species into a designed landscape situation, with maintenance and watering regime that is different from nature does not guarantee its success. As any horticulturist knows, a wildflower meadow in its natural state is self sustaining, but a planted wildflower meadow requires a fair amount of maintenance.

Experience at CSUMB has shown that many native plant types are no more robust in a designed landscape situation than climate-adapted non-invasive plant types, especially if the maintenance and watering regime are not matched to the need of the plant-types. The result often is deteriorated landscapes with a patchy appearance which detract from the aesthetics of the campus and diminish its ecological and economic sustainability.

The Coast Live Oak for instance is abundant across the campus as the native tree of this eco-system, but has proven very hard to grow and sustain in campus landscapes over the last decade.

The focus on landscape sustainability therefore needs to be on robust landscapes that include appropriate native plants along with climate-adapted non-invasive plants, but not necessarily on landscapes that are solely native plants only for the sake of their being native.

2.3 Water Efficiency

CSUMB is committed to maximizing the efficiency of water usage for irrigation purposes. New turf areas are being kept to a minimum and are provided in locations where they will be used by students. All new landscape project plans undergo Marina Coast Water District (MCWD) review and approval process, and fulfill their water-use requirements of the organization. Each project is required to install state of the art water monitors and controls to minimize waste and at the same time provide adequate water to maintain the significant investment. MCWD regulations also require that all new projects install "Purple Pipe" in expectation that reclaimed water will, at some time in the near future, be available.

2.4 LEED Certification

CSUMB is committed to the broader concepts of sustainability in all areas as is evidenced by the signing of the President's Climate

Change commitment, pursuit of Leadership in Energy and Environmental Design (LEED) certification on the Tanimura & Antle Family Memorial Library as well as for three other campus buildings and the presence of senior staff on committees and boards involving conservation and sustainability issues.

2.5 Maintenance Zones

From its inception in early 2008, the CSUMB Landscape Maintenance Plan has addressed the larger notion of sustainability by dividing the campus landscape into maintenance zones, in order to focus existing and future financial resources where they are needed most. The maintenance zone strategy divides the campus into five different maintenance zone types, ranging from high-maintenance zones (A) to low-maintenance zones (E). A sixth zone (F), consisting of large undeveloped areas of the campus, is designated as no-maintenance since the financial reality is that it is unviable to deal with such large areas on a regular basis. These zones and the plant selection criteria for each are described in further detail in the chapters on Maintenance Zones and Plant Palettes.

2.6 Landscape Refurbishment

Landscapes are never static - they grow, mature, and age, and need replacement or refurbishment. This is truer of perennials and woody shrubs, particularly Mediterranean species, which are relatively short-lived. Since the planting strategy at CSUMB is one of drought tolerant, non-invasive, plants including natives – a significant proportion of plants planted over the last decade have been Mediterranean varieties, being well adapted to this climate, and able to provide color and texture to complement native species. Predictably, many of these plants are beginning to become woody and leggy and will need to be replaced.

Landscape refurbishment as CSUMB is based on sustainability principles and is to include:

- Replacing invasive exotic plants with native and non-invasive climate-adapted plant species
- Replacing unhealthy plants and plants at the ends of their natural lives.
- Enhancing the landscape value of zones that currently fall below their maintenance zone classification.
- Preserving the landscape value of zones that currently correspond to their maintenance zone classification.

As part of the Landscape Maintenance Plan process, several locations at CSUMB have undergone, or are currently undergoing, landscape refurbishment, or 'refresh' as it is referred to on campus, in the spring and summer of 2008. Some of these refreshes have included re-design of older landscapes, while others have focused on plant replacement only. These include the Administration Plaza, the Chapman Science Academic Center, and the Otter (Sports / Wellness) Center. Similar upcoming projects for 2008-09 include the Visitor Alumni Center, Administration & Finance, a native plants display garden and tree walk, both at the Main Quad.

For this essential process to continue, funds need to be sourced on an annual basis for mortality replacement of plantings, and for landscape refresh projects. CSUMB is committed to procuring these funds as part of its sustainability goals.

2.7 Landscape Maintenance

The reasons that the landscapes at CSUMB appear patchy and deteriorated are several, but a few stand out as contributing significantly to the current situation:

- Inadequate resources to effectively maintain the areas under landscape, which in the west/main campus is approximately 40 acres of developed landscape, and another 90 acres of minimally maintained landscape, and about 150 acres of non-maintained landscape. The Landscape Development Cost Matrix later in this document contains details of these area calculations.
- Lack of a coherent strategy to focus existing resources where they make the most difference. The Landscape Maintenance Plan addresses this through the proposed Zone-based Maintenance strategies. In addition the revised and improved Landscape Maintenance Contract for 2008 incorporates these zone based recommendations.

2.8 Outreach.

Outreach programs are an essential component of involving and educating children in landscape sensibilities and in the concept of sustainability. Such programs should be guided by two sets of criteria:

- Volunteer programs should plant within the guidelines of the recommended Zone-based Plant Palettes. This is important, especially with regards to tree planting, since once a tree is planted it usually stays in for decades, even if it is an inappropriate tree in an inappropriate place. More about the Maintenance Zone concept and Plant Palettes can be read in the following chapters.
- All plantings need maintenance of some sort, especially during the plant establishment stage. Planting plants and walking away from them in this particular micro-climate, more so in the drier months, will result in dead plants in a short time leading to deteriorated landscapes as described earlier. Hence, it is imperative that any effort of this sort meet certain requirements prior to implementation. CSUMB Facilities Management & Planning is currently developing a request form to enable all parties to understand the issues and responsibilities of such a program. Issues such as irrigation for establishment, plant health and size, soil amendments, location, maintenance responsibilities and costs etc. need to be clearly defined. In the current contract system of landscape maintenance, the Contractor cannot be expected to take on the maintenance of volunteer-planted areas without additional resources.

3.0 Maintenance Zones

3.1 Goals

The Maintenance Zone concept, developed by CSUMB Facilities Management & Planning, has several goals:

- It directly addresses the notion of sustainability by dividing the campus landscape into maintenance zones in order to focus existing and future resources where they are needed most. CSUMB funding is part of a state-wide funding of the CSU system, and annual financial resources have to be carefully allocated.

- It provides guidelines on what kinds of plants should be planted in different areas on campus as part of projects designed by consulting landscape architects, and by volunteer groups – whether student, faculty or school-based. The micro-environments at CSUMB are unique due to the presence of wind and fog, and not everyone is familiar with these aspects.

A more detailed discussion on environmental criteria affecting plant viability, and specific plant recommendations for different zones can be found in the next chapter on Zone-based Plant Palettes.

3.2 Strategy

The proposed maintenance zone strategy divides the campus into five different maintenance zone types, ranging from high-maintenance zones (A), to low-maintenance zones (E). A sixth zone (F), consisting of large undeveloped areas of the campus, is designated as no-maintenance since the financial reality is that it is unviable to deal with such large areas on a regular basis. A more detailed explanation of the Zones follows:

3.3 Zone AE

Maintenance: High, these areas require detailed inspection and possible services once a day.
Irrigation: Yes
Design: Focus on flowering, plant color, and shape, year-round
Examples:

- Campus Monument at Light Fighter and General Jim Moore Blvd.
- Future gateways / monuments

3.4 Zone A

Maintenance: High, these areas require detailed inspection and possible services once a day. Grass is required to be weed-free year-round.
Irrigation: Yes
Design: Focus on flowering and plant color year-round
Examples:

- Main Quad (including Bldgs 4, 6, 8, 10, 12, 14, 16, 18)
- Administration Plaza (Bldgs 1, 2, & 3)
- University Center (Bldg 29)
- World Theater (Bldg 28)

Zone A Landscape: University Center.

3.5 Zone B

Maintenance: Medium-high, these areas that require detailed inspection and possible services once a week. Grass is required to be weed-free year-round.
Irrigation: Yes
Design: Focus on plant color and seasonal flowering.
Examples:

- Multi-purpose playing fields
- North Quad Housing courtyard & gardens (Bldgs 301, 302, 303)
- Alumni Visitor Center (Bldg 97)
- Meeting House (Bldg 98)
- Residence Halls (Bldgs 202, 203, 204, 205, 206, 208, 210, 211)
- Visual and Public Art (Bldgs 71, 72, 73)
- 5th Avenue Entrance
- Chapman Science Academic Center (Bldg 53)
- Tanimura & Antle Family Memorial Library (Bldg 508)
- CSUMB Foundation (Bldg 201)
- Student Services / College of Arts (Bldgs 46, 47)
- Music Hall (Bldg 30)
- Academic Support / Human resources (Bldgs 21, 23)

Zone B Landscape: Alumni Visitor's Center.

3.6 Zone C

Maintenance: Medium, these areas require detailed inspection and possible services twice a month. Grass is required to be weed-free year-round.
Irrigation: Yes
Design: Focus on plant hardiness, color, and shape.
Examples:

- Crescent meadow
- Aquatic Center (Bldg 100)
- P.E. Field House
- Child Development Center (Bldg 91)
- Sports Center (Bldg 90)
- Campus Development Operations (Bldg 84)
- Panetta Center (Bldg 86)
- Academic Support / Reading Center (Bldgs 58, 59)
- Ball fields parking
- North Quad Housing parking (Bldgs 301, 302, 303)

Zone C Landscape: Crescent Meadow.

3.7 Zone D

Maintenance: Low-medium. Mainly mowing of and broad-leaf weed removal from planted native grass and natural grass areas.
Irrigation: None
Design: Focus on plant hardiness. Can be seeded with wildflowers – see meadow mix in Appendix for recommended species.
Selected examples:

- University Center Pathway Meadow
- Ball Fields east buffer
- 2nd Ave Median
- Multi-purpose fields parking
- Open Space west of Visitor Center & Meeting House

Exceptions: Certain buildings in use by CSUMB may be located within this zone. Maintenance of the areas immediately around these buildings is expected to be at the level of Zone C.

Zone D Landscape: North Quad Housing buffer.

3.8 Zone E

Maintenance: Low. Mainly mowing of natural grass areas.
Irrigation: None
Design: None
Selected examples:

- Stadium buffer
- Frisbee Golf Course
- Open Space between Science Center & Inter-Garrison

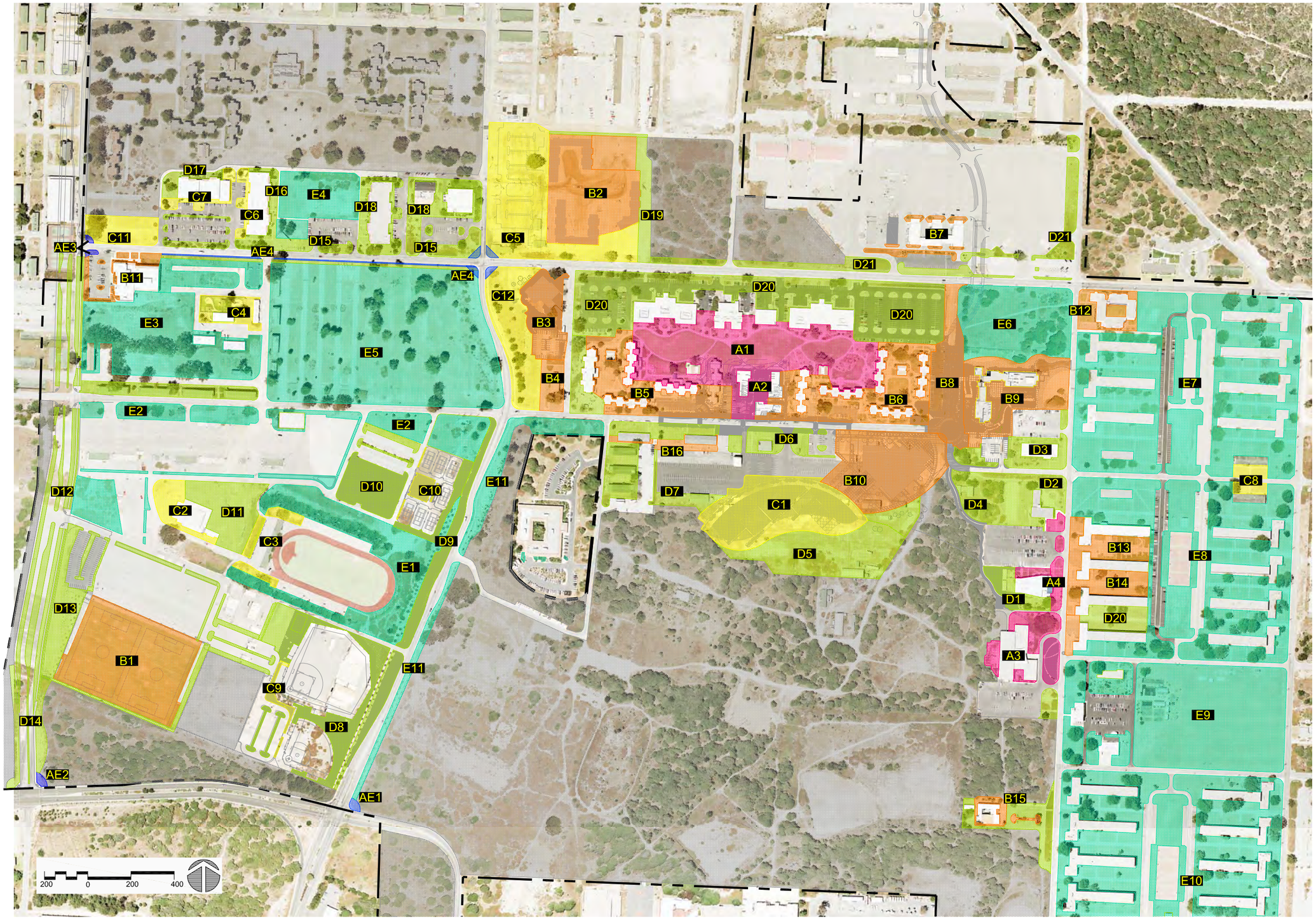
Exceptions: Certain buildings in use by CSUMB may be located within this zone. Maintenance of the areas immediately around these buildings is expected to be at the level of Zone C.

Zone E Landscape: Disc Golf Course.

3.9 Zone F

Maintenance: None.
Examples: Larger groves of Coast Live Oak and associated open meadow areas across the central portion of the campus.

Zone F Landscape: Oak grove south of the Library.



LEGEND

- Zone AE: Entrance Areas - High Maintenance
- Zone A: High Maintenance
- Zone B: Medium-high Maintenance
- Zone C: Medium Maintenance
- Zone D: Low-Medium Maintenance (mowing / wildflowers / weed control)
- Zone E: Low Maintenance (primarily mowing)
- Zone F: No Maintenance (landscape left as-is)

KEY

AE1 Monument - Gen Jim Moore Blvd. South Entrance
AE2 Monument - 2nd Ave South Entrance (Future)
AE3 Monument - Inter-Garrison West Entrance (Future)
AE4 Inter-Garrison Promenade (Future)

A1 Main Quad
A2 Administration Plaza
A3 University Center
A4 World Theater

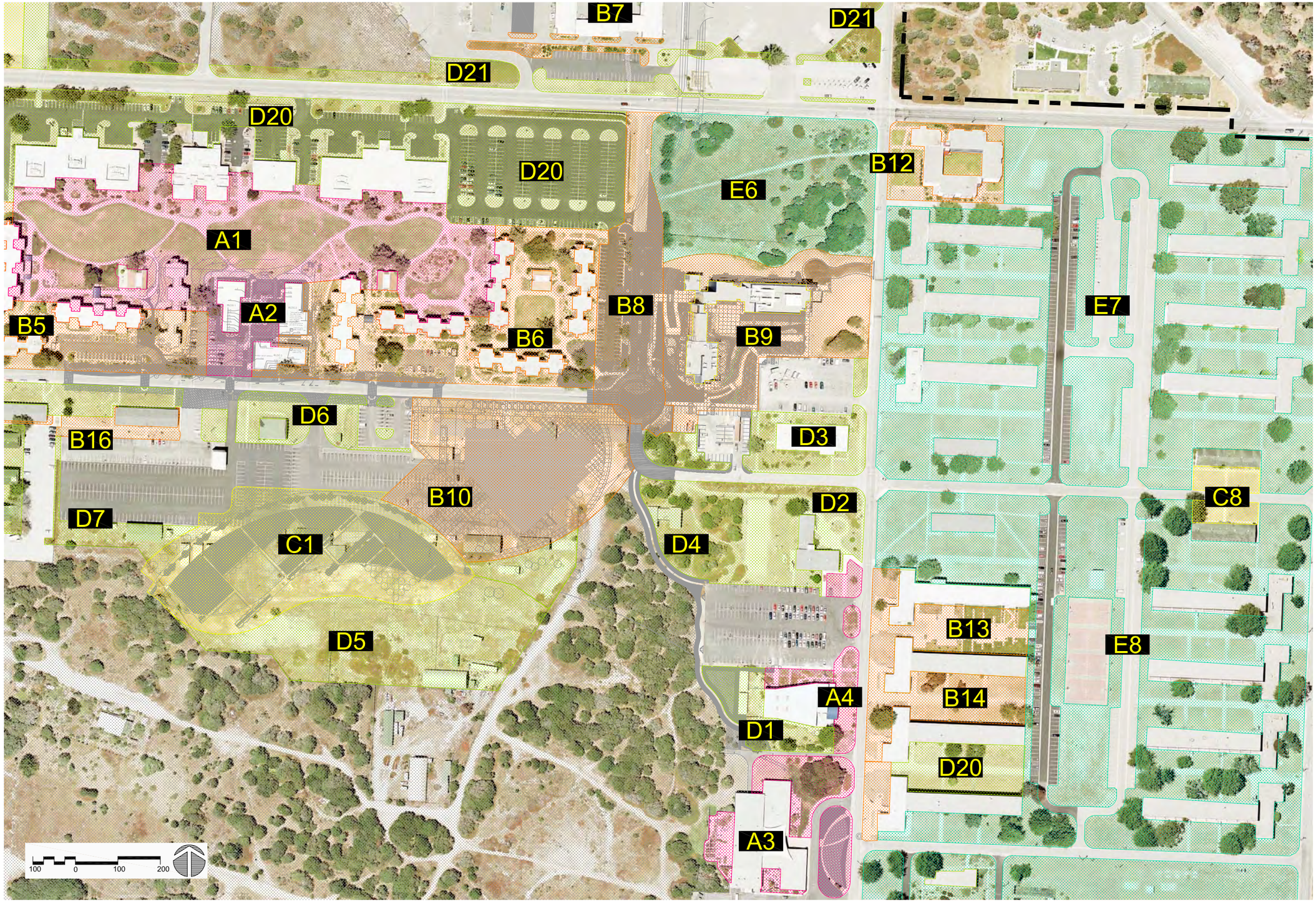
B1 Multi-purpose playing fields
B2 North Quad Housing
B3 Alumni Visitor Center + Additional Parking
B4 Meeting House (Future)
B5 West Residence Halls
B6 East Residence Halls
B7 Visual and Public Art
B8 5th Ave Entrance & Roundabout
B9 Science Center
B10 Library
B11 Wellness / Sports Center
B12 CSUMB Foundation
B13 Student Services / College of Arts
B14 Service Learning Institute / College of Arts
B15 Music Hall
B16 Academic Support / Human Resources

C1 Crescent Meadow
C2 Aquatic Center
C3 P.E. Field House
C4 Child Development Center
C5 North Quad Housing parking / south buffer
C6 Administration & Finance
C7 Panetta Instt / Social Studies / Human Services
C8 Academic Support / Reading Center
C9 Multi-purpose playing fields parking
C10 Tennis Courts (Future)
C11 Campus Welcome Center (Future)
C12 Visitor Center Extended Landscape (Future)

D1 World Theater west & south buffers
D2 Teledramatic Arts & Technology
D3 Science Research Lab & Annexe
D4 Student Pathway Meadow
D5 Crescent Meadow buffer
D6 Divarty Ave. south betw. Gen. Jim & 5th Ave.
D7 Academic Support / Human Resources buffers
D8 Ball fields east buffer
D9 General Jim Moore Blvd. west buffer (Future)
D10 Basketball courts / parking (Future)
D11 Aquatic Center east buffer
D12 2nd Ave median
D13 Multi-purpose fields parking
D14 2nd Ave entrance (Future)
D15 Inter-Garrison north buffer between 2nd & Gen. Jim
D16 Administration & Finance east / north sides
D17 Panetta Institute north / west sides
D18 UPD, Campus Counselling & Health Center
D19 North Quad Housing east buffer
D20 Service Learning Instt. / Academic Career Advising

E1 Stadium north/east/south buffers
E2 Areas south of Divarty betw. Gen Jim & 2nd Ave
E3 Area betw. Inter-Garrison & Divarty / 2nd & 3rd Ave
E4 Area betw. UPD & CDO
E5 Area betw. Inter-Garrison & Divarty / Gen Jim & 3rd
E6 Area betw. Science Center & Inter-Garrison
E7 Areas betw. Inter-Garrison & A-Street, east of 6th
E8 Areas betw. A-Street & B-Street, east of 6th
E9 Areas betw. B-Street & Butler, east of 6th
E10 Areas betw. between Butler & Col. Durham, east of 6th
E11 General Jim Moore Blvd. east buffer

CSU Monterey Bay Landscape Maintenance Plan *Maintenance Zones Map* September 2008



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- Zone AE: Entrance Areas - High Maintenance
- Zone A: High Maintenance
- Zone B: Medium-high Maintenance
- Zone C: Medium Maintenance
- Zone D: Low-Medium Maintenance (mowing / wildflowers / weed control)
- Zone E: Low Maintenance (primarily mowing)
- Zone F: No Maintenance (landscape left as-is)

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AE1	Monument - Gen Jim Moore Blvd. South Entrance
AE2	Monument - 2nd Ave South Entrance (Future)
AE3	Monument - Inter-Garrison West Entrance (Future)
AE4	Inter-Garrison Promenade (Future)
A1	Main Quad
A2	Administration Plaza
A3	University Center
A4	World Theater
B1	Multi-purpose playing fields
B2	North Quad Housing
B3	Alumni Visitor Center + Additional Parking
B4	Meeting House (Future)
B5	West Residence Halls
B6	East Residence Halls
B7	Visual and Public Art
B8	5th Ave Entrance & Roundabout
B9	Science Center
B10	Library
B11	Wellness / Sports Center
B12	CSUMB Foundation
B13	Student Services / College of Arts
B14	Service Learning Institute / College of Arts
B15	Music Hall
B16	Academic Support / Human Resources
C1	Crescent Meadow
C2	Aquatic Center
C3	P.E. Field House
C4	Child Development Center
C5	North Quad Housing parking / south buffer
C6	Administration & Finance
C7	Panetta Instt / Social Studies / Human Services
C8	Academic Support / Reading Center
C9	Multi-purpose playing fields parking
C10	Tennis Courts (Future)
C11	Campus Welcome Center (Future)
C12	Visitor Center Extended Landscape (Future)
D1	World Theater west & south buffers
D2	Teledramatic Arts & Technology
D3	Science Research Lab & Annexe
D4	Student Pathway Meadow
D5	Crescent Meadow buffer
D6	Divarty Ave. south betw. Gen. Jim & 5th Ave.
D7	Academic Support / Human Resources buffers
D8	Ball fields east buffer
D9	General Jim Moore Blvd. west buffer (Future)
D10	Basketball courts / parking (Future)
D11	Aquatic Center east buffer
D12	2nd Ave median
D13	Multi-purpose fields parking
D14	2nd Ave entrance (Future)
D15	Inter-Garrison north buffer between 2nd & Gen. Jim
D16	Administration & Finance east / north sides
D17	Panetta Institute north / west sides
D18	UPD, Campus Counseling & Health Center
D19	North Quad Housing east buffer
D20	Service Learning Instt. / Academic Career Advising
E1	Stadium north/east/south buffers
E2	Areas south of Divarty betw. Gen Jim & 2nd Ave
E3	Area betw. Inter-Garrison & Divarty / 2nd & 3rd Ave
E4	Area betw. UPD & CDO
E5	Area betw. Inter-Garrison & Divarty / Gen Jim & 3rd
E6	Area betw. Science Center & Inter-Garrison
E7	Areas betw. Inter-Garrison & A-Street, east of 6th
E8	Areas betw. A-Street & B-Street, east of 6th
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B2	North Quad Housing
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B5	West Residence Halls
B6	East Residence Halls
B7	Visual and Public Art
B8	5th Ave Entrance & Roundabout
B9	Science Center
B10	Library
B11	Wellness / Sports Center
B12	CSUMB Foundation
B13	Student Services / College of Arts
B14	Service Learning Institute / College of Arts
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E10	Areas betw. between Butler & Col. Durham, east of 6th
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4.0 Zone-Based Plant Palettes

4.1 Tree Selection

As identified in the 1997 Master Plan (Sasaki, Sutherland et al) and the 2002 Master Plan update (MIG), the tree palette available for CSUMB is limited due to the 'harsh' coastal environment. This can be further explained, after observation, that the chilly winds are the single most limiting factor to tree and plant growth on the campus. A visual survey after ten years of growth indicates that apart from the native Monterey Cypress, Monterey Pine, and Coast Live Oak, few other trees and large shrubs have shown the ability to withstand the weather conditions. Arbutus marina (Strawberry tree) and Fremontodendron californica (Flannel bush) are two examples.

Fremontodendron at the Alumni Visitor's Center.

Endemic, indigenous and other ecologically suitable coastal climate-tolerant trees have been proposed later in this chapter and in the Appendix.

4.2 Coast Live Oak

The Coast Live Oak has been identified in several previous reports as a critical component of the dune ecology of the campus, and as an important visual resource. Efforts have been made in the last ten years to plant this tree around the campus to 'strengthen the ecological resources' as noted in the 2002 Master Plan Update. Unfortunately, the strategy of planting larger (15 gal) sized saplings to obtain quicker growth and a more 'instant' visual effect, has not worked as the saplings have mostly died, not being able to adjust to the chilly winds quickly enough. Moreover these saplings may be obtained from non-coastal nurseries and so are not wind hardy in the first place. As a public institution, CSUMB does not specify nurseries in bid documents. Solutions to this situation are:

a) Specify a local nursery/supplier for the Coast Live Oak only, to ensure that the saplings are wind hardy in local conditions.

b) Plant smaller (5 gal) sized deep-root (grown in taller, thinner containers) saplings, and protect these with wind screens so that they have time to adapt and adjust.

Existing (pre-CSUMB) grove of Coast Live Oak at the University Center

The strategy then, to support the native tree ecology is to understand that, with the climate conditions particular to this campus, there are no quick fixes and that tree planting must be planned out carefully and given the required level of maintenance.

4.3 Native Plants

The CSUMB Landscape Maintenance Plan proposes that native plants remain an important part of the planting palette across the campus, and that the strategy of using native plants be tied into the concept of maintenance zones with the reliance on native plants increasing from zones A through E. The Zone based planting palettes on the following pages have been developed in accordance with this strategy.

The notion of what is considered a native plant needs to be addressed as well.

- A definition with the narrowest focus is that the plant be endemic only to this part of the central coast – and is used in habitat restoration by California State Parks at the nearby Asilomar beach for instance.
- A broader definition is that the plant be endemic to California, including the Channel Islands. A review of planting palettes of projects over the last decade at CSUMB indicates that they have all used this definition.
- The broadest and still valid definition is that the plant is indigenous to California and this climate/biome type i.e. it may be found further north and further east of California as well. This view is also partly reflected in the existing planting palettes at CSUMB.

The current landscape approach at CSUMB is inclusive of the broader definition of native plants keeping the larger view of sustainability in mind. The broader the palette available to designers, the greater the available visual variety (color, form, texture) in planting across seasons, including the dormant season.

Within the zone-based organization of landscape development and maintenance, focus areas on California natives are being planned. An existing such landscape is the Chapman Science Academic Center that is currently being refurbished, and a proposed new display area is being planned for existing beds on the south side of the Main Quad.

Native and climate-adapted plants at the Alumni Visitor's Center.

4.4 Invasive Plants

The California Invasive Plant Council (Cal-IPC) has a continuously updated database of pest plants (that which are likely to spread beyond the original planting area endangering native plant communities), the recommendations for which have been and will continue to be followed at CSUMB.

Given the unique dune ecology of the Fort Ord area, a concern has been the introduction or presence of invasive plants on the CSUMB campus, specifically, the abundance of ice plant. Introduced to the Monterey area in the 1920's to stabilize soil along railroad tracks, it was subsequently adopted by Caltrans for soil stabilization along roads and embankments. Ice plant has since been placed on the Cal-IPC "invasive species" list.

While desirable from a long-term ecological point-of-view, the complete removal of ice plant, without the financial resources to implement a full and appropriate replacement, would in itself pose serious environmental and fiscal impacts on the campus. Many areas of the campus would be seriously affected with the loss of the soil stabilization currently provided including significant issues associated with blowing sand resulting from the predominant winds off the bay. As resources become available, ice plant will be continue to be removed and replaced with native grasses and other appropriate landscape materials.

Ice-plant retaining non-irrigated sandy slopes at the Aquatic Center.

4.5 Plant selection criteria

- **Ecology:** The 2002 Master Plan Update identified "low fertility, low water holding capacity of sandy soils, coupled with strong winds and water erosion" as restricting habitat. Water erosion, however, has not been observed to be a significant problem as long as areas are covered with native / natural grasses, which is the case for most of the campus that is not landscaped.

  The 1997 Master Plan identified various environmental plant selection criteria all of which are relevant. These are wind hardiness, drought tolerance, and the ability to thrive in sandy soil.

- **Wind tolerance:** Observation of the plantings around the campus will indicate that of the three criteria mentioned above, wind hardiness is the most important. The mild coastal climate of the Monterey Bay is not the best environment for plants, a fact which is counter-intuitive. The cold Alaskan current offshore that tempers land temperatures, also chills the wind sweeping in from the bay throughout the year, which is often accompanied by fog. The CSUMB campus on the high ground of Seaside and Marina, takes the direct brunt of this wind throughout the year. The cold wind desiccates trees and plants severely limiting the varieties that can thrive in locations not protected from the winds.

  With the omni-present wind blowing in between and around buildings - a protected location is defined as one which is entirely enclosed by walls such as the little courtyard in the University Center. A semi-enclosed garden space such as the Administration Plaza is not considered a protected location since apart from a small wind shadow directly to the east of each building, it is open to the winds blowing through.

  A major part of the campus development is based on an open courtyard type, and this planning pattern does not provide protection from the winds blowing through the open courtyard spaces. Other than enclosed courtyards, only those plantings directly protected from the coastal winds from the ocean (even if the plants face the sea with a wall just behind them) fare much better than those that are exposed to the through winds. Examples are the plantings against the west wall of the North Quad Housing and east walls of various dormitories.

  The cold wind therefore is the single most limiting factor for successful landscape development at CSUMB. It is probable that this campus, as a result, has the most challenging landscape environment of any CSU campus.

- **Water-use:** All landscape development at CSUMB falls under the stringent water conservation guidelines of the Marina Coast Water District which mandates the maximum water allowance (narrowing the plant selection to low water consuming varieties), as well as severely limits the area turf that can be planted.

  The primary focus of plant selection at CSUMB has been, and will continue to be, the use of drought tolerant plant materials that will not only grow but thrive in this specific coastal environment. It should be noted that water-use requirements should not be confused with native plants as low-water use climate adapted non-invasive plants also fulfill water-use limitations. Earlier projects have recognized this and planting palettes contain a wide variety of non-native Mediterranean plants which are adapted to this type of water regime.

- **Sandy soils:** The CSU Monterey Bay campus is mostly located on dune soils that are sandy in nature. These soils are generally low in available plant nutrients and have a high percolation / low water retention rate. Native coastal plants are intrinsically adapted to these sandy dune soils of the coast. While many non-native plants prefer loamy soils, a decade of planting experience at the campus has shown that for the most part the fertility aspect can be dealt with through soil amendments, and adequate irrigation customized to each planting type can address the low water holding capacity. In addition, the zone-based planting strategy ensures that areas with lower investment (Zones C and D) in soil fertility will be planted with a greater percentage of native plants, which do not need amendments in such quantities.

- **Aesthetics:** The 1997 Master Plan noted the need for strong form and foliage color in plantings. Campus landscapes require a high degree of landscape legibility which results in better way-finding and spatial identity and thus allows students to feel more at home. Well designed landscapes for campuses all over America reflect this approach. The CSUMB Landscape Maintenance Plan strongly supports the concept of foliage form and color, especially for gateways, monuments, and high-

maintenance areas, and translates it into specific plant recommendations.

- The native dune forest landscape of the region, of which rare remnant portions are found in Fort Ord, provides a strong form and regionally distinct color palette as a backdrop to the CSUMB campus. It also materially and psychology represents the 'forest' which while bringing solace to some, instills an uneasiness in others with its distinct form of scraggly limbs overgrown with vines. The designed campus landscape therefore must create a distinct separation from the forest, offering users a high degree of familiarity and safety.

Inside a grove of Coast Live Oak south of the Library

4.6 Dormancy

Landscapes in the south-eastern and southern parts of the US remain generally green throughout the year due to the warm climate and rain. Landscapes in the north-eastern and northern parts of the US are green in the summer, and die back in the winter under the snow. Winter dormancy in the landscape is a concept that is easily understandable to all cultures that experience it – it gets cold, it may snow, trees shed their leaves, and shrubs stop flowering.

Summer / drought dormancy is a concept that is more difficult for most cultures to understand and accept because a) when it's hot and dry, people want to be surrounded by cooler vegetation, and b) sub-tropical, tropical, and temperate landscapes generally do not exhibit summer dormancy, while Mediterranean landscapes – and coastal California is such a landscape – do show this.

It is important to differentiate between a dormant landscape and a deteriorated landscape. Central coast landscapes are by nature summer/drought-deciduous and it is important that students and staff at CSUMB understand this in that the landscape will undergo seasonal change. However it is equally important that the campus landscape design account for this change in appearance in native plants by balancing it out with robust climate adapted and non-invasive vegetation that has a vibrant appearance which may include flowering during the dormant season.

Climate adapted plants with varying color and foliage textures at the Administration Plaza.

4.7 Plant Palettes

The plants on the following pages have been selected from extensive research and use by several landscape consultants on current and past projects at CSUMB, including the Visitor Center, Science Center, North Quad Housing, Library, and University Center.

The purpose of the zone-based plant palettes is to provide broad guidelines to planting, keeping the overall goals of sustainability and maintenance in mind. Plants at CSUMB have been, and should continue to be, planted across adjacent zones based on the needs of each landscape design, e.g. some plants in Zone B may be found/used in both Zone A and Zone C, based on the specific landscape design.

While hardiness is a basic criteria for all plants recommended the following is a brief overview of the zone selections:

- Zone A-D Trees have been selected for their tolerance of a coastal cool climate and include endemic and indigenous varieties.

- Zone A (High-maintenance) plants have been selected for their flowering and foliage color.

- Zone AE (Entrance / High-maintenance) plants have similar criteria to Zone A; the selection includes succulents and grasses with striking shapes for greater visual impact even during low-flowering seasons.

- Zone B (Medium-high maintenance) plants have also been selected for their flowering and foliage color, though the flowering may be more seasonal in nature than with Zone A.

- Zone C (Medium maintenance) plants are required to be climate hardy while also displaying some flowering and form.

- Zone D (Low-medium maintenance) plants have been selected primarily for their hardiness. However, several display attractive flowering and forms.

- Zone DM (Low-medium maintenance) are plants specifically for meadow planting, to provide seasonal color for the larger minimally maintained grass areas across the campus.

A couple of noticeable trends in the following plant pages are the result of the logic behind balancing visual variety with hardiness across the selection:

The proportion of non-natives decreases from Zone A to Zone D as the requirements for visual (color, form, texture) variety decrease.

The proportion of California natives (CN) increases from Zone A to Zone D as the maintenance requirements decrease, since natives are naturally hardier to the local climate.

A more detailed tree and plant list can be found in the Appendix.

TREES


Aesculus californica (CN)


Arbutus unedo


Pinus contorta (CN)


Pistache chinensis


Pyrus calleryana 'Chanticleer'


Arbutus x Marina

Cupressus macrocarpa (CN)


Feijoa sellowiana


Quercus agrifolia (CN)


Sequoia sempervirens (CN)


Ulmus parvifolia


Geijera parviflora


Liquidambar styraciflua


Lyothamnus floribundus (CN)


Umbellularia californica (CN)


Magnolia grandiflora


Magnolia soulangiana


Magnolia stellata


Melaleuca quinquenervia


Metrosideros excelsus


Olea europa

NOTE: This palette represents a sample of coastal-climate tolerant trees recommended for CSUMB, including endemic and indigenous varieties. For trees specifically suitable for high-wind situations, see Appendix B Recommended Plant Lists.

SMALL TREES / LARGE SHRUBS:

(Over 6' Tall)


Alyogyne huegelii 'Monterey Bay'


Calycanthus occidentalis (CN)


Camellia japonica 'Red'


Fremontodendron californicum (CN)

MEDIUM SMALL SHRUBS:

(2'-5' Tall)


Cistus 'Sunset'


Hemerocallis 'Orange Crush'


Lavandula angustifolia


Polygala fruticosa 'Petite Butterfly'


Rhaphiolepis indica 'Ballerina'


Salvia greggii 'Purple'


Sollya h. 'Monterey Bay Sapphire'


Strelitzia reginae

GROUNDCOVERS:

(6" - 2' Tall)


Asteriscus maritimus


Cerastium tomentosum


Eschscholzia californica (CN)


Lobelia laxiflora


Penstemon 'Purple' (CN)


Phormium 'Jack Spratt'


Verbena (Dark Purple)


Zauschneria californica (CN)

GRASS:


Festuca glauca


Helictotrichon sempervirens

VINES:


Bougainvillea 'Barbara Karst'


Rosa banksiae var. banksiae

SMALL TREES / LARGE SHRUBS:

(Over 6' Tall)


Agave franzosinii


Aloe arborescens


Fremontodendron californicum (CN)


Leonotis leonurus


Leucodendron 'Safari Sunset'

MEDIUM SMALL SHRUBS:

(2'-5' Tall)


Agave americana 'Marginata'


Agave attenuata 'Nova'


Aloe striata


Anigozanthos 'Big Red'


Callistemon viminalis 'Little John'


Kniphofia uvaria


Phormium 'Amazing Red'


Phormium 'Cream Delight'

GROUNDCOVERS:

(6" - 2' Tall)


Arctostaphylos 'Pacific Mist' (CN)


Asteriscus maritimus


Cistus salviifolius


Echeveria imbricata


Eschscholzia californica (CN)


Gazania splendens


Lantana camara


Lobelia laxiflora

GRASSES:


Deschampsia cespitosa (CN)


Festuca glauca


Helictotrichon sempervirens


Elymus c. 'Canyon Prince' (CN)'


Muhlenbergia rigens (CN)

SMALL TREES / LARGE SHRUBS:

(Over 6' Tall)

Camellia japonica 'White'

Ceanothus thyrsiflorus (CN)

Lavatera maritima

Rhamnus californica 'Eve Case' (CN)

MEDIUM SMALL SHRUBS:

(2'-5' Tall)

Agapanthus 'New Blue'

Callistemon viminalis 'Little John'

Cistus 'Elma'

Dietes vegata

Hemerocallis 'Orange'

Salvia c. 'Allen Chickering' (CN)

Salvia greggii 'Red'

Salvia leucantha

GROUNDCOVERS:

(6" - 2' Tall)

Achillea millefolium (CN)

Coreopsis verticilla

Correa 'Dusky Bells'

Eschscholzia californica (CN)

Grevillea lanigera 'Coastal Gem'

Lantana montevidensis

Penstemon 'Red' (CN)

Sisyrinchium bellum (CN)

GRASSES

Helictotrichon sempervirens

Muhlenbergia rigens (CN)

VINES

Distictus buccinatoria

Hardenbergia comptoniana

SMALL TREES / LARGE SHRUBS:

(Over 6' Tall)


Arctostaphylos 'Dr. Hurd' (CN)


Dendromecon harfordii (CN)


Ceanothus t. 'Snow Flurry' (CN)


Garrya elliptica (CN)


Romneya coulteri (CN)

MEDIUM SMALL SHRUBS:

(2'-5' Tall)


Agapanthus (White)


Cistus x purpureus

Correa 'Ivory Bells'


Dietes vegata


Lupinus chamissonis (CN)


Salvia c 'Allen Chickering' (CN)


Salvia greggii 'White'


Salvia leucophylla (CN)

GROUNDCOVERS:

(6" - 2' Tall)


Achillea millefolium (CN)


Armeria maritima (CN)


Arctostaphylos uva-ursi (CN)


Ceanothus g. horizontalis (CN)


Convolvulus sabatius


Fragaria vesca (CN)


Penstemon 'Red' (CN)


Teucrium chamedrys

GRASSES


Carex divulsa (CN)


Deschampsia cespitosa (CN)


Festuca idahoensis (CN)


Helicotrichon semprivirens


Mulenbergia rigens (CN)

SMALL TREES / LARGE SHRUBS:

(Over 6' Tall)

Carpenteria californica (CN)

Ceanothus thyrsiflorus (CN)

Garrya elliptica (CN)

Heteromeles arbutifolia (CN)

Rhamnus californica (CN)

MEDIUM SMALL SHRUBS:

(2'-5' Tall)

Arctostaphylos 'Sunset' (CN)

Artemesia californica (CN)

Correa 'Ivory Bells'

Eriogonum cinereum (CN)

Eriogonum g. rubescens (CN)

Ribes speciosum (CN)

Rosa californica (CN)

Vaccinium ovatum (CN)

GROUNDCOVERS:

(6" - 2' Tall)

Achellea millefolim (CN)

Arctostaphylos 'Pacific Mist' (CN)

Baccharis p. 'Twin Peaks' (CN)

Ceanothus g. horizontalis (CN)

Symphocarpus mollis (CN)

GRASSES

Juncus patens (CN)

Muhlenbergia rigens (CN)

NATIVE
MEADOW MIX


Achillea millefolium (CN)


Aster chilensis (CN)


Castilleja (CN)


Erigeron glaucus (CN)


Eschscholzia californica (CN)


Fragaria vesca (CN)


Gilia tricolor (CN)


Layia platyglossa (CN)


Lupinus nanus (CN)


Pholistoma auritum (CN)


Sisyrinchium bellum (CN)

5.0 Entrance and Monument Landscape Concepts

5.1 Campus Entrances

The CSU Monterey Bay campus deals with a unique planning situation created by its location on the former military base Fort Ord. The gridded network of roads, normally found in more urban locations, means that the campus can be entered from several directions. This raises the problem of creating viable entry sequences that takes visitors past refurbished landscapes and newer buildings, instead of derelict structures from the military era.

CSUMB grid-planning, a legacy of the former Fort Ord.

The primary goal of the proposed entry sequences is to ensure that visitors experience CSUMB through newer roads and landscapes, and arrive through entrances and past monuments that are the focus of campus investments to create memorable first impressions.

5.2 Existing Entry Sequences

As part of the earlier master planning exercises, the primary entrances to the campus were:

- The intersection of Light Fighter Drive and General Jim Moore Boulevard - the monument was constructed in 2003. Though this location is an arrival point from the town of Seaside to the south for cars heading north, it does not effectively serve as the arrival point from Route-1 to the west since it is the second major intersection after exiting the highway (refer the Campus Entrances Map that follows this section). A second issue with this location is that visitors presently have the option of driving east through the intersection towards Colonel Durham Avenue, past older military buildings, and a non-priority landscape area for the campus. This detracts from the entrance experience and gives visitors a first impression of an unkempt campus landscape.

Existing monument at Light Fighter Drive and Gen. Jim Moore Blvd.

- The 5th Avenue Entrance, presently under construction. This entrance connects to Inter-Garrison Road, running east-west. In the current CSUMB Master Plan, this entrance is supposed to extend northwards to Imjin Road and then on to Imjin Parkway a major arterial in the area. Since the extension is a future project, there is a need to integrate the current investment in this entrance and roundabout with a coherent entrance plan that works for the present condition.

5.3 Proposed Entry Sequences

As illustrated on the map on the next page, the current thinking on campus entrance sequences is:

- Primary Coastal Entrance: After exiting Route-1, the visitor arrives at a new *2nd Ave. Entrance Monument* at the intersection of Light Fighter Drive and 2nd Avenue, which is the first major intersection encountered. The visitor then turns left (north) at 2nd Avenue, a recently widened and divided road with a landscaped median. Driving up 2nd Avenue past the soccer fields, the visitor turns right (east) at Inter-Garrison Road (earlier 3rd Street) at the Otter Sports / Wellness Center. A smaller monument is proposed at this location, since visitors may also arrive at this location by driving south on 2nd Avenue after exiting Route-1 at the 12th Street exit - planned as the Secondary Coastal Entrance. On turning east on Inter-Garrison Road, the visitor arrives at the proposed *Campus Welcome Center.* After obtaining maps and other directional information about the campus, the visitor proceeds east along the proposed *Inter-Garrison Promenade* until the intersection with General Jim Moore Boulevard, from where the panorama of the proposed *Alumni Visitor Center Extended Landscape* can be enjoyed. Driving east past the landscape, the visitor turns right (south) on 4th Avenue just past the Alumni Visitor Center building and into the parking lot.

- Primary Valley Entrance: CSUMB as a campus extends all the way east to Reservation Road, and therefore an entry to the campus from that direction actually starts at the intersection of Abrams Drive and Imjin Parkway – the major arterial mentioned earlier. The visitor would drive south on Abrams Drive, turning right (west) on Inter-Garrison Road. The visitor with a specific destination could then turn left (south) towards the *5th Avenue Roundabout* if required, arriving at the newly constructed roundabout between the Science Center and the Library - two of the nodal buildings on campus. Visitors requiring maps and other information would drive further west along Inter-Garrison Road until the Campus Welcome Center opposite the Otter Sports Center and turn right (north) into the parking lot.

- Secondary Valley Entrance: Additional access to the campus from the north is possible from Imjin Road off Imjin Parkway - the originally proposed entrance to the campus, via the 8th Avenue cut-off. This entrance requires the extension noted earlier to be completed for it to become an easy entrance to use in terms of way-finding.

5.4 Way-finding and signage

The existing campus orientation map at CSUMB is the elegant product of a comprehensive campus signage design process and in 2004. The map with all its detail serves its purpose well for walk-up viewers, but does not perform this function well for drivers, and most visitors to the campus first arrive by car.

Existing campus map

A second set of map-signs, using the same format developed for the university signage system is proposed that would have bolder and larger graphics in order to be readable from a car. The primary purpose of these maps would be to direct all visitors to the Welcome Center and Visitor Alumni Center and so only the relevant portion of the campus would be shown – each map would therefore be customized to its location. In addition, all other information apart from street names would be intentionally missing from the map. The quick sketch below indicates the intent, not the detailed graphic style of such a map.

Proposed way-finding map concept

Current and Proposed Projects

The following are brief descriptions of the various projects that will be of the proposed entry sequences, some of which are illustrated on the following pages.

- 2nd Avenue Entrance Monument: As discussed earlier in this section, a new monument proposed at the intersection of Light Fighter Drive and 2nd Avenue would announce the campus for visitors arriving from Highway 1. The monument is inspired by wave formations as was the original monument and is surrounded by high-visibility plantings (category AE) with striking color and form year-round. The existing slopes on either side of 2nd Avenue would be planted with meadow grasses and wildflowers to continue the entry sequence. The monument concept is illustrated in the project pages that follow.

- Campus Welcome Center: The need to provide visitors orientation and other information as they enter the campus led to the concept of a small welcome center surrounded by a dune and wave inspired landscape. The location is a patch of bare, but highly visible, land opposite the Wellness Center. A small display gallery is complemented by an office and a restroom. The center is accessed off an existing parking lot. The welcome center concept is illustrated in the project pages that follow.

- Inter-Garrison Promenade: The proposed entry sequences (see Campus Entrances Map) to the campus utilize Inter-Garrison Road (earlier 3rd Street) as an important axial link across the campus. While Divarty Street (earlier 1st Street) is an important internal road linking several nodal buildings, in the Master Plan it is ultimately to be pedestrianized, which will move even more cross-traffic to the north. Inter-Garrison is also the link between the Otter Sports Wellness Center, the North Quad Housing, and the main campus and so an important movement corridor for students. The landscape along this street therefore determines how most visitors as well as students will view the larger campus.

Inter-Garrison Road looking towards the Alumni-Visitor Center

The proposed Inter-Garrison landscape includes a promenade of seasonally flowering small to medium sized trees along with drought tolerant groundcovers, and a focal landscape at its highly visible and heavily used intersection of General Jim Moore

Boulevard. The Inter-Garrison projects are illustrated in the project pages that follow.

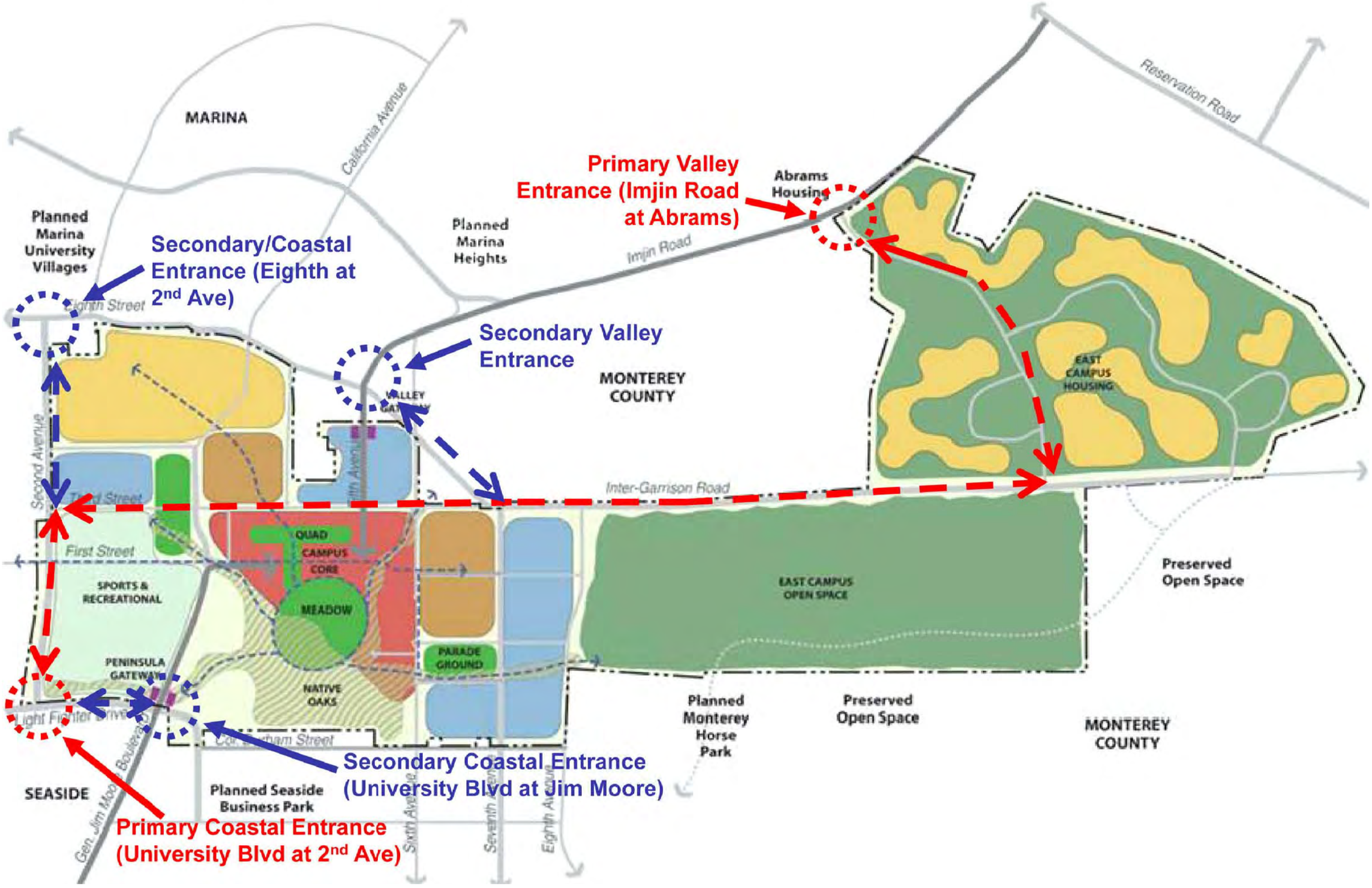
- Alumni Visitor Center Extended Landscape: The original Alumni Visitor landscape of 2003 focused on the area around the building and a project is currently underway to extend this landscape to the additional parking created to the south, constructed to accommodate the increased use of the facility. The much larger extended landscape, seen in the photograph below, was left as a non-irrigated hydro-seeded with native grasses. Situated on a gentle slope facing visitors as they drive east or north into the core of campus, this highly visible area is actually the first real 'entrance' landscape of CSUMB. It is therefore the site of a new project designed to enhance the visual experience for visitors and students, and a significant investment in a non-building related landscape, as are the 5th Avenue Entrance and University Center pathway projects. Unlike those projects which are centered around improving vehicular and pedestrian movement, this landscape illustrates the new approach of the University administration to invest in the landscape experience of the campus as a whole to increase recruitment and retention. The Visitor Center landscape is illustrated in the project pages that follow.

View of the site for the proposed Visitor Center landscape extension.

- 5th Avenue Entrance: Identified as perhaps the most important future campus node in the 2002 Master Plan update, the upgrade of the intersection of 5th Avenue and Divarty Street into a roundabout along with the widening and dividing of the entrance road from the north became a reality with funding allocated in 2007. This important space not only visually links across to two of the nodal campus buildings – the Tanimura & Antle Family Memorial Library and the Chapman Science Academic Center, but is central to the walking route between the Main Quad and the University Center / World Theater complex – both nodes central to student activity. The project, completed in 2008, includes a roundabout planted with low grasses and succulents, and a median planted entirely with succulents – which with their striking form and color, create a landscape with high visual impact and are being used on the campus for the first time in a significant manner.

5th Avenue Entrance Roundabout with the recently inaugurated Library behind.

5th Avenue Entrance median with drought tolerant succulents.


MARINA
California Avenue
Reservation Road
Planned Marina University Villages
Secondary/Coastal Entrance (Eighth at 2nd Ave)
Eighth Street
Planned Marina Heights
Primary Valley Entrance (Imjin Road at Abrams)
Abrams Housing
Imjin Road
Secondary Valley Entrance
MONTEREY COUNTY
EAST CAMPUS HOUSING
Inter-Garrison Road
Second Avenue
Third Street
First Street
QUAD
CAMPUS CORE
SPORTS & RECREATIONAL
MEADOW
PENINSULA GATEWAY
NATIVE OAKS
PARADE GROUND
EAST CAMPUS OPEN SPACE
Preserved Open Space
Planned Monterey Horse Park
Preserved Open Space
MONTEREY COUNTY
Secondary Coastal Entrance (University Blvd at Jim Moore)
SEASIDE
Planned Seaside Business Park
Primary Coastal Entrance (University Blvd at 2nd Ave)
Sixth Avenue
Seventh Avenue
Eighth Avenue

MEADOW MIX


Achillea millefolium (CN)


Eschscholzia californica (CN)


Layia platyglossa (CN)


Lupinus nanus (CN)

GRASSES & SHRUBS


Agave franzosinii


Anigozanthos 'Big Red'


Yucca whipplei (CN)


Phormium 'Creme Delight'


Festuca glauca


Opunia ficus-indica 'Spineless'


Aloe striata


Agave attenuata


Lantana camera


Asteriscus maritimus


CALIFORNIA STATE UNIVERSITY
Monterey Bay
CSU MONTEREY BAY MONUMENT
CORNER OF LIGHTFIGHTER AND SECOND
SCALE: NTS
THE PAUL DAVIS PARTNERSHIP


CALIFORNIA STATE UNIVERSITY
Monterey Bay

TREES

Melaleuca quinquenervia

GRASSES & SHRUBS

Arctostaphylos 'Dr Hurd' (CN)

Romneya coulteri (CN)

Ceanothus g. horizontalis (CN)

Muhlenbergia rigens (CN)

Festuca rubra

COBBLE PAVING

FLOOR PLAN CONCEPT
SCALE: NTS

CSU MONTEREY BAY WELCOME CENTER
CORNER OF SECOND AVENUE AND INTER-GARRISON ROAD
FLOOR PLAN CONCEPT

THE PAUL DAVIS PARTNERSHIP

CSU MONTEREY BAY WELCOME CENTER
CORNER OF SECOND AVENUE AND INTER-GARRISON ROAD
SCALE: NTS

THE PAUL DAVIS PARTNERSHIP

CSU MONTEREY BAY WELCOME CENTER
CORNER OF SECOND AVENUE AND INTER-GARRISON ROAD
SCALE: NTS

THE PAUL DAVIS PARTNERSHIP

CSU MONTEREY BAY WELCOME CENTER
CORNER OF SECOND AVENUE AND INTER-GARRISON ROAD
SCALE: NTS

THE PAUL DAVIS PARTNERSHIP

TREES


Arbutus unedo (CN)


Ulmus parvifolia

GRASSES & SHRUBS


Fremontodendron californicum (CN)


Phormium 'Creme Delight'


Phormium 'Amazing Red'


Achillea millefolium 'Yellow' (CN)


Lantana camera


Muhlenbergia rigens (CN)

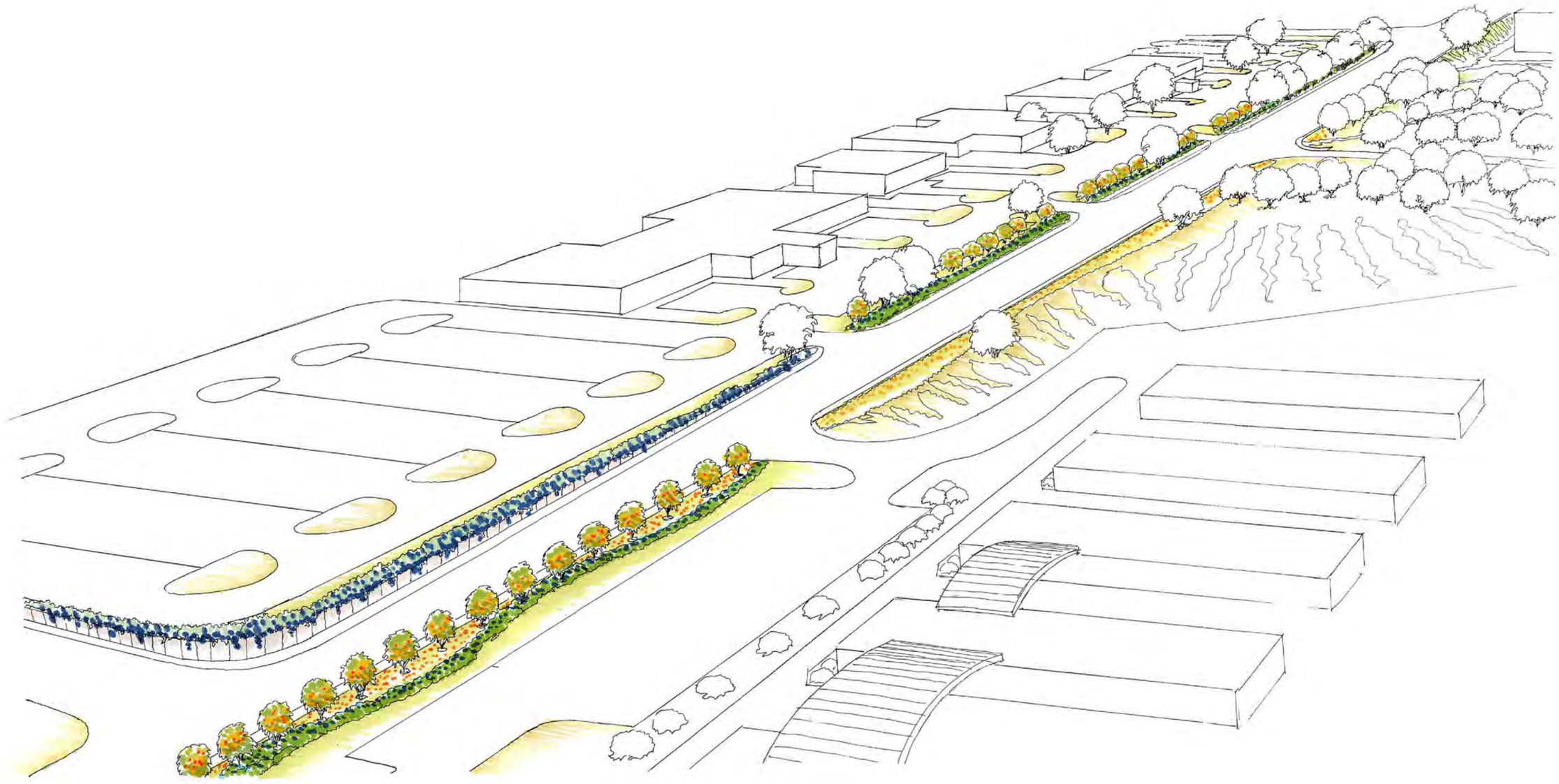

Helictotrichon sempervirens


Festuca glauca


Ceanothus g. horizontalis (CN)


Eschscholzia californica (CN)


TTER Sports Center




Eschscholzia californica (CN)


Achillea millefolium 'Red' (CN)


Salvia leucantha (CN)


Ceanothus g. horizontalis (CN)


Deschampsia caespitosa (CN)


Fremontodendron californicum (CN)


Eriogonum giganteum (CN)


Eriogonum g. rubescens (CN)


Eriogonum cinereum (CN)


Salvia clevelandii (CN)


Salvia greggii 'Red'


Muhlenbergia rigens (CN)

6.0 Priority Landscape Concepts

6.1 Introduction

The Maintenance Zone Map earlier in this document indicates that of the areas on campus that are the most frequented by students, parents, and visitors, i.e. priority zones. Some have undergone landscape refurbishments in the last couple of years, while others in need of landscape refurbishment or landscape development are currently being attended to as part of the CSUMB commitment to a quality campus landscape.

6.2 Pedestrian Circulation

The 2002 Master Plan Update identified the need for an open space framework, linking formal, native and other types of landscapes and open spaces by a hierarchy of pedestrian and non-motorized transit paths.

As the campus has developed over the last decade, with the focus on buildings, this aspect of connectivity has not been given enough attention. The Campus remains for the large part, as the Master Plan Update notes, an 'auto-dependent' campus and the pedestrian experience is still one of developed enclaves, such as the Main Quad, linked to other enclaves by the existing military road network. The Crescent Meadow and the Library to University Center student pathway, both to be completed during Fall 2008, are the first integrated efforts to address this lacunae. The latter project formalizes a non-road-based and frequently used pedestrian connection across the campus.

A frequently-used 'cow' path between the Library and University Center.

6.3 Completed Projects

- 6th Avenue Pedestrian Mall: Identified as a major link between campus buildings both in the 1997 Master Plan and 2001 Master Plan Update, this stretch of 6th Avenue was upgraded into an attractive pedestrian walkway in 2006.

6th Avenue Pedestrian Mall.

- University Center Entrance The main landscape spaces to the east and west of this nodal campus building were completed years earlier, and the entrance island landscape, creating an important first impression, was completed in 2007.

University Center front island garden

- Administration Plaza Landscape Refurbishment Planted first in 1997 and then refurbished once in 2001, these gardens of native varieties and some climate adapted Mediterranean varieties had also deteriorated. The project to refurnish this landscape including a redesign of the turf and planting beds was completed in August 2008. The Administration Plaza garden concept is illustrated in the project pages that follow.

Administration Plaza garden (Buildings 1, 2, and 3)

6.4 Projects Underway

Illustrated on the following pages, these current and proposed priority landscape refurbishments are:

- Main Quad Landscape Refurbishment Planted in 1997, this landscape of native varieties and some climate adapted Mediterranean varieties has deteriorated in areas. A phased set of landscape refurbishments is being carried out in 2008-09 starting with the north side (Buildings 12 & 18 in 2008). Proposed projects for 2009 include a native plants display garden along the south side, and a tree walk along the north edge of the turf.

Main Quad: Proposed Native Plants display garden

The Main Quad landscape initiatives are illustrated in the project pages that follow.

Main Quad: Proposed Tree walk

- Chapman Science Academic Center Landscape Refurbishment Planted in 2001, this landscape of primarily native varieties has significantly deteriorated, possibly due to inadequate soil preparation. It is due to undergo a landscape refurbishment, using only native varieties in Fall and Winter 2008.

- Tanimura & Antle Family Memorial Library Landscape Designed in 2006 and awaiting completion of the new Library building in Fall 2008, this landscape of native and ornamental varieties is due to be planted in 2009.

- Administration & Finance (Building 84) The open spaces at the rear of these offices, presently undeveloped, are slated to undergo renovations with the creation of a low-maintenance and low water-use attractive garden spaces with seating areas for staff. The Administration & Finance garden concept is illustrated in the project pages that follow.

TREES


Liquidambar styraciflua

SHRUBS


Cistus 'Sunset'


Fremontodendron californicum (CN)


Salvia greggii 'Purple'


Hemerocalis hybrid


Lobelia laxiflora


Gaura lindheimeri


Raphiolepis indica 'Ballerina'


Cistus salvifolius


Strelitzia reginae


Zauschneria californica (CN)


Alyogyne huegelii 'Santa Cruz'


Gazania splendens


Anigozanthos 'Big Red'


Kniphofia 'Christmas Cheer'


Asteriscus maritimus


Penstemon heterophyllus (CN)


Dietes bicolor


Phormium tenax 'Jack Spratt'


Fremontodendron (CN)


Rhamnus californica (CN)


Ceanothus 'Julia Phelps' (CN)


Raphiolepis indica 'Ballerina'

GRASSES & SHRUBS


Cistus x purpureus


Salvia leucantha


Muhlenbergia rigens (CN)


Agapanthus 'White'

MEADOW MIX


Achillea 'Yellow' (CN)


Eschscholzia californica (CN)


Layia platiglossa (CN)


Lupinus nanus (CN)

COBBLE PAVING

Appendix

A. Landscape Zone Development Matrix

B. Recommended Plant Lists

C. Plant Maintenance Performance Standards

See Maintenance Zones Chapter for detailed descriptions

ZONE	SUB-ZONE	LOCATION	BLDG REF	LANDSCAPE CONDITION (2008). PLANNED / PROPOSED IMPROVEMENTS	AREA (APPROX) SF			
					Plants	Turf	Naturalized grass	Unimproved grass/other
AE High maintenance. Irrigated Zone.	1	Monument -Gen. Jim Moore Blvd. South Entrance	**n/a**	Planted in 2003, poor condition. Requires extensive plant refresh with high visibility plants. Water supply re-stablishment & irrigation repair.	500	0	0	0
	2	Monument - 2nd Ave. South Entrance (Future project - see D14)	**n/a**	Unimproved. Requires new planting, irrigation, and water supply as part of project. High visibility planting at proposed monument. See D14 for grass buffers at entrance.	2,000	0	0	0
	3	Monument - Inter-Garrison West Entrance (Future project)	**n/a**	Unimproved. Requires new planting as part of project. South side to connect to Wellness Ctr irrigation. North side to connect to proposed Welcome Ctr (C11).	1,500	0	0	0
	4	Inter-Garrison Promenade (Future project)	**n/a**	Unimproved. Requires new tree planting along south side. New planting at intersection w Gen Jim Moore Blvd. New water supply & irrigation system.	N/A	0	15,000	0
A High maintenance. Irrigated Zone.	1	Main Quad		Planted in 1997, moderate condition. Requires plant refresh & irrigation repair. North side refreshed 2008. South side to include native plants display garden. Excludes turf refurbishment.	63,000	135,500	0	0
	2	Administration Plaza	**1, 2, & 3**	Planted in 1997 & 2001. Redesigned and planted in 2008. New irrigation, turf and planting. Good condition.	18,000	2,750	0	0
	3	University Center	**29**	Main garden/plaza planted in 1998, moderate condition. Front island planted in 2007, good condition. Requires limited plant refresh & irrigation repair for main garden/plaza. Mortality replacement for front island.	5,500	27,000	0	0
	4	World Theater (East / north sides)	**28**	Planted in 2001, moderate condition. Requires limited plant refresh with flowering / high-visibility plants & irrigation repair.	4,500	7,000	0	0
B Medium-high maintenance. Irrigated Zone.	1	Multi-purpose playing fields		Planted in 1999, moderate condition, soil compacted, brown patches. Requires local booster pump for better irrigation pressure. Field requires aeration, amendments, and re-seeding.	11,000	225,400	0	0
	2	North Quad Housing (See C5 & D19 for parking / buffers)	**301 302 303**	Planted in 2004, good condition. Grass compacted at corners where service vehicles drive across. Requires limited plant refresh and turf restoration.	55,500	65,500	0	0
	3	Alumni Visitor Center + Additional Parking	**97**	Main garden planted in 2003, good condition. Oak trees died / were removed. 2008-09 project includes limited refresh. For parking area includes extension of irrigation system and new planting.	30,000	0	0	0
	4	Meeting House (Future project - see C12)	**98**	Unimproved. 2009 project includes new planting & irrigation.	0	0	0	12,000
	5	West Residence Halls	**208 210 211**	Planted in 2000 & 2002, moderate condition. Requires limited plant refresh & irrigation repair.	47,000	30,000	0	0
	6	East Residence Halls	**202 203 204 205 206**	Planted in 1997, moderate condition. Requires limited plant refresh & irrigation repair.	85,000	8,250	0	0
	7	Visual and Public Art	**71 72 73**	Planted in 1996, moderate condition. Requires limited plant refresh & irrigation repair.	17,000	0	0	0
	8	5th Ave Entrance & Roundabout	**n/a**	Planted in 2008, good condition.	21,750	0	4,000	11,000
	9	Academic Science Center	**53**	Planted in 2000, poor condition. 2008-09 project includes soil re-amendment & plant refresh, new planting & irrigation for north side.	34,500	6,750	45,000	0
	10	Library	**508**	Project designed / irrigation installed / not planted - hydroseeded in 2008. To be planted in 2009?	42,500	0	0	0
	11	Wellness / Sports Center	**90**	Planted in 2000, refreshed in 2008. Good condition.	10,000	0	0	0
	12	CSUMB Foundation	**201**	Planted in -----, poor/moderate condition. Requires plant refresh & irrigation repair.	7,750	11,000	0	0
	13	Student Services / College of Arts	**46 47**	Planted in 1999, good condition.	3,750	12,250	0	11,500
	14	Service Learning Institute / College of Arts	**45 46**	Unimproved. Requires new planting & irrigation.	0	0	0	43,000
	15	Music Hall	**30**	Unimproved. Requires new planting & irrigation.	5,500	0	0	21,750
	16	Academic Support / Human Resources	**21 23**	Unimproved. Requires new planting & irrigation.	12,500	0	0	0

See Maintenance Zones Chapter for detailed descriptions

ZONE	SUB-ZONE	LOCATION	BLDG REF	LANDSCAPE CONDITION (2008). PLANNED / PROPOSED IMPROVEMENTS	AREA (APPROX) SF			
					Plants	Turf	Naturalized grass	Unimproved grass/other
C Medium maintenance. Irrigated Zone.	1	Crescent Meadow	n/a	Planted in 2008. Good condition. Some garden 'plots' left unirrigated and unplanted for budgetary reasons.Require soil preparation and planting.	29,000	31,500	38,500	0
	2	Aquatic Center	100	Planted in 2002, moderate condition. Requires limited additional planting.	0	0	22,750	0
	3	P.E. Field House	n/a	Parking area planted in 2007, good condition. Sloped sides unimproved, require hydroseeding.	2,750	0	0	14,000
	4	Child Development Center	91, 93	Unimproved. Requires new planting & irrigation.	0	14,500	0	20,500
	5	North Quad Housing parking / south buffer	301 302 303	Planted in 2004, moderate/good condition. Requires limited plant refresh.	0	0	117,500	0
	6	Administration & Finance	84	Mostly unimproved, requires new planting & irrigation. Entrance area to 84A planted in 2002, moderate condition. Requires limited plant refresh & irrigation repair.	7,000	0	0	0
	7	Panetta Institute / Social, Behavioral, Global Studies / Early Outreach / Health & Human Services	86	Unimproved, requires new planting & irrigation.	10,000	0	0	0
	8	Academic Support / Reading Center	58 59	Building 59 planted in 2006, moderate condition. Requires plant refresh. Building 58 unimproved. Requires new planting & irrigation.	17,000	0	0	0
	9	Multi-purpose Playing Fields Parking	n/a	Planted in 2007, good condition. Future project to include new parking islands with planting & irrrigation.	7,750	7,000	0	0
	10	Tennis Courts (Future project - see D10)	n/a	Unimproved. Requires clear/grub & hydroseeding, or planting & irrigation as part of project. CDs prepared in 2006, not built.	3,500	0	19,000	0
	11	Campus Welcome Center (Future project)	90	Unimproved. Requires new planting & irrigation as part of project. Concept dwgs in 2008.	11,500	0	26,500	0
	12	Alumini Visitor Center Extended Landscape (Future project - see B4)	97, 98	Hydroseeded once, otherwise unimproved. 2009 project	0	0	93,750	0
D Low-medium maintenance. Non-irrigated Zone.	1	World Theater west & south buffers	28	Part planted in 2001, moderate condition. Remaining areas hydroseeded as part of pathway project (D4). Swale on south side of building needs refresh.	n/a	n/a	0	15,000
	2	Teledramatic Arts & Technology	27	Unimproved, requires new planting & irrigation.	n/a	n/a	0	22,000
	3	Science Research Lab & Annexe (Future project)	13	Unimproved, requires new planting & irrigation. 2009 project includes planting refresh w/o irrigation.	n/a	n/a	0	29,000
	4	Student Pathway Meadow	n/a	Partly hydroseeded in 2008. Remainder of meadow requires clear/grub and hydroseeded.	n/a	n/a	23,500	50,000
	5	Crescent Meadow south buffer	n/a	Unimproved, used as a earth stockpile area, heavily compacted. Requires earth removal, cross-ripping, and hydroseeding.	n/a	n/a	0	150,000
	6	Divarty Ave. south side between Gen Jim. & 5th Ave	n/a	Unimproved. Requires planting & irrigation as part of future building and pedestrian mall projects.	n/a	n/a	0	67,000
	7	Academic Support / Human Resources south & west buffer	21 23	Unimproved. Requires clear/grub & hydroseeding.	n/a	n/a	0	52,000
	8	Ball fields east buffer	n/a	Hydroseeded in 2007, good condition.	n/a	n/a	47,000	0
	9	General Jim Moore Blvd west buffer (Future project)	n/a	Unimproved. Requires clear/grub & hydroseeding, or planting & irrigation. CDs prepared in 2006, not built.	n/a	n/a	0	75,000
	10	Basketball Courts & parking (Future project - see C10)	n/a	Unimproved. Requires clear/grub & hydroseeding, or planting & irrigation as part of project. CDs prepared in 2006, not built.	15,000	n/a	37,000	0
	11	Aquatic Center east buffer	100	Unimproved. Requires clear/grub & hydroseeding. Large swimming pool for this area is a future project.	n/a	n/a	0	110,000
	12	2nd Ave median	n/a	Planted in 2002, moderate condition. Oak trees are dead. Requires removal of trees. Grasses can be overseeded with wildflower seeds in the rains.	0	n/a	35,800	73,500
	13	Multi-purpose fields parking	n/a	Planted in 1999, moderate condition, not irrigated. Can be overseeded with wildflower seeds in the rains.	0	n/a	62,000	0
	14	2nd Ave South Entrance (Future project - see AE2)	n/a	Unimproved, requires clear/grub & hydroseeding. Irrigation system can be linked to proposed monument landscape - see AE3.	0	0	0	30,000

See Maintenance Zones Chapter for detailed descriptions

ZONE	SUB-ZONE	LOCATION	BLDG REF	LANDSCAPE CONDITION (2008). PLANNED / PROPOSED IMPROVEMENTS	AREA (APPROX) SF			
					Plants	Turf	Naturalized grass	Unimproved grass/other
	15	Inter-Garrison north buffer between 2nd Ave & Gen. Jim	n/a	Unimproved, requires clear/grub & hydroseeding or planting & irrigation tied to south promenade project, see AE4.	0	0	0	60,000
	16	Administration & Finance east/north sides	84	Unimproved. 2009 project includes planting, limited irrigation.	0	0	0	27,000
	17	Panetta Instt north & west sides	86	Unimproved. Requires clear/grub & hydroseeding, or planting & irrigation.	0	0	0	27,000
	18	UPD & Campus Counselling & Health Center	n/a	Unimproved. Requires clear/grub & hydroseeding, or planting & irrigation.	0	0	0	68,000
	19	North Quad Housing east buffer	301 302 303	Hydroseeded in 2004, moderate/good condition.	0	0	32,000	0
	20	Service Learning Institute / Academic Career Advising	44, 45	Unimproved. Requires clear/grub & hydroseeding, or planting & irrigation.	0	0	0	43,000
E Low maintenance. Non-irrigated Zone.	1	Stadium north/east/south buffers	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	130,000
	2	Areas south of Divarty between Gen. Jim Moore Blvd & 2nd Ave	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	150,000
	3	Area between Inter-Garrison & Divarty / 3rd Ave & 2nd Ave	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	195,000
	4	Area between UPD and CDO	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	78,000
	5	Area between Inter-Garrison & Divarty / Gen. Jim Moore Blvd & 3rd Ave	n/a	Unimproved. Requires weed removal. Asphalt roads require demo, imported earth, hydroseed.	n/a	n/a	n/a	580,000
	6	Area between Science Center & Inter-Garrison	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	120,000
	7	Areas between Inter-Garrison & A-Street, east of 6th Ave.	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	470,000
	8	Areas between A-Street and B-Street, east of 6th Ave.	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	375,000
	9	Areas between B-Street & Butler, east of 6th Ave.	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	370,000
	10	Areas between Butler & Col. Durham, east of 6th Ave.	n/a	Unimproved. Requires weed removal.	n/a	n/a	n/a	490,000
	11	Gen Jim Moore Blvd. east buffer	n/a	Unimproved. Requires weed removal or planting & irrigation to complement west buffer - see D9.	0	0	0	95,000
F No maintenance.		North Campus Housing Area						1,300,000
		Areas east of North Quad Housing						320,000
		Areas west of 2nd Ave						95,000
		Areas north of Light Fighter Ave						325,000
		Areas south of Light Fighter Ave						120,000
		Central oak meadow area						4,250,000
		Areas south of Divarty						140,000
					582,250	584,400	619,300	10,635,250
					Plants	Turf	Naturalized grass	Unimproved grass/other
				Approximate Area in Acres	13.37	13.42	14.22	244.15

CATEGORY	BOTANICAL NAME	SUGGESTED VARIETIES	COMMON NAME	CA NATIVE	WIND TOLERANCE	ZONE (See Descriptions)	NOTES
Zone Descriptions: (AE) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (A) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (B) Medium-high maintenance. Irrigated Zone. Focus on flowering and plant color. (C) Medium maintenance. Irrigated Zone. Focus on plant hardiness, color, and shape. (D) Low-medium maintenance. Non-irrigated Zone. Focus on plant hardiness. **CA Native:** native habitat includes California, not only endemic to California							
TREES	*Aesculus californica*		California Buckeye	**X**	Low	Zone B, C	
	Arbutus unedo		Strawberry Tree		Med	Zone AE, A, B, C	
	Arbutus x 'Marina'		Marina Strawberry Tree	**X**	Med	Zone A, B, C	
	Cupressus macrocarpa		Monterey Cypress	**X**	High	Zone D	
	Eriobotrya deflexa		Bronze Loquat		Med		
	Feijoa sellowana		Pineapple Guava		Med	Zone AE, A, B	
	Geijera parviflora		Australian Willow		High	Zone A, B, C	
	Liquidambar styraciflua	Palo Alto	Sweet Gum		Med		
	Lyonothamnus floribundus		Catalina Ironwood	**X**	High	Zone A, B, C	
	Magnolia grandiflora		Evergreen Magnolia		Low	Zone B	
	Magnolia soulangiana		Saucer Magnolia		Low	Zone A	
	Magnolia stellata		Star Magnolia		Low	Zone A	
	Melaleuca quinquenervia		Cajeput Tree		Med	Zone B, C	
	Metrosideros excelsus		New Zealand Christmas Tree		High	Zone B, C, D	
	Olea europea	Swan Hill	Fruitless Olive		Med	Zone A, B, C	
	Pinus contorta		Shore Pine	**X**	High	Zone C, D	
	Pistacia chinensis		Chinese Pistache		Low	Zone A, B	
	Pyrus calleryana	Chanticleer	Callery Pear		Med		
	Quercus agrifolia		Coast Live Oak	**X**	Low	Zone D	
	Sequoia sempervirens	Aptos Blue	Coast Redwood	**X**		Zone C	
	Ulmus parvifolia		Chinese Elm		Med	Zone A, B	
	Umbellularia californica		California Laurel	**X**	Med	Zone C, D	
SMALL TREES / LARGE SHRUBS Over 6' tall	*Agave franzosinii*		Century Plan		High	Zone AE	
	Agave weberi		Weber's Agave		High	Zone AE	
	Aloe arborescens		Aloe		High	Zone AE	
	Aloe plicatilis		Fan Aloe		High	Zone AE	
	Alyogyne huegelii	Monterey Bay	Blue Hibiscus		Low	Zone A	
	Arctostaphylos 'Dr. Hurd'		Dr. Hurd Manzanita	**X**		Zone C	
	Calycanthus occidentalis		Spice Bush	**X**		Zone A	
	Camellia japonica	Alba Plena, Adolphe Audusson	Camellia		Low	Zone A, B	
	Carpentaria californica		Tree Anemone	**X**	Low	Zone D	
	Ceanothus thyrsiflorus	Snow Flurry, Sky Lark	Blue Blossom	**X**	Med	Zone B, C, D	
	Cornus stolonifera		Red-twig Dogwood	**X**	Low	Zone C	
	Cornus stolonifera 'Flaviramea'		Yellow-twig Dogwood	**X**	Low	Zone C	
	Cotinus coggygria		Smoke Tree		Low	Zone C	
	Dendromecon harfordii		Island Bush Poppy	**X**		Zone C, D	
	Fremontodendron californicum	Ken Taylor, San Gabriel, Pacific Sunset	Ken Taylor Flannelbush	**X**	Low	Zone AE, A, B	
	Garrya elliptica		Coast Silk Tassel	**X**		Zone C, D	
	Heteromeles arbutifolia		Toyon	**X**		Zone D	
	Lavatera assurgentiflora		Tree Mallow	**X**	Low	Zone B	
	Lavatera maritima (Lavatera bicolor)		Tree Mallow		Low	Zone B	
	Leonotis leonurus		Lion's Tail		Low	Zone AE	
	Leucadendron hybrid 'Safari Sunset'		Safari Sunset Conebush			Zone AE	
	Opunia ficus-indica 'Burbank Spineless'		Burbank Spineless Opuntia		High	Zone AE	
	Rhamnus californica	Eve Case, Mound San Bruno	Eve Case Coffeeberry	**X**		Zone B, D	
	Romneya coulteri		Matilija Poppy	**X**	Low	Zone C	

CATEGORY	BOTANICAL NAME	SUGGESTED VARIETIES	COMMON NAME	CA NATIVE	WIND TOLERANCE	ZONE (See Descriptions)	NOTES
Zone Descriptions: (AE) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (A) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (B) Medium-high maintenance. Irrigated Zone. Focus on flowering and plant color. (C) Medium maintenance. Irrigated Zone. Focus on plant hardiness, color, and shape. (D) Low-medium maintenance. Non-irrigated Zone. Focus on plant hardiness. **CA Native:** native habitat includes California, not only endemic to California							
MEDIUM / SMALL SHRUBS 2' - 5' tall	*Agapanthus* sp.	Flore Pleno, New Blue, White	Lily-of-the-Nile		Med	Zone B, C	
	Agave americana	Marginata	Century Plant		High	Zone AE	
	Agave attenuata 'Blue Glow'	Blue Glow, Nova	Blue Glow Agave		High	Zone AE	
	Aloe striata		Coral Aloe		High	Zone AE	
	Anigozanthos 'Big Red'		Big Red Kangaroo Paw		Med	Zone AE, A	
	Anigozanthos 'Yellow Gem'		Yellow Gem Kangaroo Paw		Med	Zone AE, A	
	Arctostaphylos 'Sunset'		Sunset Manzanita	X		Zone D	
	Artemisia absinthium 'Powis Castle'		Common Wormwood		Low	Zone B, D	
	Artemisia californica	Canyon Gray	California Artemisia	X		Zone B, C, D	
	Callistemon viminalis 'Little John'		Dwarf Bottlebrush			Zone AE, B	
	Ceanothus 'Joyce Coulter'		Creeping Mountain Lilac	X	High	Zone D	
	Cistus 'Elma'		Elma Rockrose		Med	Zone B	
	Cistus 'Sunset'		Magenta Rockrose		Med	Zone AE, A	
	Cistus x purpureus		Orchid Rockrose		Med	Zone C	
	Cistus x skanbergii		Pink Rockrose		Med	Zone B	
	Convolvus cneorum		Bush Morning Glory			Zone A	
	Correa 'Ivory Bells'		White Australian Fuchsia		Med	Zone C, D	
	Dietes bicolor		Evergreen Iris		High	Zone B, C	
	Dietes vegata		Butterfly Iris		High	Zone AE, B, C	
	Eriogonum arborescens		Santa Cruz Island Buckwheat	X	High	Zone B, C, D	
	Eriogonum cinereum		Ashyleaf Buckwheat	X	High	Zone B, C, D	
	Eriogonum fasciculatum		California Buckwheat	X	High	Zone B, C, D	
	Eriogonum giganteum		Saint Catherin's Lace	X	High	Zone B, C, D	
	Eriogonum grande var rubescens		Red-Flowered Buckwheat	X	High	Zone B, C, D	
	Gaura lindheimeri		Butterfly Gaura			Zone A	
	Grevillea rosmarinifolia	Scarlet Sprite	Rosemary Grevillea			Zone B	
	Hemerocalis hybrids	Big Gold, Orange Crush, Rojo Alto	Big Gold Daylily			Zone A, B	
	Kniphofia uvaria	Christmas Cheer, Shining Scepter	Red Hot Poker			Zone AE, A	
	Lavandula angustifolia	Alba	English Lavender			Zone A	
	Limonium perezii		Sea Lavender		High	Zone B	
	Lupinus chamissonis		Silver Dune Lupine	X	High	Zone C	
	Mimulus aurantiacus (Diplacus latifolius)	colors available	Sticky Monkey Flower	X	Low	Zone D	
	Phormium 'Amazing Red'		Amazing Red New Zealand Flax		High	Zone AE, A, C	
	Phormium 'Cream Delight'		Cream Delight New Zealand Flax		High	Zone AE	
	Phormium 'Gold Sword'		Gold Sword New Zealand Flax		High	Zone AE, A	
	Polygala fruticosa 'Petite Butterfly'		Dwarf Sweet Pea Shrub			Zone A, B	
	Polygala myrtifolia 'Grandifolora'		Sweet Pea Shrub			Zone A, B	
	Raphiolepis indica 'Ballerina'		Ballerina Indian Hawthorn		High	Zone A	
	Ribes sanguineum		Red Flowering Currant	X	Low	Zone A, B	
	Ribes speciosum		Fuchsia Flowering Gooseberry	X	Low	Zone C, D	
	Rosa californica		California Wild Rose	X	Low	Zone C, D	
	Rosmarinus officinalis 'Benenden Blue'		Rosemary		High	Zone C	
	Salvia clevelandii 'Allen Chickering'		Cleveland Sage	X	Med	Zone A, B, C	
	Salvia greggii 'Purple'	Purple, Purple Queen, Purple Pastel	Purple Autumn Sage			Zone A	
	Saliva greggii 'Red'	Dark Dancer, Furman's Red, Caviar	Red Autumn Sage			Zone B	
	Salvia greggii 'White'	Alba	White Autumn Sage			Zone C	
	Salvia leucantha	Santa Barbara	Mexican Sage		Med	Zone B, C	
	Salvia leucophylla		Purple Sage	X		Zone B, C	
	Salvia mellifera		Black Sage	X		Zone D	
	Salvia spathacea		Hummingbird Sage	X		Zone A, B	
	Sollya heterophylla	Monterey Bay Sapphire	Bluebell Creeper			Zone A, B	

CATEGORY	BOTANICAL NAME	SUGGESTED VARIETIES	COMMON NAME	CA NATIVE	WIND TOLERANCE	ZONE (See Descriptions)	NOTES
Zone Descriptions: (AE) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (A) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (B) Medium-high maintenance. Irrigated Zone. Focus on flowering and plant color. (C) Medium maintenance. Irrigated Zone. Focus on plant hardiness, color, and shape. (D) Low-medium maintenance. Non-irrigated Zone. Focus on plant hardiness. **CA Native:** native habitat includes California, not only endemic to California							
	Strelitzia reginae		Bird of Paradise			Zone A	
	Trichostema lanatum		Woolly Blue Curls	X		Zone D	
	Vaccinium ovatum		Evergreen Huckleberry	X		Zone C, D	
	Yucca whipplei		Our Lord's Candle	X	High	Zone AE	
GROUND COVERS 6" - 2' tall	*Achillea millefolium*	Moonshine, colors available	Common Yarrow	X	Med	Zone AE, B, C, D	
	Aeonium canariense	indicate fuzzy or shiny leaved	Giant Velvet Rose		High	Zone AE	
	Arctostaphylos 'Carmel Sur'		Carmel Sur Manzanita	X	High	Zone C	
	Arctostaphylos hookeri	Monterey Carpet, Hookeri	Manzanita	X	High	Zone D	
	Arctostaphylos 'Pacific Mist'		Pacific Mist Manzanita	X	High	Zone AE, C, D	
	Arctostaphylos tomentosa		Woollyleaf Manzanita	X		Zone D	
	Arctostaphylos uva-ursi	Point Reyes	Bearberry	X		Zone B, C	
	Armeria maritima	Alba	Sea Thrift	X	Med	Zone B, C	
	Asteriscus maritimus	Gold Coin, Compact Gold Coin	Beach Daisy		High	Zone AE, A	
	Baccharis pilularis 'Twin Peaks'		Dwarf Coyote Bush	X	High	Zone D	
	Ceanothus gloriosus 'Point Reyes'		Point Reyes Ceanothus	X		Zone A, B, C	
	Ceanothus griseus horizontalis	Yankee Point	Carmel Mountain Lilac	X	High	Zone AE, B, C, D	
	Cerastium tomentosum		Snow in Summer			Zone A	
	Cistus salvifolius		Sageleaf Rockrose		Med	Zone AE, A	
	Convolvulus mauritanicus		Ground Morning Glory			Zone C	
	Coreopsis maritima		Sea Dahlia	X		Zone B	
	Coreopsis verticilla		Beach Coreopsis			Zone B, C	
	Correa 'Dusky Bells'		Dusky Bells Australian Fuchsia		Med	Zone B	
	Echeveria imbricata		Hens & Chickens		High	Zone AE	
	Erigeron glaucus	*Arthur Menzies*	Seaside Daisy	X	Med	Zone A	
	Eschscholzia californica		California Poppy	X	High	Zone AE, A, B, C	
	Euphorbia amygdaloides		Wood Spurge		Low	Zone A	
	Euphorbia characias	Wulfenii	Mediterranean Spurge		Low	Zone A	
	Fragaria vesca		Wood Strawberry	X	Med	Zone B, C	
	Geranium 'Johnsons Blue'		Johson's Blue Geranium			Zone A	
	Grevillea lanigera 'Coastal Gem'		Coastal Gem Grevillea			Zone B	
	Heuchera maxima		Island Alum Root	X		Zone B	
	Iris douglasiana		Douglas Iris	X	Low	Zone A, B	
	Lantana camera		Shrub Verbena			Zone AE	
	Lantana montevidensis		Trailing Lantana		High	Zone B	
	Lobelia laxiflora		Mexican Cardinal Flower		High	Zone AE, A	
	Penstemon (Purple)	Midnight, Violet	Purple Penstemon	X	Med	Zone A, B	
	Penstemon (Red)	Garnet, Firebird, Magenta	Red Penstemon	X	Med	Zone B, C	
	Penstemon (White)		White Penstemon	X	Med	Zone A	
	Phormium tenax 'Jack Sprat'		Jack Sprat New Zealand Flax		High	Zone A, C	
	Rhamnus californica 'Seaview'		Seaview Coffeeberry	X	High	Zone B, C, D	
	Rubus calycinoides		Bramble			Zone A, B	
	Sedum spectabilis	Autumn Joy	Autumn Joy Stone Crop			Zone AE	
	Sedum x rubrotinctum		Pork & Beans		High	Zone AE	
	Sisyrinchium bellum		Blue-eyed Grass	X		Zone A, B, C	
	Stachys byzantina		Lamb's Ears			Zone B	
	Symphoricarpos mollis		Creeping Snowberry	X	Low	Zone D	
	Teucrium chamaedrys		Germander		High	Zone C	
	Verbena x hybrida 'Dark Purple'	Homestead Purple, Tapien Lavender	Dark Purple Verbena			Zone A	
	Verbena x hybrida 'White'	Babylon White, Tukana White	White Verbena			Zone A	
	Zauschneria californica		California Fuschia	X	Low	Zone A, B	

CATEGORY	BOTANICAL NAME	SUGGESTED VARIETIES	COMMON NAME	CA NATIVE	WIND TOLERANCE	ZONE (See Descriptions)	NOTES
Zone Descriptions: (AE) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (A) High maintenance. Irrigated Zone. Focus on flowering and plant color year-round. (B) Medium-high maintenance. Irrigated Zone. Focus on flowering and plant color. (C) Medium maintenance. Irrigated Zone. Focus on plant hardiness, color, and shape. (D) Low-medium maintenance. Non-irrigated Zone. Focus on plant hardiness. **CA Native:** native habitat includes California, not only endemic to California							
VINES	*Bougainvillea* 'Barbara Karst'		Barbara Karst Bougainvillea		Low	Zone A, B	
	Bougainvillea spectabilis		Bougainvillea		Low	Zone A, B	
	Distictus buccinatorius		Bloodred Trumpet Vine		Low	Zone B	
	Ficus pumila		Creeping Fig		Med	Zone C, D	
	Hardenbergia comptoniana		Lilac Vine		Low	Zone B, C	
	Rosa banksiae 'Lutea'		Lady Bank's Yellow Rose		Low	Zone A	
	Rosa banksiae var banksiae		White Banksia		Low	Zone A	
	Trachelospermum jasminoides		Star Jasmine		Med	Zone C, D	
	Vitis californica		California Wild Grape	X	Low	Zone B, C, D	
GRASSES	*Carex divulsa*		Berkeley Sedge	X		Zone C	
	Carex tumulicola		Foothill Sedge	X		Zone C	
	Deschampsia caespitosa		Tufted Hairgrass	X		Zone AE, B, C	
	Elymus magellanicus		Blue Wheatgrass			Zone A, B, C	
	Elymus condensatus	Canyon Prince	Island Blue Rye	X		Zone AE, A, B, C	
	Festuca californica		California Fescue	X		Zone A, B, C	
	Festuca glauca	Elijah Blue	Blue Fescue			Zone AE, A	
	Festuca idahoensis	Siskiyou Blue	Idaho Fescue	X		Zone AE, B, C	
	Festuca rubra		Red Fescue	X		Zone AE	
	Helictotrichon sempervirens		Blue Oat Grass			Zone AE, A, B, C	
	Juncus balticus		Wire Rush	X		Zone D	
	Juncus effusus		Bog Rush	X		Zone D	
	Juncus patens		Spreading Rush	X		Zone C, D	
	Muhlenbergia rigens		Deer Grass	X		Zone AE, B, C, D	
	Nassella pulchra		Purple Needlegrass	X		Zone B, C	
MEADOW MIX	*Achillea millefolium*		Yarrow	X		All Zones	
	Aster chilensis		Common California Aster	X		All Zones	
	Castilleja affinis		Coast Paint-brush	X		All Zones	
	Clarkia purpurea		Winecup Clarkia	X		All Zones	
	Delphinium patens		Coast Larkspur	X		All Zones	
	Erigeron glaucus		Seaside Daisy	X		All Zones	
	Eschscholzia californica		California Poppy	X		All Zones	
	Eschscholzia californica var. maritima		California Beach Poppy	X		All Zones	
	Fragania vesca		Wood Strawberry	X		All Zones	
	Gilia capitata ssp. abrotanifolia		Globe Gilia	X		All Zones	
	Lasthenia californica		Coast Goldfields	X		All Zones	
	Layia platyglossa		Tidy Tips	X		All Zones	
	Lupinus bicolor		Lindley's Annual Lupine	X		All Zones	
	Lupinus nanus		Sky Lupine	X		All Zones	
	Papaver californicum		Fire Poppy	X		All Zones	
	Pholistoma auritum		Blue Fiesta Flower	X		All Zones	
	Sisyrinchium bellum		Blue-eyed Grass	X		All Zones	

7.0 Plant Maintenance Performance Standards

7.1 Introduction

The following selected paragraphs have been excerpted from the chapter on Performance Standards in the revised Landscape Maintenance Contract for CSUMB. The intent of including them as part of the Master Plan document is to illustrate that a comprehensive approach to planting and maintenance is necessary for a vibrant campus landscape.

7.2 Definitions

New plantings: Newly planted trees, shrubs, groundcovers and turf in all zones shall receive special attention until these plants are established. Adequate water and fertilizer shall be applied to promote normal, healthy growth. Proper berms or basins shall be maintained during the establishment period.

Replacements: Contractor shall replace, at his expense any trees, shrubs, turf or ground cover which die as a result of Contractor's negligence. CSUMB and the Foundation shall replace any trees, shrubs, turf, or ground cover, which die for reasons other than Contractor's negligence. Size of trees and shrubs shall be determined by the Custodial/Grounds Coordinator or his designee; ground cover shall be from flats.

7.3 Irrigation systems

General: The Contractor shall be responsible for maintaining all irrigation systems existing at the commencement of the Contract period, including Controllers (clocks). The Contractor shall be responsible for maintaining any new systems including Controllers (clocks), after amendment to the Contract amount agreed upon with CSUMB, that may be added during the Contract period. Maintenance of new systems shall proceed after the completion of mandatory maintenance by the installing Contractor, and hand-over and in-service meeting for the same.

Water-use: Adjust the irrigation systems so as to not waste water. Irrigation will not normally be performed during daylight hours on areas where the systems are automatically controlled. Any exceptions shall be approved by the Custodial/Grounds Coordinator or his designee, prior to watering.

During rainy periods, it shall be the Contractor's responsibility to secure irrigation systems and ensure that over-watering of the landscape areas does not occur.

Inspection: The Contractor's irrigation technician shall inspect irrigation systems visually on a regular basis and check for proper coverage, clogged nozzles, improper spray angles, broken irrigation lines, erosion, and standing water in beds and in valve boxes and filled earth and debris in valve boxes.

Flush the individual irrigation systems, once every six months, by opening the quick couplers to clear out debris.

Testing: The Contractor's irrigation technician shall test each irrigation system once a month to check, in addition to the items listed above, the irrigation controller operation, station run-times, and functioning of the back-up battery.

Shrub Beds: Shall be irrigated as required to maintain horticulturally acceptable growth and color, and to promote deep rooting. Shrub areas shall be irrigated at a rate, using multiple cycles of short duration, which keeps surface runoff to a minimum. The irrigation rate shall be adjusted to the needs of shrub types, seasons and weather conditions.

Seasonal adjustments: Adjust the watering schedule on irrigation controllers seasonally to compensate for drought, excess rainfall, and local conditions.

Maintenance: Irrigation systems shall be maintained on a regular basis to provide proper performance, defined as adequate sprinkler coverage to maintain healthy plants and turf, with no leaks and uneven spray, and no overspray onto walks and other hardscape in a wind-less situation. Maintenance includes, but is not limited to the following activities:

- Trim around, clean and adjust all sprinkler heads and nozzles, and replace nozzles, as necessary to ensure proper performance.
- Adjust nozzles and heads as required per visual inspections.
- Make repairs immediately. Replace heads and nozzles in kind. Do not mix types of heads or nozzles.

Valve boxes: Replace valve boxes and covers which have cracked. Consult with CSUMB whether these need to be replaced with purple or green color units. Older valve boxes may not have been installed with wire-mesh rodent protection and as a result may get filled up with soil. Clean such valve boxes out and install wire-mesh rodent protection on a brick base with a layer of drain rock equal in thickness to the brick.

7.4 Turf Maintenance

Mowing, Edging and Trimming: All turf areas shall be mowed, edged and trimmed weekly. The height of the grass shall be maintained at a height of one inch (1") to two inches (2"), depending on type of grass and the mowing seasons. (Note: care equivalent to golf course fairway).

Rough Turf Areas: All rough turf areas will be mowed weekly during the months of June through November and bi-weekly during the months of December through May, weather permitting. The height of grass shall be maintained at a height of four inches (4") to six inches (6"), depending on type of grass and moving season. No edging is required. (Note: care equivalent to golf course rough.)

Additional Mowing: During heavy growth seasons or for special events, extra mowing may be ordered by the Custodial/Grounds Coordinator or his designee, and performed by Contractor at no additional cost to CSUMB and the Foundation. Turf shall be swept, vacuumed or otherwise cleaned to maintain a neat appearance at all times.

Reseeding: Any turf areas shall be reseeded as required by the Custodial/Grounds Coordinator or his designee, at Contractor's expense, as a result of negligence by Contractor. When reseeding materials and horticultural practices used are subject to inspection and approval by the Custodial/Grounds Coordinator or his designee.

Aeration and Thatching: Turf areas shall be aerated and thatched in accordance with good horticulture practices. If the Contractor feels that a major renovation is needed, he shall notify the Custodial/Grounds Coordinator or his designee prior to proceeding.

7.5 Trees, Shrubs, Groundcovers, Perennials

Shrub & Groundcover Pruning: All shrubs and ground cover plants shall be hand pruned as required to maintain plants in a healthy, growing condition; to maintain plant growth within reasonable bounds; and to prevent encroachment of passageways, walks, streets, or view of signs; or encroachment in any manner deemed objectionable by the Custodial/Grounds Coordinator or his designee.

- Dead or damaged limbs are to be removed with sharp pruning tools, with no stubs remaining.
- Any pruning cut which exceeds two inches in diameter shall be sealed with an approved pruning paint.
- Pruning shall be done so as to permit plants natural growth in accordance with their normal characteristics except where box hedging is required by the Custodial/Grounds Coordinator or his designee.
- Shearing, hedging or severe pruning of plants, unless authorized by the Custodial/Grounds Coordinator or his designee, shall not be permitted.
- Refer the illustrated plant maintenance guide in the Appendix.

Tree Pruning & Trimming: The following are general guidelines for pruning trees, subject to specific instructions from the Arborist. The intent of tree pruning is to establish healthy and natural tree forms, with a crown typical of each species.

- Maintain the bottom of tree canopy at 7'-0" above grade as tree matures for trees that overlap vehicular and pedestrian movement areas.
- Begin removing branches when they interfere with shrubs, walls, structures, signage and other landscape furniture.
- Thin inside of tree canopy to minimize the crossing of interior branches.
- For trees with drooping limbs, allow branches to droop unless they interfere with plants or objects as described above.
- For multi-stem trees, allow growth of multi-trunks and low branches unless they interfere with plants or objects as described above.
- Prune evergreen trees in the Fall.
- Prune deciduous trees in the Spring or while trees are dormant.
- Prune deciduous flowering trees in the Spring after flowering.

Tree Stakes and Ties: Remove tree stakes as soon as the tree is able to support itself in a strong wind, unless directed otherwise by CSUMB. Monitor tree ties once in Spring, and once in Fall; adjust as required to insure that ties do not restrict or damage the tree trunk.

Perennials: Remove yellowing, dead leaves, and faded, dead flowers and flower stalks.

7.6 Fertilizer and Amendments

General: All amendments and fertilizer shall be provided by Contractor. All plants and trees shall be fertilized and treated as necessary to maintain a healthy condition and appearance. Check all plantings quarterly for signs of nutrient deficiency.

Application: Uniformly incorporate fertilizer and amendments and blend homogenously to a depth of at least 4-inches. Adequate irrigation shall immediately follow the application of fertilizers and amendments to force fertilizer material to rest directly on the soil surface.

Safety: Fertilizer material tags shall be submitted to the Director of Environmental Health and Occupational Safety or his/her designee, for approval before application.

Turf: All turf areas shall be fertilized a minimum of three (3) times a year or as is necessary to maintain a healthy appearance and condition.

Shrubs & Groundcovers: fertilize planting areas with commercial nitrate fertilizer per Soils Lab recommendations or in the absence of such information per manufacturer's recommendations.

For new plantings or if groundcover is nitrogen starved - apply four (4) lbs of actual nitrogen per 1000 s.f. per year in two applications, one to be applied in early Spring when growth begins. Reduce to (3) lbs of actual nitrogen per year in following years or as needed to maintain vigorous growth and good color.

Trees: Fertilize trees in early Fall and late Spring with commercial nitrate fertilizer - 1/2 lb. of active nitrogen per inch of tree trunk.

- Avoid applying fertilizer to the root ball and base of main stem; spread fertilizer evenly within drip lines of trees.
- When necessary drill into decomposed granite to adequately fertilize trees using irrigation as described herein or fertilization spikes.

7.7 Other Grass Areas

Enhanced Naturalized grass areas: these are areas which have been seeded with native grasses since the Army handover and may be irrigated or not. Refer the Appendix and attached map for area descriptions and approximate area calculations.

- Enhanced naturalized grass areas shall be mowed twice a year.
- Broad-leaf weed control including removal of ice-plant shall be included in the maintenance of enhanced naturalized grass areas.

Unimproved grass areas: these are non-irrigated grass areas which have not been seeded or planted since the Army handover. Refer the Appendix and attached map for area descriptions and approximate area calculations.

- Unimproved grass areas shall be mowed once a year.

7.8 Disease, Pest, and Weed Control

Weed Control: Weeds shall be removed from all turf areas, shrub and ground cover beds, planters, tree wells, cracks in paved areas including sidewalks, and enhanced naturalized grass areas. This means complete removal of all weed growth. For the purpose of this specification, a weed shall be considered "any undesirable or misplaced plant". Weeds shall be controlled by manual or mechanical methods. Refer to the section on Toxic Chemicals for the use of chemical methods.

Disease and Pest Control: The Contractor shall regularly inspect all landscaped areas for presence of disease, or of insect or rodent infestation. The Contractor shall advise the Custodial/Grounds Coordinator or his/her designee, within four (4) days if disease, insect or rodent infestation is found.

Rodent Control Program: The Contractor is responsible for submitting a comprehensive rodent control program prior to commencement of this contract. The program must be approved by the University's EPHS (Environmental Protection Health and Safety) and FSO (Facilities Services and Operations) Departments prior to implementation, and must contain the following criteria:

- Detailed Inspection program for ongoing control.
- Detailed work plans, including method of control.

- Material Safety Data Sheets.

Inspections of the grounds should be conducted no less than bi-monthly, and the control program may be requested as needed. CSUMB and the Foundation reserve the right to request services in addition to regular services.

Steps to ensure proper control must include destruction of burrows, re-packing the ground, and re-seed/sod with same ground cover as surrounding areas.

It is the responsibility of the contractor to assess areas where rodents may be undermining hardscapes, foundations, roadways, etc., and report their findings to the Custodial/Grounds Coordinator immediately. Follow up by the contractor must be made. A 48-hour notice must be given to the Custodial/Grounds Coordinator, and EPHS Office prior to any chemicals being used.

Methods that the control program uses must be approved by EPHS, in advance of implementation. Most control maintenance will be done during off hours, or on weekends. The Contractor shall maintain supplies. If use of a different method is necessary, it must be approved through EPHS, and an appropriate MSDS sheet

7.9 Native Plant Maintenance

Native plants are an integral part to all CSUMB planting areas. There are 100% native landscapes as well as native plants intermixed with non-natives. The maintenance of native plants should be approached in a sensitive manner in order to achieve maximum growth and aesthetic potential.

The maintenance contractor is to have knowledge to identify native plants and how to maintain them properly. The goal of planting natives is to achieve a natural, healthy look.

Native Plant Pruning & Trimming: In general, native plants are to be hand-pruned/trimmed on a seasonal basis (late summer/late winter) to remove dead wood/stems/leaves. There will be no shearing of native plants. They require similar direction per section D.

Dry seed stalks are to be pruned / trimmed once a year in the winter months. The timing of this pruning is critical since the dry stalks of some native plants are a component of their aesthetics; therefore the dry stalks should persist as long as possible. Consult the Custodial/Grounds Coordinator or his designee if timing is in question.

Certain native plants are to be cut to the ground every one or two years in order to promote fresh, green growth, thus reducing woody growth. Such an act has a higher potential to kill the plant if the time of cutting is prolonged for more than 2 years.

Native plant wildflower areas and expansive perennial native grasses are to be cut back once a year in the winter.

Native Plant Fertilization: Most native plants do not require additional fertilization, although due to the sandy soils at CSUMB, some fertilization maybe beneficial. As a general guideline, only fertilize plants that appear unhealthy.

Fertilizers for native plants should contain very low amounts of nitrogen. Fertilize broad-leaved evergreens and perennials in the early spring, as new growth emerges. Fertilize deciduous plants in the spring as they start to leaf out. Do not fertilize native trees unless there is a specific growth problem.

Native Plant Irrigation: Newly planted native plants require regular water to establish their root systems; often for the first and second growing seasons. After that establishment period, it is very easy to overwater native plants since they are characteristically drought tolerant. The regular water regime for native plants should consist of several short watering cycles; not long periods of watering. However, once established, some native plants will require much less water on a regular basis and some native plants will require water only during unseasonal dry spells. It is important to adjust the irrigation watering zones accordingly.

7.10 Native Grass/Flower Meadow Maintenance

Soon after seeding, pull weeds. This is usually the responsibility of the landscape contractor if it is within the agreed maintenance period and in the specifications.

Once a year, mow the meadow area. Important: Wait until all your flowers have ripened and dropped their seeds before mowing to encourage reseeding for the next year. Then with a weed trimmer, or your mower set on a high setting, mow the whole area.

When the second spring arrives, look for weak/bare spots in the meadow. This is a time to weed again and reseed in the bare spots (similar to reseeding bare spots on a lawn). Use a shovel to loosen the soils in small areas to be reseeded.

Water to maintain soil moisture during germination. After germination, little to no supplemental water should be needed.

Allow the seed heads to remain after flowering, so the seeds drop to the ground/disperse themselves naturally thus reseeding the meadow area for the next season.

7.11 Mulch

Mulch is an important component to the planted landscape on CSUMB campus. Not only does it provide a clean, uniform finished look to landscape design, it helps moderate soil temperature, it prevents the loss of water due to soil evaporation, it retains soil moisture after irrigation which is especially beneficial to windy and dry climates, it prevents minor soil erosion events, and acts as a light barrier that helps control the germination of weeds, reducing the need for herbicide.

Mulch is to be applied to all new planting areas in a desired thickness indicated in the project specifications; a minimum being a 2” mulch application. An exception to this might be for large expanses of restored areas that would have a mulch application specific to each plant planted.

As a campus standard, all mulches applied should be brown in color and of a suitable size and structure that will not be blown away in windy situations.

Mulch is to be applied to previously planted areas on an as needed basis as part of a general maintenance regime.

It is common that woody debris (i.e. trimmed branches) from existing trees/large shrubs on campus can be ground up and applied as mulch. This is an accepted source of mulch with the exception of ground up Monterey Cypress, Cupressus macrocarpa, trees. Fresh Monterey Cypress mulch retains its seed; therefore the tree seed will germinate in unwanted areas. Monterey Cypress mulch must be composted adequately before being spread.

7.12 Multi-purpose playing fields

General: The Multi-Purpose fields are located on Second Avenue. The fields are a blue-rye mix; 80% Opti-Green, Unique and Midnight, and 20% Rye, Chaparral.

Aeration: Hollow core aeration shall be done twice (Spring & Fall) a year for the entire field area. Additional knife aeration’s are required

intermittently through the year based on use. Flag all irrigation heads and boxes prior to aeration.

- Hollow core aeration shall be accomplished with piston driven aerator with ¾" x 7" tines such as the Soil Reliever or Verti-Drain.
- Knife aeration shall occur in one direction one time and switch to the opposite direction the next. For purposes of simplifying the process, knife aeration can be focused in the goal mouths, hash mark and side line areas only.
- Drum type aerators may be used for knife aerations with knife blade aerators attached.

Over-seeding Seed Type/Process: Celebrity perennial ryegrass (a three way variety blend of Top Hat, R-2, and Essence), and Impact Kentucky bluegrass (a dwarf variety from Jacklin Seed).

- Over-seeding seed rates shall be a total of 6 lbs/1000 S.F. Ordered 80% rye/20% blue, or 4.8 lbs/1000 total for rye and 1.2 obs/1000 total for blue.
- Over-seeding shall be accomplished via a slit seeder and a broadcast spreader. The blue shall be seeded first in two directions, north/south; east/west, at a rate of 6.0 lbs/1000 square feet in each direction. Seed rye with a broadcast spreader at 2.4 lbs/1000 square feet in each direction at diagonal crossings, northwest/southwest; northeast/southeast, to the blue.

Topdressing: Top dressing shall take place after each hollow-core aeration as specified herein.

- Topdressing shall consist of 80% sand; 20% compost mixture.
- Rate shall be at ¼ inch over the field or a total of 87 cubic yards, per field.

Dragging: Upon completion of over-seeding, drag the field with a field drag, similar to infields, to break up the remaining cores and other field debris brought up from the seeding process.

Fertilizing: Due to the high Ph of the soil and water, it is imperative that low Ph fertilizers be used.

Weed Control: Broad leaf weed control will need to be monitored yearly. Late spring is usually the time for control applications of "Turf Lon". Apply at manufacturers rates. Applications need to be applied by a licensed pest control applicator.

The time frame from approximately October 1 to January 1 is also the primary window for germination of annual bluegrass, a weedy shallow rooted, light green grass that can rapidly invade desirable turf grasses and exhibits poor drought, heat, and wear tolerance. This is especially critical to keep wear areas to a minimum and repair them via sod if entering this time of year.

An application of "Barricade", a pre-emergent, by a licensed pest control applicator is recommended by late September.

Rodent Control: The unimproved area to the south is home to many ground squirrels. The Contractor shall be responsible for managing the rodents and repairing the fields from damage.

Mowing: The mowing shall be accomplished via a reel type mower. The mower shall be dedicated to these fields only. Mowing height shall be no less than 1 ½" in the summer, and through soccer season and no less than ¾" through January.

Mowing of the grass lower than 1 ½" during play and growth season can stunt root growth.

Soil/Watering Monitoring: Every November a sandwich type baggie (plastic) sample of the soil shall be taken. The soil shall be extracted via soil probe from various areas across the fields. Remove the grass at the end of the core and document root depth. The test required is called a complete analysis. Water shall also be taken. The water shall be at least one pint in a plastic container and shall be shipped out same day, overnight. Water can change properties in short periods of time. Ship to the specified laboratory for analysis and provide the analysis to Campus Facilities and Operations and campus landscape consultant.

Irrigation: Irrigation shall be checked weekly to verify proper operation. Adjust as required. Make repairs immediately. Replace heads and nozzles in kind. Never mix types of heads or nozzles. Part circle rotors shall be operated at half the time of the full rotors. Adjust start times only, keep run times consistent. Adjust per visual inspections or by the field adjusted ET-Gauge.