



Abu Dhabi Public Realm Design Manual

Version 3, 2022





Corniche Park,
Abu Dhabi

About The Department of Municipalities and Transport (DMT)

The Department of Municipalities and Transport was established by Law No. 30 of 2019, and its main priorities are to realize the vision of the leadership which draws on the vision of the UAE's Founding Father, the late Sheikh Zayed bin Sultan Al Nahyan to embrace progress by placing great value on the importance of pursuing development in line with both the needs of present and future generations and the community in general.

The authority embodies the values of good governance, driven by the needs of the community it serves and working with a passion to accomplish its aims. The Department focuses on finding the most effective means of providing essential, modern, responsive and comprehensive municipal services across three regional municipalities, and supports Abu Dhabi's global position as a leader in innovation-led urban planning and transportation, as part of the Abu Dhabi government's commitment to maintaining the highest standards to the benefit of all citizens and residents of the emirate.

The DMT is responsible for continually investing in the development of better infrastructure, facilities and transportation sectors within the emirate, guiding, regulating and monitoring urban development to enhance Abu Dhabi's reputation as a world-class destination to live, work and visit.

The DMT also ensures the highest standards of safety, security, sustainability and technological development of the Emirate of Abu Dhabi's land, air and maritime transport networks, in accordance with the highest international standards and the UAE's legislation with the objective of being the region's connection to the world.

The Department's aspirations are driven by the simple proposition of innovating and building sustainable smart cities, fostering a capacity to change and adapt in order to maintain excellence in services and sustaining prosperity for future generations, allowing the entire Abu Dhabi community to reach their full potential.

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Al Bandar,
Abu Dhabi



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User Guide

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Introduction

The Abu Dhabi Public Realm Design Manual (PRDM) has been produced by the Department of Municipalities and Transport (DMT) to guide the development of public realm in Abu Dhabi. The PRDM is part of the DMT's development regulations and is approved for use in the development of all public realm across the Emirate.

The public realm comprises a variety of streets and open spaces that can attract a range of users consisting of both residents and visitors. The public realm should therefore provide the appropriate facilities and be an inviting and welcoming reflection of the Emirate's identity.

This Manual constitutes one of the many related design initiatives in the Emirate of Abu Dhabi and it must be used in conjunction with other adopted standards and guidelines as applicable. The PRDMv2 has been developed to incorporate feedback and suggestions from stakeholders.

The PRDM v3 supersedes the previous version and will be referenced simply as 'the PRDM' or 'the Manual' throughout this document.

Sustainability in the Public Realm

The planning of successful and healthy cities must also take account of sustainability issues. These not only encompass environmental issues but also the social and economic consequences of rapid population growth, economic growth and consumption of natural resources.

The DMT aims to take a leading role in urban sustainability through the integration of Estidama principles across the built environment.

The PRDM should therefore be used in conjunction with Estidama Pearl Rating System as follows:

- Planning stage: Pearl Community Rating System (PCRS); and
- Design Stage: Public Realm Rating System (PRRS), this has been developed alongside the PRDM specifically for the public realm.

The PRDM provides design regulations, whilst the PCRS and the PRRS state the methodology and requirements for compliance with all regulations relating to sustainability that apply to the public realm.

Purpose of the Manual

The purpose of the Manual is to ensure the development of a world-class public realm for the Emirate of Abu Dhabi. The Manual is intended to guide all professionals involved in the planning, design, approval, construction and operation of public realm projects, in order to raise the quality of public realm design and implementation in the Emirate.

The objectives of the Manual include:

- Provision of an attractive, comfortable, safe public realm for all;
- Provision of a variety of spaces to cater for a diversity of uses;
- Development of a more sustainable public realm;
- Delivery of health benefits through an improved public realm;
- Promotion of social cohesion and cultural expression; and
- Designing spaces that meet universal access needs and inclusion of people of determination in the society.

In achieving these goals, the Manual can assist with:

- Defining the principles and policies for achieving a good public realm;
- Setting minimum and aspirational quality standards;
- Establishing a clear and consistent planning, design, review and approval process; and
- Providing a comprehensive reference guide for public realm design and implementation.

The content of the Manual shall be used in preparing and assessing all new proposals, as well as in retrofitting existing streets and public open spaces.

Manual Jurisdiction

This Manual provides regulations for all public realm areas within the Emirate, encompassing Abu Dhabi City Municipality (ADM), Al Ain City Municipality (AAM) and Al Dhafra Region Municipality (DRM) as illustrated in Figure U1.



FIGURE U1: Diagram of Abu Dhabi Emirate and Municipal Boundaries

How to Use the Manual

The regulations contained within the PRDM must be used by all parties involved in the planning, design, operation and approval of all public realm schemes in the Emirate of Abu Dhabi.

The PRDM is organised in chapters to provide specific guidance for different types of development, these are described in more detail in the following pages.

The **Planning** chapter provides the guidance applicable for master plans and public realm networks requiring DMT approval, whilst other chapters should be referred to for information as illustrated in Figure U2.

The **Design** chapter provides the guidance applicable for individual projects not requiring DMT approval, whilst other chapter should be referred to for specific information.

The **Operation** chapter provides the guidance applicable to the preparation of operation and management plans.

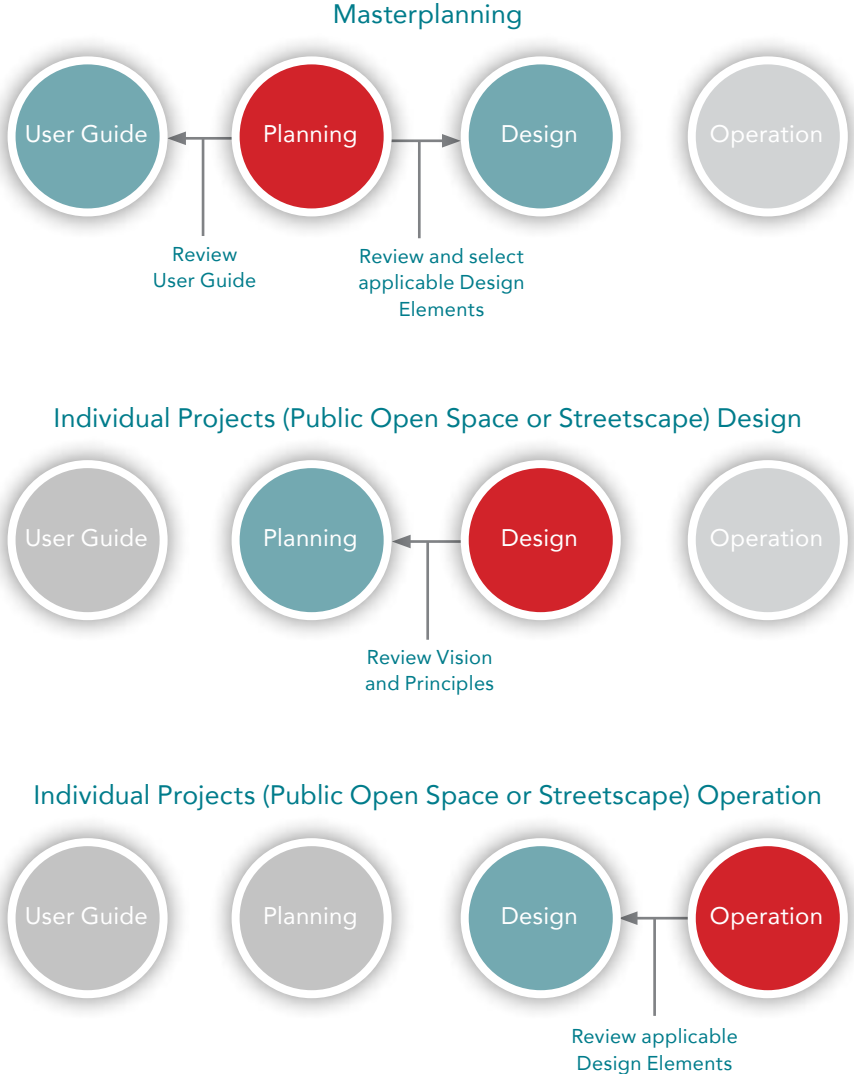


FIGURE U2: Applicability of PRDM Chapters to Different Types of Projects

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Introduction

Planning Context

The PRDM constitutes one element of an Emirate-wide planning strategy.

Central to the planning of Abu Dhabi are the Strategic Framework Plans which establish a vision for the future development of the Emirate:

- Plan Capital;
- Plan Al Ain;
- Plan Al Dhafra; and
- Plan Maritime.

The Strategic Framework Plans regulate the pattern of urban expansion to balance environmental, economic, social and cultural priorities in a sustainable manner. The plans emphasise human-scale development within a pedestrian-friendly environment. In particular, the Strategic Framework Plans establish frameworks for public open space that preserve the unique ecology of the Emirate and prevent sprawling development.

The planning of Public Open Space (POS) is further developed in the Open Space Framework (OSF) developed to encompass the entire Abu Dhabi Emirate. The OSF is a strategic framework which assesses existing provision for public open space and outlines the opportunities for future provision, required to serve the existing and projected population. Using the OSF as a guide, **the PRDM provides specific standards and guidelines for developing and enhancing the public realm.**

Figure U3 illustrates the hierarchy of the principal DMT documents and how they relate to the PRDM.

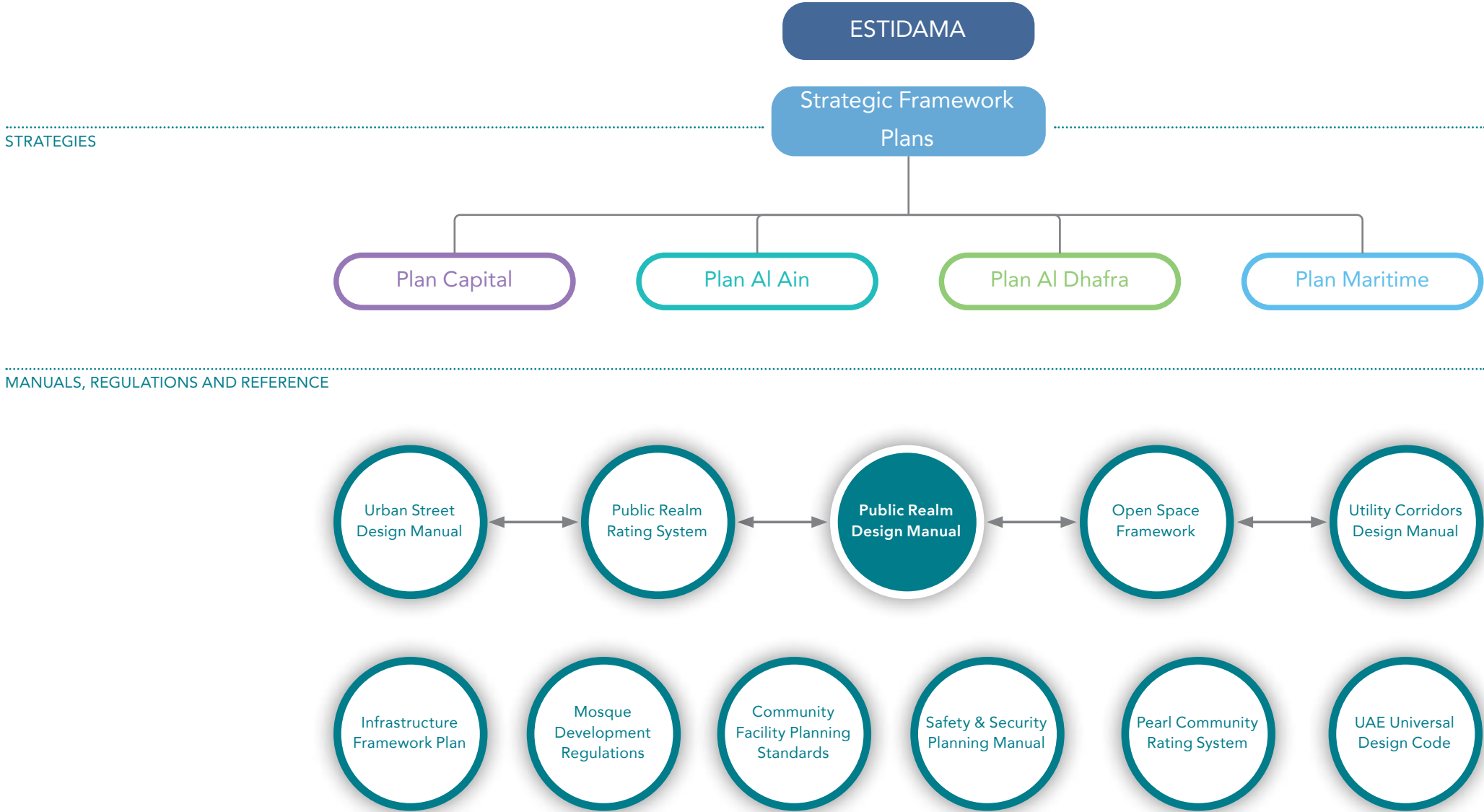
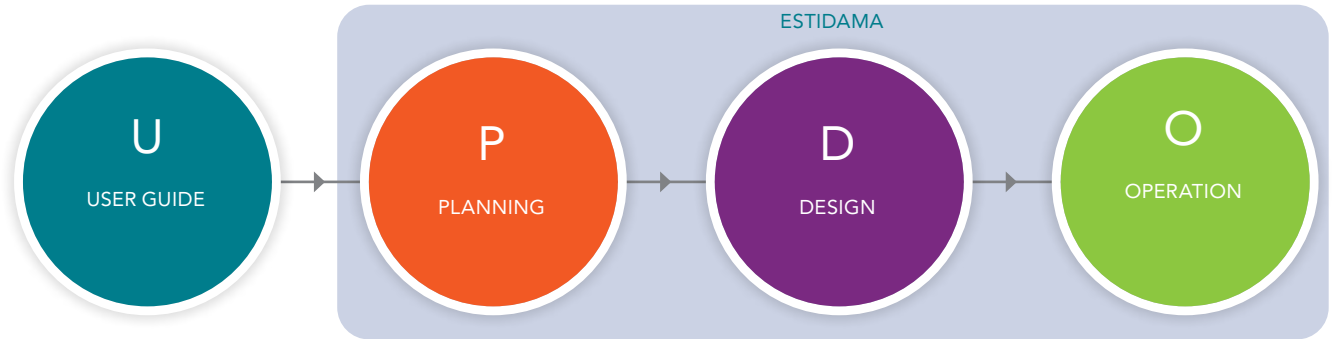


Figure U3: Hierarchy of Related DMT Manuals

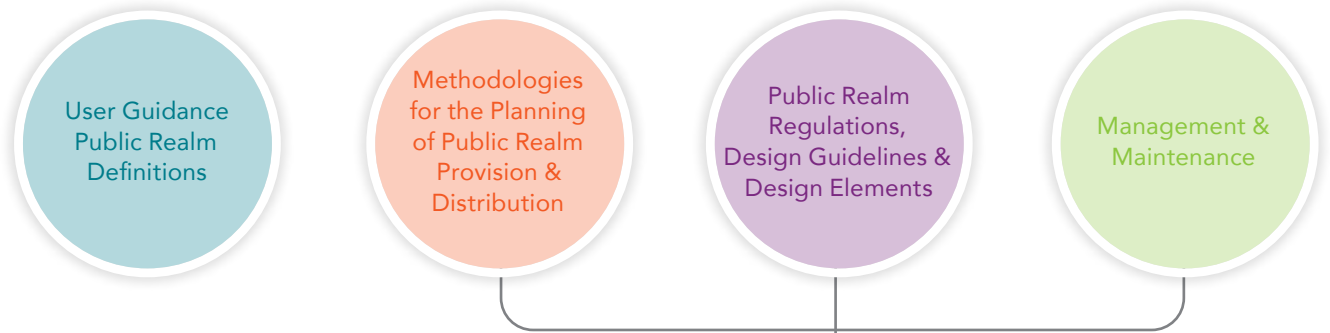
U1

PRDM Overview

PRDM CHAPTERS



PURPOSE



SUPPLEMENTARY GUIDANCE

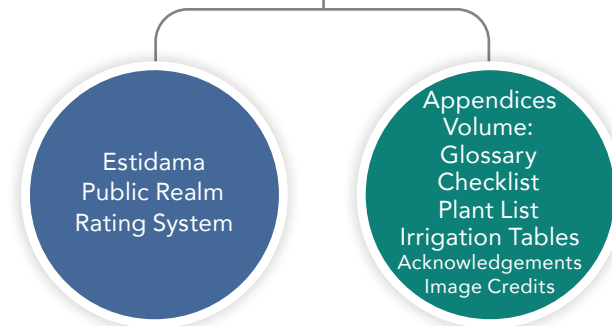


Figure U4: Diagram Illustrating the PRDM Sections and Their Application

The PRDM is comprised of four chapters and a separate appendix section. As indicated in Figure U5 it is also linked to the Estidama PRRS which provides compliance tools for some regulations.

- Establishes the context, purpose and jurisdiction of the Manual;
 - Defines the elements that comprise the public realm;
 - Explains the regulatory language and the hierarchy of standards to be followed;
 - Describes Estidama Integrated Development Process;
 - Outlines the approvals process to be followed for public realm projects.
- Establishes Universal and Hierarchy-specific design-stage standards and guidelines;
 - Establishes public realm design elements and advises on their application for each level of the POS and Streetscape hierarchies;
 - Outlines the public realm design and approval process.
- Provides the Vision for the Public Realm;
 - Describes the Principles and Policies developed to realise the Vision;
 - Describes the Exemplar Public Realm process;
 - Outlines the Public Realm planning process;
 - Provides the methodology for planning of Public Open Space;
 - Establishes the Public Open Space standards;
 - Provides guidelines for the distribution of Public Open Space;
 - Establishes the planning-stage standards and guidelines for the Public Realm as a whole.
- Sets out the requirements for the preparation of operation, management and maintenance plans for the public realm and establishes the corresponding regulations;
 - Requires the preparation of information relating to the management and organisation of special events, and community involvement to be prepared;
 - Requires the establishment of standards for cleaning, repairs and maintenance of all public open space and streetscape elements that comprise the Public Realm.
- Glossary: Provides a definition of key terms used within the Manual;
 - Compliance Checklist: Provides checklists for all PRDM standards and aligned Estidama Credits to be achieved, and specifies the submission requirements, to facilitate the design and assessment process;
 - Plant List: Establishes a database of plant species suitable for the different environmental conditions within the Emirate. **Refer to the permitted plant types in the plant list;**
 - Irrigation Tables;
 - Acknowledgements;
 - Image Credits.

Appendices Volume

U2

Manual Framework

The Manual framework is aimed at guiding the user from the master planning stages of a development through to the design stages of a specific public realm project leading to the construction, and then the post-construction operation stage. Figure U5 outlines the objectives and outputs of each of the chapters.

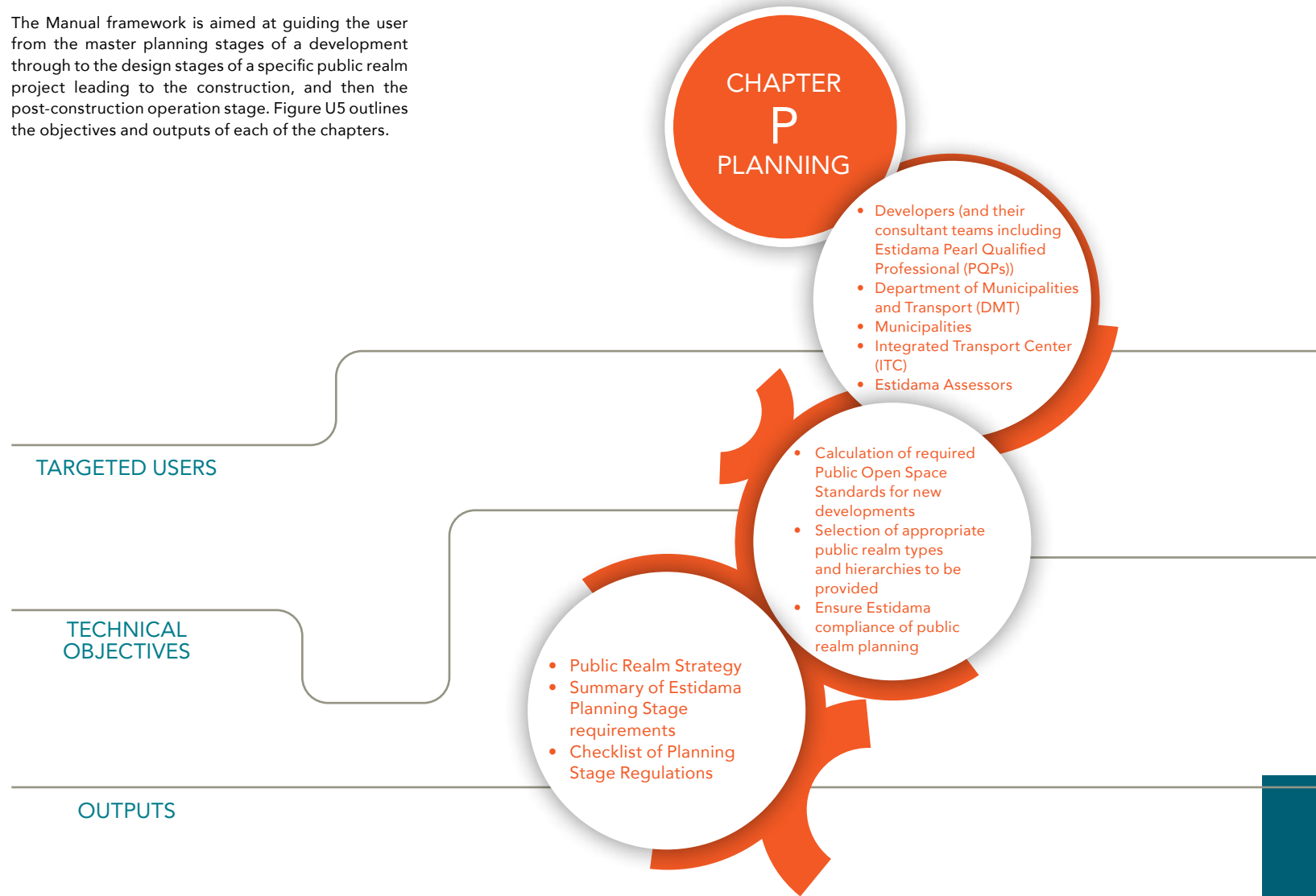
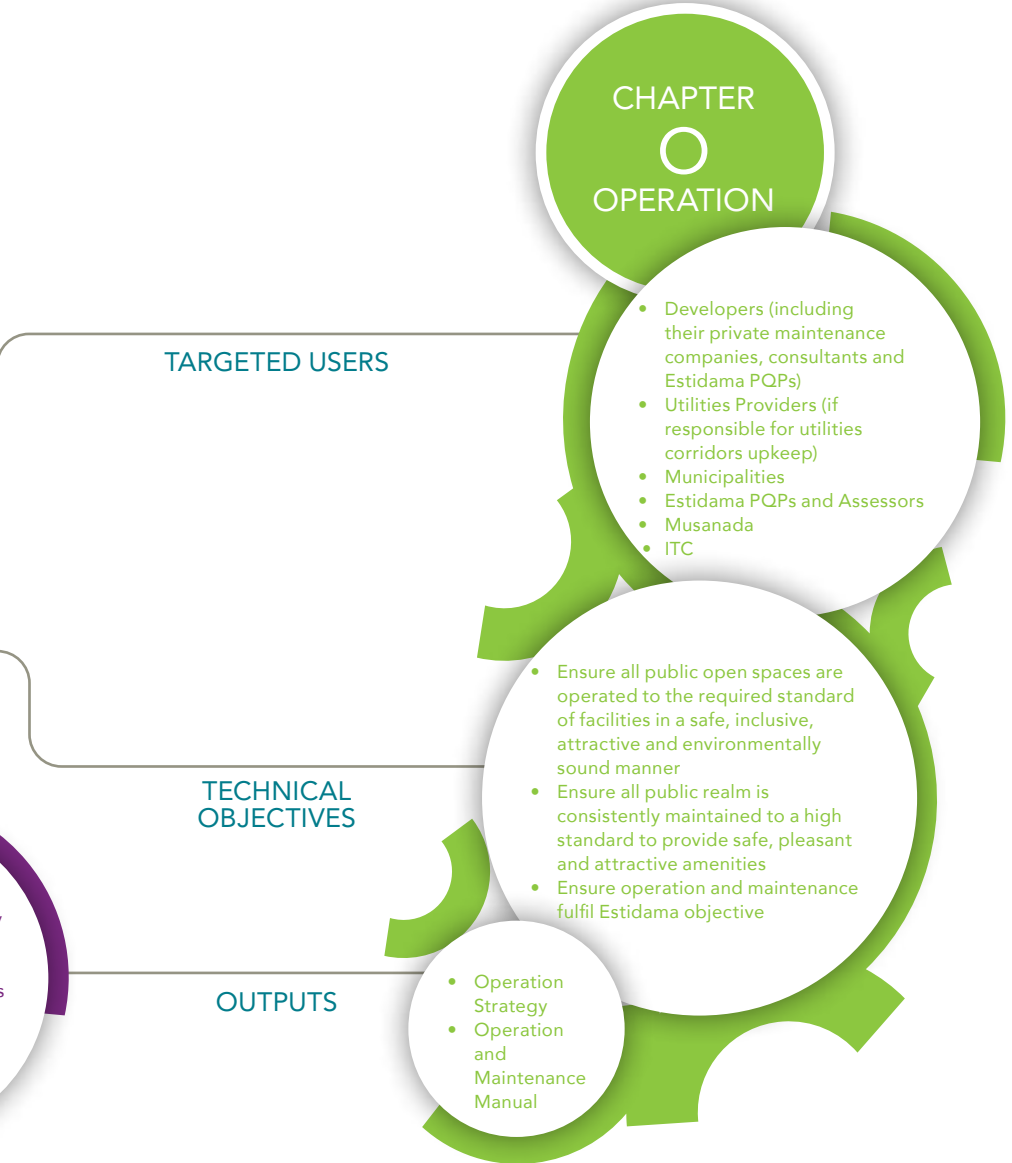
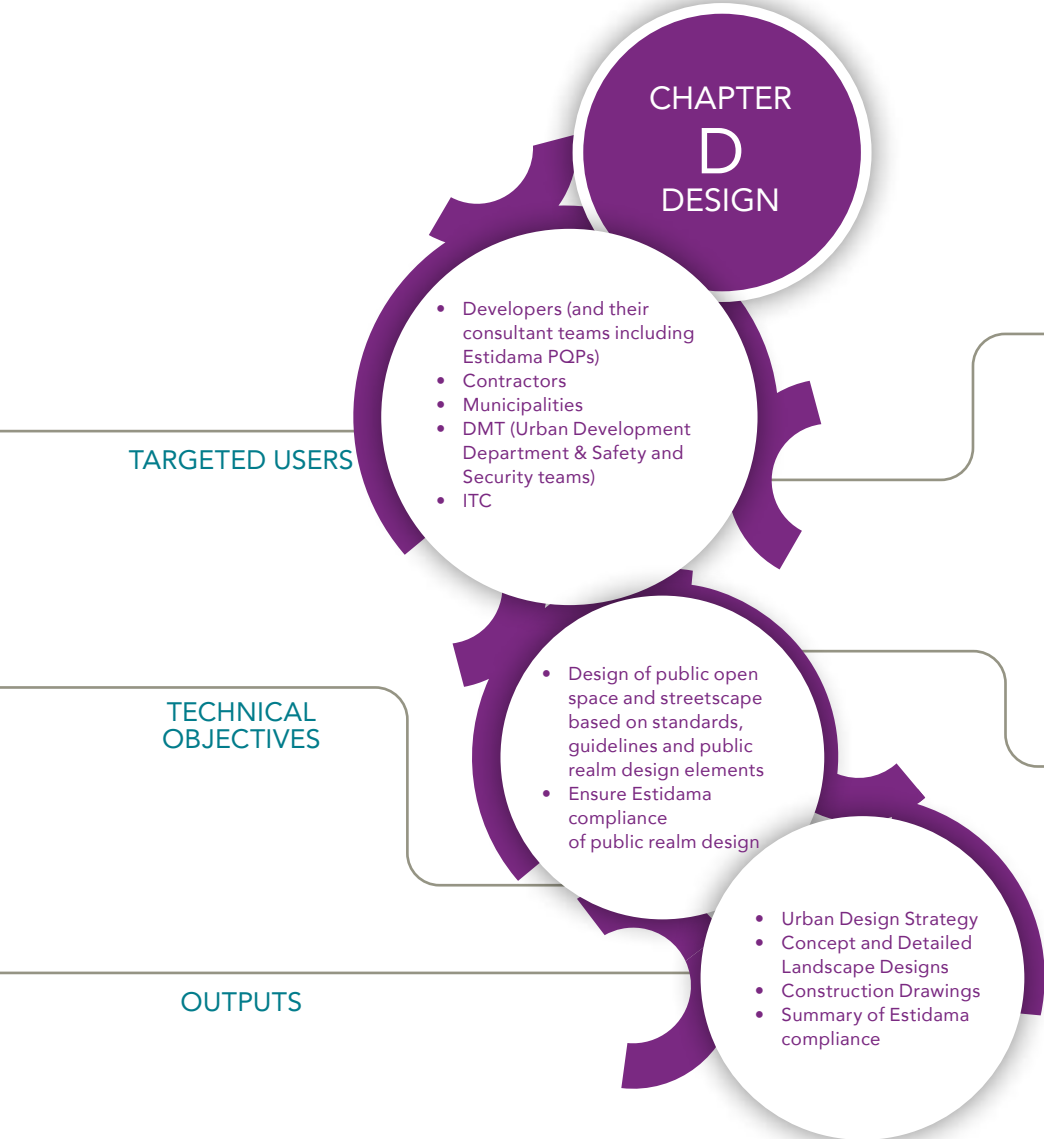


Figure U5: Outline of Users, Objectives & Outputs of the Process for Each Stage



U3

Public Realm Definition



For PRDM purposes open spaces not accessible by the public are considered PRIVATE Open Space. These include:

- Open space within private developers' affection plans within gated/guarded communities;
- Open space intended for public use but under membership access only such as clubs, hotels;
- Open space allocated and reserved for Eid Prayers only.

Private open spaces can be provided in addition to the required Level of Service for POS and must apply the design guidance provided by the PRDM in order to obtain approval from the DMT or Municipality.

The public realm includes all external spaces and linkages that are physically accessible to the public.

Public realm elements can include, but are not limited to: streets, pedestrian and cyclist paths, transit hubs, gateways, parks, gardens, waterfronts, natural features, landmarks, squares, plazas and building interfaces.

To structure its planning and design, the public realm is separated into two categories within the PRDM as illustrated in Figure U6:

Public Open Space

All open areas within urban growth boundaries and/or natural environment, which are accessible to the public (whether it is free or fee paying access), and allocated for public recreation, gathering or assembly. These may include:

- Areas designated as natural, semi-natural and environmental preservation areas;
- Natural and developed waterfronts;
- Developed parks and gardens;
- Linear parks and green infrastructure elements;
- Urban squares, plazas and civic spaces;
- Open space within mosque plots; and
- Developed Sikkak.

Streetscape

The elements of a street including the right of way (RoW), medians, footpaths, trees, street lights, street furniture, signage and all public landscaped areas that combine to create a coherent visual identity for the street.

The technical design of urban streets is primarily governed by the Abu Dhabi Urban Street Design Manual (USDMM).

Figure U7 outlines the delineation between POS and Streetscape and the physical scope covered by the PRDM and USDMM.

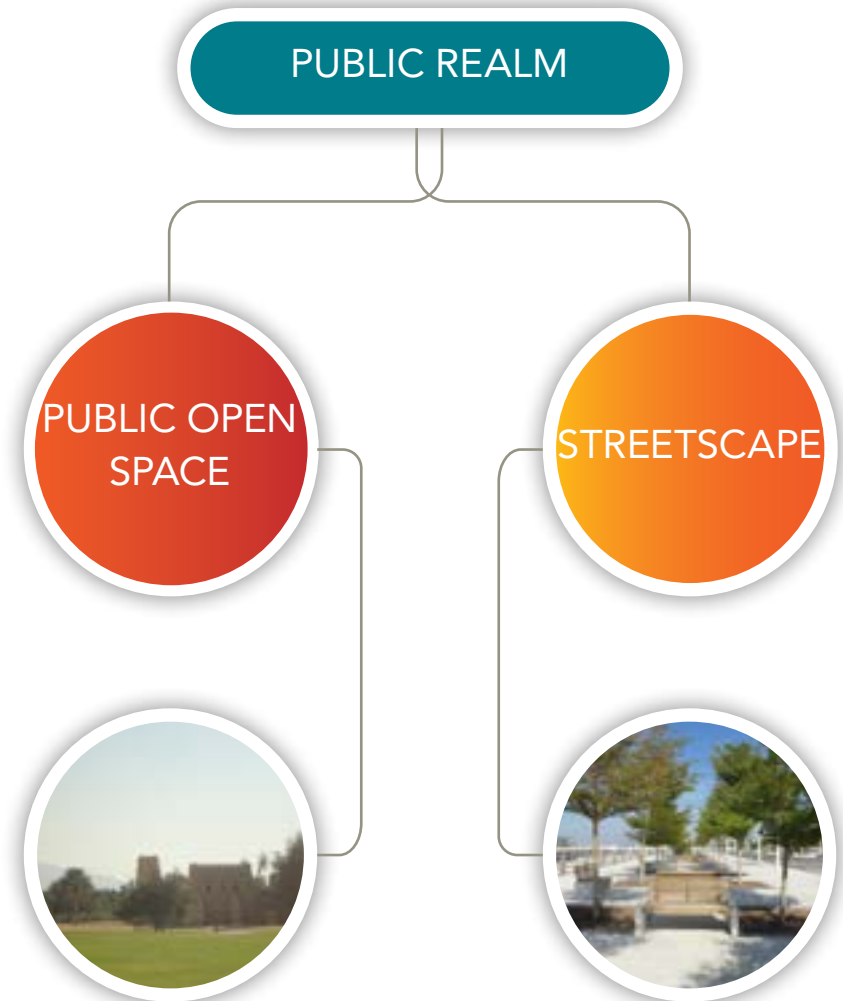


Figure U6: PRDM Public Realm Categories

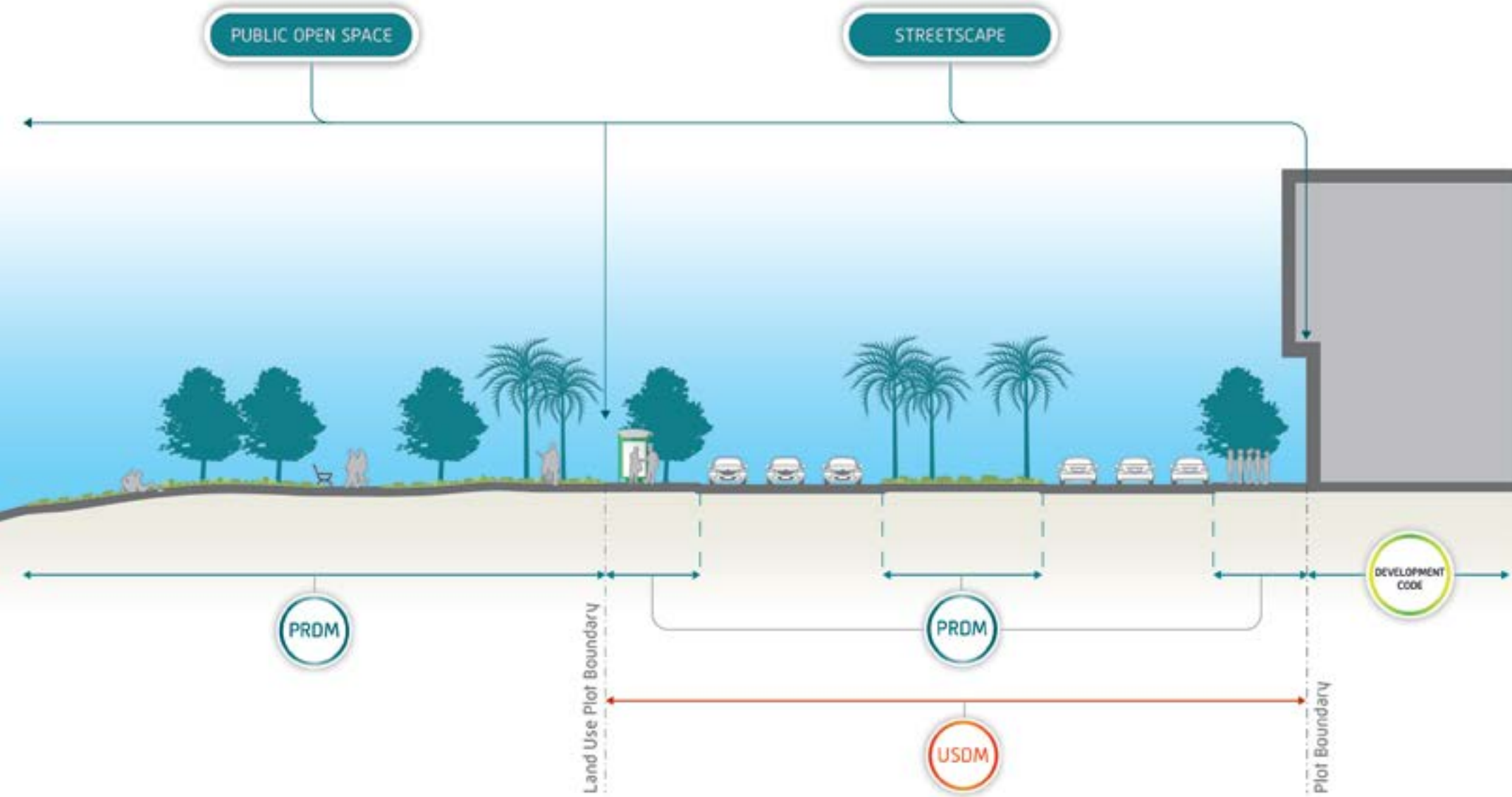


Figure U7: Diagram Showing the Delineation of POS and Streetscape and Interaction of the PRDM and USDM.

U3

Public Realm Definition

U3.1 Hierarchies

The public realm hierarchies define the role each level of the public realm plays in serving the population of the Emirate and takes into consideration the population requirements for different levels of facilities.

The hierarchies are defined primarily by their physical size, reflecting best practice planning whilst taking into account the specific conditions in the Abu Dhabi Emirate. There are different hierarchies for POS and streetscape.

U3.1.1 Public Open Space

The POS hierarchy comprises of five classifications defined primarily by their size: Emirate, Municipality, District, Neighbourhood and Local, as illustrated in Figure U8.

The higher classifications of the hierarchy, such as Emirate, Municipality and District provide amenity facilities for the entire Emirate, City and District respectively. It is envisaged that the location and provision of these higher levels of the hierarchy will mostly be determined by the relevant municipality.

The lower hierarchy levels, such as Neighbourhood and Local, serve the local population and will normally be determined at the master plan and plot development stage.

Table U8 outlines the definitions for the different hierarchy levels of POS.

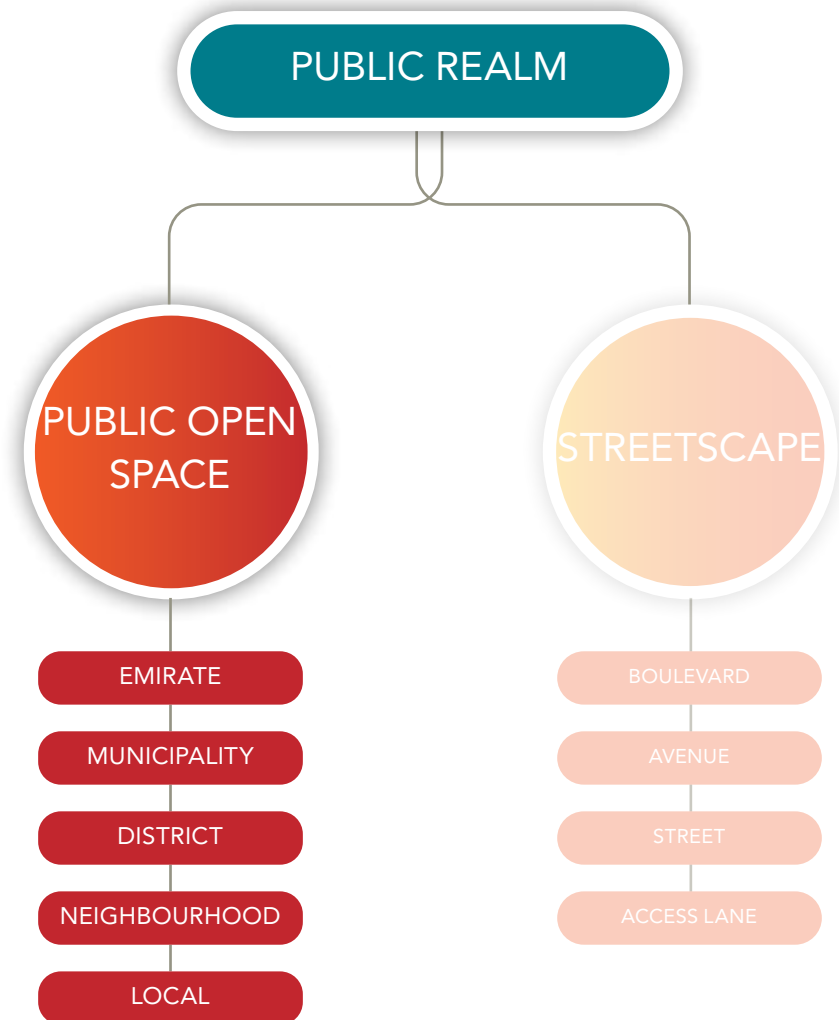







Figure U8: PRDM's Public Open Space Hierarchy

Table U1: Public Open Space Hierarchy: Definitions and Characteristics

Hierarchy	Definition	Characteristics	Features and Activities	Location	Recommended Size and Range
Emirate	The Emirate level includes POS that serve the entire Emirate of Abu Dhabi. It comprises the largest parks, which are often associated with important natural landscapes in the Emirate. Emirate-level POS will primarily be defined by the OSF.	<ul style="list-style-type: none"> Large areas, corridors or networks of POS Natural undeveloped landscapes Majority of space will be publicly accessible Provide a range of facilities and features offering recreational, ecological, landscape, cultural or green infrastructure benefits 	<ul style="list-style-type: none"> Mostly passive use Offer a combination of facilities that reflect the Emirate's unique environment Natural features 	<ul style="list-style-type: none"> Determined primarily by natural landscapes, historical landmarks and monumental spaces within developed areas. 	 <p>300+ ha</p>
Municipality	The Municipality level includes POS that serve all residents of a city or its municipality and provides significant attractions for a variety of users. Municipality-level POS will be defined through the OSF or master plans. These elements should be developed within the context of the municipality-wide system.	<ul style="list-style-type: none"> POS of city or municipality-wide significance Natural or semi-natural areas Historic and civic landmarks Specialised destination sports facilities 	<ul style="list-style-type: none"> Active and passive use Facilities for major cultural and civic events and celebrations Historic and civic landmarks Monumental public art 	<ul style="list-style-type: none"> Determined primarily by major civic facilities, landmarks, historic and natural features of municipality-wide significance. 	 <p>100 ha (50-300 ha)</p>
District	The District level includes POS that serve sectors within cities, towns or small settlements. District-level POS serve multiple neighbourhoods and are often the place for events and gatherings, they include sport and play facilities that serve the community at the District level.	<ul style="list-style-type: none"> Serving multiple neighbourhoods Combination of daily use and district-wide public functions Religious grounds 	<ul style="list-style-type: none"> Active and passive use Larger sports fields for organised and informal activity Space and facilities for community gatherings Kiosks and café facilities 	<ul style="list-style-type: none"> Located within developed population centres; Should be co-located with district retail centres, community facilities and schools; Adjacent to District Jame' e Mosques. 	 <p>20 ha (5-50 ha)</p>
Neighbourhood	The Neighbourhood level of the hierarchy is associated with smaller planning areas. POS at Neighbourhood-level are highly integrated into the daily lives of local residents and workers and accommodate the leisure activities associated with daily life.	<ul style="list-style-type: none"> Planned for daily use and influenced by adjacent land-use and activity types Provide the neighbourhood with a mix of play, gathering and socialising spaces 	<ul style="list-style-type: none"> Active and passive use Larger features for children's outdoor play Equipped playgrounds Smaller sports provision; Abundant seating Abundant shade Small kiosks and café facilities 	<ul style="list-style-type: none"> Serving a collection of fareej units or a designated neighbourhood; Adjacent to community facilities; Adjacent to Jame' e Mosques. 	 <p>2 Ha (1-5 ha)</p>
Local	The Local level comprises small spaces for passive or active use that contribute to the fine grain POS system and act as connecting elements between bigger, more active public open spaces. POS at Local-level are suitable for small-scale recreational activities close to homes.	<ul style="list-style-type: none"> Pocket parks and barahaat Squares, plazas and civic spaces Incidental spaces for daily activities in residential, commercial and mixed use areas 	<ul style="list-style-type: none"> Active and passive use Equipped playgrounds Smaller sports provision Abundant seating Abundant shade 	<ul style="list-style-type: none"> Within fareej and neighbourhood units; Within mixed use development blocks Adjacent to important public buildings and Masjid mosques 	 <p>0.5 Ha (up to 1 ha)</p>

U3

Public Realm Definition

U3.1.2 Streetscape

The Streetscape hierarchy comprises four classifications: Boulevard, Avenue, Street and Access Lane as illustrated in Figure U9.

The hierarchy classifications are aligned with the 'Street Family Names' used within the USDM, and are based on the size of the 'Right of Way' as reflected in the number of vehicular lanes.

The width and land use context of the street affect their relationship to the users, and this must be reflected within the streetscape treatment. Pedestrian routes, such as sikkak whilst not part of the formal hierarchy are detailed within the design elements (refer to Chapter).

Table U2 outlines the definition and main characteristics of the streetscape hierarchy levels.

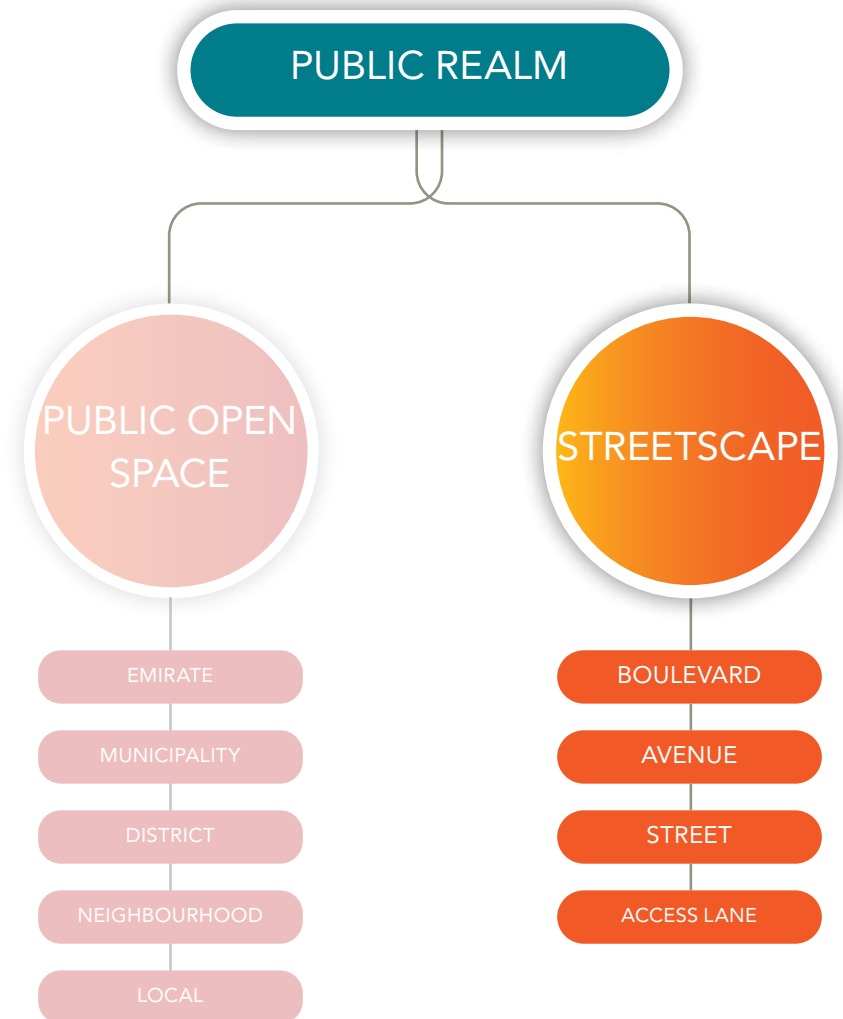


Figure U9: PRDM's Streetscape Hierarchy

Table U2: Streetscape Hierarchy: Definitions and Characteristics

Hierarchy	Definition	Characteristics	Features and Activities	Functional Classification
Boulevard	The Boulevard level comprises wide movement corridors, and provides a reasonably direct connection between multiple communities and major destinations.	Consist of an average of 3+3 travel lanes. High quality urban design and green infrastructure are critical components of Urban Boulevards. They are often connected to important civic spaces.	They make up much of the primary transit network. They can be used for ceremonial events, and can contain areas for celebrations such as National Day.	Principal or Minor Arterial Road
Avenue	The Avenue level can comprise primary or secondary streets within a City or Town.	Consist of an average of 2+2 travel lanes. These streets connect city-wide destinations, such as shopping or business centre, civic facilities as well as acting as a connection between higher and lower hierarchy of streets within the network.	Corridors for public transportation. Suitable for municipality-wide activities and gatherings. Usually with a good integration of walking, cycling and transit-users.	Principal or Minor Arterial, Collector Road
Street	The Street level serves sectors within cities, towns or small settlements, it connects multiple neighbourhoods to each other and to the bigger arterial roads.	Consist of an average of 1+1 travel lanes. Usually with street-side parking. Are fully integrated with adjacent land uses.	They provide a high level of connectivity to surrounding communities.	Collector or Local Road
Access Lane	The Access Lane level serves the local communities surrounding them.	Generally narrower and often without parking facilities. They can include shared streets (Mushtarak) and one-way streets.	Often with narrower paths suitable for local access and movement within residential areas, or service access within commercial areas.	Local Road

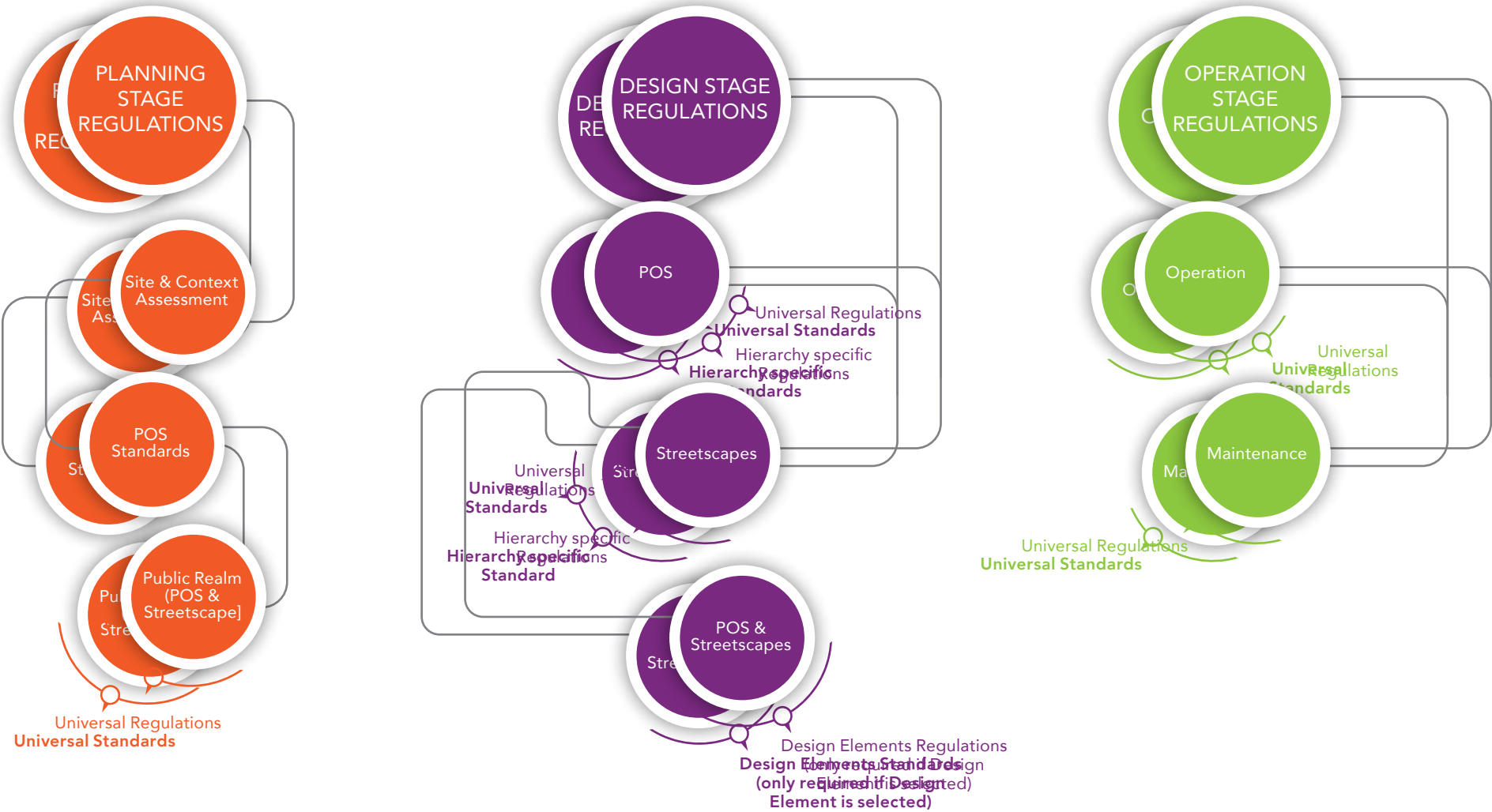


Figure U10: Hierarchy of Planning, Design and Operation Regulations

U5

Integrated Estidama Process



Throughout the PRDM, Estidama logo and credit code appear next to the relevant policies and regulations to inform the user of credit requirements and opportunities within either the PCRS or the PRRS.

The PRRS Manual must be referred to in its entirety as it contains requirements that are not specifically referenced within the PRDM which must nevertheless be complied with in order to obtain approval to proceed with the project.

U5.1 Estidama

'Estidama', which means sustainability in Arabic, is the Abu Dhabi Government's programme of sustainability. A key element of Estidama is the Pearl Rating System, which promotes and enforces sustainable development within the built environment.

As part of the development of the PRDM a new bespoke rating system has been developed specifically for public realm projects. The Public Realm Rating System (PRRS) is intended to promote and control the development of public realm of the highest environmental, social, economic and cultural standards. It provides a comprehensive enforcement framework covering the sustainability aspects of the design and construction of public realm, which is integrated with the DMT's Development Review process and the Municipalities' Construction Permit process.

At the Planning Stage, the Pearl Community Rating System (PCRS) applies to the planning of all public realm comprised within the overall community master plan.

At the Design Stage of projects, the PRRS applies equally to projects which have gone through the planning stage and to individual projects which proceed directly to the design stage. The PRRS has two levels of requirements:

- **Mandatory requirements** to be achieved by all public realm projects in Abu Dhabi;
- **Optional requirements** that denote enhanced sustainability within projects.

For projects of national significance, an Exemplar public realm process has also been established.

U5.2 Mandatory Requirements

All public realm projects must achieve the mandatory 'Required' credits in the PRRS. All Required credits must be achieved in order to receive a Notification of Pearl Compliance (NOPC) from the Estidama team which in turn is required to obtain a Construction Permit from the municipality. The Required credits are denoted by the inclusion of an 'R' in the credit code, for example [PW-R1](#).

U5.3 Optional Requirements

In addition to the Required credits, a number of 'Optional' credits are available. Achieving at least 50% of the Optional credits (in addition to the Required credits) will be recognised through the award of an 'Estidama Green Pearl' certificate. Any combination of 'Optional' credits may be selected in order to make up the 50%. The Optional credits are denoted by the absence of an 'R' in the credit code, for example [PW-1](#).

U5.4 Exemplar Public Realm Projects

Projects of national significance may be selected as Exemplar Public Realm Projects by the DMT. The scheme is intended for a limited number of high-profile projects that will embody a vision of exemplary sustainable development befitting each project's status.

The Exemplar Public Realm Scheme is regulated through the Estidama programme and encourages projects to develop innovative, sustainable public realm design. Only the most significant projects in the Emirate will be accepted onto the programme.

Exemplar accreditation is as much about the process of developing a design as the physical output. A well considered process of engagement with government agencies, the communities in which a project is located, as well as peer review will ensure that the design is representative of the ambitions and desires of the community which it serves.

Eight key visions have been developed to guide the exemplar process, they are described in the following pages along with examples for achievement.



Exemplar Project Application Process:

1. Identification of a suitable project by the landowner, with support obtained from relevant Municipality and Government Agency (EAD, DCT) OR alternatively nomination by the DMT of a project during the enquiry process.
2. Application should be made to the DMT and include the following documentation:
 - Letters of support from Municipality and Government Agency (refer to step 1);
 - Narrative describing commitment to achieving the exemplar visions;
 - Location map and affection plan, identifying existing cultural or natural heritage features;
 - Photographs identifying features;
 - Visualisations, plans and drawings.
3. Once an assessment of the project has been carried out by the DMT against the exemplar criteria, the applicant will be invited to present the project and application material for consideration by a review panel.

If the application is successful, the project will become an exemplar public realm project. The full requirements are contained within the PRRS.

E-1 Natural Heritage Features



Vision:

To showcase outstanding natural heritage features through world class design and management practices. To reveal the inherent diversity, fragility and importance of the natural environment of Abu Dhabi, through education, conservation and presentation of natural flora, fauna and ecological systems, for the enjoyment of current and future generations. This applies to projects which have been identified as having 'natural heritage' features.

Examples and opportunities include:

- Illustration and education for site visitors to experience and learn about native flora and fauna, and landscape formations;
- A 'Resourceful by Nature' approach to emphasise environmental benefits of the natural features, and unlock the potential of nature to improve quality of life;
- Focus on environmental stewardship and biodiversity management system;
- Protection of views and vistas and;
- Protection and safeguarding of outstanding natural landscapes.

E-2 Cultural and Cultural Heritage Features



Vision:

To showcase culture and regional practices and cultural heritage through world-class design and management practices. To increase understanding of culture and cultural heritage through education, conservation and presentation of cultural heritage features and incorporation of events, activities and features which showcase regional culture.

Examples and opportunities include:

- Provision of facilities for authentic, interpretative and educational experiences, focusing on culture and heritage resources;
- Facilitation of social innovation and cultural entrepreneurship, with new business ventures and recognition of Cultural Heritage related businesses;
- Mapping and safeguarding cultural heritage assets by facilitating visual anthropology, film making, virtual museums, festivals, seminars, workshops, regional networking and research, connections to museums and supporting cultural tourism.

E-3 Education



Vision:

To inspire a passion for learning and to provide opportunities to teach, learn and share knowledge, in an inclusive, pleasant, formal or informal setting to fulfil society's need for knowledge and expertise.

Examples and opportunities include:

- 'Outdoor Classrooms', providing both live and online opportunities to connect and share knowledge, to provide education enhanced by national, global and multicultural perceptions;
- Hands-on, interactive play elements to teach children and/or adults about science, technology, art, culture etc.;
- Use of embedded 'smart' technologies to encourage learning;
- Programmed uses can range from Arabic classes to car maintenance, books-swap facilities, informal teaching and knowledge transfer in a relaxed, supportive and fun way;
- Opportunities for evening uses, such as open-air viewing of cultural films and theatre performances.

E-4 Sustainable Transport



Vision:

To encourage the use of more sustainable means of transport, by creating a car-free site and providing the necessary infrastructure for an integrated transport system, supported by connected public open space and streetscape.

Examples and opportunities include:

- Support a car-free lifestyle by ensuring the required infrastructure is provided, enabling public transit services to places of significance;
- Provision of electric vehicles and charging points;
- Secure (lockable) bike parking and facilities for transporting bikes on transit system;
- Involvement with car and bike sharing schemes;
- Innovative solutions for utilising the region's opportunities for renewable energy in the transport system.

E-5 Diverse Economy



Vision:

To develop a dynamic and diverse economy and increased localisation and self-sufficiency within the community. To contribute to a more sustainable world by helping local users and visitors to process locally occurring natural resources and recycled materials into valuable products.

Examples and opportunities include:

- Encouraging a 'circular economy' that provides new opportunities to return to the environment what we take from it;
- Create opportunities for commercial markets and informal swaps, start-ups and home-made products (organic and locally produced products, sustainable furniture manufacturers, sustainable clothing and design manufacturers, computer maintenance and repair, bicycle repair);
- Space for outdoor workshops, courses and informal teaching;
- Reduce, re-use, re-cycle workshops, courses, arts and crafts development;
- Create social media sites and online networks for local members to encourage participation.

E-6 Towards Net Zero Resources



Vision:

To showcase future technologies and practices that contribute to net zero resources and waste. Contribute to a more sustainable world by developing, testing and presenting to local users and visitors innovative ways to balance consumption and production of natural resources.

Examples and opportunities include:

- Deliver 100% of the project energy needs through on-site renewable energy on a net annual basis;
- Manage storm and waste water on-site to meet 100% of the projects water demand;
- Invest in innovative technologies to showcase their development for future use;
- Embed technologies which minimise resource consumption;
- Incorporate behaviour changing measures.

E-7 Health and Wellbeing



Vision:

To provide knowledge and opportunity for increased health and well-being contributing to the development of a healthy and vibrant community.

Examples and opportunities include:

- Play a significant role in combating unhealthy lifestyles by providing opportunities and knowledge of fitness, nutrition, herbal and natural products;
- Create a 'health conscious' site, with only natural, organic, nutritional products sold;
- Provide fitness equipment and health and fitness classes, suitable for all ages and family members;
- Create social and health hubs within public open space, to increase participation in leisure and fitness activities and improve health and well-being.

E-8 Global Connection



Vision:

Create a global shift towards sustainability by contributing to creating a global community that is aware of the sustainability aspect of their actions and the effects that can be achieved if people work together.

Examples and opportunities include:

- Embody the mindset of a 'shared planet' to bring about a commitment to ensure the outcomes of our actions are good for people and the planet;
- Use technology to foster connections with similar sites and projects internationally;
- Use public open space to connect, inspire and facilitate awareness, deep collaboration and cross-pollination of groups of people worldwide, to continually improve and facilitate environmental solutions;
- Promote education, youth and community development around the globe.

U6

Public Realm Approval Process

All public realm projects must go through an approval process. This differs depending if the public realm forms part of a masterplan or is a stand-alone project.

1. Masterplans

When forming part of a masterplan, the submissions for public realm will form part of the overall masterplan Urban Development Review submission to the DMT.

In order to prepare the submission, all the requirements outlined in the Planning chapter must be complied with. The sections of the chapter which are relevant for each stage are shown in red in Table U3; however it is suggested that users review the chapter in its entirety in order to be able to plan the project effectively.

2. Stand-alone Projects

For individual projects the lead approval agency is the relevant Municipality.

In order to prepare for the submission, all the requirements outlined in the Design chapter must be complied with. The sections of the chapter which are relevant for each stage are shown in red in Table U4; however, it is suggested that users review the chapter in its entirety in order to be able to plan the project effectively.

In addition to the requirements associated with the PRDM, at the design stage, a submission will be required to fulfill the Municipality specific requirements. The requirements and format for this submission must be confirmed with the relevant Municipality.

For all stages, specific NOCs will be required from the appropriate agencies, as well as an NOPC from the Estidama team, in order for the lead agency to be able to issue the required approvals.



Key

NOC = NO OBJECTION CERTIFICATE

NOPC = NOTIFICATION OF PEARL COMPLIANCE

Table U3: Approvals Process for Public Realm Projects as part of Master Plans (Note: Lead Agency coordinates NOC to issue development approval)

Stage	Applicable Manuals/ Section	Approval Process	Authority	Reviewing Agencies	Outcome		
PLANNING STAGE	Enquiry Stage	Determine Vision for the Masterplan	DMT	Municipality / DMT	Minutes of Meeting		
		Consult with DMT					
	Concept Stage	PRDM - / / / / Estidama PCRS Estidama PRRS OSF SSPM	Develop Concept Masterplan	DMT	Municipality / DMT	Approval of Concept Master Plan	
			Apply for Concept Stage Masterplan Approval				
			Obtain NOC's from all relevant authorities	DMT	Sample of NOC requirements for Masterplans: DMT, EAD, ADEK, ADSSC, DCT, Transco, Etisalat, du, Traffic and Patrol Department - Abu Dhabi Police (when impacting car traffic)	All applicable NOC's	
			Develop Detailed Masterplan and Public Realm Strategy				
	Detailed Stage	PRDM - / Estidama PCRS Estidama PRRS OSF SSPM	Apply for Detailed Stage Masterplan Approval	DMT	Sample of NOC requirements for Masterplans: ITC, EAD, ADEK, ADSSC, DCT, Transco, Etisalat, du, Traffic and Patrol Department - Abu Dhabi Police (when impacting car traffic)	Approval of Detailed Master Plan	
			Obtain NOC's from all relevant authorities				All applicable NOC's
			Apply for Estidama PCRS & PRRS Certification				
	Estidama Submission	Estidama PCRS Estidama PRRS	DMT	Estidama	NOPC		

Key

- Interaction with main Approval Agency
- Preparation of Submission and other NOCs

U6 Public Realm Approval Process



Any variation from the approved Planning Submission (at a Masterplan or Plot level) will have to be submitted to the DMT for approval before commencing the Design Stage.

Table U4: Approvals Process for stand-alone Public Realm Projects Note: (Lead Agency coordinates NOC's to issue development approval)

Stage	Applicable Manuals/ Section	Approval Process	Authority	Reviewing Agencies	Outcome		
DESIGN	Enquiry Stage	For ALL Projects	PRDM - / Estidama PRRS, OSF, Municipality's Standards, USDM, UCDM, WCMP	Determine Vision for the Project ↓ Consult with Municipality	Infrastructure Sector in the Municipality	Municipality (other appropriate departments)	Minutes of Meetings
	Concept Stage	For ALL Projects	PRDM - / / / Estidama PRRS, OSF, Municipality's Standards, USDM, UCDM, WCMP	Develop Concept Design ↓ Apply for LCDR Approval	Infrastructure Sector in the Municipality	Municipality (other appropriate departments)	Approval of LCDR
	Detailed Stage	For ALL Projects	PRDM - / / / / Estidama PRRS, OSF, Municipality's Standards, USDM, UCDM, WCMP	Develop Detailed Design ↓ Apply for LDDR Approval ↓ Obtain NOC's from all relevant authorities	Infrastructure Sector in the Municipality	Municipality (other appropriate departments) Sample of NOC requirements for Masterplans: ITC, EAD, ADEK, ADSSC, DCT, Transco, Etisalat, du, Traffic and Patrol Department - Abu Dhabi Police (when impacting car traffic)	Approval of LDDR All applicable NOC's

Continued Opposite →

	Stage	Applicable Manuals/ Section	Approval Process	Authority	Reviewing Agencies	Outcome	
DESIGN	Pre-Construction Permits	Estidama PRRS	Apply for Design Stage PRRS Assessment and Certification	DMT	Estidama	NOPC	
		Municipality's Standards	Apply for Engineering Permit	Municipality	Municipal Services, Buildings, Infrastructure	Permit	
		Municipality's Standards	Apply for Construction Permit	Municipality	Municipal Services, Buildings, Infrastructure	Permit	
	Construction	For ALL Projects	Estidama PRRS	Apply for Construction Stage PRRS Assessment and Certification	DMT	Estidama	NOPC
			Municipality's Standards	Apply for Construction Phase Certificate	Municipality		Practical Completion Certificate
	OPERATION	Operation	For ALL Projects	PRDM - / / Estidama PRRS, Municipality's Management and Maintenance Manuals	Completion	Municipality / Landowner	Handover
Long Term Maintenance					Municipality / Landowner	Operation and Maintenance Manual	



Public Open Space,
Abu Dhabi

P Planning



P

Introduction

This chapter of the PRDM provides guidance for the planning of public realm by setting out a process that is applicable to all new POS and streetscape projects.

Planning of public realm for new developments will generally be undertaken as part of an integrated site master planning process.

This chapter sets out strategic guidance and requirements, to ensure that high quality public realm is delivered for Abu Dhabi in association with its planned urban growth boundaries.

This chapter is also applicable to the larger scale revitalisation of existing areas contained within strategic plans or masterplans.

The requirements for future public realm provision, takes into account the existing conditions and the context within which new developments will be located. In the Emirate of Abu Dhabi this can be a range of diverse contexts from discreet rural settlements to urban areas.

Based on current assessment, a significant increase in quantity and quality of public realm as an improvement in its accessibility is required. This should be delivered through new developments, development of vacant plots within urban areas and revitalisation of existing spaces.

Targeted Users

The information within this chapter is targeted at the following user groups who are responsible for strategic development, approval, implementation and regulatory compliance of the public realm:

- Developers, Masterplanners and Consultants including Estidama Pearl Qualified Professionals (PQPs);
- Department of Municipalities and Transport (DMT) - Strategic Planning, Urban Development, Area Planning, Safety and Security and Estidama teams;
- Municipalities;
- All Government Agencies responsible for Public Realm Planning or Approval.

The manual encourages a collaborative approach between design consultants, Estidama professionals, planners and approval agencies, to ensure the principle of sustainable design is incorporated at all stages of the planning process.

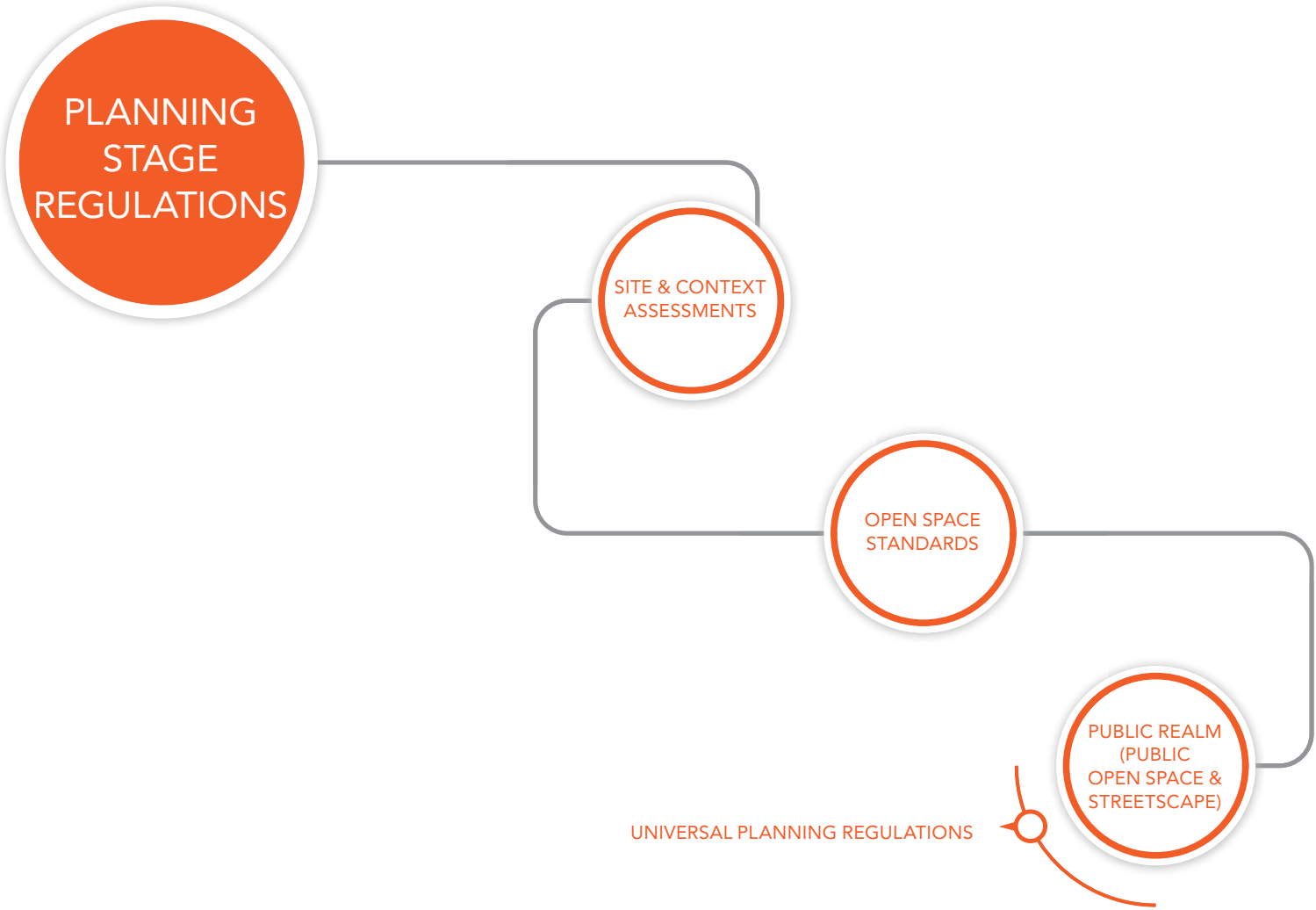
All stakeholders and where possible, the end users, should be engaged in the planning process to ensure that the appropriate public realm provisions and programming are incorporated.

Application of the Regulations

The planning section is applicable to all POS and streetscape projects within individual developments or comprehensive residential, commercial or mixed use developments that require DMT or Municipality Development Review Approval.

Industrial developments will need to comply with streetscape regulations while POS regulations will apply if the provision of POS is deemed appropriate to the context. This should be agreed with the DMT at the Development Review Enquiry stage.

The hierarchy of regulations for Planning Stage is represented in Figure P1. All public realm projects, either new or retrofitting, must comply with the standards within this chapter.



 Integrated Estidama Process

As outlined within the User Guide, an integrated Estidama process operates at each stage of the public realm’s planning, design, construction and operation phases. At the planning stage, the Pearl Community Rating System (PCRS) applies. The PCRS is a comprehensive enforcement framework for the planning of public realm projects within master plans, which is integrated with the Urban Development process.

Figure P1: Hierarchy of Planning Stage Regulations

P1

Public Realm Planning Process

P1.1 Planning Process

The planning chapter illustrates the step-by-step process to be used to determine the provision, distribution and programming of POS within the development area.

It also sets out standards and guidelines for the public realm as a whole (including streetscape). The process represented in Figure P2 includes the following steps:

1. Vision, Principles and Policies;

- Review and apply the PRDM Vision, Principles and Policies.

2. Studying the Context:

- Determine the site boundaries and area;
- Review the Open Space Framework;
- Undertake a Natural System Assessment;
- Undertake an assessment of the Site and surrounding area (2km offset minimum) to determine urban grain, character, existing public open space provision (including hierarchies, location and type of sport and play facilities) and presence of community and transit facilities; and
- Determine the Settlement Context in accordance with the Abu Dhabi Community Facility Planning Standards (CFPS).

3. Public Open Space Provision:

- Calculate the overall quantity of POS to be provided on the site according to the applicable standard for the settlement classification; and
- Determine the quantity of POS and the different POS types to be provided.

4. Public Open Space Distribution:

- Apply POS Catchment Area Standard;
- Apply POS Hierarchy Specific Catchment Area Guidelines;
- Determine distribution of POS types;
- Determine linkages and connections between POS elements.

5. Public Realm Programming:

- Select appropriate Design Elements;
- Allocate uses and programming for all Public Realm;
- Apply Universal Public Realm Regulations;
- Prepare Public Realm Submission.

All stakeholders and when possible the end users should also be engaged in the planning process, to ensure provisions and programming are tailored to the users' requirements.

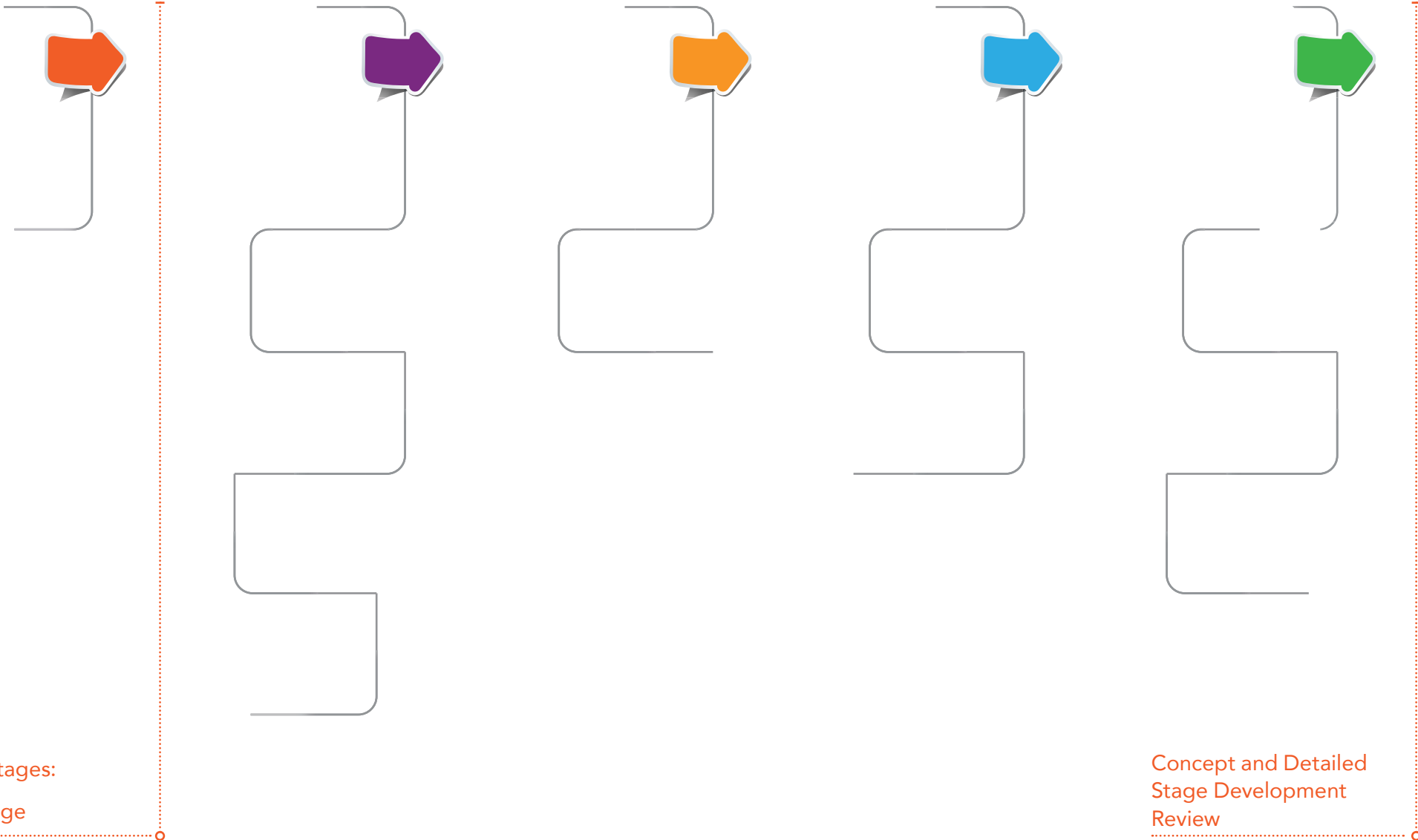


Figure P2: Public Realm Planning Process

P1

Public Realm Planning Process



Abu Dhabi Corniche



Al Marfa Corniche

A World-class Public Realm for Abu Dhabi

P1.2

Vision Statement

Developing a world-class public realm will involve the development of streets and spaces with a strong identity that express the history and tradition of the Arab culture, whilst fulfilling the needs of a diverse, multicultural population. A fully accessible and engaging public realm will include diverse and exciting parks and civic spaces, interconnected networks of walking and cycling routes and vibrant and active waterfronts. A sustainable public realm will be sensitive to the climate and environment of Abu Dhabi. Setting new standards for high-quality environments will contribute to making Abu Dhabi internationally recognised as one of the finest places in which to live and work.

P1

Public Realm Planning Process

PRINCIPLE 1: Liveability



The public realm is a safe, comfortable and engaging space, where diverse activities can be experienced by all, contributing to people's physical and mental wellbeing, therefore providing a high quality of life.

- 1.1 The public realm contributes to a high quality of life by providing public open space for recreation, relaxation and enjoyment as an alternative to the urban environment, thereby promoting physical and mental health.
- 1.2 The public realm is operated and maintained to the highest international standards, consistent with the vision of a modern, high-amenity Arab city.
- 1.3 Streetscapes have a high level of pedestrian priority with well-defined, continuous pedestrian routes and spaces.
- 1.4 Forecourts and entrances to buildings are designed for convenient, accessible pedestrian movement.

PRINCIPLE 2: Identity



The public realm incorporates the expression of Arab culture, heritage, values and traditions in the development of streets and spaces that reflect their local environment.

- 2.1 The public realm enhances the urban environment through attention to detail and imageability and encourages the development of a positive identity for the Emirate.
- 2.2 The public realm provides an authentic experience and learning opportunity about Arab culture and tradition.
- 2.3 Local plant species and traditional materials used in the public realm reinforce the unique regional identity of the Emirate.
- 2.4 Historic, cultural and natural resources in the public realm are preserved and enhanced to highlight their unique characteristics.

PRINCIPLE 3: Connectivity



The public realm is interconnected and enhances the mobility of people by providing comfortable, continuous access for walking, cycling and other modes of transport.

- 3.1 Streetscapes encourage the safe and comfortable movement of people by modes other than vehicles to encourage an active street life.
- 3.2 The public realm provides a comfortable shaded pedestrian experience, which helps to encourage walking and create vibrant, active urban streets.
- 3.3. Community facilities are co-located with public open spaces to create hubs of activity and encourage the use of shared facilities.
- 3.4 Streetscapes incorporate appropriate facilities and protection for pedestrians

PRINCIPLE 4:
Placemaking & Design Excellence



The public realm is made up of high-quality, human-scale and visually interesting places. It includes multi-functional, flexible and climate responsive design solutions.

- 4.1 The public realm demonstrates high levels of design excellence through provision of visually appealing places and spaces which serve a variety of functions and are maintained with best practice procedures.
- 4.2 The public realm meets the needs of the community while contributing to the visual quality of the urban environment.
- 4.3 The urban environment is enhanced with inviting and interactive public spaces.
- 4.4 Streetscapes reflect the scale, character and function of adjacent land uses, from quiet residential streets to grand ceremonial boulevards integrating the surrounding natural and built environment.

PRINCIPLE 5:
Inclusivity



The public realm provides safe, comfortable, and diverse POS, for the enjoyment of all people, and helps to promote community cohesion.

- 5.1 Safe and secure places for all users at all times of the day are created utilising the principles of the Abu Dhabi Safety and Security Planning Manual (SSPM).
- 5.2 The public realm includes amenities for everyone including the young, elderly, people with disabilities and families.
- 5.3 The public realm is inviting to people of all ethnicities and cultures and helps to create an image of Abu Dhabi that is welcoming and multicultural.
- 5.4 Residents and park users are involved in park programming decisions to ensure they provide enjoyable experiences relevant to all users.
- 5.5 The multi-functional aspects of POS encourage social interaction and bring together different sections of the population.

PRINCIPLE 6:
Environmental Stewardship



The public realm is responsibly designed to achieve water and energy efficiency, and help in the preservation of important ecological areas and native habitat.

- 6.1 The public realm is designed to conserve water, preserve natural habitats and enhance biodiversity by using climate-appropriate plant materials.
- 6.2 Irrigation water is used efficiently, and the design of the public realm balances the benefits of creating a green environment with the costs of irrigating the green landscape.
- 6.3 Streetscapes are designed to minimise negative environmental impacts (heat island effect, excessive water-usage etc.) and to promote active travel, walking and cycling to steadily reduce carbon emissions from transport.
- 6.4 Waterfront designs consider both terrestrial and marine habitats/ecosystems, in compliance with environmental policies and guidelines.

P2

Studying the Context

P2.1 Site Boundary and Area

The boundaries of the overall site and the site area excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots shall be clearly defined (refer to Fig. P3). The site area, excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots, will be used to calculate the amount of POS required.

The boundaries of an Overall Site Area will likely be made up of major roads, natural boundaries, public open space, utility corridors, etc. In a master plan or area plan, the site boundaries will define the extent of the total area to be developed.


P2.2 Open Space Framework

The OSF which has been developed in parallel with the PRDM determines the required present and future allocations as well as current deficiencies in open space across the Emirate, and sets out an aspirational plan for future open space provision. It will ensure the provision of public realm matches the growth assumptions for the 2030 population. The OSF must be reviewed as part of the process, to ensure any specific POS requirements that apply to the site or surrounding area are captured.

P2.3 Natural Systems Assessment

A Natural Systems Assessment is required at the planning stage to ensure the environmental baseline conditions on the site, its surrounding, and connected areas, are considered and assessed.

The Natural Systems Assessment must be carried out by a suitably qualified professional.

 The Natural Systems Assessment is a requirement of the PCRS - [NS-R1](#).


P2.4 Site and Context Assessment

As part of the basis for the public realm design process, an assessment is required to be undertaken, for the site and its context. The site assessment should consider:

- Existing features including existing vegetation, environmental and ecological features;
- Current access and movement network to the site including location of public transit network and stops;
- Topography;
- Views;
- Solar access;
- Utilities and infrastructure constraints;
- Existing facilities relevant to site planning.

The immediate site context (a 2km minimum offset around the site) should be considered as part of a Context Assessment (refer to Fig. P4). The assessment is required to determine the provision and distribution of the POS hierarchies, the types of public realm to be provided on the site and the features and uses to be included within them. The context assessment should include:

- An assessment of the land uses, urban grain and character of the context area;
- Identification of the size, quantity, type and features all public open space and streetscape within the surrounding area;
- Identification of the type, size and quality of all publicly accessible Sport and Play facilities in the area;
- Location and type of community facilities;
- Location of transit facilities and routes;
- Location of pedestrian and cycle routes.

 The Context Assessment incorporates features of the PCRS [LC-R2](#) Urban System Assessment.

P2.5 Settlement Context

The predicted Settlement Context of the site will be used to determine the percentage of POS to be provided within new developments.

The settlement context shall be classified in accordance with the methodology outlined in the Community Facility Planning Standards. (CFPS)

The three settlement classifications to be applied are identified as:

- Urban Settlement
- Suburban Settlement
- Rural Settlement

Standards

PS-1 The boundaries, overall site area, and the site area excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots SHALL be clearly defined.

PS-2 The OSF SHALL be reviewed for specific POS requirements.

PS-3 A Natural Systems Assessment SHALL be undertaken.
NS-R1

PS-4 A Site Assessment SHALL be undertaken.

PS-5 A Context Assessment of a 2km zone surrounding the site SHALL be undertaken.

PS-6 The settlement context SHALL be defined in accordance with the CFPS methodology.

Guidelines

PG-1 The Overall Site Area MAY be divided into smaller Site Areas due to physical boundaries and/or differing settlement classifications, if the boundaries can be clearly defined.



Key

PS = UNIQUE STANDARD NUMBER
PG = UNIQUE GUIDELINE NUMBER

Case Study

The following pages illustrate the POS standards as they apply to an indicative site within an urban area in Abu Dhabi. The proposed layouts are one interpretation of the standards and demonstrate their potential application on a site. The example site has been previously developed, it's cleared and contains no significant existing natural features.

Site Boundaries & Context

- The overall site area is 57 hectares;
- The site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 45.6 hectares*;
- There is a mix of existing POS around the site;
- Various community facilities including education and health services are present;
- Transit routes exist along the site boundaries.

*Assuming that the right-of-way, community facility plots, utility plots and corridors cover 20% of the overall site area, while in real examples this percentage shall be calculated prior to calculating the POS.

Key

- Existing POS
- Education
- Health Facilities
- Transit Routes
- Site Boundary



Figure P3: Defined Site Boundaries and Area

Figure P4: Context Assessment

P3

Public Open Space Provision



The following types of open areas are excluded from the POS percentage:

- Land which is not accessible to the public;
- Street 'Right-of-Ways' as defined in the USDM as: the width of the street necessary to provide for movement and travel functions. The typical street dimensions shall include Travel Lanes + Edge zones + Cycle Track + Furnishings + Through + Frontage area, as outlined in the USDM;
- 'Leftover' space which is not accessible and/or designed or programmed in accordance with the POS standards and guidance within the PRDM;
- Utility plots or corridors that are unable to be designed and programmed as POS due to technical or safety and security issues (refer to UCDM for further guidance).

P3.1 Public Open Space Standards

The POS standards are used to quantify the amount of parks and public open spaces that must be provided to meet a community's basic needs and expectations both now and in the future. The standards also provide a benchmark for evaluating public open space deficiencies in existing communities and for monitoring progress towards provision goals. The POS standards have been derived from international best practice and adapted to the requirements and different needs of Abu Dhabi settlements.

For the purpose of the PRDM the main POS Standards applicable to all new developments are:

- **Quantity** – a total percentage of the defined site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) to be set aside for POS, including the protection of natural areas, sport and play.
- **Catchment Area** – locating POS within a defined proximity of every resident or worker.

P3.2 Quantity Standards

The Abu Dhabi Emirate comprises settlement types ranging from urban to rural, each requiring a tailored range of POS provision. What is appropriate for downtown Abu Dhabi Island will not be appropriate in rural Al Dhafra Region settlements. The quantity standard for POS to be provided within new developments are determined by their settlement classification as illustrated in Table P1:

Table P1: Public Open Space percentage

Settlement Classification	POS
Urban Settlement	20%
Suburban Settlement	15%
Rural Settlement	10%

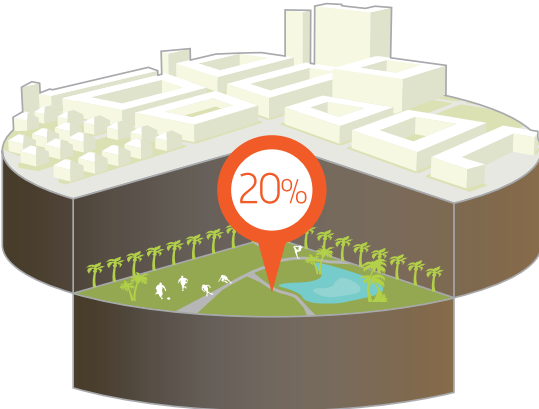
These standards are the primary determinant of POS provision for all new developments as illustrated in Figure P5.

The overall POS percentages include space requirements for sport and play provision as defined in . The allocated percentage of POS may include all plotted open areas within urban growth boundaries and/or natural environment, which are accessible to the public and programmed for recreation, public gathering or assembly. This may include:

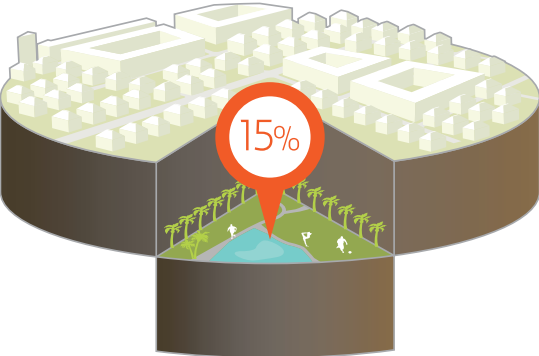
- Natural, semi-natural and environmental preservation areas;
- Natural and developed waterfronts;
- Parks and gardens;
- Linear parks and green infrastructure elements;
- Urban squares, plazas and civic spaces;
- Space within utility plots or corridors as long as they are accessible to the public and designed and programmed according to one of the three POS types (refer to UCDM for further guidance);
- Space outside the typical street dimensions (as defined previously) required for the street hierarchy may be included in the POS percentage e.g. greenways, linear plazas or spaces alongside streets;
- Developed, designed and programmed Strategic Sikkak and utility plots and corridors; and
- Open space within mosque plots.

Standards

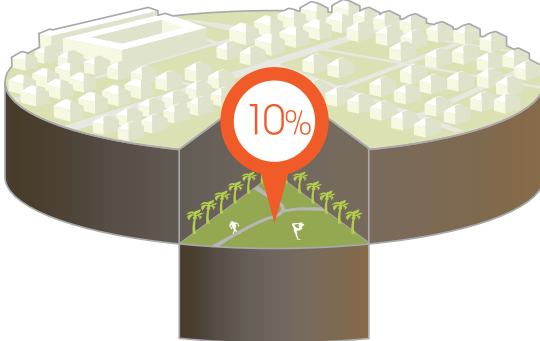
- PS-7** A percentage of at least 20% of the site (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) SHALL be allocated for POS in Urban Settlements.
- PS-8** A percentage of at least 15% of the site (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) SHALL be allocated for POS in Suburban Settlements.
- PS-9** A percentage of at least 10% of the site (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) SHALL be allocated for POS in Rural Settlements.
- PS-10** If an Overall Site Area is sub-divided into areas of different settlement classifications, the overall quantity of POS required SHALL be the sum of each required amount.



Urban Settlement Context



Suburban Settlement Context



Rural Settlement Context

Figure P5: POS Quantity Standards

P3

Public Open Space Provision

The following examples illustrate the difference in percentage of POS to be provided based on the Settlement Classification.

Case Study - Urban Settlement

The overall site area = 57 hectares;
 The site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 45.6 hectares*;
 Settlement Context: Urban = 20% POS;
 Total POS required = 9.12 Ha (excluding streetscape).

This total should be subdivided into the different POS types and hierarchies and distributed across the site according to the principles illustrated in the following sections.

*Assuming that the right-of-way, community facility plots, utility plots and corridors cover 20% of the overall site area, while in real examples this percentage shall be calculated prior to calculating the POS.

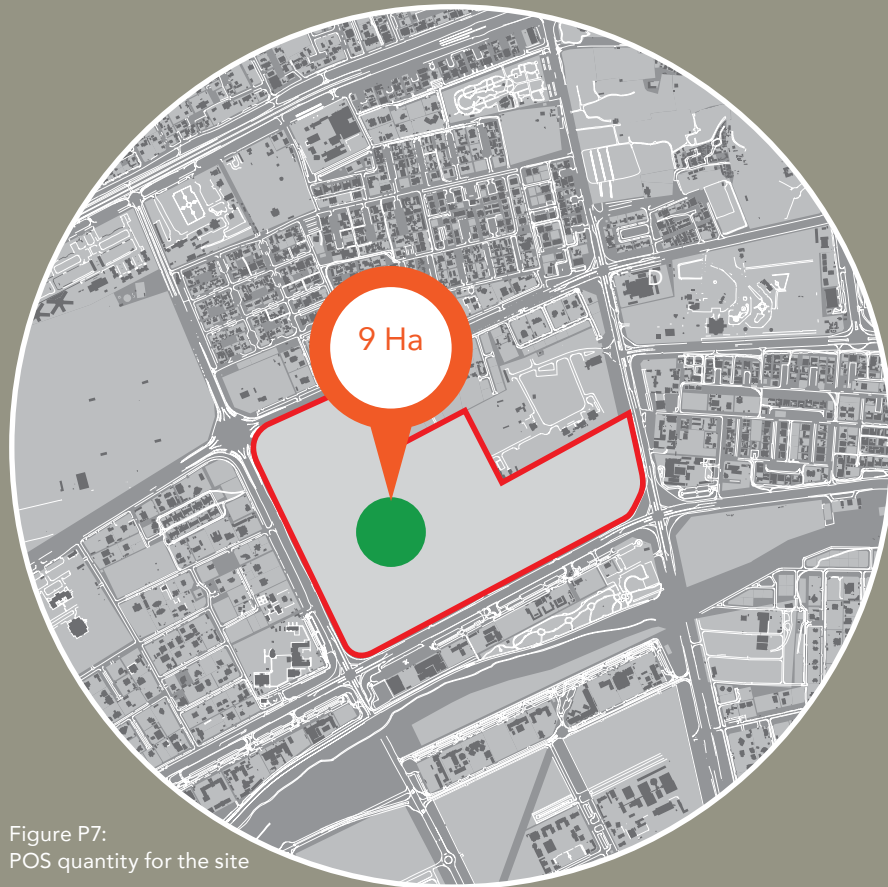


Figure P6: POS quantity for the site

Key

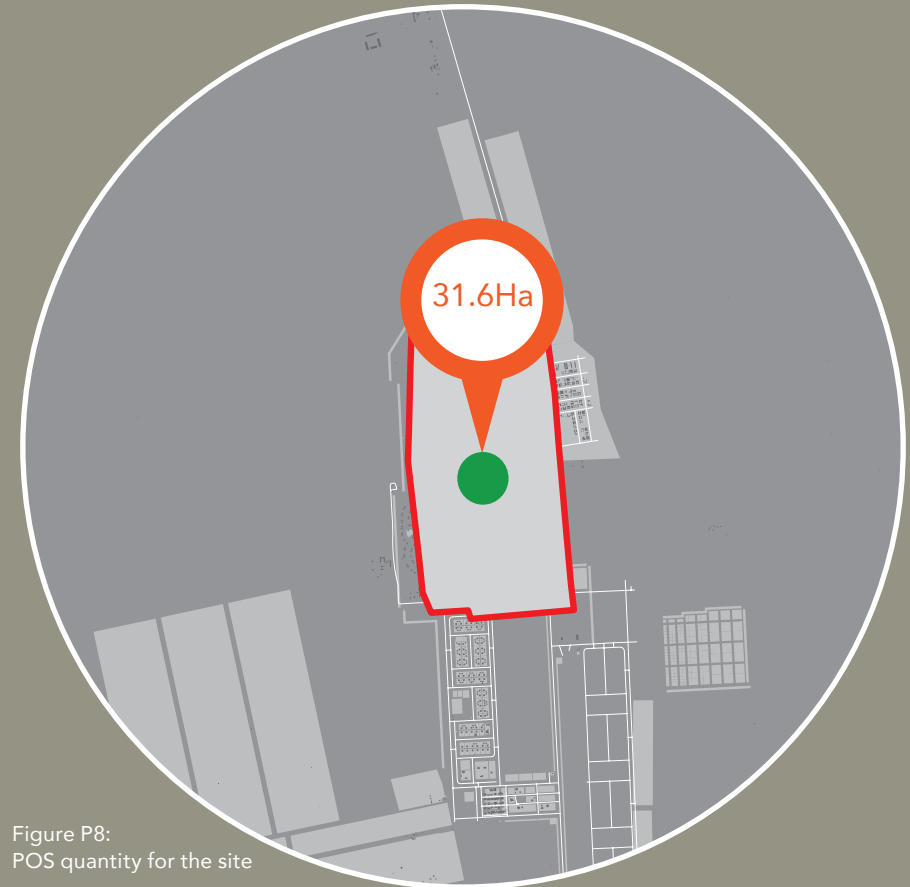
- Public Open Space
- Site Boundary

Case Study – Suburban Settlement



- The overall site area = 75 hectares;
- The site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 60 hectares*;
- Settlement Context: Suburban = 15% POS;
- Total POS required = 9 Ha (excluding streetscape).

Case Study – Rural Settlement



- The overall site area = 395 hectares;
- The site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 316 hectares*;
- Settlement Context: Rural = 10% POS;
- Total POS required = 31.6 Ha (excluding streetscape).

*Assuming that the right-of-way, community facility plots, utility plots and corridors cover 20% of the overall site area, while in real examples this percentage shall be calculated prior to calculating the POS.

P3

Public Open Space Provision

P3.3 Public Open Space Types

The overall percentage of public open space allocation should comprise of three types of POS:

1. Programmed space;
2. Sport and recreation;
3. Play facilities;

While the overall percentages of POS is dependent on the settlement characteristics, the percentage of the types of open space to be included remain constant, as indicated in Figure P9.

Streetscapes are not included within the overall POS percentage calculation, apart from pedestrian and cycle-only routes outside of the right-of-way.

Standards

PS-11 A demand based assessment SHALL be undertaken for sports and recreation facilities provision based on predicted needs of the population.

PS-12 A demand based assessment SHALL be undertaken for play facility provision based on predicted needs of the population.

Guidelines

PG-2 POS types (Programmed, Sport/recreation and Play) SHOULD be provided in the recommended percentages according to the settlement characteristics.



● Programmed Space

Programmed Spaces are developed POS, providing both passive and active recreational facilities for the community. They can take diverse forms and include a variety of elements to fulfil the required needs. Dependent on the surrounding context and land use of the area, these open spaces can take the form of parks, pocket parks and gardens or more 'urban' spaces, such as plazas and squares, informal spaces for play and sport, linear parks/plazas and pedestrian and cycle routes (outside of the right-of-way).



● Play Facilities

Play facilities include formal and informal play areas suitable for a variety of ages as well as specific play provision ranging from fixed play elements to large scale adventure playgrounds. It also includes facilities such as skate parks, BMX bike trails, and will relate to the size of the open space and its catchment area. They will often be included within the boundaries of parks, but can also consist of stand-alone facilities. Play facilities are designed according to guidance in



● Sport Facilities

Sport in the POS context is defined as publicly accessible facilities which range from small elements such as single basketball hoops to full size football pitches and tennis courts. They will often be included within the boundaries of parks, but can also consist of stand-alone facilities. They should be provided on a 'needs' based demand assessment. Sport facilities are designed according to guidance in

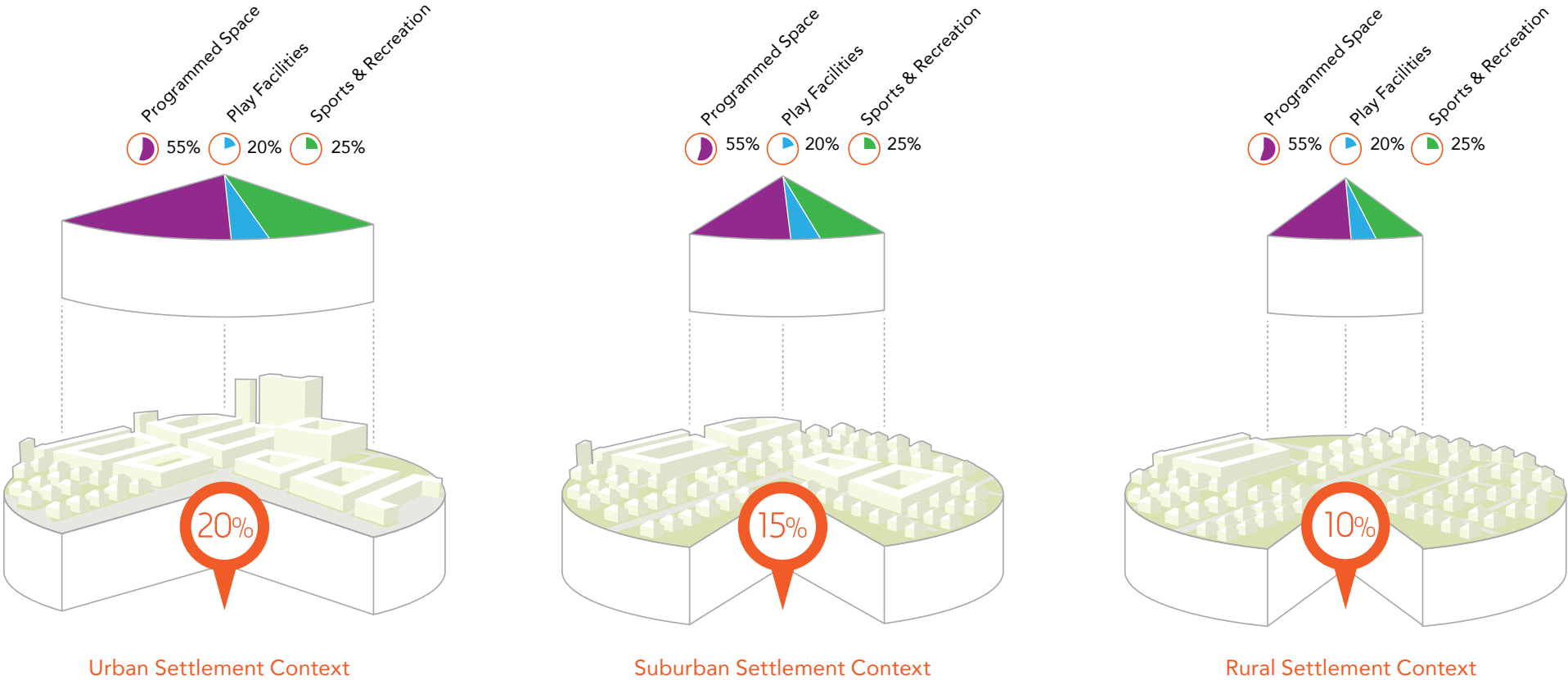


Figure P9: Guideline Percentages of POS types for Each Settlement Context

P3

Public Open Space Provision

Case Study – Urban Settlement



Figure P10:
POS types percentages

Figure P11:
POS types on the site

- Settlement Context: Urban (POS 20%)
- Overall site area = 57 Ha;
- Site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 45.6 Ha*;
- Total POS Quantity Provision: 9.12 Ha;

POS Type Quantities:

- Programmed space: - 5.02 Ha (55%)
- Sport and recreation: - 2.3 Ha (25%)
- Play facilities: - 1.8 Ha (20%)

*Assuming that the right-of-way, community facility plots, utility plots and corridors cover 20% of the overall site area, while in real examples this percentage shall be calculated prior to calculating the POS.

Key

- Play Facilities
- Programmed Spaces
- Sport and Recreation
- Site Boundary

Case Study – Suburban Settlement

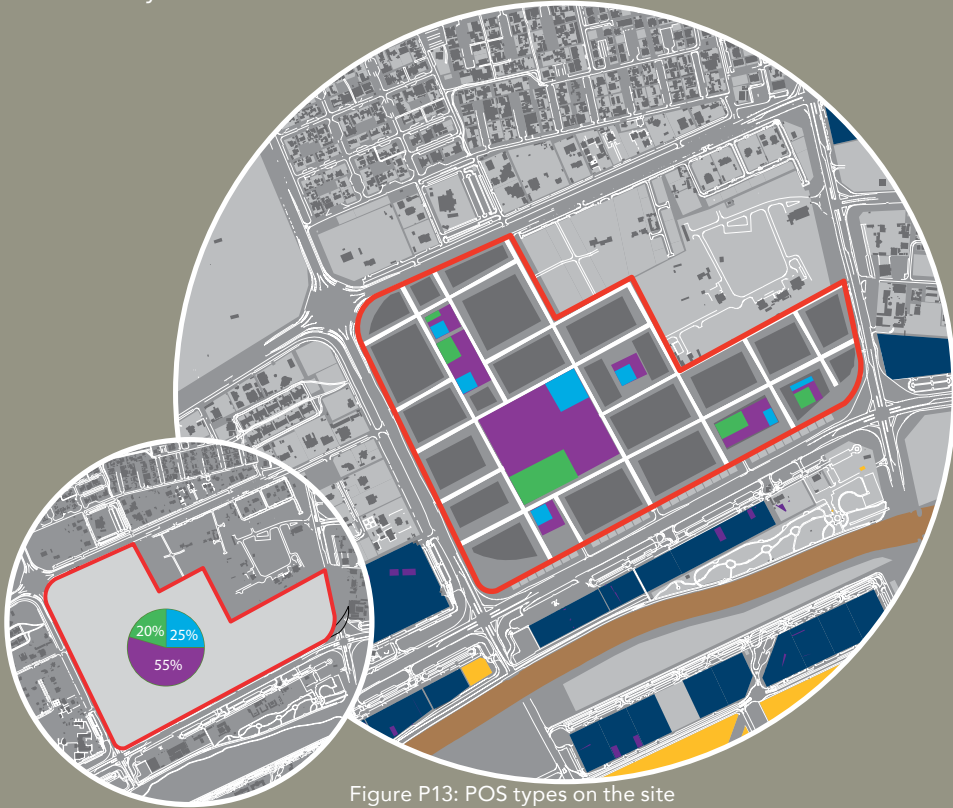


Figure P12: POS types percentages

- Figure P13: POS types on the site
- Settlement Context: Suburban (POS 15%)
 - The overall site area: 75 Ha;
 - The site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 60 Ha*;
 - Total POS Quantity Provision: 9 Ha;

POS Type Quantities:

• Programmed spaces:	- 4.95 Ha	(55%)
• Sport and recreation:	- 2.25 Ha	(25%)
• Play facilities:	- 1.80 Ha	(20%)

Case Study – Rural Settlement

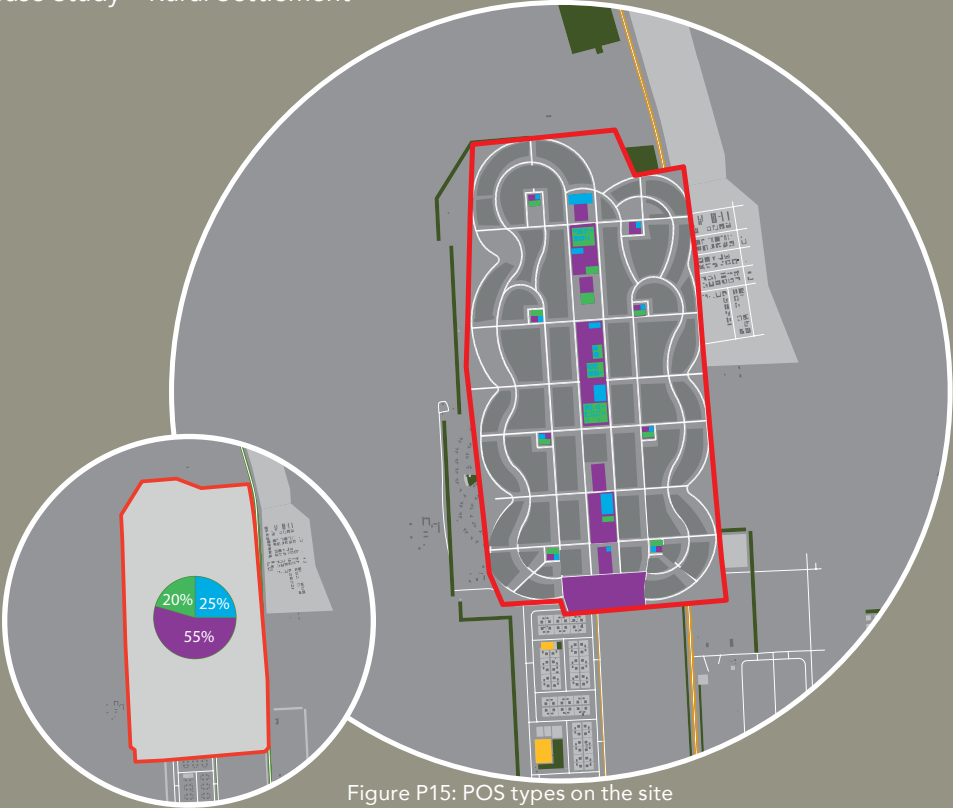


Figure P14: POS types percentages

- Figure P15: POS types on the site
- Settlement Context: Rural (POS 10%)
 - The overall site area = 395 Ha;
 - The site area (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) is 316 Ha*;
 - Total POS Quantity Provision: 31.6 Ha;

POS Type Quantities:

• Programmed spaces;	- 17.38 Ha	(55%)
• Sport and recreation;	- 7.90 Ha	(25%)
• Play facilities;	- 6.32 Ha	(20%)

*Assuming that the right-of-way, community facility plots, utility plots and corridors cover 20% of the overall site area, while in real examples this percentage shall be calculated prior to calculating the POS.

P4 Public Open Space Distribution

P4.1 Catchment Area Standard

The catchment area is the second POS standard. All inhabited areas within a development must be within a certain distance from POS. This ensures high levels of accessibility of POS and ensures that the majority of the residents and workers within the Emirate are able to access a POS within a reasonable walking distance of their homes or offices.

Catchment Standard

The mandatory universal standard for the maximum distance to a POS (of any level of the hierarchy) is 350m. As illustrated in Figure P16, this is equivalent to 5 minutes walking distance for most people .

P4.2 Hierarchy-Specific Catchment Area Guidelines

The catchment areas for the different hierarchy levels of POS as illustrated on Figure P17, aim to provide a variety of facilities within a reasonable distance from users' homes. These POS would

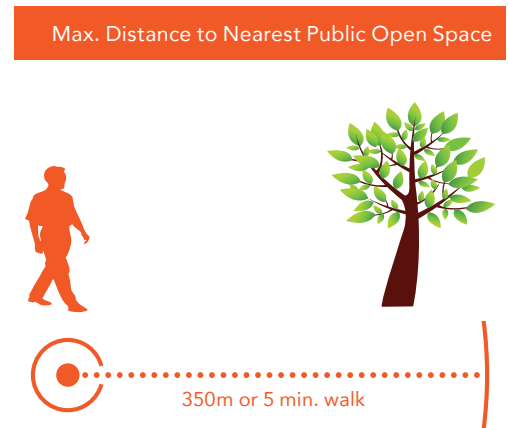


Figure P16: POS catchment area standard

normally be associated with the transit network to ensure accessibility to all. These guidelines could be influenced by existing facilities and context but they should be adhered to wherever possible.

P4.3 Distribution of Public Open Space

The catchment area standard and guidelines seek to ensure that the community is not just close to a POS but also that different spaces and facilities are available within defined distances. The process to distribute POS across the site comprise:

1. Application of the catchment areas (refer to Figure P18) alongside the analysis of existing and/or deficiencies of POS in the surrounding area as determined by the context assessment;
2. Having ascertained which hierarchies of POS are needed on the site, overlaying the appropriate hierarchies of POS at the recommended size on the site plan and arranging them to ensure the coverage of the site (of all appropriate POS

hierarchies) as illustrated in Figure P19 will ensure appropriate catchment area provision.

3. Sizes can then be adjusted to fit the site, the layout and achieve the required quantity of POS.
4. An interconnected, pedestrian and cyclist friendly network of streets, spaces and green infrastructure is encouraged for the public realm network on a site. This can be achieved through linear parks/plazas, pedestrian and cycle routes or high quality streetscapes. In conjunction with the overall urban design strategy this will ensure an optimised distribution of streets and spaces.
5. Once a satisfactory layout has been achieved, the specific types of POS and Design Elements can then be applied to the individual spaces.

Please note that higher levels of the hierarchies can compensate for lower ones but not the other way around.

Hierarchy	Recommended Size	Size Range	Catchment Area
Emirate	300 Ha+	Location Dependant	N/A
Municipality	100 Ha	50 Ha - < 300 Ha	5 km
District	20 Ha	5 Ha - < 50 Ha	2 km
Neighbourhood	2 Ha	1 Ha - < 5 Ha	700 m
Local	0.5 Ha	< 1 Ha	350 m

Figure P17: POS hierarchy-specific catchment area guidelines

Standards

PS-13 90% of residents and workers within a development SHALL be within 350 metres of a POS (of any hierarchy).

Guidelines

- PG-3** The catchment area guidelines for each POS hierarchy SHOULD be followed.
- PG-4** Linkages and connections between POS elements SHOULD be provided.
- PG-5** POS hierarchy catchment areas MAY be varied according to site characteristics demonstrated through the site and context assessments.

Key

- Municipality POS
- District POS
- Neighbourhood POS
- Local POS
- Site Boundary

Case Study Notes:

There are several existing public open spaces within the context area including 1 Municipality, 1 District and 2 Neighbourhood POS and 1 Local Hierarchy POS. The site is therefore well catered for in the provision of Municipality and District POS hierarchies but deficient in Neighbourhood and Local POS provision.

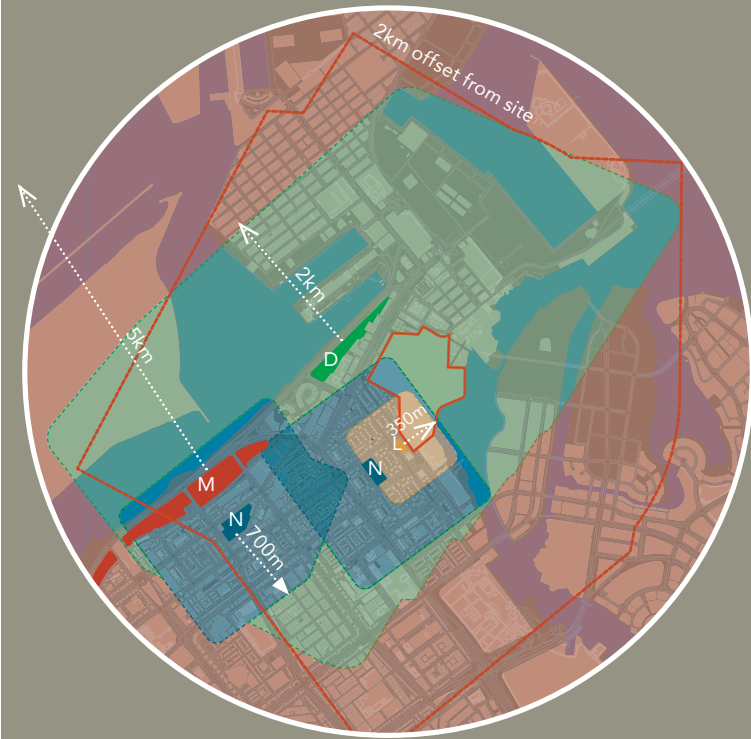


Figure P18: Context Assessment Showing Catchment Areas of POS

Case Study Notes:

In this example a central Neighbourhood size POS is provided, a linear Neighbourhood POS along the waterfront is provided and 4 Local POS's are evenly distributed around the site to satisfy the required catchment distances. The linear neighbourhood space provides linkages to existing POS outside the site. The catchment areas demonstrate that all areas of the site are within 350m of a POS. Major barriers such as waterways restrict the catchment areas to the east.



Figure P19: Distribution of Proposed POS with Catchment Areas

P5

Public Realm Programming

P5.1 Public Realm Design Elements

Design Elements are specific programming, uses and functional requirements (such as public art, play, transit, etc.) that give POS and streetscape a specific character. Specific guidance has been developed for the implementation of these elements and is included in Chapter .

P5.2 Allocation of Uses and Programming

Appropriate allocation of the design elements will depend on the existing character of the site, and an assessment of specific needs or opportunities, and will ensure that the public realm contains a mix of activities, facilities and features to cater for the needs of the population.

The design elements to be included are required to be specified at the planning stage.

Key

- Existing POS
- Programmed Space
- Sport
- Play
- Site Boundary



Figure P20: Programming of Site POS

Standards

- PS-14** A mix of programmed uses, facilities and features SHALL be identified for inclusion within the public realm according to the selected Public Realm Design Elements.
- PS-15** The location of each hierarchy of POS SHALL directly relate to the streetscape hierarchy (i.e. Municipality POS shall adjoin higher level streetscapes, while Local POS should adjoin smaller streets). POS SHALL be located on and primarily accessed by the streetscape hierarchy as shown in Table P2.

Table P2: Location and primary access for POS.

	Boulevard	Avenue	Street	Access Lane
Emirate	Access requirements will be determined by park location			
Municipality	✓	✓	✓	⊘
District	✓	✓	✓	⊘
Neighbourhood	⊘	⊘	✓	✓
Local	⊘	⊘	✓	✓

P5.3

Planning Stage Public Realm Universal Regulations



The regulations governing the planning of all public realm projects are described in this section.

The regulations are grouped in categories, each category addressing specific aims.

The icons representing them are used throughout the document to illustrate where they might apply during the design process.



Key

- PS UNIQUE STANDARD NUMBER
- PG UNIQUE GUIDELINES NUMBER
- LS ESTIDAMA CREDIT REFERENCE



Movement and Access

Aims

To achieve a well-connected network of POS that are prominent within the surrounding urban environment and easily accessible from surrounding areas by residents, workers and visitors.

Standards

- PS-16 A sustainable Movement and Access strategy SHALL be developed for the public realm, using a 'Complete Streets' methodology as outlined in the USDM and coordinating with the DMT's 'Walking and Cycling Master Plan', ensuring a cohesive approach is pursued for the functional, technical and visual requirements of the public realm.
- PS-17 The public realm SHALL provide linkages to other major features and destinations.

Guidelines

- PG-6 The public realm SHOULD provide linkages to the wider public realm system.
- PG-7 The public realm SHOULD link to the public transit network.
- PG-8 POS SHOULD have direct access to all adjacent streets, and connect to all pedestrian/bicycle networks.



Building

Aims

To provide the necessary facilities for the enjoyment and operation of a successful public realm that are, however, ancillary to the primary purpose of POS and streetscapes

Standards

- PS-18 A strategy SHALL be developed that outlines the built structures required, based on anticipated demand to provide refreshments, maintenance, community use and public toilets that are sustainable and appropriately scaled to the size and use of the POS.
- IDP-R2



Shading

Aims

To provide comfortable streets and spaces that respond to the climate of Abu Dhabi facilitating usage of key facilities at all times of the year and day.

Standards

- PS-19 A strategy for achieving high levels of outdoor thermal comfort within the public realm SHALL be provided.
- LS-R1

Softscape

Aims

To provide green spaces as an important natural, recreational and breathing space within urban areas. Create a good quality planted environment which responds to the specific climatic and horticultural conditions of Abu Dhabi.

Standards

PS-20 A soft landscape strategy SHALL be developed that ensures a good quality and sustainable green environment, appropriate to the climate and natural environment of Abu Dhabi, water usage allowances and the character of the public realm.
NS-R3

Hardscape

Aims

To create a good quality designed public realm environment which responds to the specific climatic and cultural conditions of Abu Dhabi.

Standards

PS-21 A hard landscape strategy SHALL be developed to ensure the provision of a coordinated palette of good quality materials which reflect the public realm hierarchy and character.
SM-R3
SM-R5

Furniture

Aims

To provide a comfortable public realm which encourages sitting, social interaction and relaxing whilst discouraging over-provision and cluttering of spaces with unnecessary furniture.

Standards

PS-22 A site furniture strategy SHALL be provided to ensure the development of a coordinated palette of good quality furniture which reflect the public realm hierarchy and character.

Public Art

Aims

To add vibrancy and interest to the public realm through the use of public art features that are considered as a fundamental part of the design process.

Standards

PS-23 A strategy for the incorporation of public art within the public realm SHALL be outlined.



1



2



3

- 1: Kiosks in a local park, Abu Dhabi City, UAE
- 2: Urban square, Masdar City, Abu Dhabi City, UAE
- 3: Exercise equipment, Al Dhafra Region, UAE

P5.3

Planning Stage Public Realm Universal Regulations



Water Usage

Aims

To add vibrancy and interest to the public realm through the considered use of plant irrigation and water features which provide a sense of calm and coolness, whilst minimising water wastage.

Standards

PS-24 A water usage strategy SHALL be developed, detailing irrigation, water features and cooling of built facilities, to outline how the public realm water allocation is to be utilised.
PW-R1

PS-25 A stormwater management plan SHALL be developed for the site.
PW-R3



Lighting

Aims

To ensure comfortable, safe and visually interesting spaces that are appropriately lit during the evening responding to predicted usage patterns whilst minimising energy usage, maintenance and light pollution.

Standards

PS-26 A lighting strategy to provide adequate illumination to the public realm, reflecting the public realm hierarchy and predicted level of activity, to ensure safety and encourage appropriate night-time usage SHALL be developed.



Fences/Walls/Screens

Aims

To ensure the boundaries of POS are well defined from surrounding areas whilst ensuring that spaces are welcoming and accessible to all at appropriate times of the day and night.

Standards

PS-27 A strategy outlining the proposed access, boundary treatment and screening features for the public realm SHALL be provided.



Services and Infrastructure

Aims

To provide the necessary equipment and infrastructure for the ongoing operation and management of the public realm whilst ensuring their location is considered as part of an overall design strategy.

Standards

PS-28 A services/infrastructure strategy SHALL be developed that outlines how the required facilities within the public realm will be serviced, incorporating elements such as potable water, TSE water, sewerage, power, renewable energy and telecommunications infrastructure.



Key



UNIQUE STANDARD NUMBER



UNIQUE GUIDELINES NUMBER



ESTIDAMA CREDIT REFERENCE

Signage and Wayfinding



Aims

To simply and effectively convey the location of facilities, rules and bylaws and special features within the public realm without dominating or cluttering the space.

Standards

PS-29 A signage and wayfinding strategy SHALL be developed for all the public realm, which takes account of the surrounding context.

Safety and Security



Aims

To provide a safe, secure and accessible public realm for all members of the community.

Standards

PS-30 A safety and security strategy SHALL be developed for the public realm, incorporating the principles of the Abu Dhabi Safety and Security Planning Manual (SSPM) to achieve Crime Prevention Through Environmental Design (CPTED), and UAE Fire and Safety Code of Practice.

Parking



Aims

To ensure the provision of appropriate parking facilities, in a way that does not hinder movement or visually detract from the enjoyment of the public realm.

Standards

PS-31 A demand-based parking strategy SHALL be developed for the public realm in line with the DMT's methodology.



1: Australian Garden, Royal Botanic Gardens, Cranbourne, Australia
2: Al Azhar Park, Cairo, Egypt
3: Samir Kassir Square, Beirut, Lebanon

P5.4 Planning and Approval Process



Note: Refer to User Guide page U29 for additional information on the approval process for Master Plans.

Public Realm Submissions

The culmination of the public realm planning process is the preparation of a Planning Stage Public Realm Strategy to accompany the master plan. It requires the completion of all steps in the planning process.

P5.4.1 Concept Stage

The strategy for provision of Public Realm (POS and Streetscape) for the site will be based on:

- Site and Context Assessments;
- OSF;
- Site Settlement Context;
- POS Quantity Standards;
- POS Catchment Standards;
- Selection of Design Elements;
- Universal Regulations for all Public Realm.

The strategy will detail:

- The amount of POS to be provided;
- The intended hierarchies and proportion of each within the total amount of POS to be provided;
- The intended distribution of the hierarchies across the site;
- The linkages and connections between the various POS components;
- The intended hierarchy of all streetscapes provided and their proposed treatment;
- The intended programming (POS types) and design elements to be included within the POS and streetscape based on the site land use planning and evaluation of the context area.
- Confirmation that all mandatory regulations have been complied with, or justifications for any variations have been provided;

The strategy may be a chapter within a master-plan report or a stand-alone section containing plans, sections, graphics, imagery and text to fully describe the proposals. The full submission requirements for this strategy are contained within the compliance checklist (Appendix A2).

D5.4.2 Detail Stage

At this stage the project is further developed in line with any conditions set by the DMT at the concept approval stage.

As set out in various approvals and NOCs are required in order to receive a Masterplan Approval from the DMT.

All required documentation must be prepared and combined to create a comprehensive design submission.

The submission will contain:

- All evidence outlined in the compliance checklist (Appendix A2) to demonstrate compliance with all relevant PRDM regulations;
- Specific documentation related to Estidama PCRS and all other relevant Agencies' regulations and receive their NOCs.

The submission and approval of the Master plan and Detail Planning Stage Submission by the DMT will allow progression to the Design Stage.

Standards

- PS-32** A comprehensive public realm strategy SHALL be produced covering all aspects of the proposed public realm network on the site.

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The Corniche,
Abu Dhabi

D Design



D

Introduction

This chapter of the PRDM provides guidance for:

1. Individual public realm projects resulting from a master plan. These projects would have gone through the planning stage; and
2. Standalone public realm projects not part of a larger master plan. Not usually required to go through the planning stage of the urban development review process.

The design chapter therefore sets out a process for the design of all POS and streetscape.

For projects which have proceeded through the master planning process, the designs should be based on the assessments carried out and the public realm strategies developed during the planning stages, which will be further developed during the design process (refer to checklist in Appendix A2 for specific requirements).

The guidance is equally relevant to the design of new public realm and the retrofitting of existing POS and streetscape in order to ensure that a consistent quality of public realm is developed in the Emirate.

Targeted Users

The information within this chapter is targeted at the following user groups who are responsible for the design, project formulation, approval, implementation and regulatory compliance.

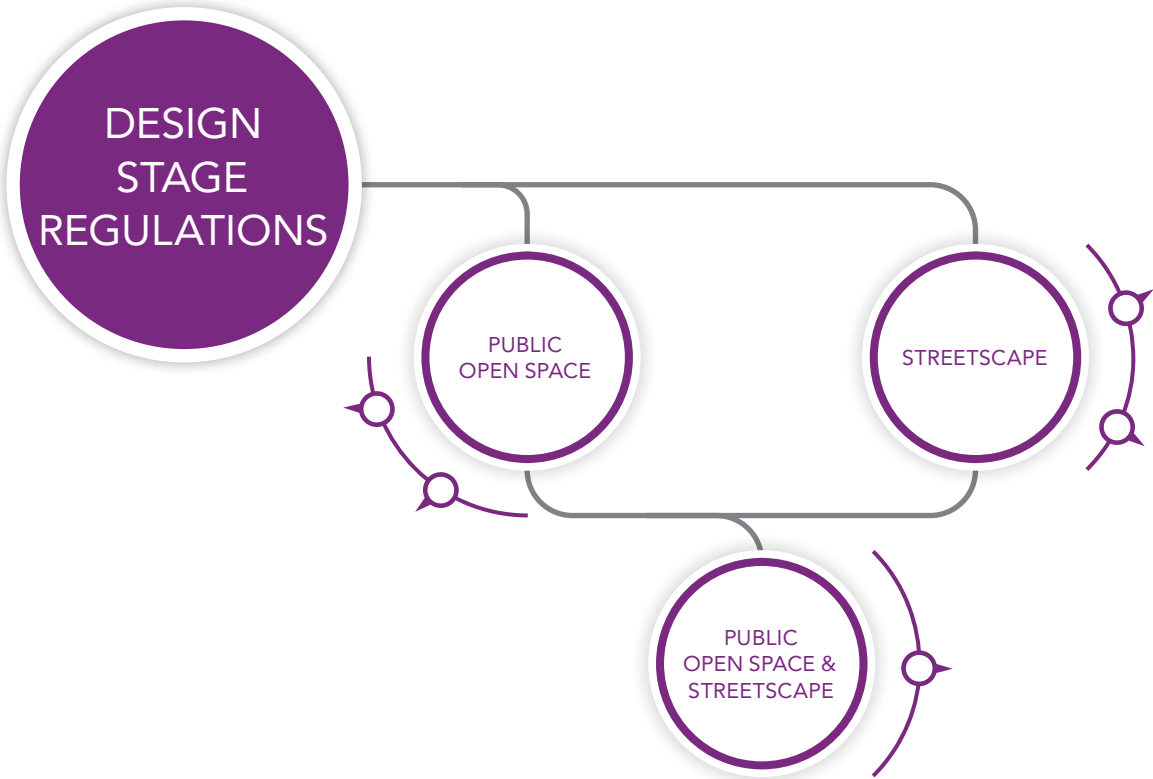
- Developers and their Consultants including Estidama Pearl Qualified Professionals (PQPs);
- Department of Municipalities and Transport (DMT) – Urban Development, Safety and Security and Estidama teams;
- Municipalities;
- Integrated Transport Center (ITC) and other Government Agencies responsible for Public Realm Design or Approval.

The manual encourages a collaborative approach between design consultants, Estidama professionals and approval agencies, to ensure the principle of sustainable design is incorporated at all stages of the design process.

Application of the Regulations

This chapter applies to all public realm projects. The regulations and Design Elements within this chapter are provided to ensure the consistent provision of minimum requirements, to ensure usable and sustainable places are developed, whilst allowing designers the opportunity to create distinctive and unique streets and spaces.

All public realm projects, whether new or being retrofitted, regardless of scale must comply with the regulations in this chapter.



Integrated Estidama Process

As outlined within the User Guide, an integrated Estidama process operates at each stage of the public realm planning and design process. The Estidama Public Realm Rating System (PRRS) applies to all projects at the design stage. Assessment occurs at the end of the design stage, as a requirement for the project’s Construction Permit and all projects large and small will need to achieve at least the Required credits. Some exemptions or reduced requirements are allowed within the PRRS for very small projects.

The Estidama submission for the design stage rating comprises of the full requirements outlined within the PRRS credits. The submission must be prepared by a qualified Estidama Professional and be submitted at the same time as the detail design to avoid delays in the approval process.

Figure D1: Hierarchy of Design Stage Regulations

D

Introduction

The Public Realm Design Process

This design chapter follows the step by step process described in Figure D2 to determine the design standards that must be met, and to determine the programming of Public Realm within the site. The process follows the following steps:

Standalone Public Realm Projects to start with:

1. Vision, Principles and Policies;

- Review and apply the PRDM Vision, Principles and Policies;

2. Studying the Context:

- Determine the site boundaries and area;
- Review the Open Space Framework;
- Undertake a Natural System Assessment;
- Undertake an assessment of the Site and surrounding area (700m offset minimum) to determine urban grain, character, existing public open space provision (including hierarchies, location and type of sport and play facilities) and presence of community and transit facilities;
- Determine the Settlement Context.

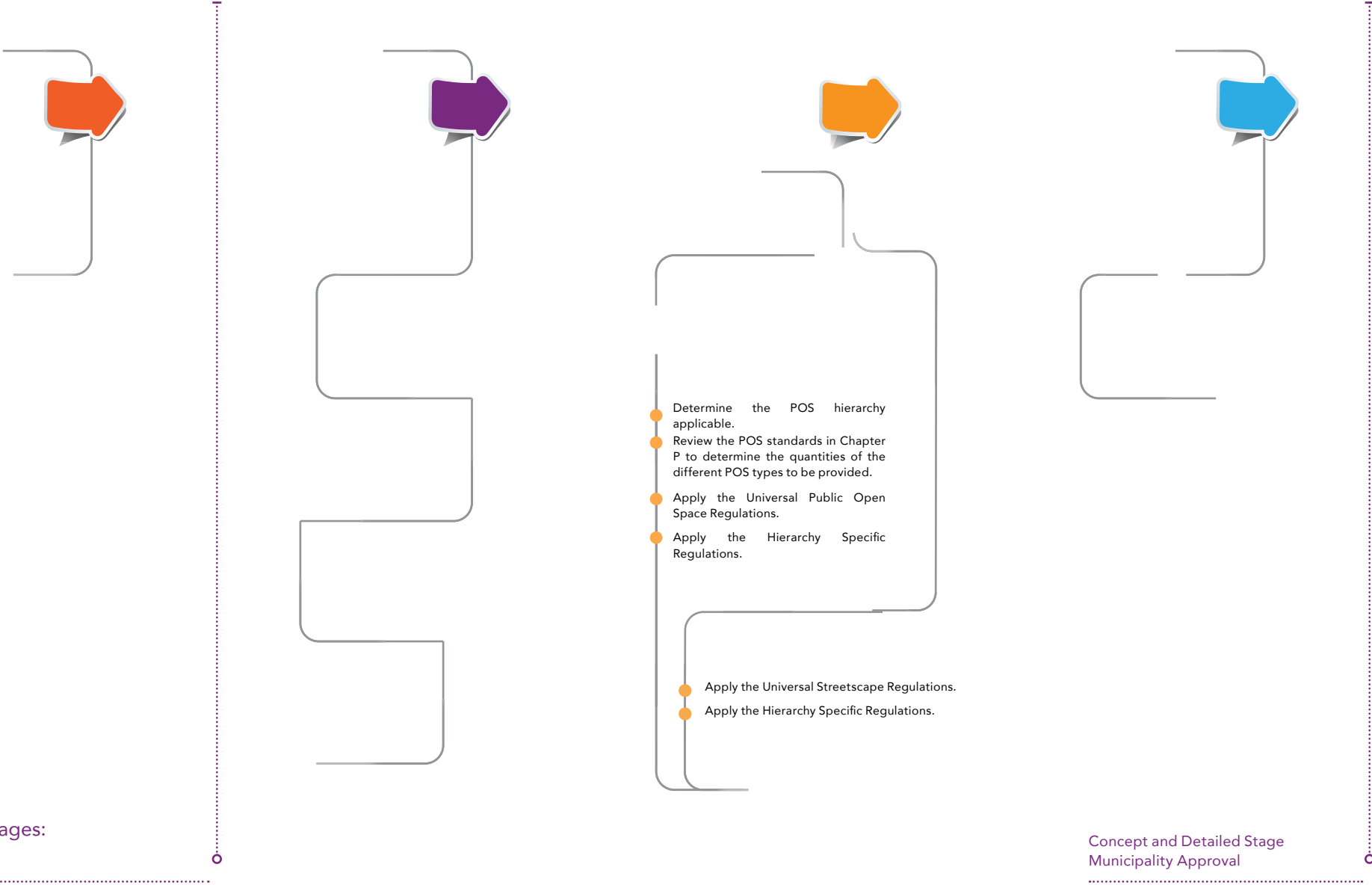
Individual Projects resulting from a Masterplan (with detailed urban development approval) to start with:

3. Public Realm Design and Programming:

- For Public Open Space:
 - Determine the POS hierarchy applicable;
 - Review the POS standards in Chapter P to determine the quantity of the different POS types to be provided;
 - Apply the Universal Public Open Space Regulations;
 - Apply the Hierarchy Specific Regulations;
 - Select appropriate Design Typologies and apply the guidelines.
- For Streetscape:
 - Apply the Universal Streetscape Regulations;
 - Apply the Hierarchy Specific Regulations;
 - Select appropriate Design Typologies and apply the guidelines.

4. Design Process and Documentation:

- Prepare Design Stage Public Realm Strategies;
- Prepare Design Submissions;
- Prepare documents for tender and construction in compliance with all standards.



Approval Stages:

Enquiry Stage

Figure D2:
Public Realm Design Stage Process

D1

Vision, Principles & Policies



All design stage projects must review and demonstrate compliance with the PRDM Vision, Principles and Policies.

They seek to ensure the development of a world class public realm for the Abu Dhabi Emirate through six key principles and associated policies.

These are outlined here but contained in their entirety in Chapter P.

PRINCIPLE 1:
Liveability



The public realm is a safe, comfortable and engaging space, where diverse activities can be experienced by all, contributing to people’s physical and mental wellbeing, therefore providing a high quality of life.

PRINCIPLE 2:
Identity



The public realm incorporates the expression of Arab culture, heritage, values and traditions in the development of streets and spaces that reflect their local environment.

PRINCIPLE 3:
Connectivity



The public realm is interconnected and enhances the mobility of people by providing comfortable, continuous access for walking, cycling and other modes of transport.

PRINCIPLE 4:
Placemaking & Design Excellence



The public realm is made up of high-quality, human-scale and visually interesting places. It includes multi-functional, flexible and climate responsive design solutions.

PRINCIPLE 5:
Inclusivity



The public realm provides safe, comfortable, and diverse POS, for the enjoyment of all people, and helps to promote community cohesion.

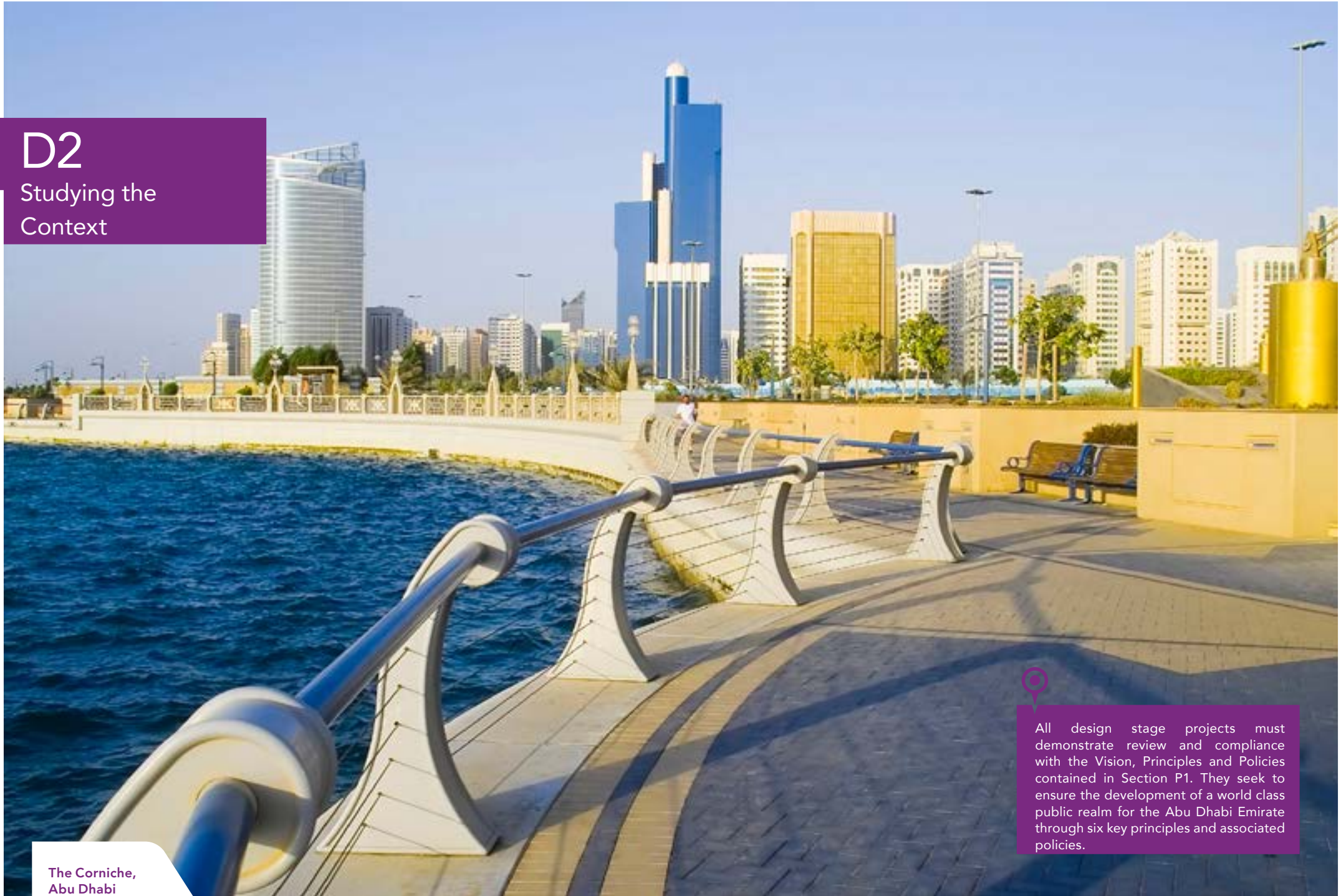
PRINCIPLE 6:
Environmental Stewardship



The public realm is responsibly designed to achieve water and energy efficiency, and help in the preservation of important ecological areas and native habitat.

D2

Studying the Context



The Corniche,
Abu Dhabi



All design stage projects must demonstrate review and compliance with the Vision, Principles and Policies contained in Section P1. They seek to ensure the development of a world class public realm for the Abu Dhabi Emirate through six key principles and associated policies.

A requirement of both the planning and design stages is to define the site boundaries and area and to undertake site and context assessments.

If an individual public open space or streetscape project has not originated from a master plan and is therefore not required to undertake the planning stage processes these studies will still be required in support of the design stage application.

If a project has been through the master plan approval stage then the strategies and studies contained in the approved plan will need to be updated and developed in greater detail at the design stage (refer to checklist in Appendix A2 for submission requirements).

D2.1 Site Boundaries and Area

The boundaries of the project site shall be clearly defined. The overall site area shall also be calculated. This may be broken down into sub areas if the site contains streetscape, POS or significant areas of parking however the Overall Site Area figure shall be stated.

Standards


- DS-1** The boundaries and overall site area SHALL be clearly defined.
- DS-2** A Site Assessment SHALL be undertaken of the existing site.
- DS-3** A Context Assessment of a 700m offset zone surrounding the site SHALL be undertaken.

D2.2 Open Space Framework

The Open Space Framework must be reviewed to determine any specific local requirements.

D2.3 Natural Systems Assessment

A Natural Systems Assessment is required at the design stage to ensure the environmental baseline conditions on the site and immediately adjacent areas are considered and assessed.

 The Natural Systems Assessment is a requirement of the PRRS - [NS-R1](#).

D2.4 Site and Context Assessment

An assessment of the existing site and of the immediate site context (a 700m offset minimum around the site) is required at design stage to ensure that the proposed public realm provision responds to local characteristics and requirements.

The site assessment should include:

- Existing features including existing vegetation, environmental and ecological features;
- Current access and movement network to the site including location of public transit network and stops, pedestrian and cycle routes;
- Topography;
- Views;
- Solar access;
- Utilities and infrastructure constraints; and

- Existing facilities relevant to site development.


The context assessment should include:

- An assessment of the land uses, urban grain and character of the context area;
- Identification of the size, quantity, type and features of all public open space and streetscape within the surrounding area;
- Identification of the type, size and quality of all publicly accessible Sport and Play facilities in the area;
- Location and type of community facilities;
- Location of transit facilities and routes; and
- Location of pedestrian and cycle routes.

D2.5 Respond to Context

The above studies of site and the surrounding context will serve to inform the programming of public realm and the application of the Design Elements.

They will also form part of a Design Stage - Public Realm Strategy that must be prepared to accompany the design submission. Refer to Section D4 for more detail on how to prepare this.

 The Site and Context Assessments and Response to Context elements are aligned with PRRS - [LS-R1](#).

D3

Public Realm
Design &
Programming

3.1 Design Process

Public realm within the Emirate of Abu Dhabi includes all types of POS: parks, gardens, waterfronts, urban public spaces and the streets that connect them.

This section describes the process for designing POS and streetscape and for programming the uses, facilities and features that should be provided within them. The section is separated into the two categories of public realm: POS and streetscape, and contains the regulations applicable to each.

3.1.1 Public Open Space:

Hierarchy

Table D1 defines the levels of the POS hierarchy and the characteristics, features and activities associated with each level.

The level of hierarchy is primarily defined by size, therefore a recommended size as well as a size range are provided for each hierarchy level to allow flexibility.

The table defines in general terms the qualities and conditions related to POS to ensure a wide-ranging and coordinated POS network is created to serve the entire Emirate.

Each POS hierarchy level has a defined service offset area to ensure that there are a range of different facilities and activities within a certain distance of the population.

The POS hierarchy also guides the inclusion of different public realm design elements at each level.

3.1.2 Public Open Space Design
Stage Regulations

The aim of standards and guidelines for the development of POS are to ensure:

- The implementation of the principles and policies outlined within the PRDM;
- A minimum standard of provision for all POS within the Emirate, i.e. the provision of the basic elements which are essential to a functional POS;
- The creation of a coordinated POS network for the Emirate.

Regulations apply to design of individual POS and include:






Universal Regulations – these standards and guidelines outline design provisions for implementation across the POS network and apply to all levels of the hierarchy. They represent the minimum standards to which all POS must adhere.

Hierarchy-Specific Regulations – these hierarchy-related standards and guidelines, apply to each level of the hierarchy, and take precedence over the universal regulations in case of conflicting guidance. There are specific regulations for:

- Emirate;
- Municipality;
- District;
- Neighbourhood;
- Local.

Standards are highlighted and either mandate or prohibit specific practices, while guidelines are recommended to be followed, but allow design flexibility. The Estidama credit reference number refers to the aligned Estidama requirements and the relevant section of the PRRS which must be referred to.

Table D1: Public Open Space Hierarchy Characteristics

Hierarchy	Characteristics	Features & Activities	Recommended Size (and Size Range)
Emirate	<ul style="list-style-type: none"> Large areas, corridors or networks of POS Natural undeveloped landscapes, which are publicly accessible Providing recreational, ecological landscape, cultural or green infrastructure benefits 	<ul style="list-style-type: none"> Mostly passive use Facilities and features that are distinctive of the Emirate Natural features 	 <p>300+ ha</p>
Municipality	<ul style="list-style-type: none"> POS of city or municipality-wide significance Natural or semi-natural areas Historic and civic landmarks Specialised sports facilities Religious grounds 	<ul style="list-style-type: none"> Active and passive use Facilities for major cultural and civic events and celebrations Historic and civic landmarks Monumental public art 	 <p>100 ha (50-300 ha)</p>
District	<ul style="list-style-type: none"> Serving multiple neighbourhoods Combination of daily use and district-wide public functions Civic spaces Religious grounds 	<ul style="list-style-type: none"> Active and passive use Larger sports fields for organised and informal activity Space and facilities for community gatherings Kiosks and café facilities 	 <p>20 ha (5-50 ha)</p>
Neighbourhood	<ul style="list-style-type: none"> Planned for daily use and influenced by adjacent land-uses and activity types Provides the neighbourhood with a mix of play, gathering and socialising spaces 	<ul style="list-style-type: none"> Active and passive use Larger features for children's outdoor play Equipped playgrounds Smaller sports provision Abundant seating Abundant shade Small kiosks and café facilities 	 <p>2 ha. (1-5 ha)</p>
Local	<ul style="list-style-type: none"> Pocket parks and barahaat Squares, plazas and civic spaces Incidental spaces for daily activities in residential, commercial and mixed use areas 	<ul style="list-style-type: none"> Active and passive use Equipped playgrounds Smaller sports provision Abundant seating Abundant shade 	 <p>0.5 ha (up to 1 ha)</p>

D3.2

Design Stage Universal Regulations for Public Open Space



The regulations governing the design of all public realm projects are described in this section.

The regulations are grouped in categories, each category responding to specific aims as outlined.

The icons representing them are used throughout the document to illustrate where they might apply during the design process.



Movement and Access

Aims

To achieve a well-connected network of POS that are prominent within the surrounding urban form and easily accessible from surrounding areas by residents, workers and visitors.

Standards

- DS-4** Primary entrances, walkways and cycle paths SHALL be located to connect the site to public transit stops, pedestrian and cycle networks and key amenities and destinations in the surrounding area.
- DS-5** A hierarchy of primary and secondary entrances SHALL be established that reflects the adjacent streetscape hierarchy.
- DS-6** Emergency vehicle access SHALL be ensured.
- DS-7** POS facilities SHALL be designed to conform to Universal Access Standards in accordance with DMT's Transportation Accessibility Standards and USDM guidance.

Guidelines

- DG-1** The internal circulation within POS SHOULD comprise of a clear hierarchy, and be organised around a primary pathway, with secondary pathways linking the features within the POS.
- DG-2** Changes in route SHOULD be indicated with well defined edge treatments, such as kerbs, plant materials or changes in texture.



Buildings

Aims

To provide the necessary facilities for the enjoyment and operation of a successful POS that are, however, ancillary to the primary purpose of open space.

Standards

- DS-8** Buildings SHALL be designed to high sustainability standards and to reflect the character of the POS and its context.
- IDP-R2**
- DS-9** Maintenance buildings SHALL be located away from public use areas and screened if appropriate.
- DS-10** Buildings SHALL be located by taking account of sightlines and views.

Guidelines

- DG-3** Public buildings SHOULD be located in accessible locations near gathering areas and entrances.
- DG-4** All buildings SHOULD have a strong visual and physical connection with the POS.
- DG-5** Buildings design SHOULD reflect the architectural character of other site buildings as expressed through consistent use of materials, forms and colours.

Shading

Aims

To provide comfortable POS that respond to the climate of Abu Dhabi, facilitating usage of key facilities at all times of the day throughout the year.

Standards

- DS-11** Shading SHALL be provided to car parking, walkways, cycle tracks and parking, play areas, seating and gathering areas.
- LS-R1**
- DS-12** The design and location of shade structures SHALL take account of prevailing wind, solar paths throughout the day, adjacent structures and landscaping.
- LS-R1**

Guidelines

- DG-6** Shading SHOULD be provided at location of interpretative displays, kiosks, viewing points etc. to promote and encourage use of the public realm.
- DG-7** Shade structure design SHOULD minimise vertical supports that can obstruct the pedestrian realm.
- DG-8** Shade structure SHOULD be architecturally integrated when attached to a building.
- DG-9** Shade structures SHOULD limit the use of heat-conducting and/or highly polished materials and be constructed of durable, good quality materials.
- DG-10** Various types of shading elements SHOULD be used according to context, such as shade structures (utilising man-made or natural materials), softscape features or canopy trees.

Softscape

Aims

To provide green open spaces as important natural, recreational and breathing spaces within urban areas. Create a good quality planted environment which responds to the specific climatic and horticultural conditions of Abu Dhabi.

Standards

- DS-13** The sustainable and appropriate plant materials for the site location SHALL be determined with reference to the PRDM plant list (included in Appendix).
- NS-R3**
- DS-14** Water usage for the POS SHALL not exceed 4.5l/m² a day.
- PW-R1**
- DS-15** Extensive areas of irrigated turf SHALL be avoided.

Guidelines

- DG-11** Native and habitat-friendly vegetation, appropriate to the arid environment of Abu Dhabi SHOULD be included as much as possible.
- NS-3**
- DG-12** The restoration or re-creation of natural habitat SHOULD be considered on suitable sites.
- NS-4**
- DG-13** Sports fields (football, cricket, baseball, tennis etc.) SHOULD comprise synthetic turf areas for programmed recreation and natural turf for adjacent passive recreation.
- DG-14** The provision of community gardens and food growing areas SHOULD be considered on suitable sites.
- LS-3**
- DG-15** Open turf area MAY be provided for unstructured play.

Hardscape

Aims

Create a good quality designed public realm environment which responds to the specific climatic and cultural conditions of Abu Dhabi.

Standards

- DS-16** All hardscape materials SHALL be durable, able to withstand impact, harsh environment, vandalism and be appropriate for public place locations.
- SM-R4**
- DS-17** Modular paving materials SHALL be used in pedestrian areas to minimise waste due to maintenance operations.
- SM-R4**
- DS-18** All unshaded hardscape areas SHALL be constructed of light coloured paving materials in order to minimise heat build up. Care should be taken however to avoid high-glare surfaces.
- LS-R1**
- DS-19** Hardscape materials for foot trafficked areas SHALL have a slip prevention rating of R12 or above, and all water features SHALL be surrounded with slip-resistant materials.
- SM-R4**
- DS-20** All play structures SHALL be surrounded with suitable impact material.
- SM-R4**

Guidelines

- DG-16** A variety of play surfaces, appropriate to proposed uses SHOULD be provided incorporating hard, soft, natural and synthetic materials.
- DG-17** Regionally sourced materials SHOULD be used where practical.
- SM-3** Changes in materials' colour, size or texture MAY be used to indicate space transition and respond to the use of the area.
- DG-19** Good-quality compacted crushed stone or gravel MAY be used where appropriate, taking into account universal accessibility requirements.

D3.2

Design Stage Universal Regulations for Public Open Space



Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER
- ID = ESTIDAMA CREDIT REFERENCE



Furniture

Aims

To provide comfortable POS which encourages sitting, social interaction and relaxing whilst discouraging over-provision and cluttering of spaces with unnecessary furniture.

Standards

- DS-21 Coordinated furniture designs SHALL be used, that are contemporary, simple and appropriate to context.
- DS-22 Site furniture SHALL be designed to accommodate the inclusion of people of determination and their needs and SHALL employ good quality design and materials to withstand climatic conditions, heavy use and vandalism.
- SM-R4
- DS-23 Refuse and recycling containers SHALL be provided at entrances and in gathering areas.
- SM-R3
- DS-24 Shaded bicycle racks SHALL be provided at primary entrances.
- LS-R1

Guidelines

- DG-20 The colour palette of all painted metalwork on furniture elements SHOULD be consistent and coordinated.
- DG-21 Furniture SHOULD be constructed with non-reflective materials to limit heat conductivity.
- DG-22 Metal seating SHOULD be avoided and/or only used in shaded locations.
- DG-23 A variety of seating options SHOULD be provided, including seating arranged in clusters to encourage social interaction.



Public Art

Aims

To add vibrancy and interest to POS through the use of public art features that are considered as a fundamental part of the design process.

Standards

- DS-25 The provision of public art SHALL reflect guidelines from the
- DS-26 Public art SHALL be used to enhance the POS design in strategic positions, such as focal points and gathering areas.

Water Usage

Aims

To add vibrancy and interest to POS through the considered use of irrigation and water features, to provide a sense of calm and coolness to the space whilst minimising water use.

Standards

- DS-27** A detailed water efficiency strategy SHALL be developed, **PW-R1** detailing water features and irrigation requirements to outline how water will be utilised across the site.
- DS-28** The provision of water features SHALL reflect guidelines from the .
- DS-29** Water features SHALL be employed sparingly and judiciously, **PW-R1** and located near areas of high activity and use.
- DS-30** Stormwater management measures SHALL be incorporated **PW-R3** within site design.

Guidelines

- DG-24** Opportunities for education about water conservation SHOULD be sought and appropriate facilities provided.

Lighting

Aims

To ensure comfortable, safe and visually interesting spaces that are appropriately lit during the evening responding to predicted usage patterns whilst minimising energy usage, maintenance and light pollution.

Standards

- DS-31** Lighting in POS SHALL be designed to: provide adequate illumination to the POS, reduce glare into adjacent properties, **LS-R4** minimise light pollution and impact on natural areas.
- DS-32** General illumination of large areas of landscaping SHALL NOT be allowed.
- DS-33** All lighting in the public realm SHALL meet the lighting requirements as stated in the DMT 'Lighting Standards'. **RE-R1**
- DS-34** Lighting SHALL be used to clearly illuminate threads, risers and any other level differences along primary and secondary pathways.

Guidelines

- DG-25** Appropriate lighting SHOULD be used at POS entrances.
- DG-26** Low-level or pedestrian lighting such as bollards, low-height columns, in-ground lights, step and wall lights SHOULD be used where appropriate.
- DG-27** Focal points such as shade structures, water features, public art and landmarks MAY be lit in order to provide an inviting presence at night and extend the usable time for the facility.

Fencing/Walls/Screens

Aims

To ensure the boundaries of POS are well defined from surrounding areas whilst ensuring that spaces are welcoming and accessible to all at appropriate times of the day and night.

Guidelines

- DG-28** Perimeter fencing SHOULD be minimised.
- DG-29** If required, walls/fences/screens SHOULD be designed to maintain visual permeability to ensure safety & security of POS users.
- DG-30** Where walls are used as boundary treatment or to create terraces at level changes their height SHOULD be a maximum of 0.5m, to create informal seating.
- DG-31** The design and construction of fences/walls/screens SHOULD use the same or similar materials expressed in the POS design.
- DG-32** Fencing MAY be used to define privacy areas, play and sport areas, to screen undesirable features and to restrict public access where appropriate.
- DG-33** Berms, low walls and dense, locally occurring plant materials MAY be used for screening or defining areas.

Services/Infrastructure

Aims

To provide the necessary equipment and infrastructure for the ongoing operation and management of POS whilst ensuring their location is considered as part of the overall design strategy.

Standards

DS-35 Feeder pillars and utility cabinets SHALL be securely located away from recreational, play and other active spaces and SHALL NOT be directly accessible by the public. If a secure placement can not be achieved these SHALL be replaced with underground units.

DS-36 Energy and water metering and monitoring equipment SHALL be installed.
PW-R2
RE-R2

DS-37 Commissioning of services and infrastructure SHALL be considered throughout the design process.
IDP-R3

Guidelines

DG-34 Maintenance facilities SHOULD be located away from public circulation routes and use areas and screened where appropriate.

DG-35 The provision of electrical and water connection to facilitate events SHOULD be considered.

DG-36 The provision of drinking fountains and hand washing facilities SHOULD be considered, to be located at entrances, gathering areas, picnic and barbecue areas as appropriate.

DG-37 Facilities for education about energy efficiency SHOULD be considered for suitable locations.
RE-2

DG-38 The provision of convenience power outlets at selected seating/ gathering areas MAY be considered.

Signage/Wayfinding

Aims

To simply and effectively convey the location of facilities, special features, and POS rules and bylaws without visually dominating the space.

Standards

DS-38 Signage and wayfinding elements SHALL have a clear hierarchy, reinforcing primary entrances, pathways and landmarks.

DS-39 Signage SHALL be well placed and integrated into the POS, in order to retain sightlines and maintain pedestrian or cyclists through zones.

DS-40 A unified visual language SHALL be used for all signage and wayfinding materials, colours, scales and types.

DS-41 All signage elements SHALL be durable, easily maintainable, and use a non-reflective matte finish.

DS-42 Signage and wayfinding SHALL be suitable for daytime and night-time use and integrated with lighting in areas of high night-time use.

Guidelines

DG-39 A map or directional guidance SHOULD be provided at primary entrances and pathway intersections and SHOULD at a minimum include information about the location of accessible public toilets and interest points.

DG-40 'Smart' technology, communication of user information using QR codes and/or Wi-Fi MAY be incorporated within the signage elements.



Key

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Safety/Security

Aims

To provide safe, secure and accessible public open spaces for all members of the community.

Standards

DS-43 POS design SHALL ensure a high level of safety and security for users, employing the principles and regulations of the Abu Dhabi Safety and Security Planning Manual (SSPM) to achieve Crime Prevention Through Environmental Design (CPTED) and other applicable security risks, and UAE Fire and Safety Code of Practice.

DS-44 Security lighting with motion sensors SHALL be used.
RE-R1

DS-45 All hazardous materials SHALL be avoided.
SM-R1

Guidelines

DG-41 Amenities such as playground equipment, picnic shelters, sport courts and toilets SHOULD be located so that they are visible from adjoining streets and ensuring a clear sightline is maintained within the POS.

DG-42 Safety and security elements (CCTV, emergency call boxes) MAY be placed strategically throughout the POS dependent on Police Department advice.

DG-43 Furniture and landscape MAY be used to define the boundaries between public and private space whilst encouraging natural surveillance.

Parking

Aims

To ensure the provision of appropriate parking facilities, in a way that does not hinder movement or visually detract from the enjoyment of the public realm.

Standards

DS-46 Parking SHALL be sufficiently set-back from high profile buildings and structures to minimise visual impact.

DS-47 Parking SHALL be organised to minimise visual impact on the POS and provide a clear, level route between streets and primary entrances.

DS-48 Cycle parking and other end-of-ride facilities for cyclists SHALL be provided as per DMT Walking and Cycling Masterplan (WCMP).

Special Features

Aims

To provide the facilities that enable appropriate activities and recreation to take place, contributing to the enjoyment of the public realm.

Guidelines

DG-44 A variety of play, sport and other facilities SHOULD be provided as appropriate to the size and design intent of the POS.

D3.2.1

Regulations for Emirate Public Open Space

The following POS regulations supplement the universal regulations. They provide specific standards and guidelines relative to the scale of each hierarchy level of POS. Where the universal regulations and the hierarchy specific regulations conflict, the hierarchy specific regulations should be followed.

Emirate POS will, due to the nature of their size, often be structured around natural or historic features, aimed at responding to, preserving and enhancing the natural environment and cultural heritage as shown in Figure D4. They may include Oases, Landscape Conservation Areas, Deserts, Forests and Mangrove areas for example. Due to their size and function they are likely to be provided, developed and maintained primarily by Government agencies.

As illustrated in Figure D3, appropriate Design Elements at this level may include:

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Key

- Baseline Park Element

Design Elements:

- Play
- Conservation
- Regional Culture
- Public Art

Figure D3: Example of Design Elements Application to Emirate Level Public Open Space



Figure D4: Example of Emirate Level Public Open Space and Applicable Regulations Categories

D3.2.1

Regulations for Emirate Public Open Space



Movement and Access

Standards

DS-49 A primary pathway SHALL be provided with a minimum width of 4.5m.

Guidelines

DG-45 Pathways SHOULD be designed to link to primary use areas, define space and enhance views.

DG-46 Secondary pathways SHOULD be a minimum width of 1.8m.

DG-47 Interpretative displays SHOULD be provided along pathways.

DG-48 Natural features SHOULD be preserved by restricting access where appropriate.



Softscape

Standards

DS-50 The softscape SHALL reflect and strengthen the native landscape of the area.

DS-51 Locally occurring, drought tolerant plant materials SHALL be used at natural densities.

DS-52 Natural turf or areas of open grass SHALL be avoided.

DS-53 The natural ecosystem SHALL be allowed to be self-maintaining to the greatest extent possible.

Guidelines

DG-50 All plant material SHOULD be grouped into distinct hydro-zones.

DG-51 Sculpted land forms MAY be incorporated to define spaces.



Shading

Guidelines

DG-49 Shade structure SHOULD be constructed of natural materials or tensile fabrics.



Hardscape

Guidelines

DG-52 Hardscape materials that are permeable and have a natural desert colour palette SHOULD be used.

DG-53 Natural informal materials (granular materials, compacted or bound gravel etc.) SHOULD be used to ensure stability of sand areas and adequate surface water drainage.

Key

- DS** = UNIQUE STANDARD NUMBER
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- ID** = ESTIDAMA CREDIT REFERENCE

Furniture

Standards

- DS-54** The total seating area requirements SHALL be calculated based on:
- 1 seating area per 40 linear metres of primary pathway.
 - 1 seating area per 80 linear metres of secondary pathway.
- DS-55** The total picnic table requirements SHALL be calculated based on:
- 1 picnic table per 80 linear metres of secondary pathway.

Fencing/Walls/Screens

Standards

- DS-57** The use of continuous perimeter fencing SHALL be avoided unless carefully considered and justified.

Guidelines

- DG-54** Sympathetic fencing or screening of sensitive natural areas MAY be considered to discourage access.

Parking

Standards

- DS-60** Parking areas SHALL be provided in accordance with DMT standards, to satisfy the estimated average daily users number.

Guidelines

- DG-55** Parking SHOULD be designed to minimise visual impact on the site and surrounding areas.
- DG-56** Parking surfacing SHOULD be 100% permeable.

Lighting

Standards

- DG-56** Lighting SHALL be appropriately and sensitively designed, selected and located to preserve the natural environment.

Signage/Wayfinding

Standards

- DS-58** Interpretative displays SHALL be provided at entrances, along pathways, at gathering areas and unique features.
- DS-59** An identification sign to a maximum size of 5m² with appropriate mapping SHALL be provided at primary entrances.

Special Features

Standards

- DS-61** Public bathrooms SHALL be provided as 1 facility every 500m and, based on expected visitors number, will include as a minimum:
- 1 per 550 women;
 - 1 per 1100 men;
 - 1 baby changing room;
 - 1 disabled toilet.

D3.2.1

Regulations for Emirate Public Open Space



Movement and Access



Primary Pathway:
minimum width 4.5m



Secondary Pathway:
minimum width 1.8m



Linkages to primary use areas
defining space and activities

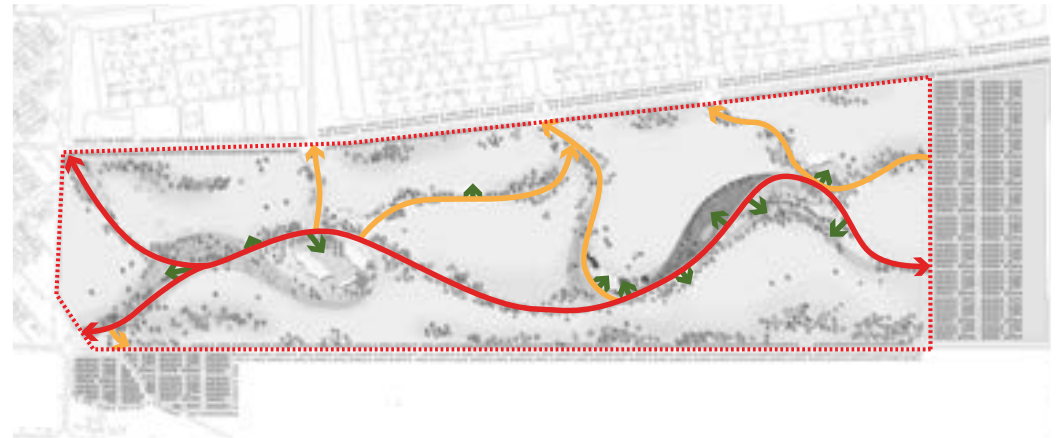
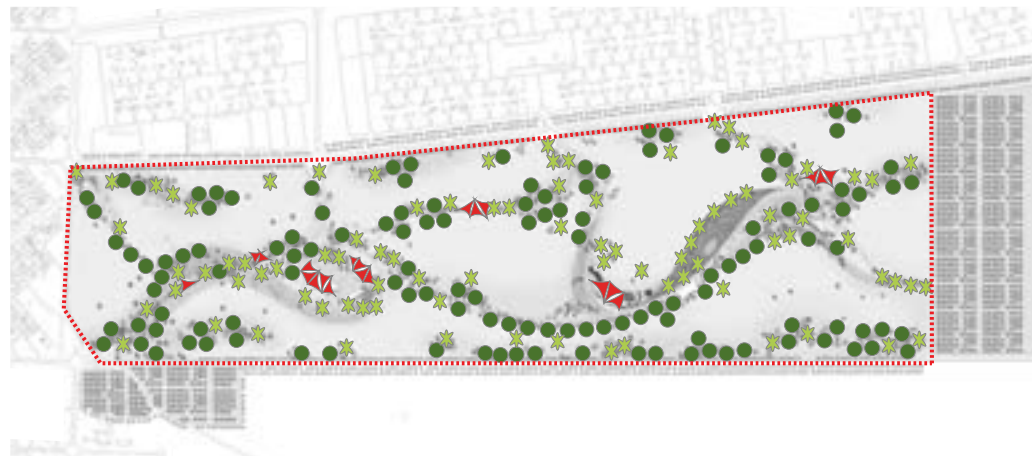


Figure D5: Example of Movement and Access design



Shading



Tree Canopy



Palm Canopy



Shading Structure

Note: Refer to plant types in the plant list.

Figure D6: Example of Shading Design

Softscape

-  Palm
-  Canopy Tree
-  Natural Turf
-  Xeriscape

Note: Refer to plant types in the plant list.

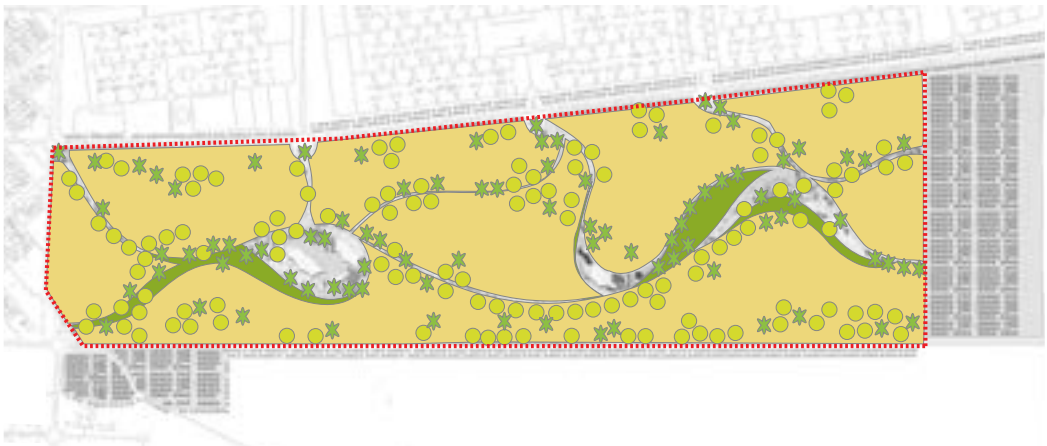
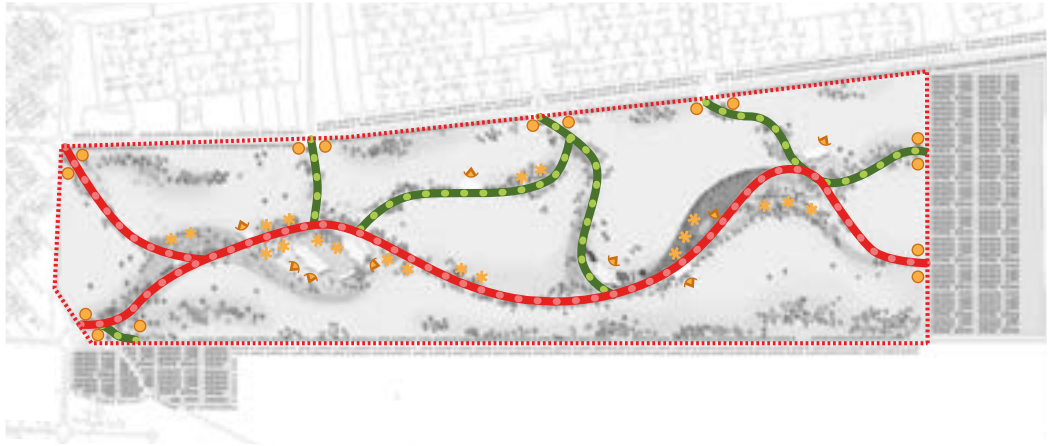


Figure D7: Example of Softscape design







- ### Lighting
-  Primary Pathway Lighting
 -  Secondary Pathway Lighting
 -  Activity / Mid-Level Lighting
 -  Low Level Lighting at Entrances
 -  Tree Uplighters

Figure D8: Example of Lighting Design



Figure D10: Example of Municipality Level Public Open Space and Applicable Regulations Categories

D3.2.2

Regulations for Municipality Public Open Space



Movement and Access

Standards

- DS-62** A primary pathway SHALL be provided with a minimum width of 5m.
- DS-63** A secondary pathway SHALL be provided with a minimum width of 3.5m.

Guidelines

- DG-57** The POS SHOULD link to a minimum of 2 adjacent streets.
- DG-58** The boundary between the POS and the streetscape SHOULD be open and accessible.
- DG-59** Entrances SHOULD be defined with appropriately scaled gateway features.
- DG-60** Pathways SHOULD be designed to link to primary use areas, define space and enhance views.



Shading

Guidelines

- DG-61** A variety of shade structure (coordinated in style and colour), softscape features or canopy trees SHOULD be used to provide shade.



Softscape

Standards

- DS-64** Limited natural turf SHALL be provided in passive recreation areas.


Guidelines

- DG-62** Synthetic turf SHOULD be provided in active recreation areas.
- DG-63** All plant material SHOULD be grouped into distinct hydro-zones.
- DG-64** Sculpted land forms MAY be incorporated to define space.



Key

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Hardscape

Guidelines

- DG-65** A palette of hardscape materials that reflect and enhance the character of the surrounding area **SHOULD** be used.
- DG-66** Large surface areas of POS **SHOULD** predominantly consist of natural, informal hardscape materials (granular materials, compacted or bound gravel etc.).
- DG-67** Different colours and patterns **MAY** be used to define gathering areas and special features.



Furniture

Standards

- DS-65** The total seating area requirements **SHALL** be calculated based on:
 - 1 seating area per 30 linear metres of primary pathway.
 - 1 seating area per 60 linear metres of secondary pathway.
- DS-66** The total picnic table requirements **SHALL** be calculated based on:
 - 1 picnic table per 60 linear metres of secondary pathway.




Lighting

Standards

- DS-67** The primary pathways and accessible perimeter edges **SHALL** be illuminated.
- DS-68** All pedestrian lighting **SHALL** be human scaled.
- DS-69** Sports facilities **SHALL** be illuminated as appropriate.

Guidelines

- DG-68** Lighting **SHOULD** be used to create a sense of space and sequence of movements through the POS areas.
- DG-69** The character of lighting **SHOULD** be adapted to the character of the POS.
- DG-70** Low-level lights **MAY** be provided in the POS.



Fencing/Walls/Screens

Standards

- DS-70** The use of continuous perimeter fencing **SHALL** be avoided unless carefully considered and justified.

Guidelines

- DG-71** Fences **MAY** be considered only for women and children areas, food growing areas and sports if required.

D3.2.2

Regulations for Municipality Public Open Space



Signage/Wayfinding

Standards

DS-71 An identification sign to a maximum size of 5m² with appropriate mapping SHALL be provided at primary entrances.

Guidelines

DG-72 An identification sign to a maximum size of 1m² SHOULD be provided at secondary entrances.

DG-73 Interpretative displays SHOULD be provided at entrances, along pathways, at gathering areas and unique features.



Parking

Standards

DS-72 Parking areas SHALL be provided in accordance with DMT standards, to satisfy the estimated average daily users number.

DS-73 Parking lots SHALL be subdivided into shaded modules of a maximum 11 parking stalls per module.

Guidelines

DG-74 Parking SHOULD be designed to minimise visual impact on the site and surrounding areas.

DG-75 Staging areas for coach drop-offs MAY be provided.

DG-76 Overflow car parking MAY be provided in appropriate locations, in accordance with DMT recommendations.



Key

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Special Features

Standards

- DS-74** Structures SHALL be designed to reflect the character of the overall POS.
- DS-75** Structures SHALL reflect the size and uses of the POS.
- DS-76** Play areas with a range of play structures SHALL be provided, suitable for all ages and abilities.
- DS-77** Public bathrooms SHALL be provided as 1 facility every 500m and, based on expected visitor number, will include a minimum:
 - 1 per 550 women;
 - 1 per 1100 men;
 - 1 baby changing room;
 - 1 disabled toilet.

Guidelines

- DG-77** Gathering areas that support education, interpretation, passive recreation and relaxation SHOULD be provided.
- DG-78** 2 picnic shelters with a minimum size of 40m² SHOULD be provided per gathering area.
- DG-79** 1 barbecue area and ancillary elements (picnic areas and hand washing facilities) SHOULD be provided for every 5,000m² of POS.
- DG-80** A range of sport facilities SHOULD be provided in accordance with the Sport Design Strategy.



1

1: Umm Al Emarat Park, Abu Dhabi City, UAE

D3.2.2

Regulations for Municipality Public Open Space

Movement and Access







-  Primary Pathway: minimum width 5.0m
-  Secondary Pathway: minimum width 3.5m
-  Linkages to primary use areas defining space and activities



Figure D11: Example of Movement and Access Design



Shading

-  Tree Canopy
-  Palm Canopy
-  Shading Structure

Note: Refer to plant types in the plant list.

Figure D12: Example of Shading Design

Softscape

-  Palm
-  Canopy Tree
-  Natural Turf
-  Xeriscape
-  Food Growing

Note: Refer to plant types in the plant list.



Figure D13: Example of Softscape Design



Figure D14: Example of Lighting Design

Lighting

-  Primary Pathway Lighting
-  Secondary Pathway Lighting
-  Activity/Mid-Level Lighting
-  Low Level Lighting at Entrances
-  Tree Uplighters



Figure D16: Example of District Level Public Open Space and Applicable Regulations Categories

D3.2.3

Regulations for District Public Open Space



Movement and Access

Standards

- DS-78** A primary pathway SHALL be provided with a minimum width of 4m.
- DS-79** A secondary pathway SHALL be provided with a minimum width of 3m.

Guidelines

- DG-81** The POS SHOULD link to a minimum of 2 adjacent streets.
- DG-82** The POS SHOULD front a primary street.
- DG-83** Entrances SHOULD be defined with appropriately scaled gateway features.
- DG-84** Pathways SHOULD be designed to link to primary use areas, define space and enhance views.



Shading

Guidelines

- DG-85** A variety of shade structure (coordinated in style and colour), softscape features or canopy trees SHOULD be used to provide shade.



Softscape

Guidelines

- DG-86** Limited natural turf SHOULD be provided in passive recreation areas.
- DG-87** Synthetic turf SHOULD be provided in active recreation areas.
- DG-88** All plant material SHOULD be grouped into distinct hydro-zones.
- DG-89** Sculpted land forms MAY be incorporated to define space.



Furniture

Standards

- DS-80** The total seating area requirements SHALL be calculated based on:
 - 1 seating area per 20 linear metres of primary pathway.
 - 1 seating area per 40 linear metres of secondary pathway.
- DS-81** The total picnic table requirements SHALL be calculated based on:
 - 1 picnic table per 60 linear metres of secondary pathway.



Key

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Lighting

Standards

- DS-82** The primary pathways and accessible perimeter edges SHALL be illuminated.
- DS-83** All pedestrian lighting SHALL be human scaled.
- DS-84** Sports facilities SHALL be illuminated as appropriate.

Guidelines

- DG-90** Lighting SHOULD be used to create a sense of space and sequence of movements through the POS areas.
- DG-91** The character of lighting SHOULD be adapted to the character of the POS.
- DG-92** Low-level lights MAY be provided in the POS.

Fencing/Walls/Screens

Standards

- DS-85** The use of continuous perimeter fencing SHALL be avoided unless carefully considered and justified.

Guidelines

- DG-93** Fences MAY be considered only for women and children areas, food growing areas and sports if required.

Signage/Wayfinding

Standards

- DS-86** An identification sign to a maximum size of 3m² with appropriate mapping SHALL be provided at primary entrances.

Guidelines

- DG-94** An identification sign to a maximum size of 1m² SHOULD be provided at secondary entrances.
- DG-95** Interpretative displays SHOULD be provided at entrances, along pathways, at gathering areas and unique features.

Parking

Standards

- DS-87** Parking areas SHALL be provided in accordance with DMT standards, to satisfy the estimated average daily users number.
- DS-88** Parking provisions SHALL consist of shared off-site parking or underground parking if provided on-site.

Guidelines

- DG-96** Parking SHOULD not be located directly between primary park entrances and the street.
- DG-97** Parking for tour and school buses SHOULD be provided.

Special Features

Standards

- DS-89** Structures SHALL be designed to reflect the character of the surrounding area.
- DS-90** Structures SHALL reflect the size and uses of the POS.
- DS-91** Play areas with a range of play structures SHALL be provided, suitable for all ages and abilities.
- DS-92** Public bathrooms SHALL be provided as 1 facility every 500m and, based on expected visitor number, will include as a minimum:

- 1 per 550 women;
- 1 per 1100 men;
- 1 baby changing room;
- 1 disabled toilet.

Guidelines

- DG-98** Gathering areas that support education, interpretation, passive recreation and relaxation SHOULD be provided.
- DG-99** 2 picnic shelters with a minimum size of 40m² SHOULD be provided per gathering area.
- DG-100** 1 barbecue area and ancillary elements (picnic areas and hand washing facilities) SHOULD be provided for every 5,000m² of POS.
- DG-101** A range of sport facilities SHOULD be provided in accordance with the

D3.2.3

Regulations for District Public Open Space

Movement and Access







-  Primary Pathway: minimum width 4.0m
-  Secondary Pathway: minimum width 3.0m
-  Linkages to primary use areas defining space and activities



Figure D17: Example of Movement and Access design



Shading

-  Tree Canopy
-  Palm Canopy
-  Shading Structure

Note: Refer to plant types in the plant list.

Figure D18: Example of Shading Design

Softscape

-  Palm
-  Canopy Tree
-  Natural Turf
-  Xeriscape
-  Food Growing

Note: Refer to plant types in the plant list.

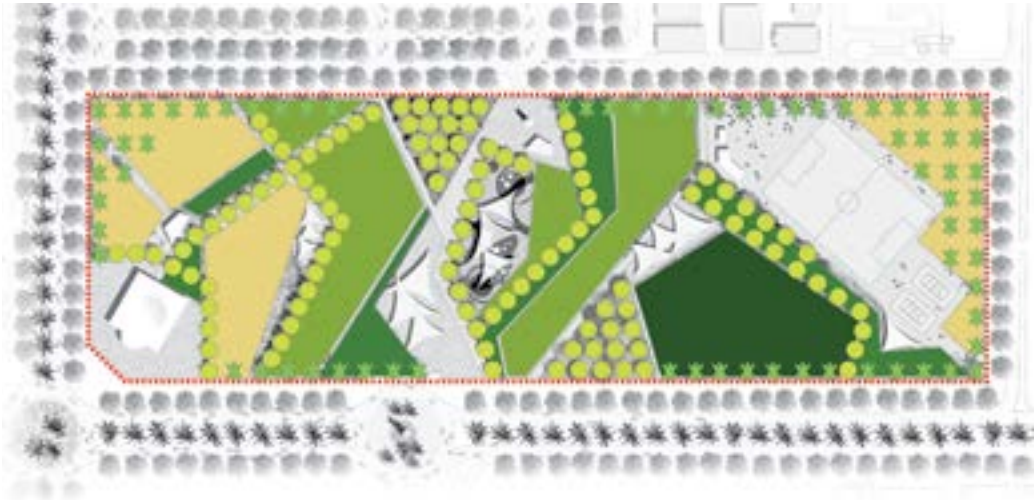


Figure D19: Example of Softscape design



Lighting

-  Primary Pathway Lighting
-  Secondary Pathway Lighting
-  Activity/Mid-Level Lighting
-  Low Level Lighting at Entrances
-  Tree Uplighters

Figure D20: Example of Lighting Design

D3.2.4

Regulations for Neighbourhood Public Open Space

Neighbourhood POS are informal, centrally located spaces for recreational amenity which primarily serve a neighbourhood unit. As shown in Figure D22 they can include playgrounds, open lawn areas for unstructured and informal play, family and community activities.

As illustrated in Figure D21, appropriate Design Elements at this level may include:

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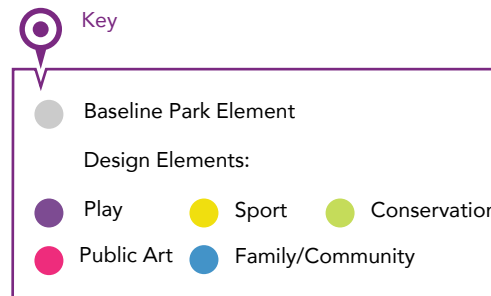
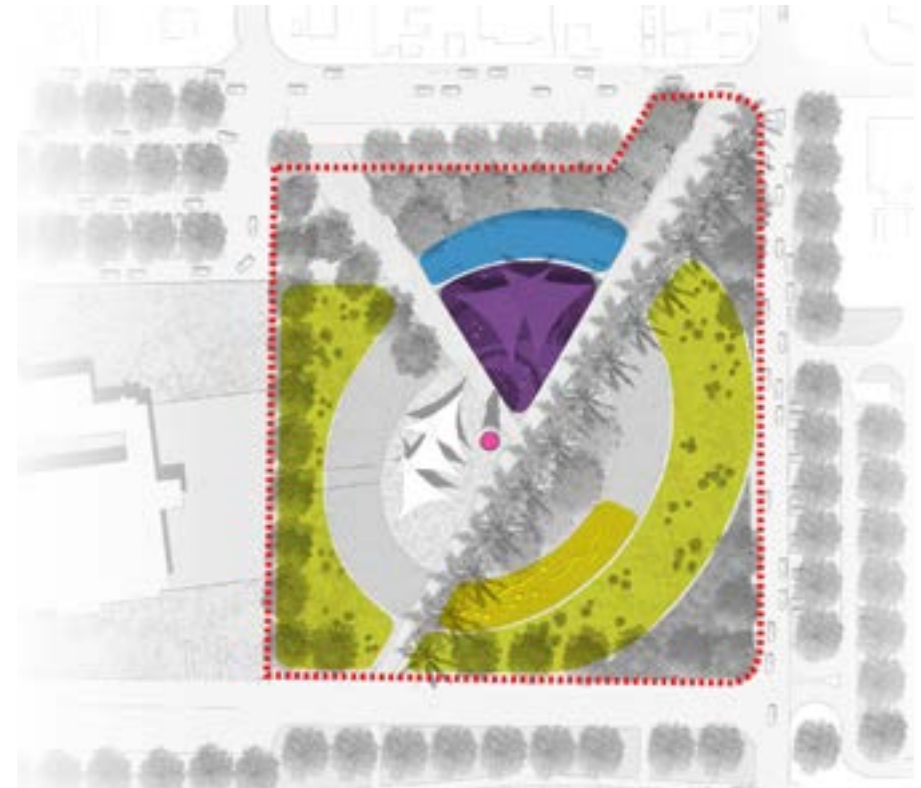


Figure D21: Example of Design Elements Application to Neighbourhood Level Public Open Space



Figure D22: Example of Neighbourhood Level Public Open Space and Applicable Regulations Categories

D3.2.4

Regulations for Neighbourhood Public Open Space



Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER
- ID = ESTIDAMA CREDIT REFERENCE



Movement and Access

Standards

- DS-93 Open and contiguous frontages SHALL be provided on a minimum of 1 adjacent street or sikka.
- DS-94 A primary pathway SHALL be provided with a minimum width of 2.5m.
- DS-95 A secondary pathway SHALL be provided with a minimum width of 1.8m.

Guidelines

- DG-102 The POS SHOULD link to a minimum of 2 adjacent streets.
- DG-103 The POS SHOULD front a public street and be within or adjacent to a neighbourhood unit or commercial area.
- DG-104 Primary entrances SHOULD be defined with appropriately scaled gateway features.
- DG-105 Pathways SHOULD be designed to link to primary use areas, define space and activities.



Shading

Guidelines

- DG-106 A limited variety of shade structure (coordinated in style and colour), softscape features or canopy trees, appropriate to the scale of the space SHOULD be used to provide shade.



Softscape

Guidelines

- DG-107 Limited natural turf SHOULD be provided in passive recreation areas.
- DG-108 Synthetic turf SHOULD be provided in active recreation areas.
- DG-109 Large canopy trees SHOULD be located adjacent to pathways, picnic and play areas, to define circulation routes and activity spaces.
- DG-110 All plant material SHOULD be grouped into distinct hydro-zones.



Hardscape

Guidelines

- DG-111 Hardscape features that reflect and enhance the character of the surrounding area SHOULD be used.
- DG-112 Different colours and patterns MAY be used to define gathering areas and special features.

Furniture

Standards

- DS-96** The total seating area requirements SHALL be calculated based on:
- 1 seating area per 20 linear metres of primary pathway.
 - 1 seating area per 40 linear metres of secondary pathway.
- DS-97** The total picnic table requirements SHALL be calculated based on:
- 1 picnic table per 40 linear metres of secondary pathway.

Lighting

Standards

- DS-98** The primary pathways and accessible perimeter edges SHALL be illuminated.

Guidelines

- DG-113** Lighting SHOULD be used to create a sense of space and sequence of movements through the POS areas.
- DG-114** The character of lighting SHOULD be adapted to the character of the POS.
- DG-115** Integrated or low level lights SHOULD be provided for entrances, play structures and shade structures.

Fencing/Walls/Screens

Guidelines

- DG-116** Only low walls SHOULD be allowed at entrances and street edge.
- DG-117** Continuous perimeter fencing SHOULD be avoided.
- DG-118** Screening for semi-private family areas SHOULD be provided.

Signage/Wayfinding

Guidelines

- DG-119** A neighbourhood map/directory SHOULD be provided at the entrance.

Parking

Guidelines

- DG-120** On-street parking or shared off-site parking SHOULD be provided.
- DG-121** Parking SHOULD not be located between primary POS entrances and the street.

Special Features

Standards

- DS-99** Play structures SHALL be provided that accommodate a range of appropriate ages and abilities.




Guidelines

- DG-122** A central open space SHOULD be provided as a gathering area and for community events.
- DG-123** Structures SHOULD be avoided or limited to small kiosks.
- DG-124** Facilities SHOULD be buffered from adjacent streets and plots while maintaining visibility.
- DG-125** 1 barbecue area and ancillary elements (picnic areas and hand washing facilities) SHOULD be provided for every 5,000m² of public open space.
- DG-126** A range of sport facilities SHOULD be provided in accordance with the

D3.2.4

Regulations for Neighbourhood Public Open Space

Movement and Access

-  Primary Pathway: minimum width 2.5m
-  Secondary Pathway: minimum width 1.8m
-  Linkages to primary use areas defining space and activities

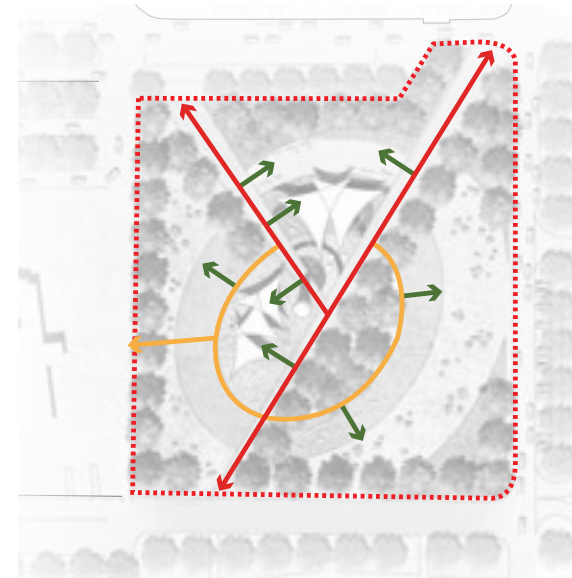


Figure D23: Example of Movement and Access design

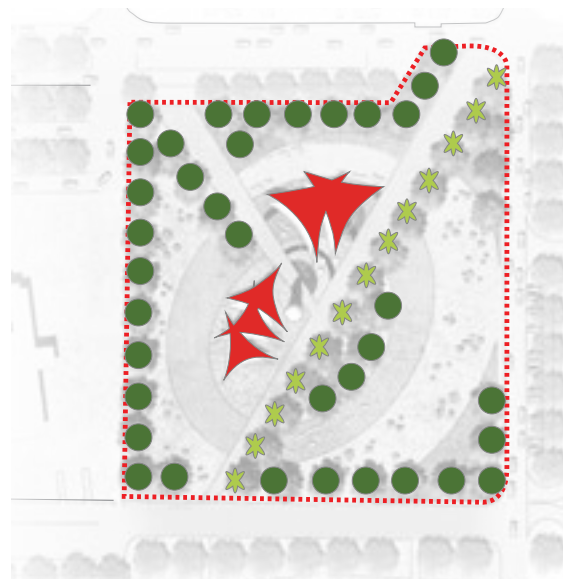






Figure D24: Example of Shading Design

Shading

-  Tree Canopy
-  Palm Canopy
-  Shading Structure

Note: Refer to plant types in the plant list.

Softscape

-  Palm
-  Canopy Tree
-  Natural Turf
-  Xeriscape
-  Food Growing

Note: Refer to plant types in the plant list.

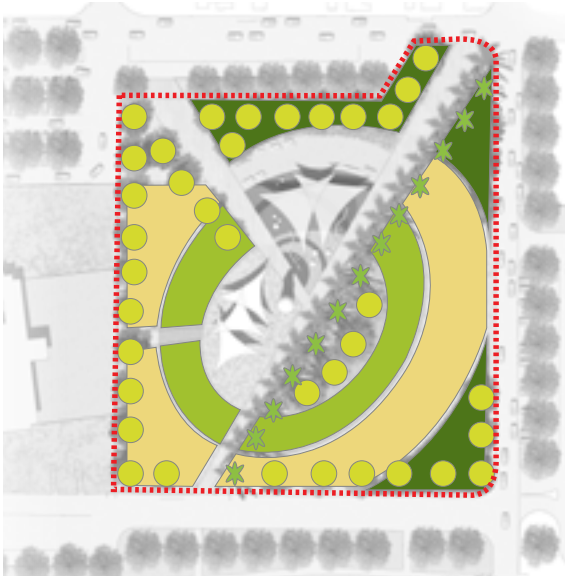


Figure D25: Example of Softscape design

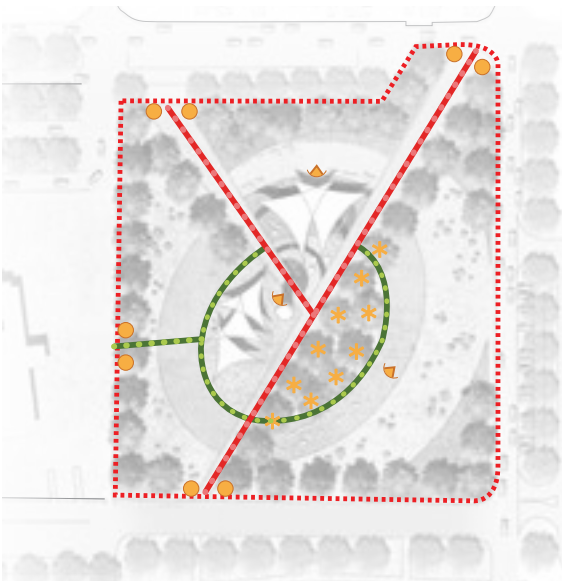







Figure D26: Example of Lighting Design

Lighting

-  Primary Pathway Lighting
-  Secondary Pathway Lighting
-  Activity / Mid-level Lighting
-  Low Level Lighting at entrances
-  Tree Uplighters

D3.2.5

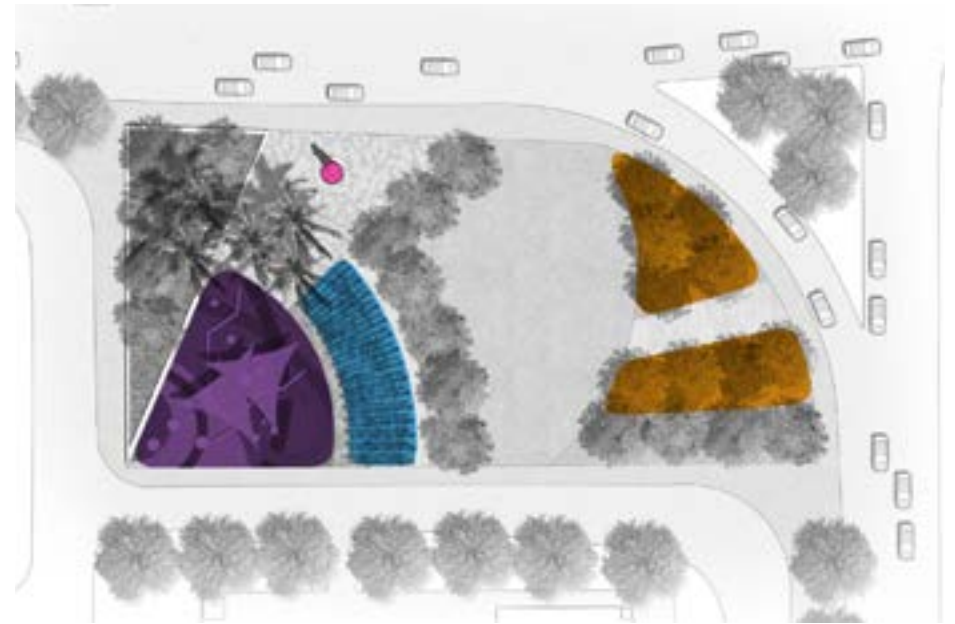
Regulations for Local Public Open Space

Local POS constitute some of the most diverse spaces in the city. Dependent on their land use context they could include barahaat, pocket parks, plazas, playgrounds or sports facilities. They are generally small areas that, as shown in Figure D28, provide paved or natural surfaces and shaded areas for seating, informal play and passive recreation, depending on their size and location they can include picnic tables, and play equipment.

The diversity of recreational spaces also ensures that various users can benefit from the provision, as every small plot of green space has the capacity for diverse use, such as formal or informal play, enjoyment of nature, relaxation, walking and picnicking.

As illustrated in Figure D27, appropriate Design Elements at this level may include:

-
-
-
-
-
-
-



Key

- Baseline Park Element

Design Elements:

- Play
- Family/Community
- Food Growing
- Public Art

Figure D27: Example of Design Elements application to Local Level Public Open Space

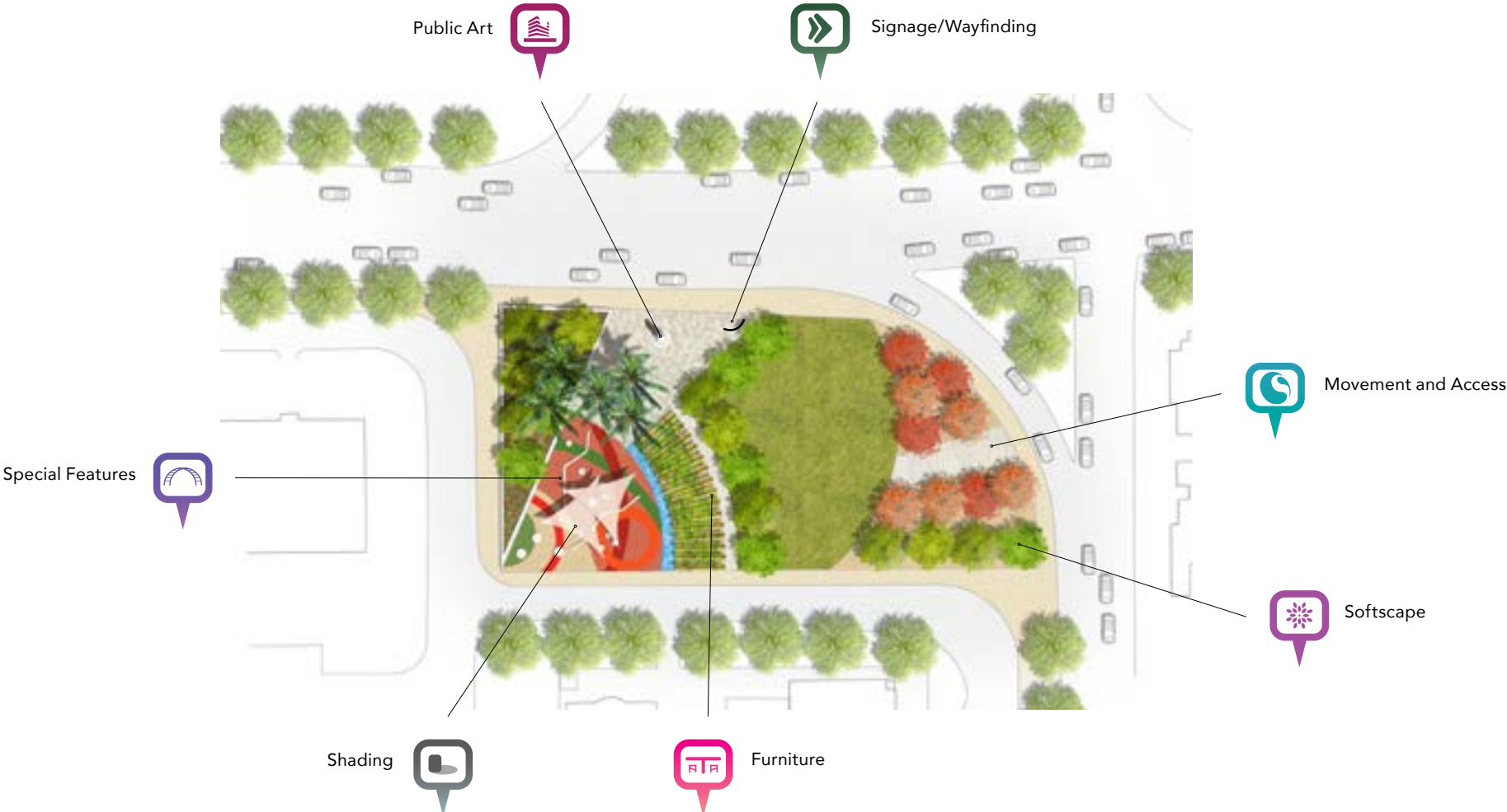


Figure D28: Example of Local Level Public Open Space and Applicable Regulations Categories

D3.2.5

Regulations for Local Public Open Space



Movement and Access

Standards

- DS-100** Open and contiguous frontages SHALL be provided on a minimum of 1 adjacent street or sikka.
- DS-101** A primary pathway SHALL be provided with a minimum width of 2m.

Guidelines

- DG-127** The transition of spaces from public to the surrounding semi-private and private areas SHOULD be well defined.
- DG-128** A secondary pathway MAY be provided with a minimum width of 1.8m.
- DG-129** Access MAY be limited to sikkak where appropriate.



Shading

Guidelines

- DG-130** A limited variety of shade structure (coordinated in style and colour), softscape features or canopy trees, appropriate to the scale of the space SHOULD be used to provide shade.



Softscape

Guidelines

- DG-131** Limited natural turf SHOULD be provided in passive recreation areas.
- DG-132** Small size trees and shrubs that respond to the size and character of the public open space SHOULD be used.



Hardscape

Guidelines

- DG-133** Hardscape features that reflect and enhance the character of the surrounding area SHOULD be used.
- DG-134** Different colours and patterns MAY be used to define gathering areas and special features.



Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER
- ID** = ESTIDAMA CREDIT REFERENCE

Furniture

Guidelines

- DG-135** Coordinated site furniture that responds to the character of the local area **SHOULD** be provided.
- DG-136** Seating and picnic tables **SHOULD** be provided based on a demand assessment, considering land use of surrounding areas.

Lighting

Standards

- DS-102** The primary pathways **SHALL** be illuminated.

Guidelines

- DG-137** Integrated or low level lights **SHOULD** be provided for entrances, play structures and shade structures.
- DG-138** The character of lighting **SHOULD** be adapted to the character of the POS.

Fencing/Walls/Screens

Guidelines

- DG-139** Perimeter fencing **SHOULD** be avoided.

Signage/Wayfinding

Guidelines

- DG-140** Interpretative displays **MAY** be provided at gathering areas and unique features.

Parking

Standards

- DS-103** If located within a fareej, parking **SHALL NOT** be allowed.

Guidelines

- DG-141** On-street parking that does not intrude into the space **SHOULD** be provided where possible,

Special Features




Guidelines

- DG-142** Features **SHOULD** reflect and be appropriate for the immediate land uses.
- DG-143** Structures **SHOULD** be avoided or limited to small kiosks.
- DG-144** Small play areas **SHOULD** be provided in residential locations.

D3.2.5

Regulations for Local Public Open Space

Movement and Access

-  Primary Pathway: minimum width 2.0m
-  Secondary Pathway: minimum width 1.8m
-  Linkages to primary use areas defining space and activities

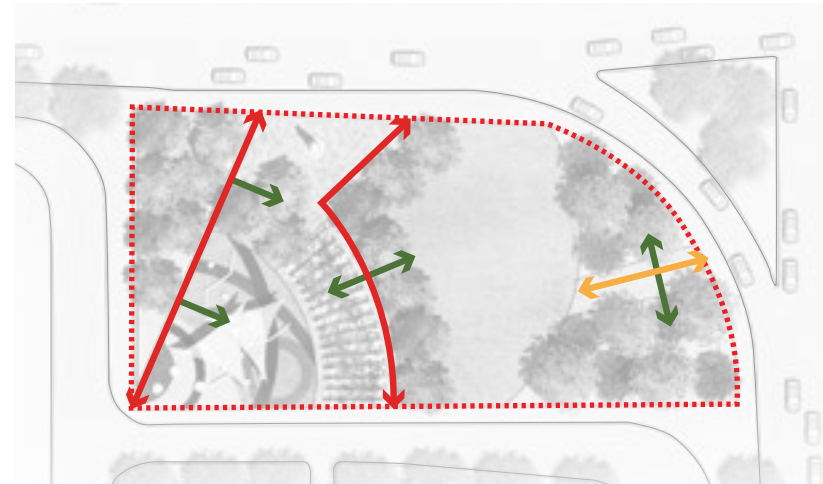
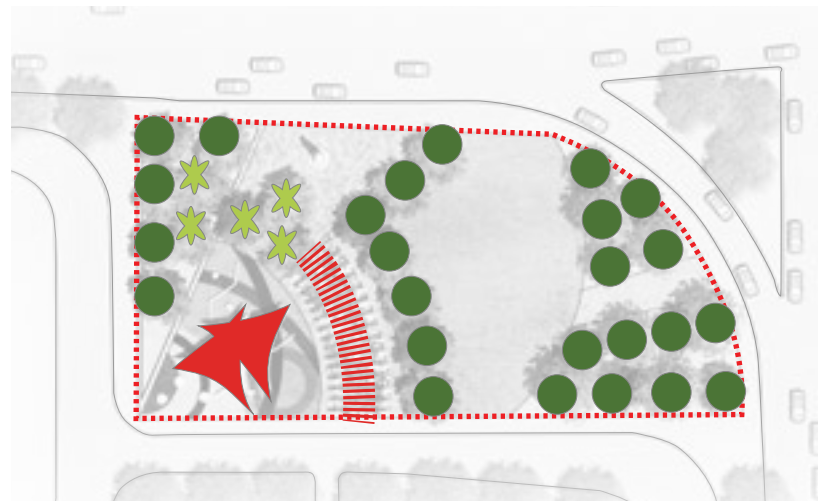






Figure D29: Example of Movement and Access design







Shading

-  Tree Canopy
-  Palm Canopy
-  Shading Structure
-  Shading Structure

Note: Refer to plant types in the plant list.

Figure D30: Example of Shading Design

Softscape

-  Palm
-  Canopy Tree
-  Natural Turf
-  Climber planting

Note: Refer to plant types in the plant list.

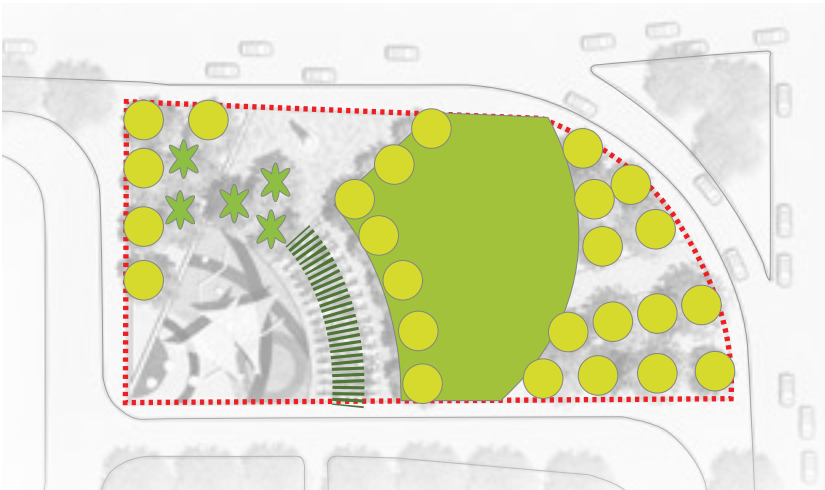
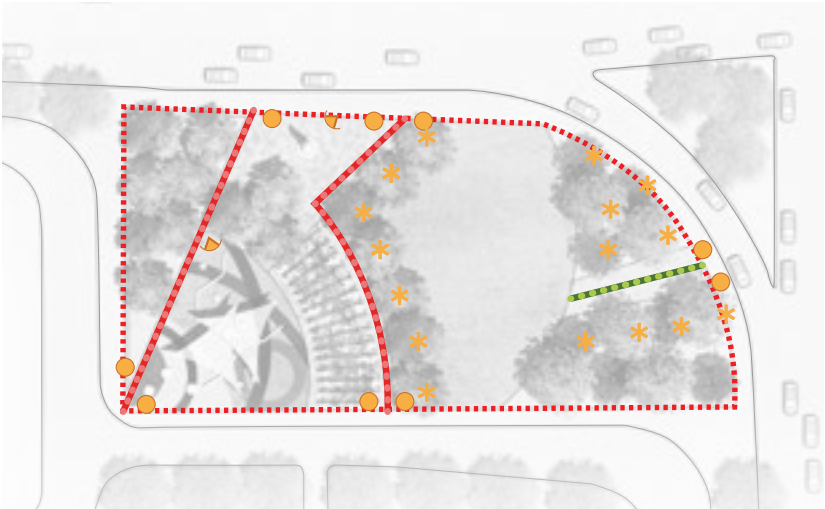


Figure D31: Example of Softscape design



Lighting






-  Primary Pathway Lighting
-  Secondary Pathway Lighting
-  Activity / Mid-level Lighting
-  Low Level Lighting at entrances
-  Tree Uplighters

Figure D32: Example of Lighting Design

D3.3

Design Stage

Universal Regulations for Streetscape

Streetscapes play a central role in the formation of the public realm. They function both as important public spaces and as the network of pedestrian linkages and crossing points, connecting public and private space throughout the Emirate. Their form and character are important elements within the urban structure and contribute to the quality and character of towns and cities.

The Streetscape section describes the process for developing and designing streetscapes that contribute to and enhance the overall public realm network. The Urban Street Design Manual (USDMM) should be read in conjunction with this section in order to ensure that the visual, technical and functional characteristics of streets are designed in a holistic manner.

An Integrated Approach to Street Design

Context Sensitive Solutions (CSS) and Complete Streets are two major initiatives currently being applied to street design in cities worldwide. Both approach the design of streets as more than simply a conduit to move cars quickly and efficiently, but rather from the standpoint of all users, taking account of the context of what happens along the streets, and the adjacent land uses.

Context Sensitive Solutions

CSS is a collaborative, interdisciplinary approach to street design that involves all stakeholders when designing a transport facility. It ensures that the design fits the setting and preserves scenic, aesthetic, historic and environmental resources while maintaining safety and mobility.

Complete Streets

The Complete Streets initiative acknowledges that the streets of our cities and towns are an important component in enhancing the liveability of our communities. They are designed to accommodate:

- All modes of travel.
- People of all ages and physical abilities.
- The activities that typically occur on the street, as related to adjacent land uses.

D3.3.1 Streetscape Hierarchy

Table D2 - Streetscape Hierarchy illustrates each level of the hierarchy and its key attributes. The table defines the general characteristics, features and activities, and typical locations at each level of the streetscape hierarchy.

The different right of way dimensions and typical uses determine how the streets are designed, and how the public space is experienced. The table defines in general terms the qualities and conditions related to streetscape, to ensure a coordinated streetscape system that functions to serve the entire Emirate.

D3.3.2 Streetscape Design Regulations

The aim of regulations for the development of streetscape are to ensure:

- The implementation of the policies outlined within the PRDM;
- A minimum standard of provision for all streetscapes within the Emirate, i.e. the provision of the basic elements essential to a functional public realm;

- The creation of a coordinated streetscape network for the Emirate.





Regulations apply to the planning and design of streetscape and include:

- Universal Regulations – these standards and guidelines outline design provisions for implementation across the streetscape network that apply to all levels of the hierarchy. They represent the minimum standards to which all streetscapes must adhere.
- Hierarchy Specific Regulations – these hierarchy-related standards and guidelines, apply to each level of the hierarchy, and take precedence over the universal regulations in case of conflicting guidance. There are specific regulations for:

- Boulevard
- Avenue
- Street
- Access Lane

Standards are either mandate or prohibit specific practices, while guidelines are recommended to be followed, but allow design flexibility.

Table D2: Streetscape Hierarchy: Definitions and Characteristics

	Hierarchy	Characteristics	Features & Activities	Functional Classification
	Boulevard	Consist of an average of 3+3 travel lanes. High quality urban design and green infrastructure are critical components of Urban Boulevards. Often connected to important civic spaces.	They make up much of the primary transit network. They can be used for ceremonial events, and can contain areas for celebrations such as National Day.	Principal or Minor Arterial Road
	Avenue	Consist of an average of 2+2 travel lanes. These streets connect city-wide destinations, as well as acting as a connection between higher and lower hierarchy of streets within the network.	Corridors for public transportation. Suitable for municipality-wide events and gatherings. Usually with a good integration of walking, cycling and transit-users.	Principal/ Minor Arterial or Collector Road
	Street	Consist of an average of 1+1 travel lanes. Usually with street-side parking. Usually well integrated with adjacent land uses.	They provide high level of connectivity to surrounding communities.	Collector or Local Road
	Access Lane	Generally narrower and often without parking facilities. They include shared streets (Mushtarak) and one-way streets.	Smaller paths suitable for local access and movement within residential areas or for service access within commercial areas. They provide the higher level of connectivity.	Local Road

D3.3

Design Stage Universal Regulations for Streetscape

Movement and Access

Standards

- DS-104** Access for emergency vehicles SHALL be ensured.
- DS-105** Safe and direct access SHALL be provided for pedestrian and cyclists.
- DS-106** A clear pedestrian 'through zone' SHALL be provided in line with USDM standards, which is clear of all obstructions including furniture, trees and vehicle overhang.
- DS-107** Cycling provision and facilities SHALL be accommodated within streetscape according to USDM and DMT's Standards and Abu Dhabi Walking and Cycling Master Plan guidelines.
- DS-108** Transit stops and facilities SHALL be accommodated within streetscape according to the DMT requirements.
- DS-109** Taxi lay-by for drop-off and pick-up and associated facilities SHALL be accommodated within streetscape according to the DMT requirements.
- DS-110** Streetscape SHALL be designed to conform to Universal Access Standards in accordance with DMT's Transportation Accessibility Standards and USDM guidance.
- DS-111** Safe pedestrian crossings with appropriate surface markings or variation in materials SHALL be provided linking key routes to the POS.
- DS-112** Kerbs height SHALL be in accordance with USDM guidelines.
- DS-113** A continuous sidewalk SHALL be provided with direct connections between destinations to form an unbroken and coordinated pedestrian network.

Guidelines

- DG-145** On long blocks, mid-block safe pedestrian crossing with 'on-demand' signals SHOULD be provided.
- DG-146** A buffer SHOULD be provided between the sidewalk and vehicular lanes, such as a planting strip, bicycle lane and/or on-street parking.



Key

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Shading

Standards

- DS-114** **LS-R1** Shading SHALL be provided to car parking, walkways, cycle tracks and parking, transit stops, play, seating and gathering areas.
- DS-115** **LS-R1** The design and location of shade structures SHALL take into account prevailing winds, solar paths throughout the day, adjacent structures and landscaping.

Guidelines

- DG-147** Shading SHOULD be provided at location of interpretative displays, kiosks, viewing points etc. to promote and encourage outdoor activities.
- DG-148** Shade structures (coordinated in style and colour), softscape features or canopy trees appropriate to the scale of the space SHOULD be used to provide adequate shade.
- DG-149** Shade structure design SHOULD minimise vertical supports that can obstruct the pedestrian realm.
- DG-150** Shade structures SHOULD be architecturally integrated when attached to a building.
- DG-151** Shade structures SHOULD limit the use of heat-conducting and/or highly polished elements and be constructed of durable, high quality materials.

Softscape

Standards

- DS-116** The sustainable and appropriate plant materials for the site location SHALL be determined with reference to the PRDM plant list.
- DS-117** **PW-R1** Water usage for the streetscape SHALL NOT exceed 2 l/m² a day.
- DS-118** The use of natural turf in medians SHALL be avoided.
- DS-119** Existing trees SHALL be preserved wherever possible, as mature street trees create a greater sense of enclosure along roads.
- DS-120** Large canopy trees SHALL be used to define circulation routes and activity spaces.
- DS-121** Natural turf SHALL be used sparingly within the streetscapes.

Guidelines

- DG-152** Native and habitat-friendly vegetation, appropriate to the arid environment of Abu Dhabi SHOULD be included as much as possible.
- DG-153** Trees SHOULD be located at 1.5m minimum distance from the kerb's edge.
- DG-154** Tree species selection SHOULD vary to reflect the streetscape hierarchy.
- DG-155** Trees SHOULD be selected to create a sense of unity and continuity, and be aligned to create a continuous canopy where possible.

Hardscape

Standards

- DS-122** **SM-R4** Materials SHALL be high quality, robust, able to withstand impact, harsh environments and vandalism, and be consistent throughout the pedestrian way.
- DS-123** **SM-R4** Modular paving materials SHALL be used in pedestrian areas to minimise waste due to maintenance operations.
- DS-124** **LS-R1** All pedestrian areas SHALL be constructed of light coloured paving materials in order to minimise heat build up. Care should be taken that this does not create high-glare surfaces.
- DS-125** **SM-R4** Hardscape materials for foot trafficked areas SHALL have a slip prevention rating of R12 or above, and all water features SHALL be surrounded with slip-resistant materials.

Guidelines

- DG-156** Regionally sourced materials SHOULD be used where practical.
- DG-157** Good-quality compacted crushed stone or gravel SHOULD be used on pathways and medians, taking into account universal accessibility requirements.
- DG-158** Tree pits in paved areas SHOULD ensure adequate space is allowed for tree root zones to allow good growing conditions.
- DG-159** Changes in hardscape material's colour, size and/or texture MAY be used to indicate space transition and respond to the use of the area.

D3.3

Design Stage Universal Regulations for Streetscape



Furniture

Standards

- DS-126** Street furnishings SHALL be grouped in a linear zone that does not obstruct pedestrian circulation on sidewalks, vehicular access, parking, loading and service areas.
- DS-127** Streetscape furniture SHALL employ high quality design and materials, in order to withstand climatic conditions, heavy use and vandalism.
SM-R4
- DS-128** Coordinated furniture designs SHALL be used, that are contemporary, simple and appropriate to context.
- DS-129** A clear edge zone adjacent to the kerb SHALL be created, to allow for maintenance access and vehicle overrun.
- DS-130** Refuse and recycling containers SHALL be provided in areas of high demand such as transit stops, plazas and shopping areas.
SM-R3

Guidelines

- DG-160** Placements of seats along streetscapes SHOULD be demand based to avoid street clutter.
- DG-161** Shaded bicycle racks SHOULD be provided in connection with high use buildings, retail and commercial areas.
- DG-162** A variety of seating options MAY be provided.



Public Art

Standards

- DS-131** The provision of public art SHALL reflect guidelines from the
- DS-132** Public art SHALL be used to enhance the streetscape design in strategic positions, such as focal points, gateways and gathering areas.



Water Usage

Standards

- DS-133** A detailed water efficiency strategy SHALL be developed, detailing water features and irrigation requirements to outline how water will be utilised across the site.
PW-R1
- DS-134** The provision of water features SHALL reflect guidance from the
- DS-135** Water features SHALL be employed sparingly and judiciously, and located near areas of high activity and use.
PW-R1
PW-R2
- DS-136** Stormwater management measures SHALL be incorporated within site design.
PW-R3

Guidelines

- DG-163** Irrigation SHOULD be designed to be suitable for the location (e.g. sprinklers should be avoided where they can provide nuisance to pedestrian or road users).



Key

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Lighting

Standards

- DS-137** Lighting along streetscapes SHALL be designed to: provide adequate illumination to the through zone, reduce glare into adjacent properties, minimise light pollution and impact on adjacent areas.
LS-R4
- DS-138** Street lights and other lighting elements SHALL be coordinated and located at the edge of the pedestrian walking zone in a way that does not obstruct circulation on sidewalks, vehicular access, parking, loading and service areas.
- DS-139** All lighting in the public realm SHALL meet the lighting requirements as stated in the DMT Lighting Standards.
RE-R1
- DS-140** Lighting SHALL be used to clearly illuminate threads, risers and any other level differences along the through zone.
- DS-141** Lighting columns and trees SHALL be spaced to maintain adequate lighting levels on the travel lanes, pedestrian realm and crossing locations.

Guidelines

- DG-164** Low-level or pedestrian lighting such as bollards, low-height columns, in-ground lights, step and wall lights SHOULD be used where appropriate.
- DG-165** Lighting SHOULD be human-scale and aid accessibility.
- DG-166** Lighting levels along pedestrian zones SHOULD reflect intensity of activity and surrounding land uses.
- DG-167** Light standards MAY be provided to define the streetscape.
- DG-168** Lighting MAY be used to highlight public art, landscape, water features and architectural features.
- DG-169** Security lighting with motion sensors MAY be used in isolated or less frequented areas.

Fencing/Walls/Screens

Standards

- DS-142** If used near intersections, fences/walls/screens SHALL be located to retain sightlines.

Guidelines

- DG-170** Perimeter fencing SHOULD be minimised.
- DG-171** Where walls are used, their height SHOULD be a maximum of 0.5m, to create informal seating

Services/Infrastructure

Standards

- DS-143** Feeder pillars and utility cabinets SHALL be securely located outside of the pedestrian and cyclist travel zone and SHALL NOT be directly accessible by the public. If a secure placement can not be achieved these SHALL be replaced with underground units.
- DS-144** Energy and water metering and monitoring equipment SHALL be installed.
PW-R2
RE-R2
- DS-145** Commissioning of services and infrastructure SHALL be considered throughout the design process.
IDP-R3

Guidelines

- DG-172** Maintenance facilities SHOULD be located away from public circulation routes and use areas and screened where appropriate.

Signage/Wayfinding

Standards

- DS-146** Signage SHALL be well placed and integrated into the streetscape environment, in order to retain sightlines and maintain pedestrian or cyclists through zones and to comply with the Standards of Addressing Geographical Names and Signs in Abu Dhabi Emirate.
- DS-147** A consistent hierarchy of signage and wayfinding elements SHALL be provided, appropriate for the size of the road corridor.
- DS-148** A unified visual language SHALL be used for all signage and wayfinding materials, colours, scales and types.
- DS-149** All signage elements SHALL be durable, easily maintainable, avoid deep colours and use a non-reflective matte finish.
- DS-150** Signage and wayfinding SHALL be suitable for daytime and night-time use and integrated with lighting in areas of high night-time use.
- DS-151** Street names SHALL be located on all corners, perpendicular to the path of travel.

Guidelines

- DG-173** Lighting SHOULD be used to reinforce primary gateways and landmarks.
- DG-174** A map or directory kiosk SHOULD be provided at street intersections, important locations and access points.
- DG-175** 'Smart' technology, communication of user information using QR codes and/or Wi-Fi MAY be incorporated within the signage elements.

D3.3

Design Stage Universal Regulations for Streetscape



Key

- DS = UNIQUE STANDARD NUMBER
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- ID = ESTIDAMA CREDIT REFERENCE



Safety/Security

Standards

- DS-152 Streetscape design SHALL ensure a high level of safety and security for users, employing the principles of the Safety & Security Planning Manual (SSPM)
- DS-153 All hazardous materials SHALL be avoided.
- SM-R1

Guidelines

- DG-176 Clear sightlines SHOULD be maintained along the streetscapes.
- DG-177 Furniture and landscape MAY be used to define the boundaries between public and private space whilst encouraging natural surveillance.
- DG-178 Safety and security elements (CCTV, emergency call boxes) MAY be placed strategically throughout the streetscape dependent on Police Department advice.



Parking

Standards

- DS-154 Appropriate parking provisions SHALL be included within the road corridor, in accordance with USDM and DMT guidelines.
- DS-155 Parking SHALL be sufficiently set-back from high profile buildings and structures to minimise visual impact.
- DS-156 An accessible route SHALL be provided from designated disabled access parking stalls to all accessible entrances.
- DS-157 Cycle parking and other end-of-ride facilities for cyclists SHALL be provided as per DMT Walking and Cycling Masterplan (WCMP).

Guidelines

- DG-179 Parking SHOULD be organised to limit impact on pedestrian circulation and streetscape activity.
- DG-180 Disabled access parking SHOULD be located near the main entrances and access points.



Special Features

Guidelines

- DG-181 Historic, cultural and scenic themes MAY be incorporated into the design of the streetscape.



Streetscape,
Saadiyat Island, Abu Dhabi

D3.3.1 Regulations for Boulevard Streetscape

The following streetscape regulations supplement the universal regulations contained in the previous section. They provide specific, additional standards and guidelines relative to each level of streetscape within the hierarchy. Where the universal regulations and the hierarchy specific regulations conflict, the hierarchy-specific regulations should be followed.

Boulevard – Streetscape Regulations

The Boulevard streetscape level, consist of wide movement networks, providing direct connections between multiple communities and major destinations within a city. **Designers must refer to the USDM for the right-of-way's technical design standards.**

Appropriate Design Elements at this level include:

-
-
-
-
-



Figure D33: Typical Boulevard with Frontage Lanes Plan



Figure D34: View of Typical Boulevard with Frontage Lanes

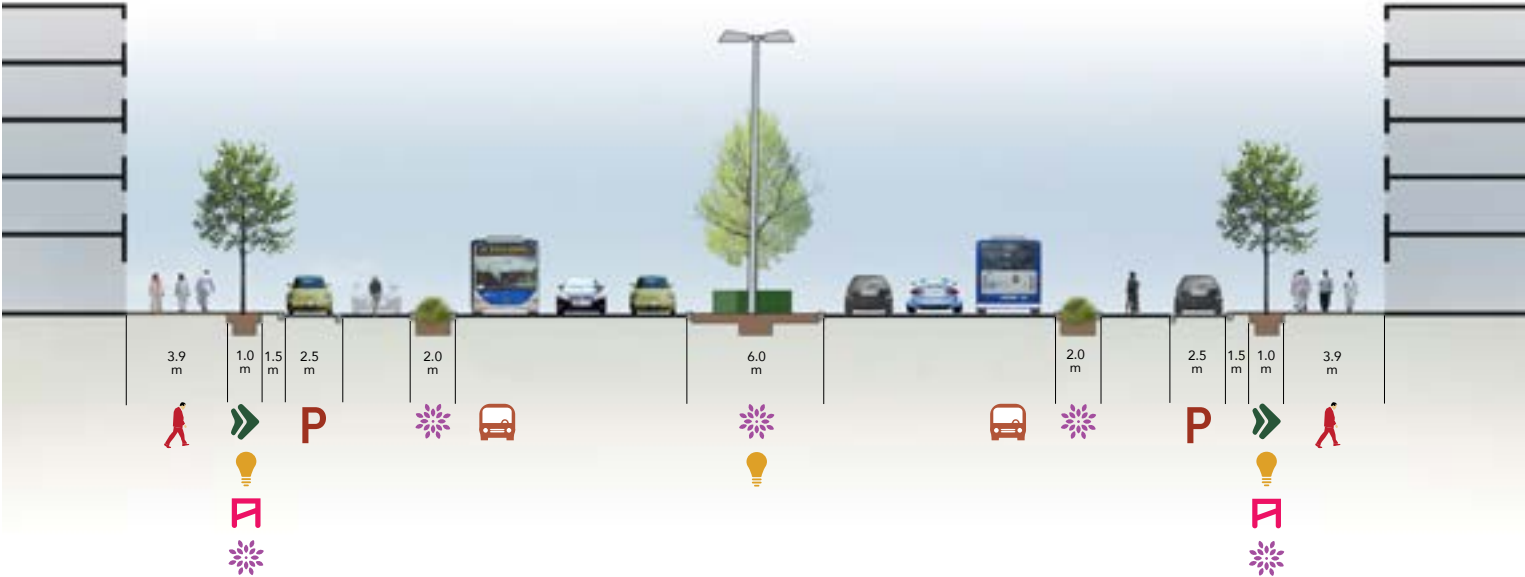


Figure D35: Typical Boulevard with Frontage Lanes Section

Key

	PEDESTRIAN		TRANSIT
	SIGNAGE		FURNITURE
	PARKING		LIGHTING
	SOFTSCAPE		

D3.3.1

Regulations for Boulevard Streetscape



Figure D36: Typical Boulevard Without Frontage Lanes Plan



Figure D37: View of typical Boulevard without frontage lanes



Key

	PEDESTRIAN		TRANSIT
	SIGNAGE		FURNITURE
	PARKING		LIGHTING
	SOFTSCAPE		CYCLE ROUTE

Figure D38: Typical Boulevard Without Frontage Lanes Section

D3.3.1

Regulations for Boulevard Streetscape

Movement and Access

Standards

DS-158 Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for cyclists and pedestrians.

Guidelines

- DG-182** The streetscape SHOULD link to the public transit network.
- DG-183** The streetscape SHOULD link to other major roadways.
- DG-184** Transit stops SHOULD be provided and conveniently located, with direct access to pedestrian and bicycle pathways.
- DG-185** A connective network of pedestrian, transit and bicycle routes SHOULD be accommodated.
- DG-186** Views to significant landmarks, cultural and heritage features SHOULD be preserved and enhanced.

Softscape

Standards

DS-159 Softscape SHALL be designed and maintained to preserve and enhance views.

Guidelines

- DG-187** Softscape features that are simple, attractive and bold SHOULD be used within the medians.
- DG-188** Larger-scale tree and palm species (refer to plant types in the plant list) SHOULD be used along the street.
- DG-189** Street trees or palms (refer to plant types in the plant list) SHOULD be limited to two or three species to act as a unifying element along the streetscape.

Hardscape

Guidelines

- DG-190** Contrast in materials' colours, textures and scale SHOULD be used to draw attention to important points along the highway corridor.
- DG-191** Larger sizes of unit paving SHOULD be used along pedestrian routes.

Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER
- ID** = ESTIDAMA CREDIT REFERENCE

Furniture

Standards

- DS-160** Refuse and recycling containers SHALL be provided at street intersections, transit stops and gathering areas.
- DS-161** Total seating area requirements SHALL be calculated based on:
 - 1 seating area per 100 linear metres of primary pathway.

Guidelines

- DG-192** Furniture SHOULD be provided along pedestrian pathways, transit stops, pull-over/drop-off locations and gathering areas.
- DG-193** Shaded bicycle racks SHOULD be provided approx. every 500m, and located in association with high-use buildings, public open spaces, retail and commercial areas.

Public Art

Guidelines

- DG-194** Public art or special features MAY be used at key intersections and gateways, to assist with identity and wayfinding.

Lighting

Standards

- DS-162** Security lighting SHALL be provided at destinations and transit stops.

Guidelines

- DG-195** Light standards SHOULD be sized and spaced to reflect the size and function of the route.
- DG-196** Decorative street lighting SHOULD be used where appropriate.



1

1: Shaded pedestrian and cycle route, the Corniche, Abu Dhabi City, UAE

D3.3.2 Regulations for Avenue Streetscape

Avenue – Streetscape Regulations

The Avenue streetscape level, consist of movement networks, well integrated with adjacent land uses and with higher priorities given to walking, cycling and transit travel.

Appropriate Design Elements at this level include:

-
-
-
-
-



Figure D39: Typical Avenue Plan



Figure D40: View of Typical Avenue

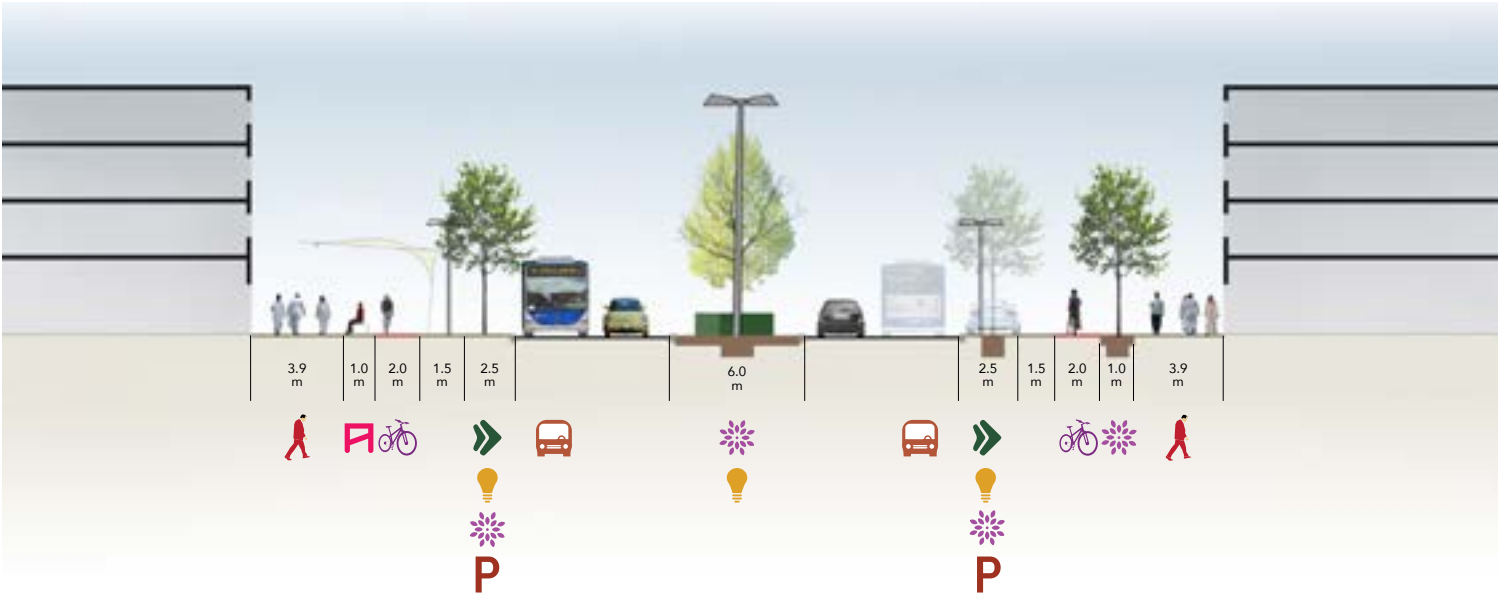


Figure D41: Typical Avenue Section

Key

	PEDESTRIAN		TRANSIT
	SIGNAGE		FURNITURE
	PARKING		LIGHTING
	SOFTSCAPE		CYCLE ROUTE

D3.3.2

Regulations for Avenue Streetscape

Movement and Access

Standards

DS-163 Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for cyclists and pedestrians.

Guidelines

- DG-197** The streetscape SHOULD link to the public transit network.
- DG-198** A connective network of pedestrian, transit and bicycle routes SHOULD be accommodated.
- DG-199** Transit stops SHOULD be provided and conveniently located, with direct access to pedestrian and bicycle pathways.
- DG-200** Views to significant landmarks, cultural and heritage features SHOULD be preserved and enhanced.

Softscape

Standards

DS-164 Softscape SHALL be designed and maintained to preserve and enhance views.

Guidelines

- DG-201** Larger-scale tree and palm species (refer to plant types in the plant list) SHOULD be used along the street.
- DG-202** Softscape features that are simple, attractive and bold SHOULD be used within the medians.
- DG-203** The use of softscape features MAY be considered to reflect a thematic approach.
- DG-204** The use of landforms and vertical plant material MAY be considered to frame or screen views.

Hardscape

Guidelines

- DG-205** Contrast in materials' colours, textures and scale SHOULD be used to draw attention to important points along the highway corridor.
- DG-206** Larger sizes of unit paving SHOULD be used along pedestrian routes.

Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER
- ID** = ESTIDAMA CREDIT REFERENCE

Furniture

Standards

- DS-165** Refuse and recycling containers SHALL be provided at street intersections, transit stops and gathering areas.
- DS-166** Total seating area requirements SHALL be calculated based on:
 - 1 seating area per 100 linear metres of primary pathway.

Guidelines

- DG-207** Furniture SHOULD be provided along pedestrian pathways, transit stops, pull-over/ drop-off locations and gathering areas.
- DG-208** Shaded bicycle racks SHOULD be provided approx. every 500m, and located in association with high-use buildings, public open spaces, retail and commercial areas.

Public Art

Guidelines

- DG-209** Public art or special features MAY be used at key intersections and gateways, to assist with identity and wayfinding.

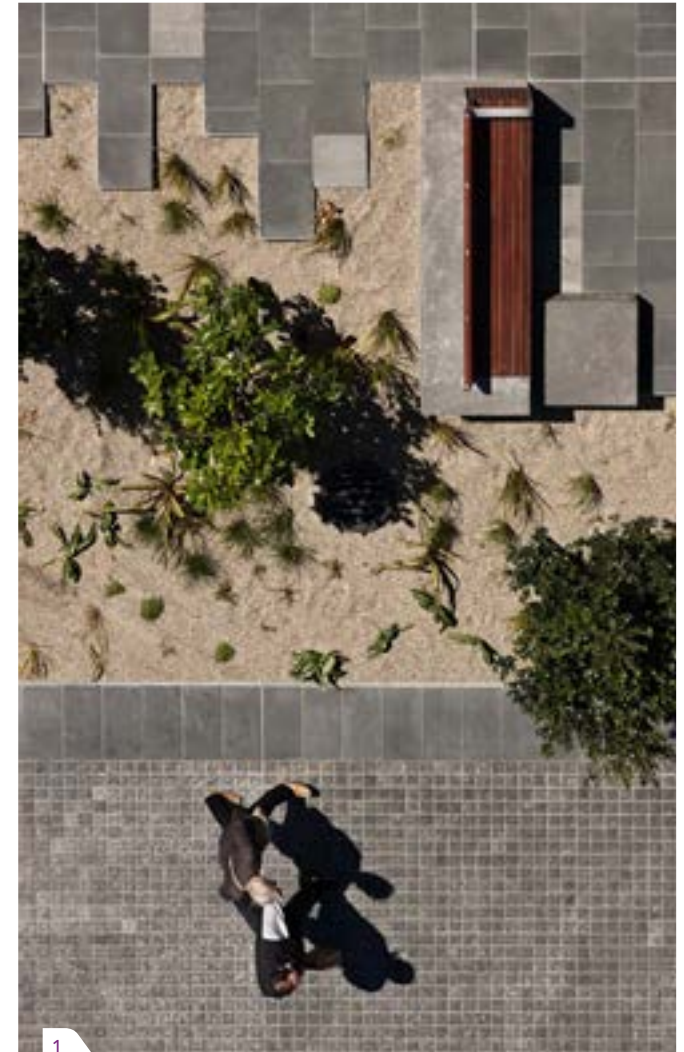
Lighting

Standards

- DS-167** Security lighting SHALL be provided at destinations and transit stops.

Guidelines

- DG-210** Light standards SHOULD be sized and spaced to reflect the size and function of the route.
- DG-211** Decorative street lighting SHOULD be used where appropriate.



1

1: Water sensitive street design, Auckland Waterfront, New Zealand

D3.3.3

Regulations for Street Streetscape

Street – Streetscape Regulations

The Street streetscape level, serves sectors within cities, towns or small settlements, and act as connector between neighbourhoods and larger arterial roads, providing a high level of connectivity to surrounding communities.

Appropriate Design Elements at this level include:

-
-
-
-

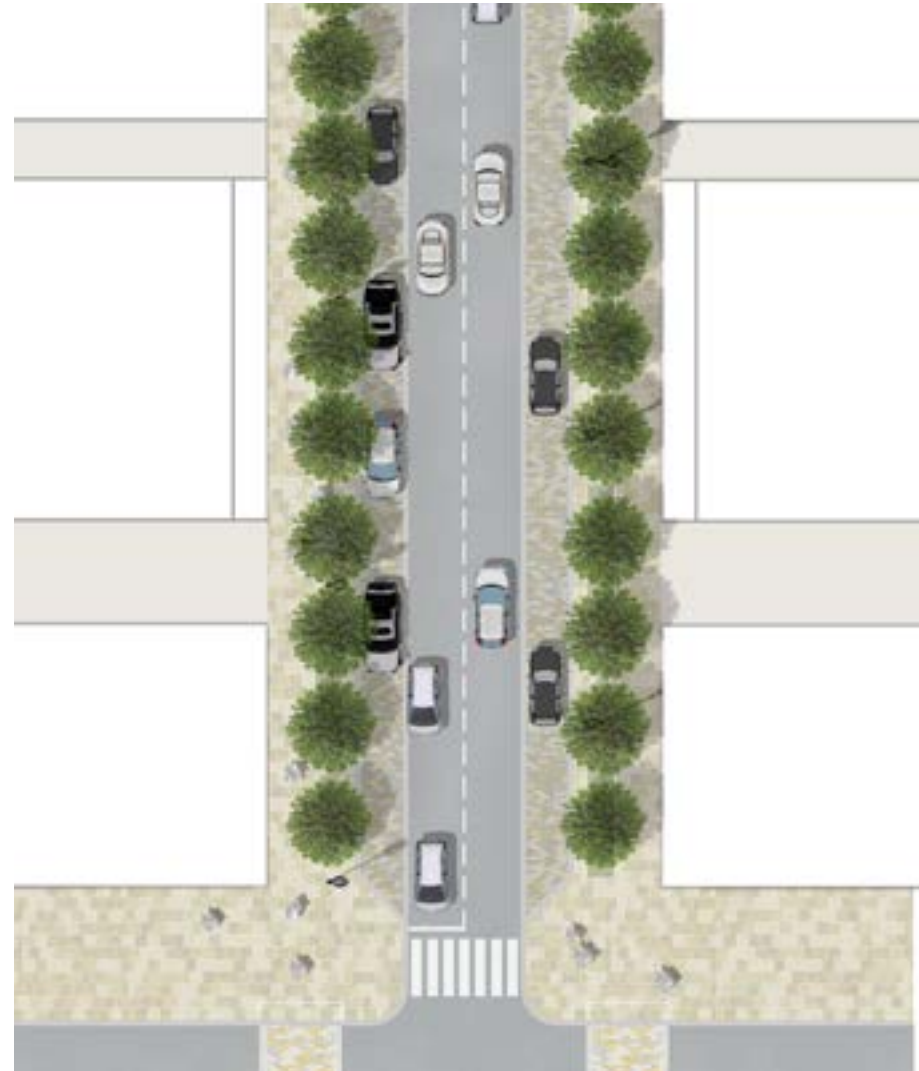


Figure D42: Typical Street Plan



Figure D43: View of typical Street

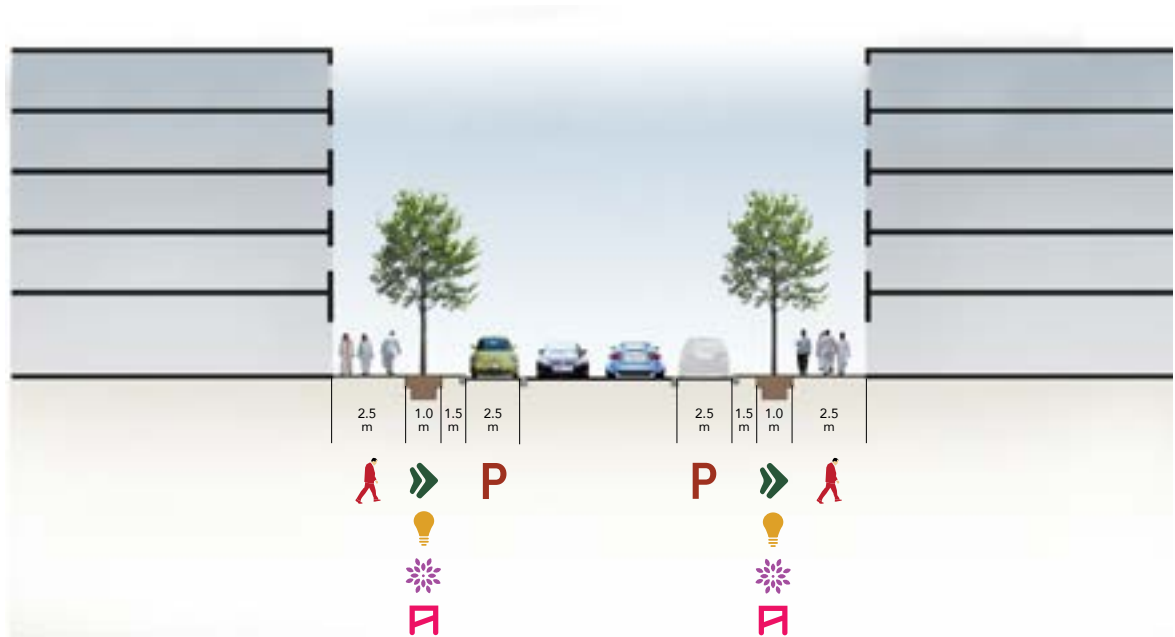


Figure D44: Typical Street Section

Key

	PEDESTRIAN		FURNITURE
	SIGNAGE		LIGHTING
	PARKING		SOFTSCAPE

D3.3.3

Regulations for Street Streetscape



Movement and Access

Standards

DS-168 Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for cyclists and pedestrians.

Guidelines

- DG-212** The streetscape SHOULD link to the public transit network.
- DG-213** A connective network of pedestrian, transit and bicycle routes SHOULD be accommodated.
- DG-214** Transit stops SHOULD be provided and conveniently located, with direct access to pedestrian and bicycle pathways.
- DG-215** Pull-over and drop-off areas designed to accommodate multi-modal transport SHOULD be provided.
- DG-216** Views to significant landmarks, cultural and heritage features SHOULD be preserved and enhanced.



Softscape

Standards

DS-169 Softscape SHALL be designed and maintained to preserve and enhance views.

Guidelines

DG-217 Distinctive tree species SHOULD be used to provide unifying elements.



Hardscape

Guidelines

- DG-218** Contrast in materials' colours, textures and scale SHOULD be used to draw attention to important points along the highway corridor.
- DG-219** A mix of larger and mid range sizes of unit paving SHOULD be used along pedestrian routes.



Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER
- ID** = ESTIDAMA CREDIT REFERENCE

Furniture

Standards

- DS-170** Refuse and recycling containers SHALL be provided at street intersections, transit stops and gathering areas.
- DS-171** Total seating area requirements SHALL be calculated based on:
 - 1 seating area per 100 linear metres of primary pathway.

Guidelines

- DG-220** Furniture SHOULD be provided along pedestrian pathways, transit stops, pull-over/ drop-off locations and gathering areas.
- DG-221** Shaded bicycle racks SHOULD be provided approx. every 500m, and located in association with high-use buildings, public open spaces, retail and commercial areas.

Public Art

Guidelines

- DG-222** Public art or special features MAY be used at key intersections and gateways, to assist with identity and wayfinding.

Lighting

Standards

- DS-172** Security lighting SHALL be provided at destinations and transit stops.

Guidelines

- DG-223** Light standards SHOULD be sized and spaced to reflect the size and function of the route.
- DG-224** Decorative street lighting SHOULD be used where appropriate.



1: Hardscape used for street demarcation, Abu Dhabi City, UAE

D3.3.4

Regulations for Access Lane Streetscape

Access Lane – Streetscape Regulations

The Access Lane streetscape level, are narrower streets with a more intimate feel and provide the highest levels of connectivity to the local communities surrounding them. They include shared streets (Mushtarak), which are designed to be equally inclusive of pedestrian activity and vehicular transport.

Design Elements which can be applied at this level include:

-
-

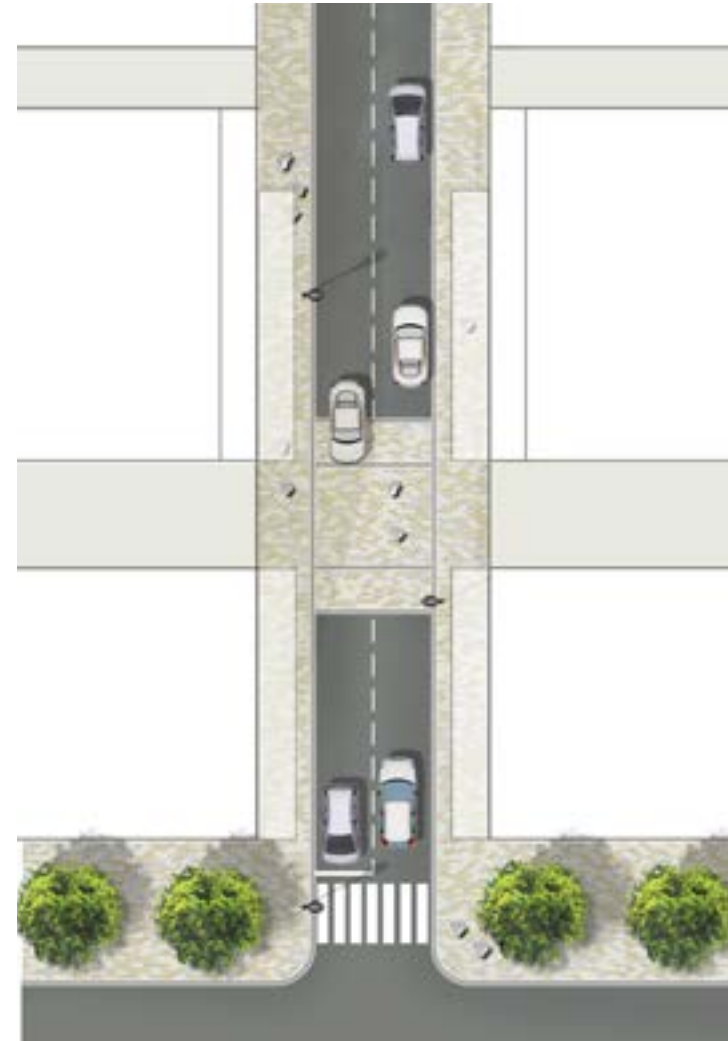


Figure D45: Typical Access Lane's Plan



Figure D46: View of typical Access Lane

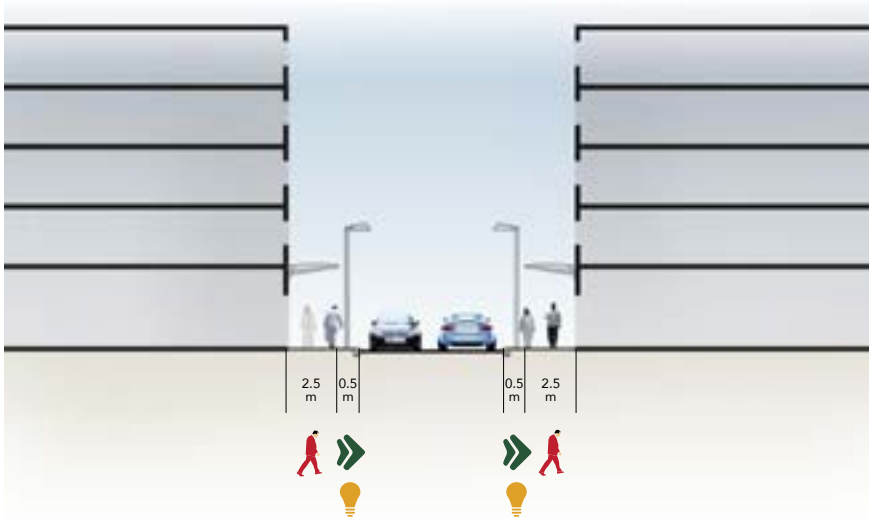


Figure D47: Typical Access Lane Section

Key

- PEDESTRIAN
- SIGNAGE
- LIGHTING

D3.3.4

Regulations for Access Lane Streetscape

Movement and Access

Standards

DS-173 Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for pedestrians.

Guidelines

DG-225 Traffic calming measures SHOULD be incorporated.

Hardscape

Guidelines

DG-226 Materials SHOULD be selected to reflect the character of the surrounding areas.

DG-227 A mix of mid range and smaller sizes of unit paving SHOULD be used along pedestrian routes, dependant on the scale of the street.

Softscape

Standards

DS-174 In residential areas or wherever a wider width of pavement allows, appropriate planting SHALL be incorporated.

DS-175 Forward visibility SHALL be ensured through appropriate height and positioning of planting.

Furniture

Standards

DS-176 Refuse and recycling containers SHALL be provided at street intersections and gathering areas.

Guidelines

DG-228 Furniture along pedestrian pathways SHOULD be provided based on demand assessment.

DG-229 Total seating area requirements SHOULD be calculated based on:

- 1 seating area per 100 linear metres of primary pathway.

Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER
- ID** = ESTIDAMA CREDIT REFERENCE



Local Access,
Saadiyat Villa,
Abu Dhabi

D3.4

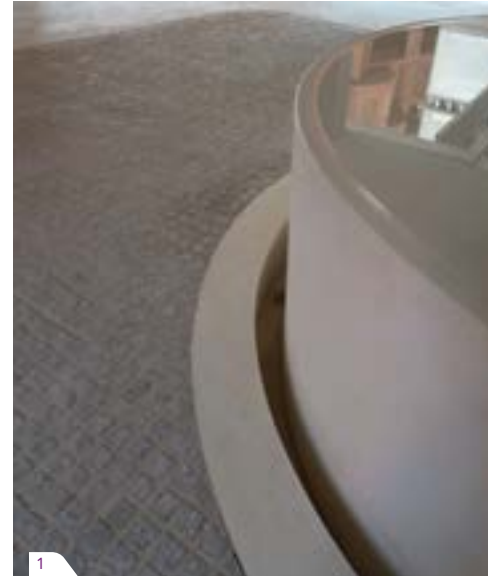
Public Realm Design Elements

The public realm is where the inhabitants of a city come together; a place of exchange, celebration, recreation and relaxation.

There are numerous thematics, programming, location-based attributes, that can be combined as design elements to create a successful public realm, be it a park, plaza or streetscape environment.

Most successful places have a mix of uses, components and facilities which serve the needs of the local residents, workers or visitors. Combining the different elements and facilities into a cohesive whole is often the result of a comprehensive planning and design process.

Supporting the specific standards and guidelines which apply to POS or streetscape, the following Public Realm Design Elements provide specific design guidance on their applicability and implementation.



1: Water Feature, Masdar City, Abu Dhabi City, UAE

The public realm design elements are illustrated in the following pages based on their suitability for the different categories of public realm:

Public Open Space/Streetscape

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-
-
-

Public Open Space

-
-
-
-
-
-
-
-
-
-

Streetscape

-
-
-

Table D3: Public Realm Design Elements Application Matrix

Design Elements	Public Open Space					Streetscape			
	Emirate	Municipality	District	Neighbourhoods	Local	Boulevard	Avenue	Street	Access Lane
	✓	✓	✓			✓	✓		
		✓	✓	✓	✓	✓	✓	✓	
	✓	✓	✓	✓	✓	✓	✓	✓	✓
			✓	✓		✓	✓	✓	
	✓	✓	✓						
		✓	✓	✓	✓				
		✓	✓	✓	✓				
	✓	✓	✓						
	✓								
	✓	✓	✓						
	✓	✓	✓	✓	✓				
	✓	✓	✓	✓	✓				
	✓	✓	✓	✓	✓				
		✓	✓	✓	✓				
	✓	✓	✓						
			✓	✓	✓	✓	✓	✓	
			✓	✓	✓				✓

Table D3 outlines the design element and their most suitable application to the different hierarchies of POS and streetscape.

Some design elements are applicable to both POS and streetscape while some are more suitable for one or the other. These are not however exclusive and other locations could apply if justified through the design process.

Appropriate design elements should be identified at the beginning of the planning process, and their specific guidance should then be implemented at the design stage.

The design elements include standards and guidelines which must be followed over and above those of the respective POS and streetscape hierarchy. These specific guidance only apply if a design element is included in the design.

Some design elements such as Waterfronts include different sub-elements: such as preservation, recreation etc. In the case of conflict or discrepancies, the specific guidance provided for the sub-element takes precedence over the more general guidance provided under the main design element.

D3.4.1

Ceremonial Design Element

Aims

To provide suitably scaled and programmed streets and spaces to accommodate celebrations, events and public assembly of a range of sizes.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Ceremonial public realm consist of large routes and spaces, programmed primarily for public assembly, celebration and commemoration, they create focal points and are often an organising element within the urban environment that help to support the identity of the place.

Ceremonial Public Open Space

Ceremonial functions can be located within the Emirate, Municipality and occasionally District POS hierarchies, although their location is often defined at the strategic level, due to their importance and specific requirements: they need to be highly accessible, served by public transit and integrated into the pedestrian and cycling network. Their size and position within the urban fabric, as well as visual connectivity are of major importance.

Their primary purpose is to host events, celebrations and commemorations and large community events. Focused on providing monumental spaces for celebration, with a large assembly space, connected by a processional route to the primary entrances.

A large public art statement is often used as an organising element, with framed views to it from the primary and secondary pathways. Views out from the public open space should also reflect its status and focus on distant sightlines and iconic features.

When not used for events, the POS serves as a space for passive recreation and circulation, including picnicking, walking and cycling.

Due to the POS being specifically designed for events hosting large numbers of people, specific safety and security aspects need to be incorporated into the design (refer to SSPM for further guidance).



1



2

1: Traditional Festival
2: UAE National Day Celebration

Standards

- DES-1** A primary pathway with a minimum width of 6m SHALL be provided, designed as the processional route through the POS.
- DES-2** An assembly space SHALL be provided, linked to a centralised processional route to accommodate ceremonial events.
- DES-3** Hardscape SHALL be designed to reflect the ceremonial function of the POS/Route.
- DES-4** High quality natural stone SHALL be used for hardscape.
- DES-5** Total seating areas requirements SHALL be calculated based on:
- 1 seating area per 20 linear metres of primary pathway;
 - 1 seating area per 40 linear metres of secondary pathway.
- DES-6** Total picnic tables requirements SHALL be calculated based on:
- 1 picnic table per 40 linear metres of secondary pathway.

Guidelines

- DEG-1** Shared off-site parking or underground parking SHOULD be provided.
- DEG-2** Parking SHOULD NOT be allowed on key street frontages.
- DEG-3** Large canopy trees SHOULD be used to reinforce the monumentality and ceremonial function of the POS.
- DEG-4** Strong vertical rows of palms SHOULD be used to define processional route.
- DEG-5** Water feature/s of appropriate scale SHOULD be provided as a focal point within the POS.
- DEG-6** Furniture SHOULD be located along the perimeter.
- DEG-7** Public art SHOULD be provided as an iconic symbol within the POS.
- DEG-8** Decorative lighting sized and spaced appropriately to the public open space function, SHOULD be provided in accordance with DMT Lighting Standards.
- DEG-9** Security cameras SHOULD be integrated with perimeter light standards.



3

3: Khalifa Park Amphitheatre, Abu Dhabi City, UAE

D3.4.1

Ceremonial Design Element

Ceremonial Streetscape

Ceremonial Routes are grand-scale streetscapes programmed primarily as processional space for ceremonial events. The ceremonial route is designed to host major processions for community-wide ceremonial events.

The ceremonial route is characterised by open views, uniform street trees, and ceremonial banners and flags. Streetscape features are consistent to give a unified appearance along the route.

Typically a high volume linear corridor with defined starting and end points, it can accommodate large crowds and support facilities during ceremonial events. It contains a section (minimum 1km) which can be staged for events at short notice, including grandstands, retractable bollards, toilets and other facilities.

The ceremonial route provides easy access for residents and visitors from transit hubs and resort areas. The corridor intersects with other major corridors so that during parades, processions and events, vehicular traffic can be temporarily re-routed to adjacent streets. Pedestrians should be able to access the Ceremonial route from the wider streetscape network.

Due to the Ceremonial streetscape being specifically designed for events hosting large numbers of people, specific safety and security aspects need to be incorporated into the design (refer to SSPM for further guidance).



1: Champs Elysee, Paris, France



Key

DS = UNIQUE STANDARD NUMBER

DG = UNIQUE GUIDELINES NUMBER



2



3



4

2-4: UAE National Day Parade

Guidelines

- DEG-10 Ceremonial routes SHOULD be served by public transit.
- DEG-11 Ceremonial routes SHOULD be linked to major roadways.
- DEG-12 Event traffic SHOULD be accommodated on parallel streets.
- DEG-13 Security and emergency vehicle access SHOULD be provided.
- DEG-14 Drop-off facilities to serve attractions SHOULD be provided as required.
- DEG-15 The design SHOULD provide an iconic streetscape, appropriate for ceremonial events.
- DEG-16 Views to significant landmarks, cultural and heritage features SHOULD be preserved and enhanced.
- DEG-17 Shade structures SHOULD be provided along pedestrian corridors and transit stops.
- DEG-18 The median SHOULD be designed and maintained to preserve open views.
- DEG-19 The use of natural turf SHOULD be limited.
- DEG-20 Softscape features SHOULD have a high level of formality and visible patterns.
- DEG-21 Large-scale matching trees and palms SHOULD be used as street trees.
- DEG-22 Trees and palms SHOULD be limited to two or three species to achieve a unified appearance.
- DEG-23 High-quality hardscape materials SHOULD be used for kerbs, intersections and areas adjacent to landmarks.
- DEG-24 Retractable bollards and oversized planters SHOULD be used to enable shut-down of sections of the route required for ceremonial purposes.
- DEG-25 Large-scale public art SHOULD be located at gateways, gathering areas and destination points.
- DEG-26 Decorative street lighting SHOULD be provided in accordance with DMT Lighting Standards, sized and spaces appropriately to the route function.
- DEG-27 Pavement markings and other strategies SHOULD be incorporated to minimise the need for signs and maintain views.
- DEG-28 Ceremonial routes SHOULD function as an effective roadway during daily use.
- DEG-29 Security cameras SHOULD be strategically placed along the route for use during special events.

D3.4.2

Linear Spaces Design Element

Aims

To encourage non-motorised active travel (such as walking, jogging, cycling), as a contributor to physical health and wellbeing and a reduction of vehicular travel and associated pollution, by providing pleasant environments connecting to local facilities.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Linear spaces comprise both extended streetscape and public open space, they are defined by their location and context and should be designed according to their primary use.

Linear spaces adjacent to the typical street dimensions, as determined by the USDM, will generally be considered as 'extended streetscape'. These linear spaces will often be associated with utilities corridors and should be landscaped taking into account the clear zones required for underground cables and equipment.

Linear public open spaces would normally act as connectors between streets and/or other POS, rather than be adjacent to them. Their main function will often be that of movement corridor but when wide enough, other facilities related to POS should be included, such as play or family facilities.

Linear spaces can be considered as part of the POS standard provision within the appropriate hierarchy level (Local, Neighbourhood etc.).



1



2



3

- 1: Madrid Rio, Madrid, Spain
- 2: Victoria Square, Adelaide, Australia
- 3: Streetscape, New Mexico, US

Extended Streetscape

Extended streetscapes encompass 'accessible' linear areas adjacent to the 'Right of Way' as determined by the USDM, and can constitute of a variety of widths and landscape treatment. They can include:

- Extra-wide verges either soft/ hard-landscaped or left untreated;
- Private buildings' forecourts;
- Parking areas;
- Utilities corridors;
- Bicycle lanes;
- Linear plots awaiting development; and
- Very wide median within existing roadways.

These extended streetscapes are generally discouraged, but there may be occasion where they may be necessary, and are quite common within the existing Abu Dhabi's townscape.

Where these areas are associated with utilities' corridors, the landscaping need to be compatible with setbacks requirements as set out by the utilities providers. Measures such as root barriers can be incorporated to allow for soft landscaping where appropriate.

A soft or hard-landscape treatment or a combination of both should however be ensured for all these areas, in accordance with the water baseline for streetscape.

These areas can also provide good opportunities for the implementation of Sustainable Urban Drainage Systems (SUDS) to drain adjacent streets in a manner appropriate to the location.

Standards

DES-7 Access to adjacent buildings SHALL be kept clear and emphasised where appropriate.

DES-8 Planting within utilities corridors SHALL be carried out in accordance with the Utility Corridor Design Manual (UCDM) and use root barriers where appropriate.

Guidelines

DEG-30 Continuity of movement and access SHOULD be ensured.

DEG-31 The design SHOULD conform to and enhance the existing natural landform.

DEG-32 Areas of natural turf SHOULD be limited.

DEG-33 Large areas of paving SHOULD use variation in colours, texture and pattern to define areas.

DEG-34 Bollards SHOULD be provided at intersections with vehicles' access areas.

DEG-35 Seating MAY be provided where appropriate.

DEG-36 Edge planting MAY be used to minimise the visual impact of adjacent roadways.

DEG-37 Lighting MAY be provided in accordance with DMT Lighting Standards.

DEG-38 Surface stormwater retention areas MAY be provided within the corridor.

Linear Public Open Space

Linear POS typically lead somewhere, and encourage people to move or to exercise along a linear route. Their emphasis is therefore on movement and differ from traditional urban parks/ squares, which are destinations, and emphasize rest and relaxation.

Often located along natural corridors, utility easements and other linear urban spaces such as waterfronts, they play an integral part in connecting destinations, features, and other POS in the surrounding area, and providing ecological and habitat links ensuring people and wildlife can move through the city within the POS network. Part of the attraction of linear POS within cities and towns is the changing viewscape that travelling along them provide.

Linear POS can be present in various sizes and shapes at the Municipality, District, Neighbourhood and Local level, and their use and function will be determined by their location and surrounding uses, for example some wider and more rural linear POS

could accommodate horse and camel riding, but in urban areas they would mostly provide opportunities for exercise and pedestrian/cycle circulation.

The design of linear POS will reflect the unique urban or natural characteristics of the corridor, and focus on promoting movement for recreation and circulation, encouraging healthy living and physical activity. Linear POS can also serve as areas for storm water management and grey water recycling.

A pathway along the length of the space linking each entrance will be the main feature of linear spaces, with rest areas, benches, shade structures and wayfinding provided along the way.

Interpretative displays could also be located at resting areas to identify natural or cultural features of the park or surrounding areas.

These spaces should be served by public transit as they are key components of the pedestrian and cycling network.



4: University of Nottingham, UK

D3.4.2

Linear Spaces

Design Element

Standards

- DES-9** Total seating area requirements SHALL be calculated based on:
 - 1 seating area per 60 linear metres of primary pathway; and
 - 1 seating area per 80 linear metres of secondary pathway.
- DES-10** Planting within utilities corridors SHALL be carried out in accordance with the Utility Corridor Design Manual (UCDM) and use root barriers where appropriate.

Guidelines

- DEG-39** Linkages to the public open space SHOULD be provided mid-block or at a maximum of 200m apart in urban areas.
- DEG-40** Linkages to the public open space SHOULD be provided at a maximum of 500m apart in rural areas.
- DEG-41** A shared-use pathway SHOULD be provided with a minimum width of 4m.
- DEG-42** A shared rest-area SHOULD be provided at path intersections and access points.
- DEG-43** The design SHOULD conform to and enhance the existing natural landform.
- DEG-44** Areas of natural turf SHOULD be limited.
- DEG-45** Bollards SHOULD be provided at street intersections and access points.
- DEG-46** An identification sign SHOULD be provided at street intersections.
- DEG-47** Security cameras SHOULD be integrated with street light standards in more isolated areas.
- DEG-48** Drinking fountains SHOULD be provided at street intersections.
- DEG-49** Secondary pathways MAY be designed in sweeping curves and bends, avoiding straight lines and unnatural or tight curves.
- DEG-50** Edge planting MAY be used to minimise the visual impact of urban areas.
- DEG-51** Lighting MAY be provided in accordance with DMT Lighting Standards.
- DEG-52** Surface storm-water retention areas MAY be provided within the corridor.



1



2



3

1: Hammarby, Sweden
 2: Highline, New York City, US
 3: Algeciras, Spain



Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER

Transition to Buildings

The relationship between the pedestrian realm and buildings should be carefully considered, by developing building entries that are visually and physically accessible and streetscape design that complement and highlight the entrance.

Within the existing built environment in Abu Dhabi the finished level of buildings often varies from the elevation of the adjacent pedestrian area, creating the need for steps and platforms that interrupt sidewalk continuity.

For properties that are being redeveloped, building frontages and finished levels should be related to the adjacent finished levels.

For retained buildings, individual solutions should be investigated to resolve the level disparity, these can involve very localised interventions or more extensive work affecting the levels of the surrounding side walk, dependent on the width of the available external space and its usage.

The following are not exclusive strategies:

- Creating a sloped access within the building;
- Raising the level of the adjacent sidewalk, by creating additional step/s at the kerb or a stepped area at some point within the width of the sidewalk, with planters or planted areas dividing the two. Ramps need to be provided at the appropriate level to facilitate access to the raised sidewalk level;
- Sloping the sidewalk across towards the kerb at the appropriate ratio;
- Sloping the sidewalk lengthways at a maximum of 1:60 with planted area absorbing the additional level change within the width of sidewalk or adding additional feathered steps along the length;
- Adding a localised ramp ensuring it does not impede the sidewalk; and
- Where no other option exist, platforms lifts could be considered



4



5

4: Building Interface, UK 5: Southbank, London,UK

Standards

- DES-11** Access to adjacent buildings SHALL be kept clear and emphasised where appropriate.
- DES-12** Continuity of movement and access SHALL be ensured.
- DES-13** Kerb upstands height SHALL be in accordance with USDM standards.
- DES-14** Kerb upstands height at transit stops SHALL be in accordance with USDM standards.
- DES-15** If higher kerb upstands are required in retrofitting, careful consideration SHALL be given to people with mobility impairments.
- DES-16** The standard cross-fall for the sidewalk SHALL be up to and no steeper than 1:40 for new developments.

Guidelines

- DEG-53** When retrofitting a cross-fall up to and no steeper than 1:30 SHOULD be used.
- DEG-54** The materials used SHOULD be uniform but changes in levels should be emphasised with colour or texture.
- DEG-55** Planting or features SHOULD be used to help identify ramps and changes in levels that can cause trip-hazards.
- DEG-56** Ramps SHOULD be wide enough to cover the entire entrance and have graded sides where possible.
- DEG-57** Ramps or changes in levels SHOULD be appropriately lit.
- DEG-58** Large areas of paving SHOULD use variation in colours, texture and pattern to define areas.
- DEG-59** Where appropriate, the sidewalk SHOULD be widened to accommodate the appropriate cross fall.

D3.4.3

Public Art

Design Element

Aims

To enliven the public realm through the provision of vibrant, culturally appropriate public art that contributes to the creation of spaces that are distinctive, inspiring and attractive to users.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Public art plays a fundamental role within the public realm. The provision of public art can help to transform the physical landscape of the city. Providing more than visual impact, it can make people think about the places in which they live or visit and help them interpret character and heritage. It can give communities a sense of identity and explore and express their values. Public art can also inspire, challenge assumptions and heighten the appreciation of public space.



1: 16th Avenue Tiled Steps, San Francisco, US

Public Open Space – Public Art

Most public open spaces provide opportunities to integrate fine arts, visual arts, performance, music and dance into the community, as well as adding cultural meanings and developing cultural participation.

Within POS public art can take a number of different forms:

- Stand-alone elements in either a permanent form, to create a focal point to specific POS such as large ceremonial park, or a temporary form to attract attention to occasional exhibitions or events;
- Creative, integrated into the design of furniture, paving, play equipment, lighting or other fixed elements;
- Interactive elements facilitating user involvement such as media walls, LED displays, play and water features;
- Incorporation of spaces for performances and artistic expression within the community; and
- Landforming.

These facilities diversify the POS system while providing essential amenities. Contemporary public realm art practice has moved away from the standalone art works that is merely ‘installed’ afterwards, to a more integrated approach, whereby artists are part of the creative team involved in the design of space. This approach can lead to much more successful collaborations between designers, whilst avoiding unnecessary clutter in the public realm.

Public Art can be located within each of the POS hierarchies, where its form and scale will be influenced by its purpose and the context in which it is located:

- At the Emirate level it may take on the role of a Focal Point or Gateway, identifying a site or facility of national importance. Generally comprising of monumental or large size public art, positioned at locations visually accessible from long distances;
- At the Municipality level it may be associated with city-wide gathering spaces, where celebrations and ceremonial functions are held, as well as providing focal points and important gateways. They should strongly reflect the context and use of the POS within which they are located;
- At the District level, public art begins to be more related to the human scale, and can take a variety of forms and functions such as interactive, educational and recreational. It can also provide facilities for integration of visual arts, performance, music and dance into the community. Art provision can include permanent and temporary art displays with a distinct theme, such as cultural and regional festivities, providing ephemeral interest as well as cultural and local interest for tourists;
- At the Neighbourhood level, public art can provide opportunities for artistic expression by and for the community, as well as education opportunities, such as outdoor classrooms in POS located near schools; and
- At the Local level, public art needs to relate in size and function to the use of the space (residential, commercial, mixed-use) and can be used as a ‘stand-alone’ feature, or can be incorporated within other elements.



2

2: Public Art, Brooklyn, US 3: Light Cathedral, Ghent, Belgium 4: Public Art, Perth, Australia



3



4

Standards

DES-17 Public art SHALL be designed to ensure public safety.

Guidelines

DEG-60 Public art SHOULD be used in locations where it can enhance the public realm.

DEG-61 Public art SHOULD be sensitive in colour and material to the public open space design palette and character.

DEG-62 The hardscape and softscape features surrounding art display SHOULD be designed to enhance it.

DEG-63 A simplified landscape palette SHOULD be used to unify and strengthen the role of public art in the overall public open space design.

DEG-64 Customised lighting design SHOULD be used to highlight public art features.

DEG-65 Interactive sculptures designed for children SHOULD include a light-coloured impact-material safety area.

DEG-66 Interactive sculptures designed for children SHOULD have a maximum height of 1.8m (dependent on children's age).

DEG-67 Tensile shade structures SHOULD be provided in activity areas and interactive sculpture areas.

DEG-68 Public art MAY be designed to be interactive for all users.

DEG-69 Public art MAY be incorporated into infrastructure and other public realm elements (lighting, street furniture, tree gates, fences, street signs, water fountains).

DEG-70 Sculpted land forms MAY be incorporated to define areas of public open space.

D3.4.3

Public Art Design Element

Streetscape – Public Art

Public art both defines and is mediated by its spatial location, a coherent and consistent approach to public art within the public realm, is therefore important in contributing to towns and cities identity.

This is particularly relevant to art located within the movement network, such as streets and roundabouts, where it can be seen from a long distance, and in relation to the surrounding built environment. It is important that it is designed and located in a coordinated way, to enhance and provide meaning to its surroundings.

Within streetscape, public art can take a number of different forms:

- Landmark elements and gateways where it can aid wayfinding;
- Thematic streetscape elements, highlighting cultural assets or heritage destinations;
- Integrated elements within street furniture, water features, hard landscaping or lighting; and
- Spaces for performances and street art, integrated along corridors with high pedestrian use.

Art can be located within each of the streetscape hierarchies, where its form and scale would be influenced by its purpose and context:

- At Boulevard or Avenue level it will probably take on the role of a Focal Point or Gateway, identifying a site or facility of city-wide importance. Generally comprising of monumental or large size public art, positioned at locations visually accessible from long distances;
- At the Street level it will often be associated with city-wide gathering spaces, such as plazas or civic squares, or used to create focal features within a roundabout or frame a view. Generally located where it can be seen and appreciated whilst travelling; and
- For Access Lanes it will reflect the size and use of the surrounding area, and could be incorporated into landscape elements such as drinking fountains or seats.

Opportunities for temporary exhibitions and performances such as spaces for temporary stages, power and water supply, seating, tables, lights, can also be incorporated, especially around pedestrian lanes and sikkak, which offer opportunities for quieter relaxation away from trafficked streets.

Consideration should be given at the design stage to the management and maintenance and/or future decommissioning of public art.



1&2: Sikka Art Fair, Dubai, UAE
3: Lighting Installation, Austin Texas, US



Key

DS = UNIQUE STANDARD NUMBER
DG = UNIQUE GUIDELINES NUMBER

Standards

DES-18 Public art SHALL be designed to ensure public safety.

Guidelines

DEG-71 Public art SHOULD be used in locations where it can enhance the public realm.

DEG-72 Public art SHOULD be used in a way that does not create distraction or a danger to drivers.

DEG-73 Public art SHOULD be sensitive in colour and material to the streetscape design palette and character.

DEG-74 The hardscape and softscape features surrounding art display SHOULD be designed to enhance it.

DEG-75 A simplified landscape palette SHOULD be used to unify and strengthen the role of public art in the overall streetscape design.

DEG-76 Custom lighting design SHOULD be used to highlight public art ensuring that uplighters do not affect street users.

DEG-77 Sculpted land forms MAY be used to define use areas.

DEG-78 Public art MAY be incorporated into infrastructure and other public realm elements (lighting, street furniture, tree grate, fences, street signs, water fountains).

DEG-79 Temporary and permanent sculptural structures MAY be used within the streetscape.



4

4: The Longest Bench, Littlehampton, UK

D3.4.4

Transit Design Element

Aims

To create an enjoyable and convenient experience for transit users to encourage the use of multi-modal transit and its associated benefits.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Investment in transit development and operation contribute to creating liveable communities by increasing access, improving mobility, supporting economic development and facilitating a healthier environment.

Transit areas include both transit corridors and interchange hubs. Transit corridors are programmed to prioritise multi-modal transit over vehicular use. They link important facilities such as airports, high-speed rail and shipping ports, to residential areas, commercial centres and hotel district.

Transit interchanges is where the exchange in mode of transport happens, as such they can be visited by a multitude of different people and are of primary importance for economic development of the area.

The design of transit corridors and interchanges needs to take into account the flows and movements of people and services between the interchange zone and the surrounding areas.

The Abu Dhabi SSPM, the Walking and Cycling Master plan Network Design and DMT Manuals must be referenced for appropriate guidance in designing these areas.

Transit Corridors

Transit corridors should provide separate travel lanes, for light rail, bus and bicycle - which may or may not be physically segregated - as well as safe pedestrian access to transit hubs and car parking.

They should be designed to be efficient and provide as short a travel time as possible, by ensuring high service reliability, and reducing the impact that traffic congestion and traffic signal delays can have on transit vehicles through the use of Transit Priority Measures. Facilities to be appropriately incorporated within transit corridors include street furniture, street trees and transit elements, including shelter, toilets and platforms, designed to fit in with the overall streetscape.

Transit Interchanges

Interchanges are important places that act as waiting, circulation and wayfinding places associated with metro, rail, bus and light rail stations and stops. They are also often an important arrival space for visitors and should set an appropriate identity and character for the area and the wider city.

The design of interchanges should balance aesthetics, commercial potential, functionality and passenger experience, and be tailored to the context.

Care should be taken to ensure that interchanges are considered in their entirety especially with regard to:

- **Movement spaces:** these areas should be reserved for passenger movement and connections to, from, and between transport modes and the surrounding areas. These spaces should provide clear, unobstructed routes matched to desire lines. Street furniture, planting, advertising, information displays, above-ground infrastructure elements, or any other fixed item should not extend into these zones but may be located adjacent to them;



1: Transport Interchange, Bath, UK

- **Decision spaces:** interchange plaza's access, ticket areas, areas where people access or exit a public transit mode. These locations should have good sight lines, and clear signing or transport information to guide users. Non-essential physical infrastructure or visual distraction such as advertising/ retail or other land uses that would serve to distract or confuse passengers should be limited; and
- **Opportunity spaces:** these include the areas outside or adjacent to, the movement and decision spaces. These areas can accommodate cafés, retail opportunities, street furniture and landscaping, advertising or other fixed or temporary infrastructure, which must be managed so as not to extend into or interfere with the requirements of decision or movement.

Individual station areas should reflect the unique and identifiable features of the community.



2: Bus Interchange, Kent, UK 3: Kings Cross Square, London 4: Tram Stop Media City, UK

Standards

DES-19 The design of the streetscape and POS connected with transit hubs SHALL be considered in their entirety, to provide a uniform and coordinated landscape interface to all the facilities.

DES-20 Above-ground utility structures SHALL be located outside of movement areas.

Guidelines

DEG-80 Transit corridors SHOULD be linked to major roadways.

DEG-81 Drop-off areas SHOULD be provided in close proximity to transit stops.

DEG-82 The streetscape SHOULD be designed to easily link pedestrian to various forms of public transit.

DEG-83 Parking SHOULD be provided where possible to allow motorists to shift to public transport modes and access pedestrian circulation opportunities.

DEG-84 Shade structures SHOULD be provided at transit stops, along the primary pathway, gathering areas, and destination points.

DEG-85 Varied colours, textures, materials or road markings SHOULD be used to identify mode of travel.

DEG-86 Furniture and refuse/recycling containers SHOULD be located at transit stops/shelters.

DEG-87 Secure and shaded bicycle racks and other end-of-ride facilities SHOULD be located at transit stations and stops.

DEG-88 Clear signage SHOULD be provided to indicate multi-modal use.

DEG-89 Transport hubs SHOULD provide access for security and emergency vehicles.

DEG-90 Safety and security issues SHALL be considered in accordance with the SSPM guidance.

DEG-91 Transport stops and interchanges SHOULD be well lit in accordance with the DMT Lighting Standards.

DEG-92 Smart guidance and timetables MAY be considered in appropriate locations.

D3.4.5

Conservation Design Element

Aims

To provide protection and awareness of the natural environment of Abu Dhabi, as well as the integration of natural features within the urban environment, to create cohesion between the built environment and the surrounding context.

This Design Element is closely aligned with the PRRS [NS-R2](#) Credit.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Conservation areas are primarily for the preservation, rehabilitation or creation of natural features or areas. They are aimed at preserving and enhancing the unique environmental qualities of Abu Dhabi. They may be located to surround existing natural features to support environmental preservation.

It is expected that issues of conservation will mostly affect POS at the Emirate and Municipality level, however, the creation of natural features (such as Desert Parks) can also be achieved at the District and Neighbourhood level where appropriate.

POS with conservation aims are predominantly natural in character and form, reflecting the landscape characteristics common to the Emirate and are important for environmental education and passive recreation. Their design promotes biodiversity and habitat preservation.

The natural environment is therefore the focal point of the POS, with user services and amenities restricted to those that enhance the habitat, environmental quality and viewing of the natural environment. Desert Parks are intended to be low-maintenance and have restricted water requirements. They provide an opportunity for residents and visitors to experience and learn about native flora and fauna of the Arabian Desert, and reinforce traditional Emirati culture.

The provision of a pathway marked with interpretative displays throughout the site would be the key facility, with pedestrian circulation through the POS limited to pathways, boardwalks and designated areas programmed to support gathering, education/interpretation, passive recreation and relaxation such as walking, cycling and picnicking. Rock formations and desert landforms can provide informal play areas for children.



1: Dubai Desert Conservation Reserve 2: Desert Planting



3



4

3: Royal Botanic Garden, Cranbourne, Australia
4: Hili Archaeological Park, Al Ain, UAE

Standards

- DES-21** Access SHALL NOT be allowed in areas of high environmental sensitivity.
- DES-22** Vehicular access SHALL be restricted.
- DES-23** Softscape SHALL incorporate the native landscape of the conservation area.
- DES-24** Softscape SHALL use locally occurring, drought tolerant plant materials at natural densities.
- DES-25** The natural ecosystem SHALL be allowed to be self-maintaining to the greatest extent possible.
- DES-26** Natural turf or areas of open grass SHALL NOT be allowed.
- DES-27** Buildings SHALL be located off-site and designed to reflect the unique character of the conservation area.
- DES-28** Only low-level lighting SHALL be used.
- DES-29** A primary pathway with a maximum width of 2.5m SHALL be provided.
- DES-30** Total seating areas requirement SHALL be calculated based on:
 - 1 seating area per 40 linear metres of primary pathway; and
 - 1 seating area per 80 linear metres of secondary pathway.
- DES-31** Total picnic tables requirement SHALL be calculated based on:
 - 1 picnic table per 60 linear metres of secondary pathway.

Guidelines

- DEG-93** Access SHOULD be limited to pedestrian and cycle only.
- DEG-94** Provision of on-street parking or shared off-site parking SHOULD be integrated into the natural landscape.
- DEG-95** Parking provision SHOULD have a 100% permeable surface.
- DEG-96** Permeable materials with a natural colour palette SHOULD be used for hardscape.
- DEG-97** Public art provision SHOULD reflect or enhance the natural desert environment.
- DEG-98** Entrances SHOULD be defined with informal pedestrian-scale features.
- DEG-99** A secondary pathway with a maximum width of 1.8m SHOULD be provided.
- DEG-100** Gathering areas that support education/interpretation, passive recreation and relaxation SHOULD be provided.
- DEG-101** Shade structures SHOULD be constructed of natural materials.
- DEG-102** Sculpted land forms SHOULD be incorporated to define space.
- DEG-103** All plant material SHOULD be grouped into distinct hydro-zones.
- DEG-104** Furniture SHOULD be constructed of natural materials, with minimal reflection and a colour palette similar to the natural tones of the conservation area.

D3.4.6

Family / Community Design Element

Aims

To provide a nurturing environment that facilitates family and community gathering, fosters community links and a sense of belonging by providing appropriate spaces and facilities for local users.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Family and community facilities provide user-focused public open space for active and passive recreation. They include the provision of local meeting places for residents, activity centres for children and spaces that can host local community events.

These facilities can be located within the District, Neighbourhood and Local POS hierarchies, particularly if they are located near residential developments and community facilities, in order to provide for families and local users.

Features can include gathering areas for community events and interaction, play and picnic areas, private seating areas and active and passive recreation areas. Areas should be defined by pathways, trees and/or shade structures separating active and passive areas.

Active recreation areas can comprise of informal sports fields and space for local sports activities such as multi-use games areas. Design should minimise maintenance and accommodate community wayfinding and interpretation.



1

1: Water Play Area

Guidelines

- DEG-105** Private areas for women and children SHOULD be provided.
- DEG-106** Space for community events SHOULD be provided.
- DEG-107** Accessible public services including toilets SHOULD be provided,
- DEG-108** Play structures SHOULD be provided that accommodate all ages and abilities.
- DEG-109** Clusters of seating SHOULD be provided at entrances, playgrounds, gathering areas and adjacent to pathways.
- DEG-110** Picnic shelters SHOULD be provided.
- DEG-111** Vehicular access SHOULD be restricted (with exemption for emergency and maintenance vehicles).

- DEG-112** On-street parking or shared off-site parking SHOULD be provided.
- DEG-113** Screening SHOULD be provided for semi-private family areas.
- DEG-114** Shade structures SHOULD be provided in activity areas.
- DEG-115** Lighting SHOULD be provided at picnic shelters and gathering areas.
- DEG-116** Low seat-walls MAY be used to separate public open space activities from the street while maintaining direct visibility into the site.
- DEG-117** Children’s interactive water play areas MAY be provided,
- DEG-118** In-built BBQ areas MAY be provided.



2



3



4

2: Corniche, Abu Dhabi City, UAE 3: Cumberland Park, Nashville, US 4: Rooke Reserve Play Area, Australia

D3.4.7

Food Growing Design Element

Aims

To facilitate and promote food growing activities to take advantage of the environmental, educational, recreational and social benefits it can produce.

This Design Element is closely aligned with the PRRS **LS-3** Credit.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Globally, food growing is becoming increasingly popular, partly to increase local food security but also due to the many added benefits associated with food growing, these include:

Environmental Benefits:

- Growing food locally can help reduce individuals' carbon footprint and help protect air and water quality when growing food organically, without chemical fertilisers and pesticides;
- Reduction of fossil fuels and pollution from the transporting of food;
- Improvements to ecological biodiversity in urban areas, achieved by turning barren spaces into green, productive areas especially if using organic growing methods that attract diverse species;
- Regeneration of derelict or underused urban spaces which can improve the perceived visual image of an area; and
- Using organic waste in composting facilities, improves soil conditions and reduces amount of waste going to landfills.

Family/Commercial Benefits:

- Mental and physical health benefits, derived from social interaction and being physically active outdoors;
- Contribute to community awareness and cohesion, as food growing sites can bring diverse groups of people together around a common interest;
- Availability of fresh food, which has not travelled long distances and lost nutrients in the process;
- Producing own food can help save money;
- Growing own organic food avoids pesticides, chemical fertilisers and hormones often used commercially;

- The potential for economic development, through learning new skills and exploring commercial options for dealing with surplus produce (produce swapping/markets, making/selling products); and
- Opportunity to teach children about nature and growing cycles as well as nutrition.

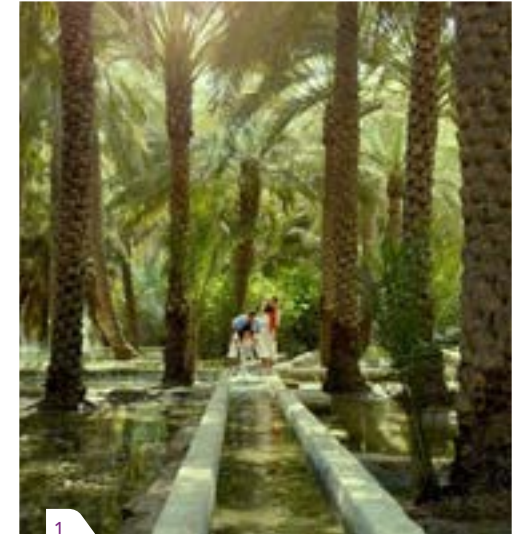
Food growing facilities can include small allotment sites for individual use as well as community growing areas, and can involve wider community initiative including educational programmes that involve schools and youth groups in gardening activities, encouraging sharing of gardening resources and experiences.

Facilities for food growing can be located within the district and neighbourhood POS hierarchies. However, fruit trees can be incorporated within local POS, for use by residents.

Underutilised urban spaces such as utilities corridors, could also potentially be used as seasonal growing spaces, as plants can be lifted should access to the underground infrastructure be needed.

Agreement would need to be reached with the relevant utilities providers (refer to UCDDM for further guidance) and a protective membrane may need to be utilised at a certain depth to protect utilities infrastructure from surface digging, this would also allow for soil improvements.

Care should also be taken in locating fruit trees near hard landscape or movement corridors to avoid falling fruits causing disturbance or harm to users.



1: Date palms in Al Ain Oasis, UAE 2: Crop Growing

Guidelines

- DEG-119** A 10m buffer **SHOULD** be allowed between the edge of roads and food growing sites.
- DEG-120** Environmental conditions **SHOULD** be considered where planning food growing sites.
- DEG-121** A service access **SHOULD** be provided to accommodate vehicular, bicycle and pedestrian access.
- DEG-122** Centralised storage facilities **SHOULD** be provided appropriate to the size of the area.
- DEG-123** Continuous shade **SHOULD** be provided for communal gathering areas.
- DEG-124** Fruit trees and shrubs **SHOULD** be used to define plot edges, primary routes and entrances.
- DEG-125** Pathways **SHOULD** be constructed of good quality, permeable materials.
- DEG-126** 1 refuse/ recycling container and 1 compost container **SHOULD** be provided per 300m² of growing area.
- SM-2**
- DEG-127** Fruiting hedges **SHOULD** be employed along the perimeter of food growing areas.
- DEG-128** Greenhouse **MAY** be provided for seed propagation in the appropriate locations.



3

3: Date fruits

D3.4.8

Heritage Design Element

Aims

To ensure the preservation and enhancement of historic landmarks, sites or places within the Emirate. Allowing for celebration of the history of the Nation and for authentic, interpretive and educational experiences focusing on the cultural heritage resources.

This Design Element is closely aligned with the PRRS **NS-R2** Credit.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Heritage areas are primarily determined by the presence of a heritage asset, these can include forts, palaces, archaeological and other historic features. Heritage features would normally be present at the Emirate, Municipality levels and occasionally at District levels. The size of the heritage-focused POS will be determined by land availability around the heritage site as well as the site hierarchy level.

Heritage POS's are primarily for the preservation and enhancement of historic landmarks, sites or places and they are designed to surround the heritage sites to support the historic and cultural identity of the Emirate. Their overall character is understated to enhance, rather than detract, from the significance of the heritage site.

Heritage POS are facilities for authentic, interpretative and educational experiences as, focusing on heritage resources, they provide places to learn about the unique culture and history of the Emirate. Their design focuses on providing interesting educational experiences that can provide tourist attractions and diversify the appeal of Abu Dhabi as a destination.

Parking facilities must be located outside of the heritage site boundary. Facilities can include gathering areas, picnic areas and interpretative displays, while staging areas located next to the parking areas can enhance arrival to the public open space. The heritage site should be accessible from pathways within the POS.

Most heritage features should have a design and management strategy prepared for it which is specific and appropriate to the physical features of the area. The following regulations are general in their nature and should be considered on a site-by-site basis.



1

1: Heritage Feature Within a park, Al Ain, UAE



2



3

2: Al Jahli Fort, Al Ain, UAE 3: Tomb at Hili, Al Ain, UAE

Standards

- DES-32** Vehicular access SHALL be restricted.
- DES-33** Bollards or other design alternatives SHALL be provided at access points to prevent vehicle access.
- DES-34** A wayfinding map and interpretative displays SHALL be provided in staging area and along primary pathway.
- DES-35** Parking SHALL be provided outside of the heritage site boundary.
- DES-36** Softscape features SHALL be used to frame views and allow for optimum viewing.

Guidelines

- DEG-129** Pedestrian access only SHOULD be provided.
- DEG-130** The visual impact of parking SHOULD be minimised.
- DEG-131** Services/ infrastructure buildings SHOULD be located outside of the heritage site boundary.
- DEG-132** Buildings SHOULD be constructed using traditional materials reflecting the heritage feature's style.
- DEG-133** Shading features that complement the heritage feature SHOULD be used.
- DEG-134** High quality hard landscape materials and furniture that reflect the style of the heritage feature SHOULD be used.
- DEG-135** Public art used SHOULD be consistent with the heritage feature.
- DEG-136** Lighting SHOULD be consistent with the heritage feature.
- DEG-137** Walls SHOULD only be allowed at staging areas, up to a maximum height of 0.8m.
- DEG-138** A heritage feature sign SHOULD be provided at the entrance.

D3.4.9 Oases Buffers Design Element



Aims

To provide protection and awareness of these important historical, cultural and agricultural resources.



Key

DS = UNIQUE STANDARD NUMBER
DG = UNIQUE GUIDELINES NUMBER

Oases are traditional sites for farming that are still in use today for the production of food, and are a strong cultural and historical reference point in the Emirate. Some oases are publicly accessible, although treated as semi-private agricultural reserves; they are usually walled and have controlled access through gates, while others are protected areas.

Their significance both as historic sites and as important components of a strategy for ensuring food security in the future means that they should be protected by the creation of a buffer between them and the surrounding desert or urban development.

These buffer-type POS, the focus of this guidance, are location-dependent and would occur mostly at the Emirate and Municipality Level where the oases are located close to urban development, such as in Al Ain.

These spaces should reflect the character of the oases and provide spaces for passive recreation and facilities for education and interpretation. They should include a gathering area as an orientation and central hub, served by a primary path linking it to the parking areas, and the Oases entrance, while secondary pathways can loop more informally around the park.



1

1: Al Ain Oasis, UAE

Standards

- DES-37** Walls SHALL be replaced or repaired using materials and design consistent with original oases walls.

Guidelines

- DEG-139** Compacted crushed natural stone or gravel SHOULD be used for hardscape.
- DEG-140** Softscape SHOULD use native or productive plant materials and reflect the use and style of the oases.
- DEG-141** Parallel parking facilities SHOULD be located at a minimum of 30m from the walled oases perimeter.
- DEG-142** The visual impact of parking SHOULD be minimised.
- DEG-143** Buildings SHOULD be located near parking areas.
- DEG-144** Buildings SHOULD be constructed using natural materials reflecting oases context.
- DEG-145** Shading features' style SHOULD complement the oases.
- DEG-146** Bollards SHOULD be provided at street intersections and access points.
- DEG-147** Low-level lighting SHOULD be provided along the primary pathway.
- DEG-148** Interpretative displays SHOULD be provided, clustered in groups around key features.



2



3

2: World Heritage Site Adjacent to Al Ain Oasis 3: Falaj System Within the Al Ain Oasis

D3.4.10

Parking Areas

Design Element



Aims

To ensure parking facilities are convenient, safe, visually appealing, environmentally sound and contribute to a positive shared environment.



Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Parking areas are designed to accommodate local and visitor's parking needs. They can include underground, under-croft, under-deck, and surface parking systems.

These guidelines apply to all off-street car parking areas, for on-street parking areas refer to the USDM.

Parking areas design should take account of their impact on the overall character of a place, the environmental aspects and their contribution towards increased street activities.

Environmental issues are particularly relevant to surface parking as these areas often comprise of large expanses of dark asphalt which absorb sunlight and increase air and surface temperatures. This can result in:

- Raised temperatures which lead to increased energy consumption in order to keep buildings cool, thermal water pollution, increased amount of ozone pollution and compromised human health and comfort;
- Poor air quality as parked cars emit evaporative hydrocarbons that contribute to ozone pollution - the warmer a car's fuel tank is at rest, the greater the amount of emissions it produces. These affect all people but are particularly damaging for people with respiratory illnesses; and
- Large areas of impermeable surfaces also result in water being unable to filter through the surface which contribute to flooding during rain events.

Planting shade trees within parking areas relieves many of these problems, by blocking sunlight they reduce surface and air temperature and also help to remove pollutants from the air. Permeable surfaces and planted areas, can be used in association with careful ground levelling to capture storm water.

The areas surrounding parking plots should be obstacle-free, shaded and provide convenient pedestrian connections to surrounding buildings and public transit stops.

Standards

- DES-38 Parking areas SHALL be designed to provide efficient, safe, attractive parking areas for shared use.
- DES-39 All parking spaces and circulation routes SHALL be well-lit.
- DES-40 Light SHALL be directed downwards and avoid light overspill on adjacent properties, streets and POS.



1

1: Continuous Pedestrian Route



2: Sustainable Drainage 3: Shaded Parking with Photovoltaic Panels
4: Shaded Pedestrian Route Through Car Park

Guidelines

- DEG-149** Surface parking SHOULD be located away from primary street frontages and street corners.
- DEG-150** Access to parking areas SHOULD be provided from secondary streets whenever possible.
- DEG-151** Entrances and exits points SHOULD be located away from intersections.
- DEG-152** Entrances and exits points SHOULD be designed for low vehicular speed.
- DEG-153** Parking areas SHOULD contain multiple entry points for pedestrians in order to reduce walking distances.
- DEG-154** Safe crossing facilities for pedestrians and cyclists SHOULD be provided at main entry and exit points.
- DEG-155** Vehicle entrances and exits point of parking areas SHOULD be designed to prevent conflict with pedestrians.
- DEG-156** Larger parking areas SHOULD be divided both visually and functionally into smaller parking courts.
- DEG-157** Safe pedestrian routes SHOULD be provided through the car park.
- DEG-158** Pedestrian-scaled lighting such as bollards or lower-scale pole fixtures SHOULD be provided along pedestrian routes.
- DEG-159** Shaded cycle parking and other end of ride facilities SHOULD be provided as needed in accordance with DMT Walking and Cycling Master Plan'.
- DEG-160** Parking spaces SHOULD be allocated for electric and hybrid vehicles with electric charging points.
- DEG-161** 5-10% of the area SHOULD be allocated to planting and distributed throughout the site to screen parking, reinforce circulation routes, create pleasant pedestrian conditions and maximise shade (or):
- DEG-162** Trees SHOULD be planted at a ratio of 1 shade tree for every 4 parking spaces.
- DEG-163** Shade structures and paving materials SHOULD be light coloured.
- DEG-164** Decorative paving or a change in hardscape material/ colour SHOULD be used to emphasise edges, pedestrian routes and crossings, entrances, loading areas and other special features within the parking area.
- DEG-165** Parking MAY contain artistic features.
- DEG-166** Photovoltaics MAY be used as shade structures.
- DEG-167** Permeable concrete surfaces MAY be used to reduce runoff, and naturally filter storm water.

D3.4.11

Play Design Element

Aims

To promote childrens’ physical and social development by providing safe, accessible and enjoyable play facilities within easy reach of their dwellings.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Play forms an important element in a children’s development, contributing to health and social skills. Outdoors play is particularly important, and should be a relatively safe, stimulating and enjoyable experience.

Play spaces should form part of a continuum of green infrastructure which delivers environmental and other benefits alongside its recreational role.

Well-planned and designed facilities for structured and informal play should be developed in the context of the POS standards set out within the Planning Chapter.

Play provision should be considered not only quantitatively, but also in relation to quality and accessibility, and should provide a foundation for ensuring fair and equitable provision throughout the community.

Play spaces need to be provided in a sustainable manner, and be accessible by walking or cycling routes or public transport, suitable for children.

Play provision can be provided within each level of the POS hierarchy, as even small plots of green space have the capacity for diverse use, such as formal or informal play, nature enjoyment, relaxation and places for walking and picnicking. Local spaces, due to their size and accessibility, are better suited to play for younger children. Care should be taken that play activity does not affect surrounding residential properties.

Play areas and facilities for older children and adults, which can include BMX tracks and skateboard parks, should be included at the higher levels of the hierarchy. Care should be taken in designing these provisions to ensure that they are safe, visible, but are suitably separated from other, more passive uses.



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1: Sculptural Playground, Schulberg, Germany

Standards

- DES-41** The Draft Abu Dhabi Sport Council's (ADSC) Sport Masterplan SHALL be referred to for detailed guidance on demand-based play provision.
- DES-42** Equipped play areas SHALL be provided with 90% shade.
LS-R1
- DES-43** Lighting to play areas SHALL be provided in accordance with DMT's Lighting Standards.
- DES-44** Provision of facilities for accompanying adults SHALL include a minimum of:
- 1 shaded seating per 20m² of play area;
 - 1 picnic table for 40m² of play area.

Guidelines

- DEG-168** Play facilities SHOULD be sited in open, welcoming locations.
- DEG-169** Play facilities SHOULD be accessible directly from pedestrian routes and separated from areas of major vehicle movement.
- DEG-170** Play facilities SHOULD be designed to provide a stimulating and challenging play experience, providing opportunities for: balancing, rocking, climbing, overhead activity, sliding, swinging, jumping, crawling, rotating, imaginative play, social play, play with natural materials such as sand and water, ball games, wheeled areas or other activities.
- DEG-171** Play facilities SHOULD include a mix of formal, fixed play equipment along with informal landscape-type play environments that are suitable to a range of ages and abilities.
- DEG-172** Play facilities SHOULD be integrated as far as possible with other public open space activities.
- DEG-173** Softscape SHOULD be used to enhance the transition from play areas to more passive uses.
- DEG-174** Play facilities SHOULD be located to be visible from nearby dwellings or well used pedestrian routes.
- DEG-175** Impact absorbing surfaces SHOULD be provided for all play equipment according to the height of fall and manufacturers specification.
- DEG-176** Surface treatment of adjacent areas SHOULD be appropriate to the manner and intensity of use.
- DEG-177** Informal play areas SHOULD be provided with 40% shade.
- DEG-178** Play facilities SHOULD be designed, manufactured, installed and maintained in accordance with European Standards EN1176 and EN1177; any equipment non-compliant to those standards, should be audited and approved on a risk assessment basis by a competent health and safety assessor.
- DEG-179** Play equipment SHOULD be subject to an independent post-installation safety inspection by a competent health and safety assessor.



2: Darling Quarter Playground, Sydney. 3: Salam Street Park, Abu Dhabi City, UAE 4: Play Facility, Abu Dhabi City, UAE

D3.4.12

Regional Culture Design Element

Aims

To promote local distinctiveness and culture in the public realm, by reflecting regional culture and styles within the design and organisation of the different elements of the public realm.

Key

- DS** = UNIQUE STANDARD NUMBER
- DG** = UNIQUE GUIDELINES NUMBER

It is important that local and regional culture is incorporated within the design of POS, to ensure spaces respond to the needs of the local population. The creation of places with a distinct cultural identity can also constitute a meaningful attraction to visitors.

Local and regional culture should be reflected in the design as well as the layout and arrangement of spaces. These include elements such as the traditional neighbourhood system of Emirati housing known as Fareej which comprises of specific POS relevant to the way residents use the spaces. These include the Baraha and Meydan POS.

Another important element of regional culture is the Souq and its associated POS.

Baraha

Barahaat are small POS, comparable to Pocket Parks, and fit within the 'Local' hierarchy level. They are located in key positions within neighbourhoods and are used as a space for gathering and/or social and recreational activities.

Each Baraha is designed to meet the needs of the people and facilities close-by and provide a pleasant environment for users. For example, Barahaat near schools may contain a small playground for children and families, whereas Barahaat near mosques may contain a public majlis or 'berza', traditionally used by worshippers from the neighbourhood to meet and greet each other. Typical facilities include small seating areas, play areas, shading and landscape elements.

Barahaat access is limited to pedestrians, and they are accessible from the surrounding residences and sikkak within the fareej. There is a well-defined transition of spaces from semi-public spaces to private family spaces. Barahaat are linked to local community facilities and larger gathering spaces or Meyadeen.

Standards

DES-45 Parking SHALL NOT be allowed adjacent to a Baraha.

Guidelines

DEG-180 A Baraha SHOULD directly link to sikkak and immediately adjacent residential units.

DEG-181 A Baraha SHOULD be visually and physically separated from the street.

DEG-182 The area SHOULD be provided with a minimum of 50% shade by means of tree canopies and/or shade structures.

DEG-183 The hardscape features used SHOULD reflect and enhance the character of the surrounding architecture.

DEG-184 Site furniture SHOULD be coordinated and respond to the character of the fareej.



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1–3: Masdar City, Abu Dhabi City, UAE

Meydan

Meyadeen are the larger 'Neighbourhood' level gathering spaces within a fareej, they are typically located adjacent to a jame'e mosque and are programmed primarily as neighbourhood-level gathering areas. Their design focuses on providing safe and pleasant environment for residents.

A central feature, such as a fountain or planting of palms, may define the formal gathering areas in the Meydan. Seating areas, plant materials and shade structures may be located around the site. Vegetated screens and small landscape features may be used to allow women and children to pass privately around the site.

A Meydan is accessible from surrounding residences and sikkak or pathways within the fareej. Access is limited to pedestrians and bicycles, although emergency vehicles access can be accommodated through the use of removable bollards.

Standards

DES-46 Parking SHALL NOT be allowed adjacent to a Meydan.

Guidelines

DEG-185 A Meydan SHOULD be accessible from surrounding residences and sikkak or small pathways within the fareej.

DEG-186 A Meydan SHOULD have a minimum of two primary entrances with direct access to a central feature.

DEG-187 Obstacle-free circulation SHOULD be provided around the site to accommodate large gatherings.

DEG-188 A Meydan SHOULD link to community facilities.

DEG-189 The hardscape features used SHOULD reflect and enhance the character of the fareej.

DEG-190 Site furniture SHOULD be coordinated and respond to the character of the local context.

DEG-191 Colour and patterns MAY be used to define the gathering areas.

D3.4.12

Regional Culture Design Element

Souq

Aswaq form a key part of Abu Dhabi's culture and history. They serve as central market places and may be themed around a single commodity such as gold, fish or spices. Aswaq also serve important social functions by providing informal gathering spaces where people can come together, while larger Aswaq can have a festival atmosphere and can become visitor destinations.

The public realm around these shopping areas function as important transitional zones between the marketplace and surrounding streets and parking areas. Pedestrian amenities should be included to enhance the public realm: in the traditional Souq, small seating areas are provided, while the modern Souq may incorporate open-air cafés.

Streetscape elements should be coordinated to unify the different shopping areas and provide a common theme throughout the Souq.

The space around the Souq should be obstacle-free and designed to allow vendors to set up and sell goods easily. Continuous pedestrian access throughout the Souq provides linkages between different markets.

A gateway or other architectural features should be used to define the street-level entrance to the Souq. The space within and around the Souq should be clearly defined and easy to navigate.



1: Souq, Dubai, UAE



Key

DS = UNIQUE STANDARD NUMBER
DG = UNIQUE GUIDELINES NUMBER



2: Souq Waqif, Doha, Qatar 3: Deira Gold Souq, Dubai, UAE 4: Dar Al Masyaf, Madinat Jumeirah, Dubai, UAE

Standards

DES-47 Vehicle restrictions SHALL apply to the Souq during public opening hours. Appropriate times for goods delivery and loading by vehicles SHALL be established.

DES-48 The Souq SHALL include continuous and obstacle-free through-zones to allow for safe, uninterrupted movement.

Guidelines

DEG-192 Pull-over and drop-off areas SHOULD be provided and conveniently located, with direct access to pedestrian and bicycle pathways.

DEG-197 Power, water and waste facilities to ensure efficient working of market activities and ease of maintenance SHOULD be provided.

DEG-193 Service vehicle access and parking SHOULD be provided.

DEG-198 Shade structures SHOULD be located to maintain air circulation in the Souq.

DEG-194 Direct access to pedestrian and bicycle network SHOULD be provided.

DEG-199 The hardscape and softscape features used SHOULD reflect the design, culture and character of the Souq.

DEG-195 The design of the adjacent road infrastructure SHOULD ensure limited vehicular turning opportunities and reduced vehicular speeds.

DEG-200 Wayfinding information and a map of the Souq SHOULD be provided at the entrances.

DEG-196 The Souq SHOULD include food courts, festival spaces and viewing areas that serve as destinations, to enhance the market's appeal.

D3.4.13

Religious Design Element



Aims

To provide quiet and reflective spaces that support the practice of prayer and quiet interaction as well as providing a suitable setting for the Mosque building.

Religious design elements relate to POS usually connected with a Mosque. A Mosque is a place of worship and an important aspect of daily life in the Emirate. The size and scale of the Mosque varies according to function. The Masjid is a Mosque dedicated to daily prayer; the Jame'e is a larger Mosque for both daily and Friday prayers and a District Jame'e serves daily, Friday and Eid prayers. The Religious design element guidelines focus on the treatment of public spaces and transition areas from the public to the semi-public spaces that surround the Mosque.

Religious spaces are unique in their site orientation and function in Islamic culture and customs. The shoe zone is the outer area of the Mosque and includes car parking and landscape buffers. The no shoe zone includes the transition and ablution areas of the Mosque. Micro-climates are improved by providing shade and water features. The POS surrounding a Mosque offers a comfortable and purposeful transition to the public environment. The Mosque should be accessible from the surrounding street network, public transit and parking areas by way of shaded sidewalks. Neighbourhood Mosques are connected to the fareej network through sikkak.



Key

DS = UNIQUE STANDARD NUMBER

DG = UNIQUE GUIDELINES NUMBER



1: Jumeirah Mosque, Dubai, UAE



2

2: Sheikh Zayed Grand Mosque, Abu Dhabi City, UAE

Standards

- DES-49** Lighting used SHALL be appropriate to the character of the Mosque.
- DES-50** All requirements of the Abu Dhabi Mosque Development Regulations (MDR) shall be complied with.

Guidelines

- DEG-201** A well-defined transition of spaces from public to semi-private and private areas SHOULD be provided.
- DEG-202** Pull-over and drop-off areas SHOULD be provided.
- DEG-203** On-street parking SHOULD be provided, located away from primary entrances.
- DEG-204** Gathering areas SHOULD be provided as a transition between mosque and parking.
- DEG-205** Hardscape features used SHOULD reflect the design, purpose and character of the Mosque.
- DEG-206** High-quality natural stone SHOULD be used in association with the Mosque.
- DEG-207** Softscape SHOULD be used to frame the entrances and maintain views.
- DEG-208** Water features SHOULD be provided in the no shoe zone.
- DEG-209** Pedestrian lighting SHOULD be provided along the primary pathway and at rest areas, gathering areas and entrances.

D3.4.14

Sport

Design Element

Aims

To promote an active lifestyle with the associated health and social benefits, through the provision of a suitable and varied range of sport and recreation facilities for the community.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Sport and active recreation is being increasingly recognised for its public health benefits. Health recommendations outline a total of 60 minutes of moderately intensive daily physical exercise for children and young people, and 30 minutes a day of moderately intensive exercise for adults on 5 days a week. The urban environment therefore needs to be designed to encourage more active lifestyles.

The need for well-planned and designed facilities for sport, play and informal recreation needs to be seen in the context of the POS quantitative standards provisions set out within the Planning Chapter.

In addition to the quantitative sport provision the quality and accessibility of provision, should provide a fair and equitable health and fitness foundation for the community. The Abu Dhabi Sports Council is developing detailed guidance on the technical provision for sports and recreation facilities across the Emirate. Their guidance has informed the development of these Design Elements and should be reviewed in developing all proposals.

Diversity of provision ensures that more users can benefit from recreational spaces. Every small plot of POS has the capacity for diverse use, such as formal or informal sport/ play and ensures good use of resources by encouraging greater numbers of people to adopt an active lifestyle and also play a part in encouraging children to engage and socialise with others.

Facilities will be accessible through active transport suitable for children (i.e. linked to walking and cycling routes) or public transport, therefore enabling older children to access the facilities independently where possible.

Key factors for sport provision are:

- Quality appropriate to the intended level of performance;
- Designed to appropriate technical and safety standards;
- Located where they are of most value to the community to be served;
- Appropriately landscaped; and
- Maintained safely.

Sports provision can be included at the Emirate, Municipality, District Neighbourhood and Local level, with larger public open spaces being able to accommodate larger facilities, a consolidation of different sporting activities and organised sporting events, promoting multi-use of the spaces and sharing of facilities and amenities. More informal complementary activities such as walking trails, picnic facilities and play areas for children, also helps in creating multi-functional spaces. Small elements of sports provision (e.g. a basketball hoop) may be incorporated into a multi-purpose space at the local level. However dedicated, fenced, sports provision is not appropriate.



1

1: Climbing Wall, Zurich, Switzerland

Standards

- DES-51** The Draft Abu Dhabi Sport Council's (ADSC) Sport Masterplan SHALL be referred to for detailed guidance on demand-based sport provision.
- DES-52** International best practice for design of sports facilities SHALL be followed.
- DES-53** Pitches SHALL be oriented to avoid low sun angles.
- DES-54** Chain-link or other appropriate fencing SHALL be provided to enclose sport pitches, with a minimum height of 1.2m to a maximum height of 3m.
- DES-55** Drinking water fountains SHALL be provided in close proximity to sport facilities.
- DES-56** Sports' lighting to suit specific sports SHALL be provided in accordance with DMT's Lighting Standards.
- DES-57** Lighting along the primary pathway SHALL be provided in accordance with DMT's Lighting Standards.

Guidelines

- DEG-210** Sport fields SHOULD be located to be conveniently accessed from parking areas.
- DEG-211** A separation SHOULD be ensured between sport pitches and pathways.
- DEG-212** Changing/ toilet facilities recreation management office and community facilities SHOULD be provided in appropriate location at District Level and above.
- DEG-213** Shade structures SHOULD be provided adjacent to all sport pitches.
- DEG-214** Viewing mounds SHOULD be provided for smaller pitches and sport facilities.
- DEG-215** Shaded spectator stands SHOULD be provided where appropriate and always for medium and large pitches.
- DEG-216** Spectators viewing positions SHOULD be oriented away from the setting sun.
- DEG-217** Permeable artificial turf or synthetic sport surfaces SHOULD be used for athletic and sport fields.
- DEG-218** Loose gravel or materials which might adversely affect pitches SHOULD be avoided in the surrounding areas.
- DEG-219** Picnic facilities, walking trails and play structure SHOULD be located near the organised sporting areas and spatially separated from adjacent streets.



2



3



4

2: Skate Park, Abu Dhabi City, UAE 3&4: Children's Sport.

D3.4.15

Urban Spaces

Design Element

Aims

To provide urban spaces that support a variety of activities and social interaction, and provide a vibrant and contextual backdrop for important civic and cultural destinations.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Urban spaces can take the form of soft or hard landscaped areas, depending on the proposed uses and the surrounding context. They reflect and reinforce the character of their location, for example spaces adjacent to civic or commercial buildings can often take the form of squares or plazas.

Often located at the intersection of important streets or significant destinations, they can have different sizes and shapes, such as linear POS's when they follow the path of the streetscape.

Urban spaces often function as transitional spaces between streets and prominent buildings, and their primary function is to encourage diverse opportunities for social interaction and activities such as markets, exhibitions or festivals. Good visibility from the street encourages its use and activity.

Urban spaces provide safe and comfortable POS's that are well lit, accessible and usable both day and night.

Where they are located adjacent to cultural destinations such as museum, theatres or landmark features, their design need to be particularly sensitive to the architecture and use of the facility, in order to enhance their identity and frame their setting. Open and flexible areas should also be provided, to accommodate temporary events, exhibitions and performances.



1: Station Square, Marseille France 2: City Dune, Copenhagen, Denmark 3: Shaded Urban Square



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4: Warrior Square, UK 5: Crikvenica Center, Croatia 6: Levinson Plaza, Boston, US

Guidelines

- DEG-220 Open views to the space SHOULD be maintained to ensure visibility from surrounding streets.
- DEG-221 The features included SHOULD reflect the identity of the surrounding areas.
- DEG-222 Shade structures SHOULD be provided at gathering areas.
- DEG-223 Hardscape features SHOULD reflect the design, purpose and character of the context area.
- DEG-224 Lighting used SHOULD be appropriate to the surrounding architectural context.
- DEG-225 Accent lighting SHOULD be used to enhance building entrances/ features, water features and public art to enhance night-time viewing.
- DEG-226 Parking areas/ vehicle circulation SHOULD be setback from primary entrances/ gathering areas.
- DEG-227 Softscape SHOULD be used to enhance transition from public to private space.
- DEG-228 Paving's colour and texture MAY be used to define primary entrances and circulation patterns.

D3.4.16

Water Features Design Element

Aims

To enliven the public realm with the effects of movement, sound and illumination of water, to create focal points and special attraction.

Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Water features can have a number of benefits in the urban environment. They can help with improving the micro-climate by cooling the surrounding atmosphere, the sound of moving water can mitigate unwelcome noises, and they can also be used as a play element for children.

These benefits need to be balanced against the responsible use of precious water. They should be designed and located where the loss of water due to spray and evaporation is minimised. This includes locating water features where they can benefit from some shade and reducing the type of water features with long water-jets or waterfalls, or using them on timers, so they are only active during the busier times of the day.



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1: Intabli Square, Beirut 2: Samir Kassir Square, Beirut
3: Australian Garden, Royal Botanic Gardens, Cranbourne Australia

Standards

- DES-58 Water features SHALL be employed sparingly and judiciously, and located near areas of high activity and use.
- DES-59 Public water features creating a 'ponding' effect SHALL not exceed 300mm of water depth.

Guidelines

- DEG-229 Water features that minimise water loss SHOULD be prioritised, such as those with rippled or flowing water effects.
- DEG-230 A timer system SHOULD be employed with high water consumption's water features, such as pop-jets, spouts and mist producers.
- DEG-231 Water features SHOULD be accessible to all POS users.
- DEG-232 A system for recycling water from water features SHOULD be employed whenever possible.
- DEG-233 Lighting SHOULD be incorporated with water features when appropriate to provide night-time visual amenity.
- DEG-234 Water play-features MAY be employed adjacent to children's play areas.
- DEG-235 Water features MAY be integrated with public art.



4

4: Burj Khalifa Public Realm, Dubai, UAE

D3.4.17

Waterfront Design Element

Aims

To promote access and enjoyment of the Emirate's varied waterfront environments, whilst ensuring the protection and enhancement of ecologically sensitive areas. To provide the necessary infrastructure to promote active waterfronts.

Key

 = UNIQUE STANDARD NUMBER
 = UNIQUE GUIDELINES NUMBER

Waterfronts comprise a range of diverse POS that celebrate and reflect the character of the area and the many different uses that they can accommodate. They range from natural and preservation areas to more active recreational and urban areas such as the Abu Dhabi's Corniche.

For PRDM purposes, waterfronts are categorised as either natural or man-made areas of land with a direct connection to the water's edge.

Reference should also be made to the Abu Dhabi Development Code and Plan Maritime where other elements and requirements for waterfronts areas are outlined.



1: Punggol Promenade, Singapore



Standards

- DES-60** Continuous access to the waterfront SHALL be provided.
- DES-61** Physical and visual connectivity to the waterfront from surrounding areas SHALL be maintained and enhanced.
- DES-62** Access points SHALL be utilised to frame waterfront views.
- DES-63** The minimum width of waterfront area SHALL be designed to be at least 12m from the highest observable tide line to the kerb-line of the street.
- DES-64** All furniture SHALL be oriented to the water's edge.
- DES-65** Parking lots, storage areas and similar uses SHALL be located away from the waterfront's edge and in unobtrusive locations.
- DES-66** In designing lighting levels and colours, the overall effect on patterns, repetition, focal points and rhythm within the panorama of the waterfront SHALL be considered.
- DES-67** Use of red and green lighting SHALL be carefully considered to avoid causing potential navigation hazard.
- DES-68** Feeder pillars and utility cabinets SHALL be placed in underground chambers wherever possible.

Guidelines

- DEG-236** Views and circulation SHOULD be directed towards the water.
- DEG-237** Perimeter walls and hedges that obstruct sightlines or vistas SHOULD NOT be allowed.
- DEG-238** Screening SHOULD be allowed at women and children's and family beaches only.
- DEG-239** Continuous landscape buffer SHOULD be provided from the street edge, except for required vehicular access points and pedestrian circulation facilities.
- DEG-240** Water-based recreation and related facilities SHOULD be allowed for where appropriate.
- DEG-241** Guardrails and handrails SHOULD be designed to relate to the style of the waterfront and allow maximum views.
- DEG-242** Identification signs and site map/interpretative displays SHOULD be provided at entrances.
- DEG-243** Softscape design SHOULD take account of waterfront's environmental conditions.
- NS-3**
- DEG-244** Landforms MAY be used to buffer street noise in urban areas.



2: Saadiyat Island waterfront, Abu Dhabi City, UAE 3: Vinaròs waterfront, Spain 4: Abu Dhabi Corniche, Abu Dhabi City, UAE

Natural Waterfronts

Natural waterfronts are programmed primarily for passive recreational use and environmental preservation. These areas support the conservation or redevelopment of naturalised sand beach waterfronts, they maintain the continuity of public access to the water and provide an important link in the POS system. These areas also enhance environmental quality through appropriate beach regeneration techniques.

To maintain the natural waterfront environment, recreational facilities should be limited to those for passive water-based activities (i.e. those that require a minimum of facilities or development and that have minimal environmental impact on the recreational site, such a nature observation, sun bathing or walking).

In more environmentally sensitive areas, boardwalks, overlooks, observation platforms and interpretative displays should be included to enhance public access while protecting the environment.

Picnicking and overnight camping facilities may be provided in suitable areas, in which case, a service building should be provided near the beach or camping site. Parking areas should be located near street entrances to minimise their impact and intrusion on the site.

Standards

- DES-69** Access to environmentally sensitive areas SHALL be restricted.
- DES-70** Boardwalks and viewing platforms SHALL be sensitively integrated with the landscape.

Guidelines

- DEG-245** Shade structures SHOULD be constructed of natural materials and located along pathways within the beach area at a maximum of 200m apart.
- DEG-246** Softscape SHOULD be designed at natural densities.
- DEG-247** Good-quality gravel or compacted crushed natural stone SHOULD be used for pathway construction near the beach.
- DEG-248** Low-level lighting SHOULD be provided at the entrance.

Preservation Area

Preservation areas are waterfront facilities for the protection and enhancement of ecologically significant waterfront environments.

They are located around natural waterfront resources, including mangroves, salt flats, seagrass beds and other natural shorelines, establishing a wide buffer area around the waterfront resource to secure environmental integrity and maintain adequate separation from developed urban areas.

The natural environment is the main focus of the Preservation area, therefore no building development is permitted and the POS design needs to be co-ordinated with EAD specific guidance for preservation areas.

Their design focuses on ensuring minimal impact to the natural resources and can also enhance their environmental function through naturalisation and water quality improvements.

These POS can host environmental, interpretative and scientific programmes. To maintain the natural environment, amenities are limited to those with minimal impact, such as overlooks, boardwalks and shade structures. Pedestrian circulation through the site is to be provided with a loop trail system.

Small parking areas are permitted within the buffer zone and can be linked through nature trails to the natural environment.

Standards

- DES-71** Disturbance and impact to the natural environment SHALL be minimised.
- DES-72** Access to environmentally sensitive areas SHALL be restricted.

Guidelines

- DEG-249** Pathways compatible with the natural landscape SHOULD be provided where appropriate, with a minimum width of 1.8m to a maximum width of 2.5m.
- DEG-250** A looped pathway SHOULD be created if possible, to enhance access to the natural features.
- DEG-251** Parking SHOULD be setback a minimum of 30m from the Waterfront.
- DEG-252** Parking lots SHOULD be subdivided into modules of maximum 7 parking stalls.
- DEG-253** Pathway SHOULD be constructed of natural materials such as gravel or compacted crushed natural stone.
- DEG-254** Total seating areas requirements SHOULD be calculated based on:
 - 1 seating area per 150 linear metres of primary pathway.
- DEG-255** Total picnic tables requirements SHOULD be calculated based on:
 - 2 tables per 150 linear metres of primary pathway.
- DEG-256** Only unlit signs SHOULD be used.

Recreation Areas

Recreation areas are programmed primarily for water or beach-based active and a variety of recreational uses. They are located at key destinations along the waterfront to support the recreational needs of residents and visitors.

The character of these areas varies and can include sand beaches, green spaces and marinas. Within the recreation area, the interface between land and water is focused on respecting natural processes, enhancing habitat, reducing shoreline erosion, and minimising impacts on water quality. Boardwalks when included on public beaches shall be integrated with other elements and facilities.

Recreation areas can host water or beach-based sporting events. Their design focuses on providing recreational opportunities along the waterfront, but can also accommodate social and cultural gathering.

Marinas, developed in combination with POS, are key activity centres in recreational areas. Service buildings, including showers and changing facilities should be incorporated at high use areas. Parking areas should be integrated either on-site near entrances or on adjoining streets.

Recreation areas should be accessible from adjacent streets, served by public transit and integrated into the pedestrian and cycling network providing access to the waterfront for both the physically and visually challenged.

Standards

- DES-73** Access to environmentally sensitive areas SHALL be restricted.
- DES-74** Disturbance and impact to the natural environment SHALL be minimised.
- DES-75** A continuous boardwalk promenade SHALL be provided at beach areas.

Guidelines

- DEG-257** A separate cycle path SHOULD be provided with a minimum width of 3m.
- DEG-258** Parking SHOULD be provided on-site or at adjoining streets.
- DEG-259** A service building, comprising showers and changing rooms SHOULD be provided setback a minimum of 20m from the water's edge.
- DEG-260** Low level lights SHOULD be provided along boardwalk/ primary pathway.

Urban Waterfront Area

Urban waterfronts are programmed primarily for public access and as waterfront activity centres. They are located in urban areas and include spaces such as the Corniche in Abu Dhabi.

Urban waterfronts help to maintain the waterfront identity of Abu Dhabi by providing the opportunity to experience this distinct landscape within the urban areas. Their design focuses on preserving visual and physical access to the water's edge. They can host cultural and entertainment events and may accommodate temporary public art exhibits.

Key provisions include multiple shared-use pathways, with piers and viewing platforms provided along the water's edge. A variety of temporary and permanent facilities can be provided in the area, including cultural and entertainment venues, public services, concessions/ kiosks, playground and activity areas. Parking could include a variety of on-site and off-site solutions, including, where appropriate, underground and multi-level parking structures.

Urban waterfronts can link together activity nodes, public open spaces and gathering spaces at the water's edge through uninterrupted physical and visual connections. Access provisions should also include drop-off and pick-up areas, taxi stands and alignment with local transit nodes.

Standards

- | | |
|--|---|
| <p>DES-76 A primary promenade pathway SHALL be provided with a minimum width of 6m.</p> | <p>DES-77 A mix of on-site and off-site parking SHALL be provided with direct and convenient access to the waterfront.</p> |
|--|---|

Guidelines

- | | |
|---|--|
| <p>DEG-261 Strategic focal points SHOULD be provided at the water's edge.</p> | <p>DEG-267 Shrub planting SHOULD only be used to define entrances and special features.</p> |
| <p>DEG-262 A secondary pathway SHOULD be provided with a minimum width of 2m.</p> | <p>DEG-268 Total seating area requirements SHOULD be calculated based on:</p> <ul style="list-style-type: none"> • 2 seating area per 30 linear metres of primary pathway; and • 1 seating area per 60 linear metres of secondary pathway |
| <p>DEG-263 Buildings SHOULD be setback a minimum of 20m from the water's edge.</p> | <p>DEG-269 Hard edged water-side access with a minimum width of 5m and minimum depth of 5m MAY be provided at appropriate locations to accommodate water transport access points.</p> |
| <p>DEG-264 Play areas facilities with adjacent seating areas SHOULD be provided.</p> | |
| <p>DEG-265 Direct access SHOULD be provided to the water's edge.</p> | |
| <p>DEG-266 Continuous shading SHOULD be provided along walking routes.</p> | |

D3.4.18

Gateways

Design Element

 Aims

To define major intersections and provide visual identification and a sense of arrival at important destinations.

 Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Gateways are programmed primarily to provide visual identification and a sense of arrival. They define major intersections and entrances. These visual landmarks function as wayfinding elements in the urban form. They also contribute to the unique character of the streetscape.

They are often located near important tourist destinations, as a welcome sign to a destination or, when used at a residential scale, a neighbourhood. The design of the Gateway needs to reflect the character and identifiable features of the surrounding neighbourhood, such as the central business district, heritage features and natural areas.

Gateways may incorporate signature focal points such as art installations, sculptures, monuments, fountains and unique landscape features.

They can occasionally comprise of iconic buildings strategically positioned. The surrounding landscape need to be carefully considered to contribute and emphasise the gateway structure.



1



2



3

1: Carmen Amaya Fountain, Barcelona, Spain 2: Federal Centre Plaza, Chicago, US
3: Highway Gateway Feature, Melbourne, Australia

Guidelines

- DEG-270 The location of gateway features SHOULD identify the beginning or ending of an important roadway segment.
- DEG-271 The gateway feature SHOULD reflect the surrounding area's features and characteristics in its design.
- DEG-272 The location and design of the gateway feature SHOULD ensure clear sight lines for vehicles and pedestrian users.
- DEG-273 Low impact/ low maintenance softscape SHOULD be used in association with gateway features.
- DEG-274 Features lighting that reflect the identity of the gateway SHOULD be employed.
- DEG-275 Signage and wayfinding features that are clearly identifiable from outside of the gateway SHOULD be employed.



4

4: Burj Khalifa entry plaza, Dubai, UAE

D3.4.19

Pedestrian & Shared Use Design Element



Aims

To encourage walkable communities by prioritising pedestrian movement and creating pleasant, socially-oriented street environments.



Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

While most traditional streets prioritise vehicular transport, there are some movement corridors that prioritise pedestrian use, these are mostly located within neighbourhoods and in lower traffic volume areas. They often connect residential developments to community uses, or are located in conjunction with retail and amenity areas.

Mushtarak

Mushtarak are shared-use streets that are programmed to accommodate vehicular and pedestrian activity within the same space. They are most common within residential areas. Their purpose is to create a safe, well-connected neighbourhood and reduce the impact of cars in residential areas. The primary function of the street is social interaction, therefore vehicle speeds are controlled to give priority to people rather than cars and to allow pedestrians and cyclists to safely share the streets.

Mushtarak are appropriate in all types of residential areas, including suburban, urban and inner city locations, and for all dwelling types.

The rules of the street must be clearly identified with

signage at the entrances and exits to the Mushtarak. These streets are characterised by the lack of vertical separation between vehicular and pedestrian uses and marked travel lanes. Lower vehicle speeds are reinforced by alternative materials and textures, signage and by deviation in the width and alignment of vehicles path.

Mushtarak are integrated into the network of neighbourhood streets, but because they are intended for low speed travel, they are not directly accessible from major roadways.



1: Shared street, Auckland, New Zealand



Standards

- DES-78** The design **SHALL** balance the needs of pedestrians, cyclists and vehicles.
- DES-79** Emergency vehicles access **SHALL** be accommodated.

Guidelines

- DEG-276** Mushtarak **SHOULD** accommodate neighbourhood access and discourage through traffic.
- DEG-277** Entrances and exits to the Mushtarak **SHOULD** be clearly indicated.
- DEG-278** Traffic-calming measures **SHOULD** be provided on approach.
- DEG-279** Length of individual Mushtarak streets **SHOULD** be restricted to a maximum of 400m.
- DEG-280** Vehicle speed limit **SHOULD** be limited to 20km/h.
- DEG-281** The positioning of car parking spaces, trees and street furniture **SHOULD** be used to create variations and deviations in the width and alignment of the vehicle path.
- DEG-282** On-street parking **SHOULD** be arranged so that it does not dominate views of the street or interfere with other activities associated with the Mushtarak.
- DEG-283** Designated on-street parking **SHOULD** be provided in blocks of not more than 4-6 parking stalls.
- DEG-284** Buildings, trees, planting and hardscape **SHOULD** be used to define edges, rather than conventional kerb edges and carriageway widths.
- DEG-285** Formal play spaces **SHOULD** be segregated.
- DEG-286** Forward visibility **SHOULD** be ensured through the height restriction and positioning of planting.
- DEG-287** The surface treatment **SHOULD** be used to clearly distinguish the Mushtarak.
- DEG-288** Contrasting surface materials **SHOULD** be used to delineate vehicle pathways, pedestrian zones and parking areas.
- DEG-289** Alternative paving surfaces **SHOULD** be used to reduce vehicle speed.
- DEG-290** Pedestrian scale lighting **SHOULD** be used.
- DEG-291** Low level lighting **SHOULD** be used at gathering areas.

2: Shared street, Belgium

D3.4.19

Pedestrian & Shared Use Design Element

Pedestrian First Corridor

Pedestrian first corridors are programmed primarily to accommodate pedestrian circulation, while allowing access for delivery and emergency vehicles, often at predetermined times. They are often present within commercial precincts, to allow freedom and ease of movement for pedestrians. They provide connections to pedestrian destinations and can play a vital role in creating healthy, walkable communities.

Pedestrian first corridors can have a mix of uses including highly animated uses with significant spill-out activities such as sidewalk cafés, street performances, concession stands, etc. They provide a safe route for daily use and access to public transportation.

Rights-of-way may be used to provide on-street parking, wide sidewalks and street furniture. Some corridors contain very wide landscape medians. These medians can be transformed into linear park-like pedestrian zones that feature walking paths, bicycle lanes and seating areas.

Defining features include distinctive paving across the entire roadway extended to adjacent animated building façade; paving to appear as a plaza treatment without kerbs; broadened sidewalks to enable continuous street trees; and fixtures that can close segment of the streets off from vehicular traffic for occasional street festivals, markets and other events.

Narrow travel lanes, low speed limits, on-street parking and pedestrian/bicycle right-of-way allow for a safer mix of pedestrian and vehicular access.



1



2

1: Pedestrian Street, Beirut, Lebanon 2: The Walk, Dubai, UAE

Standards

DES-80 Pedestrian and bicycle circulation SHALL be accommodated.

Guidelines

DEG-292 Variation in colour and texture of materials SHOULD be used to indicate the rules of the pathway.

DEG-293 Shaded bicycle racks SHOULD be provided every 500m.

DEG-294 Lighting SHOULD be used to encourage night-time use and safety.

DEG-295 Multi-modal transit options SHOULD be prioritised over vehicular use.

DEG-296 Drop-off areas SHOULD be provided in close proximity to transit stops.

DEG-297 Access and parking of service vehicles SHOULD be accommodated.



Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER

Sikka

Amongst the smallest elements of public space, Sikkak are narrow streets that link the neighbourhood together. In Emirati neighbourhoods, they provide internal routes within the Fareej traditional neighbourhood system by creating a network of pedestrian priority shaded routes.

Sikkak link each home both to neighbours and to community facilities. Shaded by the adjoining buildings, Sikkak provide cool, safe, walkable routes to destinations. They are uncluttered pedestrian streets, which provide internal access and linkages within neighbourhoods. Access is defined through open gateways, adjacent structures and courtyard walls.

For more guidance, refer to Abu Dhabi Sikka Policy.



3



4



5

3: Masdar City, Abu Dhabi City, UAE 4: Laneway, Cairo, Egypt 5: Existing Sikka, Abu Dhabi City, UAE

Standards

- DES-81** Vehicular access and parking SHALL not be allowed in sikkak.
- DES-82** Low-level, pedestrian-scaled lighting SHALL be provided.

Guidelines

- DEG-398** Sikkak SHOULD directly link to barahaat, meyadeen, residential units and surrounding community facilities.
- DEG-399** Sikkak SHOULD be designed to reflect the character of the surrounding environment.
- DEG-300** Sikkak SHOULD be provided with continuous shade.
- DEG-301** Modular paving SHOULD be used for surface treatment.
- DEG-302** Hardscape features used SHOULD reflect and enhance the character of the surrounding architecture.
- DEG-303** Overhead trellises or arbours MAY be used to provide shade.
- DEG-304** Low impact and low maintenance plant material that does not interfere with the pedestrian through zone MAY be used.
- DEG-305** Seating or planting MAY be included provided a minimum through zone of 1.8m width is maintained.

D3.4.20

Scenic Design Element

 Aims

To enhance and promote the visual qualities of the Emirate’s environment, by framing views, vistas and scenic resources along corridors recognised for their cultural, historic, natural and/or scenic qualities.

Scenic routes are programmed primarily to recognise, preserve and enhance a roadway for its cultural, historic, natural and/or scenic qualities. They identify and encourage protection of the roadway’s scenic view and adjacent landscapes. They allow residents and visitors to view, engage with and connect with vistas and landscapes unique to Abu Dhabi.

Each corridor has an individual character built upon its topography, views, geographic presence and cultural features. Scenic routes provide access to and through the distinct regional landscape of the Emirate, from the waterfront of Abu Dhabi to the mountain ridges and dunes of Al Ain and Al Dhafra Region.

Scenic routes provide facilities to support active and passive recreation, such as sightseeing, hiking, cycling, picnicking and bird watching.



1: View of Jebel Hafeet, Al Ain, UAE

 Key

- DS = UNIQUE STANDARD NUMBER
- DG = UNIQUE GUIDELINES NUMBER



2: View of Jebel Hafeet, Al Ain, UAE

Guidelines

- DEG-306** The Scenic Route's environment and viewing areas **SHOULD** be protected.
- DEG-307** A viewshed overlay **SHOULD** be established to determine design review for any new development proposal visible from the scenic route.
- DEG-308** Pull-over and drop-off areas designed to accommodate multi-modal transportation **SHOULD** be provided where appropriate.
- DEG-309** Vehicle, transit and bicycle circulation **SHOULD** be accommodated.
- DEG-310** A shared-use pathway **SHOULD** be provided.
- DEG-311** Parking **SHOULD** be provided at viewing areas.
- DEG-312** Parking **SHOULD** be visually screened from the roadway.
- DEG-313** Shade, designed to retain important views, **SHOULD** be provided at viewing areas and pathways.
- DEG-314** Softscape **SHOULD** comprise low impact and low maintenance plant species that do not detract from the natural landscape.
- DEG-315** Softscape features **SHOULD** be used to frame and enhance views and scenic qualities.
- DEG-316** Refuse/ recycling containers **SHOULD** be provided at pull-overs/ drop-off locations and viewing areas.
- DEG-317** The size and number of light standards **SHOULD** be limited to minimise visual interference with the natural environment.
- DEG-318** Lighting **SHOULD** be designed and programmed using dark sky principles to prevent light-spill into adjacent areas.
- DEG-319** Directional signage **SHOULD** be provided to key geographic areas such as waterfronts, mountains, desert and oases, but limited to maintain views and vistas.

D4

Design and Approval Process

The culmination of the public realm design process is the preparation of a Design Stage Public Realm Strategy to accompany the design submission. It requires the completion of all steps in the design process which is consistent with the Municipality Review and Approval Process (Infrastructure Designs Approval System - IDAS).

upon approval, the submission design will receive a Construction Permit by the Municipality.



Aims

Note: Refer to User Guide page U30-31 for additional information on the approval process for Stand-alone Projects.

Operation



Streetscape,
Al Maryah Island





Introduction

The PRDM promotes investment and best practice in the planning and design of the Emirate's public realm. However, to retain the value of this investment, the urban environment must be managed and maintained effectively in order to promote a positive image for Abu Dhabi.

Projects must be considered not only in terms of their design and implementation, but also their future use, maintenance and care. Design and maintenance need to be considered holistically to guarantee that the public realm functions properly and is maintained to a high quality,

Management and maintenance activities within the public realm are of fundamental importance. Common objectives and a coordinated programme for management and maintenance amongst the various public and private agencies is essential to achieve and sustain improvements to the public realm.

This chapter is to be used as a basis for guiding long-term management and maintenance to ensure:

- A holistic approach is achieved, to guarantee that maintenance is consistent throughout the Emirate;
- Manufacturers' guidelines are incorporated within the maintenance regime;
- Elements requiring a specific maintenance regime are detailed;
- Programming, events, features and opportunities decided upon during the planning and design stages are incorporated into operation activities;
- Specific goals for elements, (e.g. shade percentages to be achieved at various stages of plant development) are incorporated;
- Compliance with current Municipality standards and those from other agencies such as Estidama, ITC, and Utility Providers.
- Operation and Maintenance Manuals (OMM) must be prepared by site owners and must be specific to the features, design intent and conditions within each POS or streetscape.

Targeted Users

The information within this chapter is targeted at the following user groups who are either responsible for management and maintenance or are designing and detailing public realm that will be transferred (either in ownership or maintenance responsibility) to the Municipalities for operation and maintenance. They include:

- Developers (including their private maintenance companies, consultants and Estidama PQPs);
- Utilities providers (when they are responsible for the upkeep of utilities corridors for example);
- Municipalities;
- Estidama Assessors; and
- Musanada.

Where different entities are responsible for the maintenance of adjacent areas it is important that the approaches to maintenance and management are coordinated so that they do not result in different objectives and results.

Initial management of newly constructed schemes will usually be delivered through the incumbent landscape contractor, who will manage the site's soft landscape or the site in its entirety for a period of 12 to 36 months dependent on the contract. The Municipality may be carrying out cleaning and waste disposal operations during this initial period, so it is therefore important that an open dialogue is maintained between the parties to ensure management standards remain consistent throughout.

If the asset is to be transferred to the relevant Municipality after this initial period then a maintenance contract must be put in place for the period prior to transfer.

Application of the Regulations

This operation section is applicable to all POS and streetscape projects within the Emirate, whether stand alone or within comprehensive residential, commercial, mixed use and industrial developments.



Integrated Estidama Process

As outlined within the User Guide, an integrated Estidama process operates at each stage of public realm planning, design, construction and operation. Where Estidama requirements apply to the Operation stage they have been identified within this chapter. For full details refer to the PRRS.

The Public Realm Operation Process

The operation chapter follows a step by step process to determine the requirements for the management and maintenance of the public realm. It also sets out standards and guidelines for the Public Realm as a whole. The process represented in Figure O1 includes the following steps:

- 1. **Review the Aims, Standards and Strategies**
 - Review the Operation stage aims and objectives;
 - Review Municipality and relevant agencies' standards and guidelines;
 - Review Design Stage strategies; and
 - Review Estidama Requirements.
- 2. **Operation Manual**
 - Prepare an Operation/Management Manual in line with all applicable standards and guidelines.
- 3. **Maintenance Manual**
 - Prepare a Maintenance manual in line with all applicable standards and guidelines.



Figure O1: Public Realm Operation Process

01

Review Aims,
Standards
and StrategiesO1.1 Public Realm Operation Aims
& Objectives

The following aims and objectives set out a framework for guiding the operation and maintenance of the public realm.

Aim 1

TO ENHANCE THE AESTHETIC QUALITY OF THE SOFT LANDSCAPING WITHIN THE PUBLIC REALM IN AN ECOLOGICALLY SENSITIVE WAY.

Objectives:

- To maintain a high level of visual amenity that is reflective of the high profile nature of the public realm;
- To demonstrate a high level of horticultural awareness that considers the qualities of the specific plant species used, by timing works in accordance with their biological life cycles;
- To maintain an appropriate density of plant species, dividing plants as required so as to generate a healthy level of competition, which encourages strong growth and desirable form.

Aim 2

TO MAINTAIN AND ENHANCE THE AMENITY VALUE OF THE PUBLIC REALM.

Objectives:

- To maintain a high quality, visually attractive setting for users;
- To maintain a high level of cleanliness and maintenance throughout the site;
- To manage and enhance the amenity provisions of the site;
- To ensure the safety and security of public realm users is maintained.

Aim 3

TO MANAGE THE PUBLIC REALM SUSTAINABLY.

Objectives:

- To maximize the sustainability of site maintenance operations;
- To promote a cost-effective management strategy which demonstrates value for money;
- To comply with all statutory duties and demonstrate use of best practice;
- To promote an ecological based best practice management approach;
- To maintain a flexible management approach which responds to landscape change and user requirements;
- To adopt a transparent management approach which informs and engages the site users.

O1.2 Review Municipality and Relevant Agencies' Standards and Guidelines

Each Municipality has its own standards and guidelines for operation and maintenance of POS and streetscape which reflects local best practice. Specific requirements will also apply to projects to be transferred to the Municipalities for operation and maintenance. These requirements must be complied with and incorporated within the Operation and Maintenance Manuals (OMM) to the relevant Municipality's satisfaction.

Other agencies such as ITC, applicable services providers etc. have specific standards and guidelines applicable to their field of operation and these should also be reviewed and included within the OMM as appropriate.

O1.3 Review Design Stage Strategies

Strategies developed during the design process and implemented on the project must be reviewed for specific guidance to be implemented at the operation and maintenance stage.

O1.4 Review Estidama Requirements

Estidama credits have specific requirements related to operation and maintenance. The design team must ensure that any requirements from the targeted required and optional credits are incorporated within the OMM.



1

1: Playground maintenance, Abu Dhabi City, UAE

02

Operation Manual

The following section provides Operation regulations for the ongoing management of the public realm. They should be used as the basis for preparing more detailed operation and management plans that are specific to the site or collection of sites. These plans must be prepared by designers, developers or site owners and must be specific to the features, design intent and conditions within each POS or streetscape. The following standards and guidelines should be reviewed and included in the Operation Manual based on a site-by-site basis, and in accordance with specific standards set out by the Municipality.

02.1 Amenity Programming and Events Management

The public realm comprises a variety of public open spaces and streetscape. Their programming, activities and events planning need to reflect this. It is important to recognise heritage and environmentally sensitive features and manage these accordingly, by preparing site-specific management plans which preserve and enhance the heritage and/or natural features. These sites can offer cultural and educational opportunities which should be utilised, within the parameters of preservation and enhancement of the site assets.

Most POS can host more regular programming which can be in the form of permanent facilities or events. Temporary events such as art performances and shows, educational visits, markets and sports events may also be appropriate. These events offer opportunities for promoting the POS and to encourage users that would not normally frequent the park to get involved. A programme of events should be developed at the municipality and/or neighbourhood level and publicised accordingly, allowing time for its preparation and for appropriate and timely information on the events.

02.2 Community Involvement

The mechanisms for engaging local people proactively in the management of the site should be explored. This could include the setting up of a 'Friends Group' and volunteer gardeners and wardens. Most POS provides a number of opportunities for engaging schools and the community, which should be explored to increase the sense of community ownership. These groups can be the key to the successful establishment of new landscapes and engaging them at an early stage will help to ensure the continuing success and responsible use of the area as well as potentially providing an ongoing voluntary workforce.

Corporate involvement may also be appropriate. Many companies have corporate responsibility targets which could facilitate an active involvement in environmental management.

The management plan should establish a strategy for engaging the community at a variety of levels and assisting with the creation of community-led groups where appropriate. This could include:

- Community garden or allotment establishment;
- Establishing links with surrounding developments, projects or groups- pooling resources and holding joint social events to aid community integration;
- Voluntary wardens – this could include part-time patrolling and stewarding;
- Educational Events – local groups and forums could organise educational events where participants might pay a nominal fee for taking part. Social and educational events for children may be developed and run largely in the school holidays. Weekend events such as guided walks and health walks for locals and visitors could be developed and run throughout the year.



1: Live Music Event at Umm Al Emarat Park, Abu Dhabi City, UAE

O2.3 Access and Use Restrictions

It is the general intention that the majority of POS and streetscape should be accessible at all times unless specific conditions limit this, for example, health and safety issues, maintenance procedures, events staging and their preparation.

There are however specific facilities which will have to be time-managed, these would include cafés, kiosks, and possibly sports and park user facilities (such as showers and toilets). A schedule should be prepared that reflects local standards as much as possible so that users become familiar with opening/closing times for facilities.

There may be specific areas which will have restricted access and these should be clearly identified to users. Individual POS and streetscape may have specific restriction on usage. These can be either general restrictions such as smoking, local restrictions such as ball games within small POS where it may cause nuisance, or time related, for example, where POS is reserved for women and children on certain days or times of day. These use restriction should be clearly stated at entrances and prominent places.

O2.4 Signage and Interpretation

In this instance interpretation refers to a method by which visitors can relate to the POS. The provision of effective signage should be reviewed at regular intervals to ensure its effectiveness and legibility as well as ensuring new features, facilities, events and programming are highlighted.

Interpretative signage throughout the POS allows the casual visitor to explore the full potential of the site. The signage should inform and explain what is to be seen in a POS and how the POS contributes to the local area and its community. The signage may also describe the local heritage of a wider geographic area.

The existing natural environment within the POS should form an integral aspect of the interpretation strategy. This could cover basic information about biodiversity and local information about flora and fauna to look out for in the POS. Also included on the panels could be educational facts that link an aspect of the POS to wider issues, for example the connection of global warming to changing habitats and wildlife behaviour.



1-3: Park Signage Examples

O2 Operation Manual

O2.5 Health and Safety

Risk Assessments for POS should be carried out annually and in children’s play areas at least every six months. These should be checked by the person/body who take responsibility for ensuring that any resulting actions are carried out to the required timescales. Monitoring the results of the actions taken must take place to ensure their timeliness and appropriateness.

Items of equipment in the play area should be visually inspected daily by site maintenance staff, in addition to monthly inspection checks carried out by staff who have been trained in playground inspection.

Where water systems are included within the project (fountains and water features, sprinkler irrigation etc.) a Legionella Management Plan must be prepared in accordance with Estidama guidelines.

O2.6 Security

A security assessment should be carried out every 6 months at least to review any dark spaces that may need further illumination, and ensure good visibility and natural surveillance of all POS. This assessment should inform landscape maintenance ensuring that plant materials are pruned or thinned to ensure visibility and clear routes for users.

The role of ‘Park Rangers’ should be considered, especially for larger public open spaces. The role of Rangers may include responsibility for providing visitor information, safety and enjoyment of POS users and ensuring the park bylaws are upheld. The rangers should wear identifiable uniforms allowing easy identification from a distance.

If events are programmed that would accommodate a large number of visitors, measures detailed in the Safety and Security Planning Manual (SSPM) may be required.



1



2



3

1: Natural surveillance, Auckland, New Zealand
2: Climbing frame, UK
3: Health and Safety assessment, Abu Dhabi City, UAE

O2.7 Lighting

Methods for ensuring appropriate lighting levels are maintained in accordance with the design stage Lighting Strategy and that control systems are functioning accurately must be put in place.

O2.8 Staffing Management

A careful assessment of staffing needs is to be carried out to ensure appropriate staffing levels with the appropriate skills are available. Specific staff training must be tailored to the size and nature of the POS, its programming and the activities provided. Training needs should be assessed on a regular basis, at least annually. Where possible staff should be site-based at an office accessible to public realm users.

O2.9 Action Plans

Each significant POS, generally all those of Neighbourhood level and above should have an action plan developed which should cover a period of approximately 5 years.

The action plan will ensure forward planning so that investment can be sought and tracked and performance monitored against the goals contained within the plan. The plan should be flexible to take into account of changes and new opportunities arising and can be amended during the course of its duration so that it is always current.



4: Safe park lighting, Riga, Latvia

Standards

- OS-1** An Operation Manual SHALL be prepared, structured in accordance with this guidance and identifying all operation requirements.
- OS-2** Contact details of approved maintenance contractors and location of maintenance log SHALL be identified in the Operation Manual.
- OS-3** An up-to-date copy of the Operation Manual SHALL be kept at the on-site office (if applicable) or at the operators' office.
- OS-4** A Legionella Management Plan SHALL be prepared for all water systems on site.
- OS-5** An incident log-book SHALL be produced and maintained by the management team, detailing all incidents (operational and maintenance related).
- OS-6** Lighting SHALL be operational in accordance with Estidama and DMT requirements.
- OS-7** All maintenance staff SHALL be trained on the requirements of the Maintenance Manual.
- OS-8** A record of all training SHALL be kept on file within the Management's Office.
- OS-9** Smoking SHALL be prohibited within POS.

Guidelines

- OG-1** If community gardens are provided within a project a specific management strategy SHOULD be developed and incorporated into the OMM.
- LS-3**
- OG-2** Educational events about sustainable use of resources as outlined within Estidama requirements SHOULD be included within amenity programming where appropriate.
- PW-3**
- RE-2**



Key

- OS** = UNIQUE STANDARD NUMBER
- OG** = UNIQUE GUIDELINES NUMBER
- RE-R1** = ESTIDAMA CREDIT REFERENCE

O3 Maintenance Manual

The maintenance manual should cover all maintenance aspects outlined below and any other that may be applicable to the specific POS or streetscape to which it applies. Maintenance regimes should focus on durable, sustainable, vandal-resistant materials and methods to ensure that a cost effective, ecologically sound approach is adopted.

The main point of contact for all maintenance issues should be stated within the maintenance manual.

O3.1 Cleansing Operations and Waste Collection

This section of the manual should set out cleaning times and frequencies, equipment requirements and ordering processes.

Cleansing consists of the routine collection and removal of litter to the operatives appointed disposal point. 'Litter' includes; paper, wrapping material, glass, metal and plastic (with no lower size limit), bottles, cans, leaf litter, grass cuttings, all prunings, dead trees, and any other materials whatsoever their composition that is considered detrimental to the appearance of the site. Litter and debris lodged in planting should be removed as part of regular cleansing operations.

The waste disposal routine and location for waste and recyclable waste should be identified. Cleansing needs to be carried out on a regular basis and a timetable for this should be established in coordination with the Municipality or Centre for Waste Management. All specified areas should be cleansed unless temporarily inaccessible.

O3.1.1 Disposal of Material Arising

All litter should be removed from site and disposed of in an authorised manner in coordination with the Centre of Waste Management or the Municipality specific strategy. No bags or piles of loose collected material should remain on site overnight.

O3.1.2 Operational Waste Management

A waste and recycling strategy for both user generated and organic landscape waste must be prepared for each POS and streetscape. The strategy must include details of the contracted receiver of waste and their licensing.

O3.1.3 Site Inspection

A high standard of site maintenance is crucial to the success of the public realm and close cooperation within the management team is essential to fulfil the aims and objective of the management plan. The appointed maintenance contractor should be encouraged to be proactive in managing the public realm. Monthly reports should be provided to the site owner as a minimum. These reports should explain current works and give deadlines for completion along with identification of any additional works required. Where required or where there are significant cost implications for repairs, an accompanying report should be prepared to outline the works required and estimated costs.



1: Chipping of palm fronds for mulching, Las Vegas, US

O3.1.4 Landscape and Habitat Inspection Reports

Regular inspections and assessments of vegetation and any habitats within larger POS should be undertaken in order to ensure the site is being managed appropriately. These inspections should be undertaken as part of management operations and informed by the ecological and arboricultural reports produced at design stage.

O3.2 Soft Landscape Maintenance

A soft landscape maintenance plan should be prepared identifying all schedules and requirements. All categories detailed within this section should be included in the maintenance manual as a minimum.

O3.2.1 Trees Generally

The overriding aim is to maintain the healthy appearance of all trees, appropriate to the form and growth habit of the species concerned. Any failed trees should be replaced with like-for-like species.

At a minimum the following specifications should be considered for all arboricultural works onsite:

- An appropriately qualified operative such as Arboriculturalist or Tree Surgeon must be consulted prior to undertaking any major tree works on site.
- Formative tree works must be undertaken during the dormant season (which will vary according to tree species) and outside of the bird-breeding season.

- Pruning work should generally be limited to maintaining a healthy, natural growth habit for the relevant species. Over-pruning to form artificial shapes for trees should be avoided unless it is part of the intended design strategy.
- Wood collected from thinning, or pruning should, wherever possible, be chipped and used on site for mulching, either by blowing directly back into planting areas or by storing on site for future use.
- Trees for thinning should be cut to a level stump length of 150 mm for treatment with stump killer. A minimum of 50% of the stump surface should be scored over and treated to stop re-growth. Future growth of stumps should be monitored and additional cuts and applications of stump killer should be made over the following two or three years as required.
- Epicormic growth following works to the crown should be removed where considered to be visually inappropriate.
- Watering of young trees, above normal irrigation level, may be required during periods of establishment. Particular care should be taken during such periods to ensure sufficient watering is carried out to facilitate healthy growth.

O3.2.2 Individual Young Specimen Trees

Maintenance should facilitate tree establishment and canopy closure. Works should therefore primarily comprise weed control (which should be limited to controlled hand weed or spot application of Municipality approved chemical treatment) and re-firming of trees where required; annual grass strimming where required to facilitate growth of young trees; monitoring the condition of tree growth and minor restructuring through thinning to establish a diverse vegetation structure.

Where young trees are staked, the stakes and ties should be checked frequently and it is anticipated that they will need adjusting at least twice annually. To reduce excessive competition, a suitable mulch should be maintained around any trees less than 3m in height to a diameter of 0.5m around the base of the trees. This should be topped up during the first five years of management as required to maintain a depth of 75mm.

Frequent inspections should be undertaken, at least monthly, and undesirable weeds should be removed by hand weeding. Young trees will require formative pruning to maintain a desirable shape as well as to maintain health and vigour. Any broken or damaged stakes should be replaced and ties re-fixed at a slightly lower position, allowing for growth since planting. Stakes should be removed as necessary, when the tree is suitably established. Where required evenly spread a slow release fertiliser to enhance tree growth, in accordance with manufactures instructions.



1



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1-3: Tree and Palm planting, Abu Dhabi City, UAE



O3

Maintenance Manual

O3.2.3 Palms

Maintenance of palms should aim to retain a natural growth habit, ensuring appropriate nutrients are applied for healthy growth. Fruit production should be managed as not to create disturbance.

Pruning and trunk-tidying of palms should be done conservatively and by hand, refraining from use of chainsaws. ANSI pruning standards for palms (ANSI 2001) states that no leaves with tips above the horizontal plane (9:00-3:00 position on a clock face) should be removed. Generally if done on a yearly basis pruning should only remove a yearly growth (9 fronds approx). Palms suffering with K deficiency (noticeable from browning of fronds) should have fewer fronds removed and application of appropriate nutrients applied to correct deficiency.

Unless desired for food production, removing flowers or developing fruits can benefit the development of fronds and prevent fruit falling on unwanted areas and creating a hazard.

O3.2.4 Ornamental Planting

The maintenance of ornamental shrub planting beds should focus on maintaining a neat and tidy appearance, which will also encourage 'free form' (naturalistic) plant growth. Any failed plants should be replaced as necessary using like for like species as specified. In the first year(s) this will be the responsibility of the landscape contractor.

Within the first three to five years of establishment, mulch should be laid around the base of all young plants to suppress weed growth and should be maintained to a depth of 50mm. During the growing season frequent inspections of these areas should be undertaken, removing weeds wherever necessary by hand pulling to assist the successful establishment of plants.

Pruning of ornamental shrubs should be undertaken in order to clear deadwood, promote healthy growth and produce desired growth of flowers, fruit, foliage or stem colour as appropriate. Pruning should also include for clearing out of crossing and damaged branches. Where the pruning is limited to the extent of the current years growth, work can be carried out at anytime of year.

Ornamental grasses should be hand cut late in the summer as required in order to clear dead vegetation, and promote healthy growth. Care must be taken not to damage new growth. All organic waste should be collected and removed.

Management of herbaceous planting should include monthly hand weeding operations and monthly pruning/ dead-heading operations during the growing season where desirable to promote the longevity of flowering species. Management should also allow for topdressing with organic matter every year. Lifting/ dividing of plants should be undertaken approximately once every 5 years depending on the species, in order to promote healthy growth and enhance flowering as well as preventing more dominant species from over-crowding.

Any failed plants following the 12 month period after construction, should be noted in site inspection reports and replaced as instructed by the site manager.



1



2



3

1-3: Ornamental planting, Abu Dhabi

03.2.5 Amenity Grassland

Grassland should be managed as required to facilitate safe public access and maintain a tidy appearance. All amenity grassed areas should be mowed with appropriate machines to maintain a height of between 25-50mm. Grass cuts to these areas will therefore be undertaken on a regular basis. Grass clippings should be removed from site immediately and any grass blown on to the adjacent areas of hard-standing should be removed immediately.

Preliminary inspections of the area should be undertaken prior to each cutting operation, removing isolated items of obstruction which might damage machines or create a possible hazard to persons or property and carry out a litter picking operation prior to each cut.

Weed control to all grassland areas should be limited to spot application of translocated herbicide to control noxious weeds. In the long term the input of chemicals onto the site should be reduced or eliminated and the owner should encourage the maintenance contractor to identify alternative weed control strategies wherever possible.

03.2.6 Edging

The margins of amenity grass areas should be trimmed with a half-moon edging iron, or mechanical equivalent, to clean straight lines or smooth curves.

Where this operation is required to the paved margins of grass areas, the soil should not be drawn back as this operation is merely to redefine the hard edge. All arisings, including any soil and vegetation growing on the hard surface should be removed.

03.2.7 Reinstatement of Worn Grass Areas

In order to maintain a pleasant environment, damaged grass surfaces should be reinstated. This should involve grading out to existing levels and removing large stones, raking to obtain tilth suitable for seed sowing, applying grass seed evenly by hand and lightly raking in. The surface should then be consolidated by use of a light roller. Good quality amenity grass seed mixtures should be used.

03.2.8 Invasive species

Pernicious weeds should be controlled where possible by manual pulling, with arisings collected for composting. Herbicide treatment should be limited to a controlled application of Municipality approved chemical treatment. Control mechanisms must be undertaken before the plant has set seed.



1



2



3

1: Play and Lawn Area, Abu Dhabi City, UAE 2: Linear Park, London, UK 3: Soft and Hard Landscaping, Al Ain, UAE

O3

Maintenance Manual

O3.3 Water Management

Specific procedures need to be prepared to ensure efficient water usage in accordance with Estidama requirements (all of the applicable required and optional credits must be complied with). These should include:

- Efficient management, maintenance and programming of water features.
- Efficient operation and maintenance of the irrigation system in accordance with manufacturers guidelines.
- Water monitoring and leak detection strategy, in accordance with manufacturers guidelines for the monitoring system installed.
- Stormwater systems operation and maintenance plan outlining maintenance of all systems in accordance with design objectives.



1

O3.4 MEP Operation and Maintenance

A Maintenance Electricity and Puming (MEP) manual including a full written and diagrammatic description of each system installed must be prepared to ensure the maintenance contractor can fully understand the scope and facilities provided.

The MEP manual must outline maintenance operations, their frequency and approved replacement products and outline point of contacts for utilities providers.

The manual must be kept in a specify location to be easily accessibly by the maintenance contractor.

O3.5 Repair and General Maintenance

All repair and maintenance works identified during regular site inspections should be actioned within a specified time.

All trades employed to carry out work within the public realm must be accredited in their respective fields to qualify for appointment.

All maintenance requirements and works occurring within the POS/ streetscape must be recorded within a maintenance activity log book to be stored at the maintenance team's office, its location to be identified in the Operation Manual.



2

1: Neighbourhood Park, Abu Dhabi City, UAE 2: Streetscape, Saadiyat Island, Abu Dhabi City, UAE

O3.6 Monitoring

Simple monitoring reports against key measures should be prepared by the maintenance contractor on a regular basis (timing to be agreed), together with relevant financial information.

Water and electricity meters must be installed in all POS/ streetscape in a tamper-proof environment and the location of all metering and control monitoring systems should be clearly outlined on as-built drawings included within the manual.

A specific monitoring system so that information on the project's energy and water consumption can be recorded should be put in place to determine out of range values and alert facilities operators of unusually high consumption. Any significant change in usage must be investigated to discover the source of this increase.

The results of all of the above should be documented and any issues raised for resolution.

Standards

- OS-10** A maintenance manual SHALL be prepared, structured in accordance with this guidance and identifying all maintenance requirements.
- OS-11** All maintenance equipment SHALL be stored within a safe area not accessible to the public.
- OS-12** A list of maintenance requirements SHALL be drawn up, during monthly inspection reports and be actioned within a week.
- OS-13** Processes SHALL be put in place in case of emergency maintenance.
- OS-14** A waste and recycling strategy SHALL be prepared for each project.
SM-R6
SM-R3
- OS-15** All maintenance requirements and works occurring within the public realm SHALL be recorded within a maintenance activity log-book, its location to be identified in the operation manual.
- OS-16** A strategy for the efficient operation and maintenance of irrigation systems SHALL be prepared.
PW-R1
- OS-17** Water meters SHALL be installed and monitored for efficiency and leak detection.
PW-R2
- OS-18** A strategy for efficient operation and maintenance of stormwater systems SHALL be prepared.
PW-R3
- OS-19** All trades (electricians, engineers etc.) SHALL be accredited in their respective fields to qualify for appointment.
- OS-20** An MEP manual SHALL be produced by the appointed maintenance contractor for all MEP systems on site.
- OS-21** Electricity meters SHALL be installed and energy consumption monitored.
RE-R2
- OS-22** Any abnormal monitoring results SHALL be immediately investigated and rectified.
RE-R2
PW-R2

Guidelines

- OG-3** A strategy for efficient management, maintenance and programming of water features SHOULD be prepared.
PW-2
- OG-4** All meters SHOULD be located within a tamper-proof environment.
- OG-5** Meter consumption data SHOULD be reviewed on regular basis.
- OG-6** An organic food waste strategy SHOULD be developed.
SM-2



1: Streetscape, Abu Dhabi City, UAE
2: Masdar, Abu Dhabi City, UAE



Acknowledgements

Department of Municipalities and Transport (DMT)

DMT Project Reviewers

External TAC Stakeholders

- Abu Dhabi Civil Defence
- Abu Dhabi Municipality
- Abu Dhabi Police General Headquarters
- Department of Culture and Tourism
- Al Ain Municipality
- Al Dhafra Region Municipality
- Environment Agency Abu Dhabi
- Musanada

Other Contributors

The DMT would like to thank all other organisations, universities and individuals who have participated in the development of the PRDM.



Al Qattara Fort,
Al Ain

Abu Dhabi Public Realm Design Manual

Version 3, 2022



A night cityscape featuring several modern high-rise buildings. The scene is illuminated by streetlights, creating a blue and white glow. In the foreground, there are green bushes and a paved area. A red banner is overlaid on the left side of the image, containing the text 'A Appendices'.

A

Appendices



The Corniche,
Abu Dhabi

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A1

Glossary

The following are definitions for key terms used in the Public Realm Design Manual.

Assembly Space

A generous and well-defined open space area that is paved to accommodate large public gatherings for special events and ceremonies

Baraha

A small semi-private open space located in a fareej (barahaat is the plural of baraha).

Biodiversity

The diversity of plant and animal life in a particular habitat.

Bioswale

A wide, shallow, vegetated ditch that is designed to filter silt and sediment from surface storm water runoff.

Buffer

A space and/or landscape feature designed to provide separation to reduce or mitigate impacts between conflicting uses; and provide protection for environmentally sensitive areas.

Commercial Pavilion

A structure that combines indoor space and covered outdoor space, used primarily for retail, commercial, entertainment purposes to stimulate activity and enhance the appeal/attraction of a place.

Crime Prevention Through Environmental Design (CPTED)

Strategic opportunities identified during project planning and design to enhance public safety by reducing the potential for crime; often includes eliminating concealment areas, maintaining open sightlines, locating activity areas in clear view, enhancing communication ability, providing adequate illumination, maximising public access/ use of space.

Fareej

A traditional neighbourhood system.

Gathering Area

A feature area designed to accommodate groups of people; and provide relief from the heat and sun. Can include site furniture, shade structures, landscaping, fountain, drinking fountain, art/ sculpture, interpretive displays.

Hardscape

Ground plane surfacing material primarily used to accommodate circulation needs and public gathering/assembly; material is made from a manufacturing process.

Heat Island

An area with consistently higher temperatures than surrounding areas because of a greater retention of heat from buildings, concrete, and asphalt.

Hierarchy

A series of ordered groupings of elements within a system.

Highest Astronomical Tide (HAT)

The height of the water at the highest possible theoretical tide.

Hydrozones

A distinct grouping of plants with similar water and climatic needs.

Kiosk

A small free-standing structure designed to provide information or for the sale of refreshments; can be interactive and used for interpretation, education, wayfinding.

Lowest Astronomical Tide (LAT)

The height of the water at the lowest possible theoretical tide.

'May' statements

Permitted in the design; discretionary based on programming needs, function, site conditions.

Media Wall

A graphic digital information/communication feature.

Meyadeen

Small, public, central meeting open areas within a fareej (Meydan is the single for Meyadeen).

Multi-modal

The movement of people by more than one method of transport.

Multi-modal Station

A centralised hub or station that integrates and unites various modes of transportation; can include air, rail, boat, public transit, vehicular, parking, bicycle, pedestrian.

Mushtarak

Shared-use access streetscape where pedestrians and cyclists have equal access and provision as motorised vehicles.

Natural Materials

Construction material that comes from the earth or plants and retains the character and qualities of its original state; has undergone limited manufacturing or processing.

Open Space

An area of land or water that remains in an undeveloped, natural state as well as landscapes with low intensity development for public use, such as Parks, Linear Spaces and Waterfronts.

Open Space Network

The parks, waterfronts and other publicly accessible land designated for passive and active recreation, and all links that connect these spaces within the Urban Growth Boundary.

Open Space Standards

The required percentage of a site to be provided as parks or other open public space (not including streets).

Outdoor Classroom

A small outdoor educational space with organised or clustered seating designed to accommodate gatherings of approximately 30-40 people.

Overlook

A design feature that provides a prominent viewing place.

Parks

Publicly accessible open spaces within a community for recreational use. Parks may include natural areas such as mountain ridges, desert landscapes and wadi systems.

Park-and-Ride

A parking strategy to reduce private motor vehicle traffic in busy areas by providing a remote parking lot that links users to alternative transportation opportunities.

Pathway

A track or route along which pedestrians and/or cyclists are intended to travel.

Picnic Shelter

A permanent, open aired structure which houses picnic tables, benches and other facilities.

Placemaking

The process of creating and managing Parks, Streetscapes, Waterfronts and Public Places that will attract people because they are pleasurable or interesting.

Public Realm

All open areas within a community visible to the public or for public gathering or assembly.

Public Realm Categories

This includes Open Space and Streetscapes.

Public Art

An artistic work that is created and located for public accessibility. Public art is either located in or clearly seen from the public realm, such as a street, park, urban plaza or public building. It includes all art forms and may be permanent or temporary artworks (such as performance art and exhibitions). Public art may be freestanding or integrated into building exteriors, it may take the form of unique functional objects (such as seats or gates), but not architectural design, advertising signs or commercial branding.

Public Service Building

A facility that includes public restrooms and could include showers, changing rooms, lockers, rental kiosk, first aid room or food concession. Perimeter outdoor space can include shaded seating areas, site furniture, drinking fountains, etc.

Recreation Area: Active

A defined outdoor space designed to accommodate organised/programmed sporting events or spontaneous and intense active play. Constructed of synthetic turf or rubberised asphalt.

Recreation Area: Passive

A defined outdoor space designed to accommodate rest, relaxation, lounging. Constructed of natural turf.

'Shall' statements

Mandatory to comply with the PRDM regulation.

'Should' statements

Recommended to comply with the PRDM guideline.

Staging Area

A feature area designed to provide a transitory gathering space between parking lot and primary site feature or destination.

Setback

The minimum distance between a property line or demarcated boundary and the location where a structure or facility can be built.

Sikka

Paved pedestrian only path located between plots (sikkak is the plural of sikka).

Softscape

Elements of the landscape that comprised live, horticultural elements; may also include synthetic materials that exhibit similar characteristics and appearance.

Special Features

Key design element(s) that are intended as primary attractions or places of activity in the public realm.

Stewardship

Refers to the responsibility to care for the world's natural resources - land, air, wildlife and water - sustainably so future generations can enjoy them.

Streetscape

The visual elements of a street including, but not limited to, the road, sidewalk, street furniture, trees and open spaces that combine to form the street's character.

Sustainability

Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, and that permit fulfilling the social, economic and other requirements of present and future generations. It identifies an attitude in development that considers a site's natural land, water, and energy resources as integral aspects of the development.

Trail

A pedestrian and/or cycling circulation path.

Treated Sewage Effluent (TSE)

Treated wastewater used for landscape or plant irrigation.

Typology

The systematic classification of types that have characteristics, traits or functions in common.

Universal Access

The ability of all people to have equal and unobstructed opportunity to experience the public realm regardless of social status, ethnicity, or physical, mental and sensory ability.

Wadi

A valley or dry river bed.

Water Feature

A design element that emphasises the display of water; may include pools, fountains, cascades, spray jets.

Waterfront

All land areas along the water's edge.

Water Play Feature

An amenity intended primarily for use by children that allows creative interaction with water for play purposes; includes water that sprays, mists, bubbles, cascades, showers, or employs other effect. It does not include standing water; and eliminates/dramatically reduces potential for drowning.

Wayfinding

The process by which people orient themselves within the environment and navigate their way from place to place.



Corniche Park,
Abu Dhabi

A2

Checklist

The following tables contain all the standards within the PRDM and outline the corresponding submission requirements to be submitted for approval.



A2

Checklist Introduction

Figure A1 illustrates the hierarchy of all standards contained within the PRDM at Planning, Design and Operation Stages. The following checklist describes the submission requirements to demonstrate compliance with all standards. The standards related to Design Elements are only applicable if the Design Elements is included in the design. Guidelines included within the PRDM are not included in the checklist although it is recommended they are followed whenever applicable.

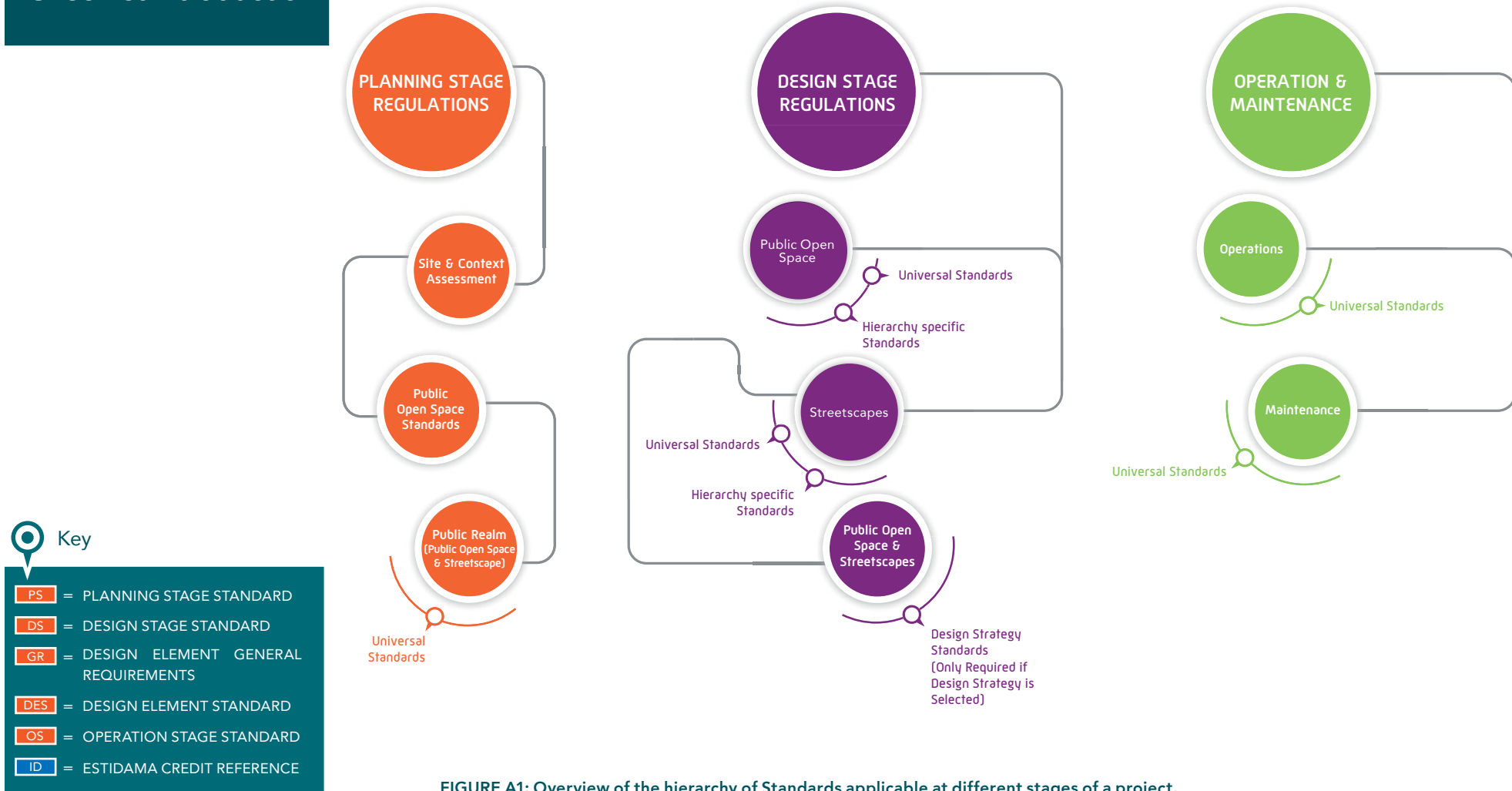
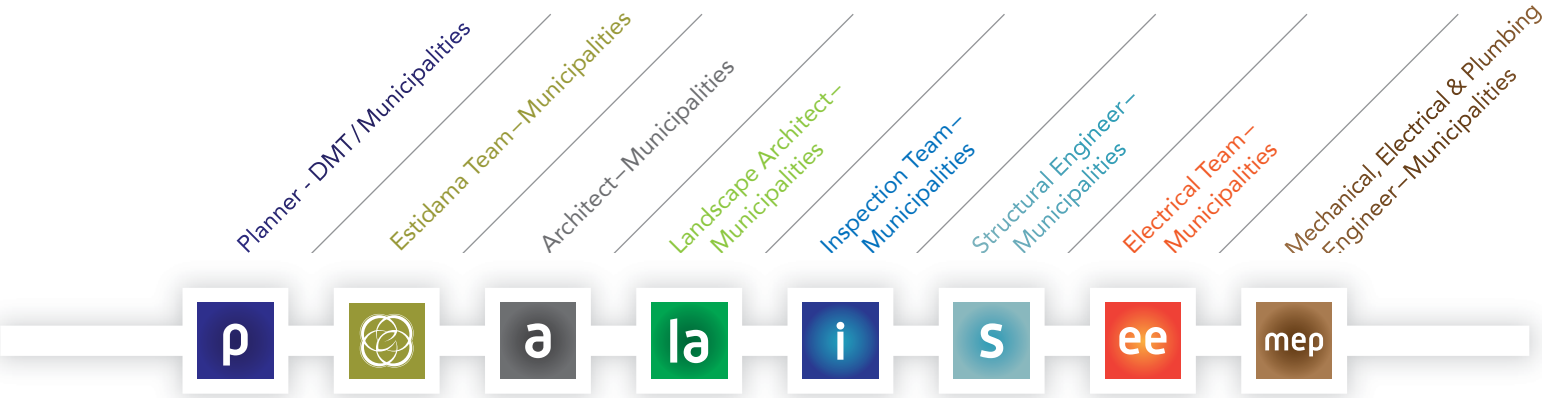


FIGURE A1: Overview of the hierarchy of Standards applicable at different stages of a project.
















This review checklist has been provided as a summary of all standards that apply to the Planning, Design and Operation of all Public Open Space and Streetscape. It is to be used by design teams and reviewers from all agencies, to ensure that all regulations have been considered and applied in order to meet the requirements of the PRDM. In the checklist, reviewers of each standard are presented as icons. These icons are described below.

A2 Review Checklist



Planning Stage Universal Standards for Public Realm



A2
PS

Planning Stage Standards							
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance	
P2.1			The boundaries, overall site area, and the site area excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots SHALL be clearly defined.		Planning Stage report: showing clearly indicated boundaries of the site and measurement of overall site area.	<input type="checkbox"/>	
P2.2			The OSF SHALL be reviewed for specific POS requirements.		Planning Stage report: demonstrating understanding of OSF requirements and outlining how these have influenced the POS proposal.	<input type="checkbox"/>	
P2.3			A Natural System Assessment SHALL be undertaken		Submissions requirements outlined within PCRS.	<input type="checkbox"/>	
P2.4			A Site Assessment SHALL be undertaken.		Planning Stage report: elements to be included: <ul style="list-style-type: none"> • Current access and movement network to the site including location of public transit network and stops, pedestrian and cycle routes; • Views; • Solar access; • Utilities and infrastructure constraints; • Existing facilities relevant to site development. 	<input type="checkbox"/>	
P2.4			A Context Assessment of a 2km zone surrounding the site SHALL be undertaken.		Planning Stage report: elements to be included: <ul style="list-style-type: none"> • Assessment of urban grain and character of the context area; • Identification of the size, quantity, type and features of all public open space and streetscape within the surrounding area; • Identification of the type, size and quality of all publicly accessible Sport and Play facilities in the area; • Location of pedestrian and cycle route. 	<input type="checkbox"/>	
P2.5			The settlement context SHALL be defined in accordance with the CFPS methodology.		Planning Stage report: outlining calculation of settlement context.	<input type="checkbox"/>	
P3.2			A percentage of at least 20% of the site (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) SHALL be allocated for POS in Urban Settlements.		Planning Stage report: outlining measurements, calculations and rationale for allocation of POS.	<input type="checkbox"/>	



Planning Stage Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P3.2	ρ	PS-8	A percentage of at least 15% of the site (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) SHALL be allocated for POS in Suburban Settlements.		Planning Stage report: outlining measurements, calculations and rationale for allocation of POS.	<input type="checkbox"/>
P3.2	ρ	PS-9	A percentage of at least 10% of the site (excluding the right-of-way, community facility plots, utility plots and corridors, and agricultural plots) SHALL be allocated for POS in Rural Settlements.		Planning Stage report: outlining measurements, calculations and rationale for allocation of POS.	<input type="checkbox"/>
P3.2	ρ	PS-10	If an Overall Site Area is sub-divided into areas of different settlement classifications, the overall quantity of POS required SHALL be the sum of each required amount.		Planning Stage report: outlining measurements, calculations and rationale for allocation of POS.	<input type="checkbox"/>
P3.3	ρ	PS-11	A demand based assessment SHALL be undertaken for sports and recreation facilities provision based on predicted needs of the population.		Planning Stage report: outlining measurements, calculations and rationale for allocation of POS type,	<input type="checkbox"/>
P3.3	ρ	PS-12	A demand based assessment SHALL be undertaken for play facility provision based on predicted needs of the population.		Planning Stage report: outlining measurements, calculations and rationale for allocation of POS type,	<input type="checkbox"/>
P4.2	ρ	PS-13	90% of residents and workers within a development SHALL be within 350 metres of a POS (of any hierarchy).		POS Layout Plan: outlining areas of development within 350m of a park (taken as a park boundary offset).	<input type="checkbox"/>
P5.2	ρ	PS-14	A mix of programmed uses, facilities and features SHALL be identified for inclusion within the public realm according to the selected Public Realm Design Elements.		POS Layout Plan: outlining selected Design Elements and the mix of uses, facilities and features to be included.	<input type="checkbox"/>
P5.3	ρ	PS-15	The location of each hierarchy of POS SHALL directly relate to the streetscape hierarchy (i.e. Municipality POS should adjoin higher levels streetscapes, while Local POS should adjoin smaller streets). POS shall be located on and primarily accessed by the streetscape hierarchy as shown in PRDM's Table P2.		Plan outlining proposed hierarchy of open spaces and how they relate to the streetscape hierarchy, to comply with Table P2: Public Open Space Location and Access Standard.	<input type="checkbox"/>


Movement and Access

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-16	A sustainable Movement and Access strategy SHALL be developed for the public realm, using a 'Complete Streets' methodology as outlined in the USDM and coordinating with the DMT's 'Walking and Cycling Masterplan', ensuring a cohesive approach is pursued for the functional, technical and visual requirements of the public realm.		Plan indicating vehicular, transit, cycle and pedestrian movement within and around the site, detailing transit stops, multi-modal nodes, location and proposed type of safe crossing facilities for pedestrian and cyclists as well as connections and linkages to surrounding infrastructure.	<input type="checkbox"/>
					Sections outlining the proposed widths of the elements included in the right of way.	<input type="checkbox"/>
					Written strategy in support of the Movement and Access plan, outlining how the plan responds to the existing network, the proposed uses, activities and visitors demand for the site.	<input type="checkbox"/>
					Mood board outlining the character and proposed treatment of the different movement corridors and how they respond to the uses and hierarchy of streetscape.	<input type="checkbox"/>
P5.3		PS-17	The public realm SHALL provide linkages to other major features and destinations.		Plan indicating major features and destinations within the site and contextual areas and the proposed public realm linkages.	<input type="checkbox"/>



Buildings

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-18	A strategy SHALL be developed that outlines the built structures required, based on anticipated demand to provide refreshments, maintenance, community use and public toilets that are sustainable and appropriately scaled to the size and use of the POS.		Assessment of users and maintenance facilities requirements and graphic plan outlining proposed location, size and use of required buildings.	<input type="checkbox"/>
					Mood board OR written document outlining character and proposed treatment of the buildings and how they responds to the uses and hierarchy of the open space.	<input type="checkbox"/>
					IDP-R2	Submission requirements outlined within PRRS.




Shading

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-19	A strategy for achieving high levels of outdoor thermal comfort within the public realm SHALL be provided.	LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>


Softscape

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-20	A soft landscape strategy SHALL be developed that ensures a good quality and sustainable green environment, appropriate to the climate and natural environment of Abu Dhabi, water usage allowances and the character of the public realm.		Plan/s indicating plant types and hydrozones, inclusive of plant images illustrating how the proposed soft landscape reflects the proposed use, character/s, hierarchies and sustainability of the public realm.	<input type="checkbox"/>
				NS-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>


Hardscape

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-21	A hard landscape strategy SHALL be developed to ensure the provision of a coordinated palette of good quality materials which reflect the public realm hierarchy and character.		Plan/s indicating hard landscape areas and proposed treatments for the different elements of the public realm.	<input type="checkbox"/>
				Mood board/s outlining the type, size, colour, texture and any proposed pattern, demonstrating the proposed character of the different elements of the public realm.	<input type="checkbox"/>	
				SM-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>
				SM-R5	Submission requirements outlined within PRRS.	<input type="checkbox"/>



Furniture

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-22	A site furniture strategy SHALL be provided to ensure the development of a coordinated palette of good quality furniture which reflect the public realm hierarchy and character.		Mood board/s outlining the palette of furniture proposed for the site, including lighting element, seating, refuse/recycling, bicycle racks, and shading structures, demonstrating a coherent approach reflecting the hierarchy and character of the site.	<input type="checkbox"/>

Public Art

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-23	A strategy for the incorporation of public art within the public realm SHALL be outlined.		Plan indicating proposed location of public art within the public realm and zone of visual influence. Proposed areas for performance art or interactive elements within the public realm should also be outlined.	<input type="checkbox"/>
					Mood board OR narrative outlining concept, type, size, character and proposed materials for public art, including the rationale behind the proposals and how the public art respond to the uses and hierarchy of the public realm.	<input type="checkbox"/>

Water Usage

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-24	A water usage strategy SHALL be developed, detailing irrigation, water features and cooling of built facilities, to outline how the public realm water allocation is to be utilised.	PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
P5.3		PS-25	A stormwater management plan SHALL be developed for the site.	PW-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>

Lighting

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3	ee	PS-26	A lighting strategy to provide adequate illumination to the public realm, reflecting the public realm hierarchy and predicted level of activity, to ensure safety and encourage appropriate night-time usage SHALL be developed.		Lighting strategy: outlining proposed level of lighting, the timing, and the rationale for lighting provision in relation to the public realm hierarchy and predicted level of activity.	<input type="checkbox"/>

Fences/Walls/Screens

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3	la	PS-27	A strategy outlining the proposed access, boundary treatment and screening features for the public realm SHALL be provided.		Plan/s indicating locations and typology of walls, fences and screens and their scope, including limiting access at certain areas, or times, providing privacy areas, security concerns etc.	<input type="checkbox"/>

Service/Infrastructure

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3	mep	PS-28	A services/ infrastructure strategy SHALL be developed that outlines how the required facilities within the public realm will be serviced, incorporating elements such as potable water, TSE water, sewerage, power, renewable energy and telecommunications infrastructure.		A combined plan, showing proposed locations of all the services and infrastructure required within the public realm and their relationship to proposed softscape.	<input type="checkbox"/>
					A narrative outlining the use of proposed utilities and technologies, their supply location and connections points.	<input type="checkbox"/>

Signage / Wayfinding

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-29	A signage and wayfinding strategy SHALL be developed for all the public realm, which takes account of the surrounding context.		Mood board and narrative with graphic examples of proposed signage and wayfinding solutions, outlining their proposed locations and identifying elements to be signposted.	<input type="checkbox"/>

Safety / Security

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-30	A safety and security strategy SHALL be developed for the public realm, incorporating the principles of the Abu Dhabi Safety and Security Planning Manual (SSPM) to achieve Crime Prevention Through Environmental Design (CPTED), and UAE Fire and Safety Code of Practice.		A comprehensive report appropriate for the scale of the development illustrating safety and security measures for the public realm.	<input type="checkbox"/>

Parking

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3		PS-31	A demand-based parking strategy SHALL be developed for the public realm in line with the DMT's methodology.		Written strategy outlining calculations of vehicular and cycle parking requirements, based on buildings capacity/uses, proposed public realm and its proposed programming developed as per DMT's methodology, including a matrix outlining how these requirements will be accommodated (underground/ above ground parking areas, on site/ street).	<input type="checkbox"/>
					Plan indicating types and proposed locations for parking provisions on site, including cycle parking and other end-of-ride facilities as outlined in Walking and Cycling Master Plan (WCMP).	<input type="checkbox"/>

Planning Stage Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
P5.3	p	PS-32	A comprehensive public realm strategy SHALL be produced covering all aspects of the proposed public realm network on the site.		A comprehensive report, with illustrative plans and narratives as outlined above, responding to all Planning Stage Standards' requirements.	<input type="checkbox"/>










1

1: Street side parking, Abu Dhabi City, UAE

Design Stage Universal Standards for Public Realm

A2
DS

Design Stage Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D2.1			The boundaries and overall site area SHALL be clearly defined.		Survey plan, illustrating boundaries of the site and overall site area.	<input type="checkbox"/>
D2.2			A Site Assessment SHALL be undertaken of the existing site.		Submission requirements outlined within PRRS (see NS-R1 for information on section's requirements).	<input type="checkbox"/>
					Additional elements to be included in the report include: <ul style="list-style-type: none"> • Current access and movement network to the site including location of public transit network and stops, pedestrian and cycle routes; • Views; • Solar access; • Utilities and infrastructure constraints; • Existing facilities relevant to site development. 	<input type="checkbox"/>
D2.3			A context assessment of a 700m offset zone surrounding the site SHALL be undertaken.		Submission requirements outlined within PRRS (see LS-R1 for information on section's requirements) and PRDM Section D2.4.	<input type="checkbox"/>



















1

1: Public realm at Saadiyat Island, Abu Dhabi City, UAE



Design Stage Universal Standards for POS

A2
DS



Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2			Primary entrances, walkways and cycle paths SHALL be located to connect the site to public transit stops, pedestrian and cycle networks and key amenities and destinations in the surrounding area.		Layout and Context Plan: indicating hierarchy of routes and connections to surrounding areas.	<input type="checkbox"/>
D3.2			A hierarchy of primary and secondary entrances SHALL be established that reflects the adjacent streetscapes hierarchy.		Hierarchy Plan/ Diagram: indicating hierarchy of entrances in relation to surrounding streetscape's hierarchy.	<input type="checkbox"/>
D3.2			Emergency vehicle access SHALL be ensured.		Hierarchy Plan/ Diagram (above): indicating access and routes suitable for Emergency Vehicles.	<input type="checkbox"/>
D3.2			POS facilities SHALL be designed to conform to Universal Access Standards in accordance with DMT's Transportation Accessibility Standards and USDM guidance.		Layout plan and details demonstrating compliance with DMT requirements.	<input type="checkbox"/>



















Buildings						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2			Buildings SHALL be designed to high sustainability standards and to reflect the character of the POS and its context.		Written/illustrated document outlining character/s of open spaces and their context and how this has influenced proposed building design.	<input type="checkbox"/>
					Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2			Maintenance buildings SHALL be located away from public use areas and screened if appropriate.		General Layout Plan: indicating location of maintenance buildings and screening if appropriate.	<input type="checkbox"/>
D3.2			Buildings SHALL be located by taking account of sightlines and views.		Graphic Plan: indicating sightlines and views and how these have been retained/ enhanced by appropriate location of buildings and landscape.	<input type="checkbox"/>

Shading






Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2		DS-11	Shading SHALL be provided to car parking, walkways, cycle tracks and parking, play areas, seating and gathering areas.	LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2		DS-12	The design and location of shade structures SHALL take account of prevailing wind, solar paths throughout the day, adjacent structures and landscaping.	LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>

Softscape



Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2	la	DS-13	The sustainable and appropriate plant materials for the site location SHALL be determined with reference to the PRDM plant list.		Planting plan indicating grassed and planted areas, demonstrating site-appropriate plant species and hydrozones, and including plant schedules outlining planting densities and irrigation requirements.	<input type="checkbox"/>
				NS-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2		DS-14	Water usage for the POS SHALL not exceed 4.5l/m ² a day.	PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2	la	DS-15	Extensive areas of irrigated turf SHALL be avoided.		Planting plan indicating limited areas of natural turf.	<input type="checkbox"/>




Hardscape						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2	 		All hardscape materials SHALL be durable, able to withstand impact, harsh environment, vandalism and be appropriate for public place locations.		Hardscape plan/s: indicating all hardscape materials, including images, dimensions, characteristics and suppliers.	<input type="checkbox"/>
					Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2			Modular paving materials SHALL be used in pedestrian areas to minimise waste due to maintenance operations.		Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2			All unshaded hardscape areas SHALL be constructed of light coloured paving materials in order to minimise heat build up. Care should be taken that this does not create high-glare surfaces.		Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2	 		Hardscape materials for foot trafficked areas SHALL have a slip prevention rating of R12 or above, and all water features SHALL be surrounded with slip-resistant materials.		Hardscape plan/s (above): indicating appropriate surface materials around water features.	<input type="checkbox"/>
					Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2	 		All play structures SHALL be surrounded with suitable impact material.		Hardscape plan/s (above): indicating impact materials around play structures.	<input type="checkbox"/>
					Submission requirements outlined within PRRS.	<input type="checkbox"/>



Furniture

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2		DS-21	Coordinated furniture designs SHALL be used, that are contemporary, simple and appropriate to context.		Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>
D3.2		DS-22	Site furniture SHALL be designed to accommodate the inclusion of people of determination and their needs and SHALL employ good quality design and materials to withstand climatic conditions, heavy use and vandalism.		Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>
				SM-R4	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2		DS-23	Refuse and recycling containers SHALL be provided at entrances and in gathering areas.	SM-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2		DS-24	Shaded bicycle racks SHALL be provided at primary entrances.	LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>




Public Art

Public Art						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2		DS-25	The provision of public art SHALL reflect guidelines from the Public Art Design Element.		Written document outlining any proposed Public Art, its typology, and rationale.	<input type="checkbox"/>
D3.2		DS-26	Public art SHALL be used to enhance the POS design in strategic positions, such as focal points and gathering areas.		General layout plan, indicating proposed Public Art elements and their location.	<input type="checkbox"/>






Water Usage						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2		DS-27	A detailed water efficiency strategy SHALL be developed, detailing water features and irrigation requirements to outline how water will be utilised across the site.	PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2	la	DS-28	The provision of water features SHALL reflect guidelines from the Water Features Design Element.		Narrative outlining any proposed Water Features, their typology, and justification.	<input type="checkbox"/>
D3.2	la	DS-29	Water features SHALL be employed sparingly and judiciously, and located near areas of high activity and use.		General layout plan, indicating proposed Water Features and their location.	<input type="checkbox"/>
				PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2		DS-30	Stormwater management measures SHALL be incorporated within site design.	PW-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>









Lighting						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2	ee	DS-31	Lighting in POS SHALL be designed to: provide adequate illumination to the POS, reduce glare into adjacent properties, minimise light pollution and impact on natural areas.		Lighting plan: outlining the location, distance, and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>
				LS-R4	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2	ee	DS-32	General illumination of large areas of landscaping SHALL NOT be allowed.		Lighting plan: outlining the location, distance, and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>
D3.2		DS-33	All lighting in the public realm SHALL meet the lighting requirements as stated in the DMT 'Lighting Standards'.	RE-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2	ee	DS-34	Lighting SHALL be used to clearly illuminate threads, risers and any other level differences along primary and secondary pathways.		Lighting plan: outlining illuminated elements within the site,	<input type="checkbox"/>







Services/Infrastructure

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2		DS-35	Feeder pillars and utility cabinets SHALL be securely located away from recreational, play and other active spaces and SHALL NOT be directly accessible by the public. If a secure placement can not be achieved these SHALL be replaced with underground units.		Utilities plan/s: outlining location of all feeder pillars and utility cabinets and underground units in relation to pedestrian and cyclists travel zones and location/ treatment of maintenance facilities.	<input type="checkbox"/>
D3.2		DS-36	Energy and water metering and monitoring equipment SHALL be installed.	PW-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>
	RE-R2			Submission requirements outlined within PRRS.	<input type="checkbox"/>	
D3.2		DS-37	Commissioning of services and infrastructure SHALL be considered throughout the design process.	IDP-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>

Signage/Wayfinding

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2		DS-38	Signage and wayfinding elements SHALL have a clear hierarchy, reinforcing primary entrances, pathways and landmarks.		Signage plan: outlining location and hierarchy of signage and wayfinding elements.	<input type="checkbox"/>
D3.2		DS-39	A map or directional guidance should be provided at primary entrances and pathway intersections and SHOULD at a minimum include information about the location of accessible public toilets and interest points.		Signage plan: outlining location and hierarchy of signage and wayfinding elements.	<input type="checkbox"/>
D3.2		DS-40	A unified visual language SHALL be used for all signage and wayfinding materials, colours, scales and types.		Signage detail design: illustrating proposed designs, including types, sizes, materials, colours, their coordination and lighting if applicable.	<input type="checkbox"/>
D3.2		DS-41	All signage elements SHALL be durable, easily maintainable, and use a non-reflective matte finish.		Signage detail design: illustrating proposed designs, including types, sizes, materials, colours, their coordination and lighting if applicable.	<input type="checkbox"/>
D3.2		DS-42	Signage and wayfinding SHALL be suitable for daytime and night-time use and integrated with lighting in areas of high night-time use.		Signage detail design: illustrating proposed designs, including types, sizes, materials, colours, their coordination and lighting if applicable.	<input type="checkbox"/>

Safety/Security						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2			POS design SHALL ensure a high level of safety and security for users, employing the principles and regulations of the Abu Dhabi Safety and Security Planning Manual (SSPM) to achieve Crime Prevention Through Environmental Design (CPTED) and other applicable security risks, and UAE Fire and Safety Code of Practice.		General layout plan/s: demonstrating compliance with safety and security standards.	<input type="checkbox"/>
D3.2			Security lighting with motion sensors SHALL be used.		Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.2			All hazardous materials SHALL be avoided.		Parking Layout Plan/s (above): demonstrating visual impact considerations and clear, level access to primary entrances.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2			Parking SHALL be sufficiently set-back from high profile buildings and structures to minimise visual impact.		Parking Layout Plan/s: outlining all proposed parking locations and their relation to high profile buildings and open space locations.	<input type="checkbox"/>
D3.2			Parking SHALL be organised to minimise visual impact on the POS and provide a clear, level route between streets and primary entrances.		Parking Layout Plan/s (above): demonstrating visual impact considerations and clear, level access to primary entrances.	<input type="checkbox"/>
D3.2			Cycle parking and other end-of-ride facilities for cyclists SHALL be provided as per DMT Walking and Cycling Masterplan (WCMP).		Layout Plan outlining all proposed parking and facilities locations and schedule of parking provision in accordance with DMT requirements.	<input type="checkbox"/>



1

1: Park at Mariah Island, Abu Dhabi City, UAE

Design Stage Emirate-Hierarchy Standards for POS

A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1	la	DS-49	A primary pathway SHALL be provided with a minimum width of 4.5m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>

Softscape						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1	la	DS-50	The softscape SHALL reflect and strengthen the native landscape of the area.		Planting plan: outlining planting proposals based on local natural context, including matrix of irrigation demands.	<input type="checkbox"/>
D3.2.1	la	DS-51	Locally occurring, drought tolerant plant materials SHALL be used at natural densities.		Planting plan: outlining planting proposals based on local natural context, including matrix of irrigation demands.	<input type="checkbox"/>
D3.2.1	la	DS-52	Natural turf or areas of open grass SHALL be avoided.		General layout plan: outlining surface treatment which reflects the local context.	<input type="checkbox"/>
D3.2.1	la	DS-53	The natural ecosystem SHALL be allowed to be self-maintaining to the greatest extent possible.		Planting plan: outlining planting proposals based on local natural context, including guidance for future maintenance.	<input type="checkbox"/>

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1	la	DS-54	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 40 linear metres of primary pathway; 1 seating area per 80 linear metres of secondary pathway. 		Layout plan illustrating location and size of seating areas and schedule of calculations. Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/> <input type="checkbox"/>
D3.2.1	la	DS-55	The total picnic table requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 picnic table per 80 linear metres of secondary pathway. 		Layout plan illustrating location and number of picnic areas and schedule of calculations. Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/> <input type="checkbox"/>

Lighting



Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1	ee	DS-56	Lighting SHALL be appropriately and sensitively designed, selected and located to preserve the natural environment.		Lighting plan: outlining the location, distance, and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>

Fences/Walls/Screens

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1	la	DS-57	The use of continuous perimeter fencing SHALL be avoided unless carefully considered and justified.		Layout plan indicating fencing location, material and height.	<input type="checkbox"/>
					Section indicating height, width and materials employed.	<input type="checkbox"/>
					Written statement outlining justification for the inclusion of fencing.	<input type="checkbox"/>

Signage / Wayfinding

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1	la	DS-58	Interpretative displays SHALL be provided at entrances, along pathways, at gathering areas and unique features.		General layout plan: outlining size and location of proposed interpretative displays and an outline of displays' content.	<input type="checkbox"/>
D3.2.1	la	DS-59	An identification sign to a maximum size of 5m ² with appropriate mapping SHALL be provided at primary entrances.		General layout plan: outlining size and location of proposed signage and wayfinding elements.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.1			Parking areas SHALL be provided in accordance with DMT standards to satisfy the estimated average daily users number.		Written and illustrated document demonstrating how the need and provision of parking has been calculated.	<input type="checkbox"/>



1

1: Mangrove ecosystem, Abu Dhabi City, UAE

Design Stage Municipality-Hierarchy for POS

A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	la	DS-62	A primary pathway SHALL be provided with a minimum width of 5m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>
D3.2.2	la	DS-63	A secondary pathway SHALL be provided with a minimum width of 3.5m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>

Softscape						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	la	DS-64	Limited natural turf SHALL be provided in passive recreation areas.		Planting plan: outlining areas of natural turf.	<input type="checkbox"/>

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	la	DS-65	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 30 linear metres of primary pathway; 1 seating area per 60 linear metres of secondary pathway. 		Layout plan illustrating location and size of seating areas and schedule of calculations.	<input type="checkbox"/>
					Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>
D3.2.2	la	DS-66	The total picnic table requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 picnic table per 60 linear metres of secondary pathway. 		Layout plan illustrating location and number of picnic areas and schedule of calculations.	<input type="checkbox"/>
					Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>

Lighting

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	ee	DS-67	The primary pathways and accessible perimeter edges SHALL be illuminated.		Lighting plan: outlining how different elements within the site will be illuminated including the location, distance, and size of light standards and other elements, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>
D3.2.2	la	DS-68	All pedestrian lighting SHALL be human scaled.		Details of lighting elements to be used indicating size and their relation to surrounding elements.	<input type="checkbox"/>
D3.2.2	ee	DS-69	Sport facilities SHALL be illuminated as appropriate.		Lighting plans for sport facilities demonstrating appropriate illumination for the intended sport activity and associated facilities as well as any spectators areas.	<input type="checkbox"/>

Fences/Walls/Screens

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	la	DS-70	The use of continuous perimeter fencing SHALL be avoided unless carefully considered and justified.		Layout plan indicating fencing location, material and height.	<input type="checkbox"/>
					Section indicating height, width and materials employed.	<input type="checkbox"/>
					Written statement outlining justification for the inclusion of fencing.	<input type="checkbox"/>

Signage / Wayfinding

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	la	DS-71	An identification sign to a maximum size of 3m ² with appropriate mapping SHALL be provided at primary entrances.		General layout plan: outlining size and location of proposed signage and wayfinding elements.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	p	DS-72	Parking areas SHALL be provided in accordance with DMT standards to satisfy the estimated average daily users number.		Written and illustrated document demonstrating how the need and provision of parking has been calculated.	<input type="checkbox"/>
D3.2.2	p	DS-73	Parking provisions SHALL consist of shared off-site parking or underground parking if provided on-site.		Detail design of parking stalls, including 3D visuals and materials/ colours palette.	<input type="checkbox"/>

Special Features						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.2	a	DS-74	Structures SHALL be designed to reflect the character of the overall POS.		Elevations showing structures size and design, illustrating how they relate to the context of the landscape, open space or surrounding area.	<input type="checkbox"/>
D3.2.2	a	DS-75	Structures SHALL reflect the size and uses of the POS.		General layout plan: outlining size and location of proposed structures, demonstrating how they relate to the open space.	<input type="checkbox"/>
D3.2.2	a	DS-76	Play areas with a range of play structures SHALL be provided, suitable for all ages and abilities.		Play area detail plan outlining play facilities, play equipment images and indicating age and abilities for which they are suitable.	<input type="checkbox"/>
D3.2.2	a	DS-77	Public bathrooms SHALL be provided as 1 facility every 500m and, based on expected visitors number, will include: <ul style="list-style-type: none"> • 1 per 550 women; • 1 per 1100 men; • 1 baby changing room; • 1 disabled toilet. 		Calculations of public bathroom facilities requirements based on expected visitors number.	<input type="checkbox"/>
					General layout plan outlining size and location of proposed facilities and internal layout demonstrating compliance with required numbers.	<input type="checkbox"/>



1

1: Jahli Park, Al Ain City, UAE

Design Stage District-Hierarchy Standards for POS

A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	la	DS-78	A primary pathway SHALL be provided with a minimum width of 4m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>
D3.2.3	la	DS-79	A secondary pathway SHALL be provided with a minimum width of 3m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	la	DS-80	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 20 linear metres of primary pathway; 1 seating area per 40 linear metres of secondary pathway. 		Layout plan illustrating location and size of seating areas and schedule of calculations.	<input type="checkbox"/>
					Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>
D3.2.3	la	DS-81	The total picnic table requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 picnic table per 60 linear metres of secondary pathway. 		Layout plan illustrating location and number of picnic areas and schedule of calculations.	<input type="checkbox"/>
					Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>

Lighting

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	ee	DS-82	The primary pathways and accessible perimeter edges SHALL be illuminated.		Lighting plan: outlining how different elements within the site will be illuminated including the location, distance, and size of light standards and other elements, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>
D3.2.3	la	DS-83	All pedestrian lighting SHALL be human scaled.		Details of lighting elements to be used indicating size and their relation to surrounding elements.	<input type="checkbox"/>
D3.2.3	ee	DS-84	Sport facilities SHALL be illuminated as appropriate.		Lighting plans for sport facilities demonstrating appropriate illumination for the intended sport activity and associated facilities as well as any spectators areas.	<input type="checkbox"/>

Fences / Walls / Screens

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	la	DS-85	The use of continuous perimeter fencing SHALL be carefully considered and justified.		Layout plan indicating fencing location, material and height.	<input type="checkbox"/>
					Section indicating height, width and materials employed.	<input type="checkbox"/>
					Written statement outlining justification for the inclusion of fencing.	<input type="checkbox"/>

Signage / Wayfinding

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	la	DS-86	An identification sign to a maximum size of 3m ² with appropriate mapping SHALL be provided at primary entrances.		General layout plan: outlining size and location of proposed signage and wayfinding elements.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	p	DS-87	Parking areas SHALL be provided in accordance with DMT standards, to satisfy the estimated average daily users number.		Written and illustrated document demonstrating how the need and provision of parking has been calculated.	<input type="checkbox"/>
D3.2.3	p	DS-88	Parking provisions SHALL consist of shared off-site parking or underground parking if provided on-site.		Detail design of parking stalls, including 3D visuals and materials/ colours palette.	<input type="checkbox"/>

Special Features						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.3	a	DS-89	Structures SHALL be designed to reflect the character of the surrounding area.		Elevations showing buildings size and design, illustrating how they relate to the context of the landscape, open space or surrounding area.	<input type="checkbox"/>
D3.2.3	a	DS-90	Structures SHALL reflect the size and uses of the POS.		General layout plan: outlining size and location of proposed buildings, demonstrating how they relate to the open space.	<input type="checkbox"/>
D3.2.3	la	DS-91	Play areas with a range of play structures SHALL be provided, suitable for all ages and abilities.		Play area detail plan outlining play facilities, including play equipment images and indicating age and abilities for which they are suitable.	<input type="checkbox"/>
D3.2.3	a	DS-92	Public bathrooms SHALL be provided as 1 facility every 500m and, based on expected visitors number, will include: <ul style="list-style-type: none"> • 1 per 550 women; • 1 per 1100 men; • 1 baby changing room; • 1 disabled toilet. 		Calculations of public bathroom facilities requirements based on expected visitors number.	<input type="checkbox"/>
					General layout plan outlining size and location of proposed facilities and internal layout demonstrating compliance with required numbers.	<input type="checkbox"/>



1

1: Play area, Abu Dhabi City, UAE

Design Stage Neighbourhood-Hierarchy Standards for POS

 A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.4	la	DS-93	Open and contiguous frontages SHALL be provided on a minimum of 1 adjacent street or sikkak.		General layout plan: indicating interface with surrounding streets or sikkak.	<input type="checkbox"/>
D3.2.4	la	DS-94	A primary pathway SHALL be provided with a minimum width of 2.5m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>
D3.2.4	la	DS-95	A secondary pathway SHALL be provided with a minimum width of 1.8m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.4	la	DS-96	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> • 1 seating area per 20 linear metres of primary pathway; • 1 seating area per 40 linear metres of secondary pathway. 		Layout plan illustrating location and size of seating areas and schedule of calculations. Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/> <input type="checkbox"/>
D3.2.4	la	DS-97	The total picnic table requirements SHALL be calculated based on: <ul style="list-style-type: none"> • 1 picnic table per 40 linear metres of secondary pathway. 		Layout plan illustrating location and number of picnic areas and schedule of calculations. Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/> <input type="checkbox"/>

Lighting

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.4	ee	DS-98	The primary pathways and accessible perimeter edges SHALL be illuminated.		Lighting plan: outlining how different elements within the site will be illuminated including the location, distance, and size of light standards and other elements, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>

Special Features

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.4	la	DS-99	Play structures SHALL be provided that accommodate a range of appropriate ages and abilities.		Play area detail plan outlining play facilities, including play equipment images and indicating age and abilities for which they are suitable.	<input type="checkbox"/>

Design Stage Local-Hierarchy Standards for POS

A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.5	la	DS-100	Open and contiguous frontages SHALL be provided on a minimum of 1 adjacent street or sikkak.		General layout plan: indicating interface with surrounding streets or sikkak.	<input type="checkbox"/>
D3.2.5	la	DS-101	A primary pathway SHALL be provided with a minimum width of 2m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>

Lighting						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.5	ee	DS-102	The primary pathways SHALL be illuminated.		Lighting plan: outlining how different elements within the site will be illuminated including the location, distance, and size of light standards and other elements, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.2.5	p	DS-103	If located within a fareej, parking SHALL NOT be allowed.		General layout plan: indicating parking location in relation to fareej.	<input type="checkbox"/>



1



1: Primary pathway, Al Ain City, UAE

Design Stage Universal Standards for Streetscape


A2
DS






Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3	ρ	DS-104	Access for emergency vehicles SHALL be ensured.		Streetscapes layout plan/s: indicating access and routes suitable for Emergency Vehicles.	<input type="checkbox"/>
D3.3.3	ρ	DS-105	Safe and direct access SHALL be provided for pedestrian and cyclists.		Streetscapes layout plan/s (above): demonstrating clear pedestrian and cyclists through-zone.	<input type="checkbox"/>
D3.3.3	ρ	DS-106	A clear pedestrian ‘through zone’ SHALL be provided in line with USDM standards, which is clear of all obstructions including furniture, trees and vehicle overhang.		Streetscapes layout plan/s (above): demonstrating clear pedestrian through-zone.	<input type="checkbox"/>
					Streetscapes sections: outlining pedestrian ‘through zone’ and its relationship to other streetscape elements (furniture, planting etc).	<input type="checkbox"/>
D3.3.3	ρ	DS-107	Cycling provision and facilities SHALL be accommodated within streetscapes according to USDM and DMT’s Standards and Abu Dhabi Walking and Cycling Master Plan guidelines.		Streetscapes layout plan/s (above): demonstrating cycling provision and facilities.	<input type="checkbox"/>
					Streetscapes sections: outlining cycling provision and facilities and their relationship to other streetscape elements (furniture, planting etc).	<input type="checkbox"/>
D3.3.3	ρ	DS-108	Transit stops and facilities SHALL be accommodated within streetscape according to the DMT requirements.		Streetscapes layout plan/s (above): demonstrating transit stops and facilities layout in accordance with DMT requirements.	<input type="checkbox"/>
D3.3.3	ρ	DS-109	Taxi lay-by for drop-off and pick-up and associated facilities SHALL be accommodated within streetscape according to the DMT requirements.		Streetscapes layout plan/s (above): demonstrating transit stops and facilities layout in accordance with DMT requirements.	<input type="checkbox"/>
D3.3.3	ρ	DS-110	Streetscapes SHALL be designed to conform to Universal Access Standards in accordance with DMT’s Transportation Accessibility Standards.		Streetscapes layout plan/s and Detail plans demonstrating conformity with DMT’s Access Standards.	<input type="checkbox"/>
D3.3.3	ρ	DS-111	Safe pedestrian crossings with appropriate surface markings or variation in materials SHALL be provided linking key routes to the POS.		Streetscapes layout plan/s (above): outlining pedestrian crossings.	<input type="checkbox"/>
					Detail design of crossing points and illustration of markings/ materials.	
D3.3.3	la	DS-112	Kerbs height SHALL be in accordance with USDM guidelines.		Parking Layout Plan/s: outlining all proposed parking provisions within the road corridor, in accordance to guidelines.	<input type="checkbox"/>
D3.3.3	ρ	DS-113	A continuous sidewalk SHALL be provided with direct connections between destinations to form an unbroken and coordinated pedestrian network.		Parking Layout Plan/s: outlining all proposed parking provisions within the road corridor, in accordance to guidelines.	<input type="checkbox"/>

Shading








Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3		DS-114	Shading SHALL be provided to car parking, walkways, cycle tracks and parking, transit stops, play, seating and gathering areas.	LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3		DS-115	The design and location of shade structures SHALL take into account prevailing winds, solar paths throughout the day, adjacent structures and landscaping.	LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>

Softscape



Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3	la	DS-116	The sustainable and appropriate plant materials for the site location SHALL be determined with reference to the PRDM plant list.		Planting plan indicating grassed and planted areas, demonstrating site-appropriate plant species and hydrozones, and including plant schedules outlining planting densities and irrigation requirements.	<input type="checkbox"/>
D3.3.3		DS-117	Water usage for the streetscapes SHALL NOT exceed 2 l/m ² a day.	PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3	la	DS-118	The use of natural turf in medians SHALL be avoided.		Planting plan (above) indicating areas of natural turf.	<input type="checkbox"/>
D3.3.3	la	DS-119	Existing trees SHALL be preserved wherever possible, as mature street trees create a greater sense of enclosure along roads.		Planting plan (above) indicating existing trees to be retained.	<input type="checkbox"/>
D3.3.3	la	DS-120	Large canopy trees SHALL be used to define circulation routes and activity spaces.		Planting plan (above) indicating existing trees to be retained.	<input type="checkbox"/>
D3.3.3	la	DS-121	Natural turf SHALL be used sparingly within the streetscapes.		Planting plan (above) indicating limited areas of natural turf.	<input type="checkbox"/>

Hardscape						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3		DS-122	Materials SHALL be high quality, robust, able to withstand impact, harsh environments and vandalism, and be consistent throughout the pedestrian way.		Hardscape plan/s: indicating all hardscape materials, including images, dimensions, characteristics and suppliers.	<input type="checkbox"/>
				SM-R4	Submissions requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3		DS-123	Modular paving materials SHALL be used in pedestrian areas to minimise waste due to maintenance operations.	SM-R4	Submissions requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3		DS-124	All pedestrian areas SHALL be constructed of light coloured paving materials in order to minimise heat build up. Care should be taken that this does not create high-glare surfaces.	LS-R1	Submissions requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3		DS-125	All water features SHALL be surrounded with slip-resistant materials.	SM-R4	Submissions requirements outlined within PRRS.	<input type="checkbox"/>



Furniture


Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3		DS-126	Street furnishings SHALL be grouped in a linear zone that does not obstruct pedestrian circulation on sidewalks, vehicular access, parking, loading and service areas.		General layout plan/s: showing location of street furnishing and their relationship to site circulation.	<input type="checkbox"/>
					Street sections: showing location of street furnishing and their relationship to site circulation.	<input type="checkbox"/>
D3.3.3		DS-127	Streetscape furniture SHALL employ high quality design and materials, in order to withstand climatic conditions, heavy use and vandalism.		Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>
					SM-R4	Submission requirements outlined within PRRS.
D3.3.3		DS-128	Coordinated furniture designs SHALL be used, that are contemporary, simple and appropriate to context.		Mood board illustrating proposed furniture, materials and colours.	<input type="checkbox"/>
D3.3.3		DS-129	A clear edge zone adjacent to the kerb SHALL be created, to allow for maintenance access and vehicle overrun.		Furniture plan/s (above): indicating a clear edge zone adjacent to the kerb.	<input type="checkbox"/>
					Streetscape sections: indicating a clear edge zone adjacent to the kerb.	<input type="checkbox"/>
D3.3.3		DS-130	Refuse and recycling containers SHALL be provided in areas of high demand such as transit stops, plazas and shopping areas.		Furniture plan/s (above): showing location of refuse and recycling containers.	<input type="checkbox"/>
					SM-R3	Submission requirements outlined within PRRS.




Public Art						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3	la	DS-131	The provision of public art SHALL reflect guidance from the Public Art Design Element.		Written document outlining any proposed Public Art, its typology, and rationale.	<input type="checkbox"/>
D3.3.3	la	DS-132	Public art SHALL be used to enhance the streetscape design in strategic positions, such as focal points, gateways and gathering areas.		General layout plan, indicating proposed Public Art elements and their location.	<input type="checkbox"/>

Water Usage						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3		DS-133	A detailed water efficiency strategy SHALL be developed, detailing water features and irrigation requirements to outline how water will be utilised across the site.	PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3	la	DS-134	The provision of water features SHALL reflect guidance from the Water Features Design Element.		Written document outlining any proposed Water Features, their typology, and justification.	<input type="checkbox"/>
D3.3.3	la	DS-135	Water features SHALL be employed sparingly and judiciously, and located near areas of high activity and use.		General layout plan, indicating proposed Water Features and their location.	<input type="checkbox"/>
				PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
				PW-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3	la	DS-136	Stormwater management measures SHALL be incorporated within site design.	PW-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>







Lighting

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3	ee	DS-137	Lighting along streetscapes SHALL be designed to: provide adequate illumination to the through zone, reduce glare into adjacent properties, minimise light pollution and impact on adjacent areas.		Lighting plan: outlining the location, distance and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>
				LS-R4	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3	ee	DS-138	Street lights and other lighting elements SHALL be coordinated and located at the edge of the pedestrian walking zone in a way that does not obstruct circulation on sidewalks, vehicular access, parking, loading and service areas.		Lighting plan (above).	<input type="checkbox"/>
D3.3.3		DS-139	All lighting in the public realm SHALL meet the lighting requirements as stated in the DMT 'Lighting Standards'.	RE-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.3.3	ee	DS-140	Lighting SHALL be used to clearly illuminate threads, risers and any other level differences along the through zone.		Lighting plan (above).	<input type="checkbox"/>
D3.3.3	ee	DS-141	Lighting columns and trees SHALL be spaced to maintain adequate lighting levels on the travel lanes, pedestrian realm and crossing locations.		Lighting plan (above).	<input type="checkbox"/>



Fences/Walls/Screens							
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance	
D3.3.3		DS-142	If used near intersections, fences/walls/screens SHALL be located to retain sightlines.		Layout plan, indicating location of walls, including height, materials and sight lines.	<input type="checkbox"/>	









Services/Infrastructure							
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance	
D3.3.3		DS-143	Feeder pillars and utility cabinets SHALL be securely located outside of the pedestrian and cyclist travel zone and shall not be directly accessible by the public. If a secure placement can not be achieved, these SHALL be replaced with underground units.		Utilities plan/s: outlining location of all feeder pillars and utility cabinets and underground units in relation to pedestrian and cyclists travel zones and location/treatment of maintenance facilities.	<input type="checkbox"/>	
D3.3.3		DS-144	Energy and water metering and monitoring equipment SHALL be installed.	PW-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>	
				RE-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>	
D3.3.3		DS-145	Commissioning of services and infrastructure SHALL be considered throughout the design process.	IDP-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>	

Signage / Wayfinding

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3		DS-146	Signage SHALL be well placed and integrated into the streetscape environment, in order to retain sightlines and maintain pedestrian or cyclists through zones.		Signage plan: outlining location and hierarchy of signage and wayfinding elements in relation to sightlines and through zones.	<input type="checkbox"/>
D3.3.3		DS-147	A consistent hierarchy of signage and wayfinding elements SHALL be provided, appropriate for the size of the road corridor.		Signage plan (above): outlining location and hierarchy of signage and wayfinding elements.	<input type="checkbox"/>
D3.3.3		DS-148	A unified visual language SHALL be used for all signage and wayfinding materials, colours, scales and types.		Signage detail design: illustrating proposed designs, including types, sizes, materials, colours, their coordination and lighting if applicable.	<input type="checkbox"/>
D3.3.3		DS-149	All signage elements SHALL be durable, easily maintainable, avoid deep colours and use a non-reflective matte finish.		Signage detail design (above): illustrating proposed designs, including types, sizes, materials, colours, their coordination and lighting if applicable.	<input type="checkbox"/>
D3.3.3		DS-150	Signage and wayfinding SHALL be suitable for daytime and night-time use and integrated with lighting in areas of high night-time use.		Signage detail design: illustrating proposed designs, including types, sizes, materials, colours, their coordination and lighting if applicable.	<input type="checkbox"/>
D3.3.3		DS-151	Street names SHALL be located on all corners, perpendicular to the path of travel.		Signage plan (above): outlining location for street names.	<input type="checkbox"/>

Safety / Security

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3		DS-152	Streetscape design SHALL ensure a high level of safety and security for users, employing the principles of the Safety & Security Planning Manual (SSPM).		General layout plan/s: demonstrating compliance with safety and security standards.	<input type="checkbox"/>
D3.3.3		DS-153	All hazardous materials SHALL be avoided.	SM-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.3			Appropriate parking provisions SHALL be included within the road corridor, in accordance with USDM and DMT guidelines.		Parking Layout Plan/s: outlining all proposed parking provisions within the road corridor, in accordance to guidelines.	<input type="checkbox"/>
D3.3.3			Parking SHALL be sufficiently set-back from high profile buildings and structures to minimise visual impact.		Parking Layout Plan/s: outlining all proposed parking locations and their relationship to high profile buildings and structures.	
D3.3.3			An accessible route SHALL be provided from designated disabled access parking stalls to all accessible entrances.		Streetscapes layout plan/s and detail plans demonstrating accessible routes from disabled access parking stalls to accessible entrances.	
D3.3.3			Cycle parking and other end-of-ride facilities for cyclists SHALL be provided as per DMT WCMP.		General Layout Plan/s: outlining all proposed end-of-ride facilities for cyclists, in accordance with guidelines.	



1

1: Street side parking, Abu Dhabi

Design Stage Boulevard-Hierarchy Standards for Streetscape

A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.4	la	DS-158	Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for cyclists and pedestrians.		General layout plan: outlining layout, width (clear of all obstructions) of all pathways and their connections to facilities.	<input type="checkbox"/>

Softscape						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.4	la	DS-159	Softscape SHALL be designed and maintained to preserve and enhance views.		Planting plan: indicating all planting along the streetscapes and proposed future maintenance if needed to retain views.	<input type="checkbox"/>

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.4	la	DS-160	Refuse and recycling containers SHALL be provided at street intersections, transit stops and gathering areas.		Furniture plan: indicating location, arrangement, type and style of all furniture elements.	<input type="checkbox"/>
D3.3.4	la	DS-161	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 100 linear metres of primary pathway. 		Plan showing location of seating areas and calculation to demonstrate compliance with standard.	<input type="checkbox"/>

Lighting						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.4	ee	DS-162	Security lighting SHALL be provided at destinations and transit stops.		Lighting plan: outlining the location, distance and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>

Design Stage Avenue-Hierarchy Standards for Streetscape

Movement and Access

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.5	la	DS-163	Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for cyclists and pedestrians.		General layout plan: outlining layout, width (clear of all obstructions) of all pathways and their connections to facilities.	<input type="checkbox"/>

Softscape

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.5	la	DS-164	Softscape SHALL be designed and maintained to preserve and enhance views.		Planting plan: indicating all planting along the streetscapes and proposed future maintenance if needed to retain views.	<input type="checkbox"/>

Furniture

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.5	la	DS-165	Refuse and recycling containers SHALL be provided at street intersections, transit stops and gathering areas.		Furniture plan: indicating location, arrangement, type and style of all furniture elements.	<input type="checkbox"/>
D3.3.5	la	DS-166	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 100 linear metres of primary pathway. 		Plan showing location of seating areas and calculation to demonstrate compliance with standard.	<input type="checkbox"/>

Lighting

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.5	ee	DS-167	Security lighting SHALL be provided at destinations and transit stops.		Lighting plan: outlining the location, distance and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>

Design Stage Street-Hierarchy Standards for Streetscape

A2
DS

Movement and Access						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.6	la	DS-168	Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for cyclists and pedestrians.		General layout plan: outlining layout, width (clear of all obstructions) of all pathways and their connections to facilities.	<input type="checkbox"/>

Softscape						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.6	la	DS-169	Softscape SHALL be designed and maintained to preserve and enhance views.		Planting plan: indicating all planting along the streetscapes and proposed future maintenance if needed to retain views.	<input type="checkbox"/>

Furniture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.6	la	DS-170	Refuse and recycling containers SHALL be provided at street intersections, transit stops and gathering areas.		Furniture plan: indicating location, arrangement, type and style of all furniture elements.	<input type="checkbox"/>
D3.3.6	la	DS-171	The total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 100 linear metres of primary pathway. 		Plan showing location of seating areas and calculation to demonstrate compliance with standard.	<input type="checkbox"/>

Lighting						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.6	ee	DS-172	Security lighting SHALL be provided at destinations and transit stops.		Lighting plan: outlining the location, distance and size of light standards and other lighting, illumination calculations, glare and light pollution reduction strategies and coordination of all lighting elements.	<input type="checkbox"/>

Design Stage Access Lane-Hierarchy Standards for Streetscape

Movement and Access

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.7	la	DS-173	Continuous and obstacle-free pathways SHALL be provided to allow for uninterrupted and safe travel for pedestrians.		General layout plan: outlining layout, width (clear of all obstructions) of all pathways and their connections to facilities.	<input type="checkbox"/>

Softscape

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.7	la	DS-174	In residential areas or wherever a wider width of pavement allows, appropriate planting SHALL be incorporated.		Planting plan indicating location, type and size of planting suitable for the space available.	<input type="checkbox"/>
D3.3.7	la	DS-175	Forward visibility SHALL be ensured through appropriate height and positioning of planting.		Planting plan: indicating all planting along the streetscapes and proposed future maintenance if needed to retain views.	<input type="checkbox"/>

Furniture

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.3.7	la	DS-176	Refuse and recycling containers SHALL be provided at street intersections and gathering areas.		Furniture plan: indicating location, arrangement, type and style of all furniture elements.	<input type="checkbox"/>




Design Elements' Standards for POS/Streetscape

 A2
DS






Ceremonial						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.1	p	GR-1	Ceremonial Public Open Space		Plan indicating location of Ceremonial Open Space/ Streetscape, its design, connections and context.	<input type="checkbox"/>
D3.4.1	p	GR-2	Ceremonial Streetscape		Sections.	<input type="checkbox"/>
					Narrative outlining the concepts for the Ceremonial Space, proposed uses, operation and programming etc.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.1	la	DES-1	For GR-1 only: A primary pathway with a minimum width of 6m SHALL be provided, designed as the processional route through the POS.		Layout plan, indicating primary and secondary routes through the POS and their respective widths.	<input type="checkbox"/>
D3.4.1	la	DES-2	For GR-1 only: An assembly space SHALL be provided, linked to a centralised processional route to accommodate ceremonial events.		Layout plan, indicating primary and secondary routes through the POS and linked assembly space.	<input type="checkbox"/>
D3.4.1	la	DES-3	Hardscape SHALL be designed to reflect the ceremonial function of the POS/Route.		Hardscape layout plans outlining formal design and dimensions appropriate to accommodate estimated amount of people/ infrastructure needed for ceremonial events.	<input type="checkbox"/>
D3.4.1	la	DES-4	High quality natural stone SHALL be used for hardscape.		Hard landscape plan indicating materials for all hard landscape area, stating size, colour, texture, layout pattern.	<input type="checkbox"/>
D3.4.1	la	DES-5	Total seating areas requirements SHALL be calculated based on: <ul style="list-style-type: none"> • 1 seating area per 20 linear metres of primary pathway. • 1 seating area per 40 linear metres of secondary pathway. 		Layout plan indicating number and location of seating areas.	<input type="checkbox"/>
D3.4.1	la	DES-6	Total picnic tables requirements SHALL be calculated based on: <ul style="list-style-type: none"> • 1 picnic table per 40 linear metres of secondary pathway. 		Layout plan indicating number and location of picnic tables.	<input type="checkbox"/>

Linear Spaces

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.2		GR-3	Extended Streetscapes		Plan indicating location of Linear Open Space, its design, connections and context.	<input type="checkbox"/>
D3.4.2		GR-4	Linear Public Open Spaces		Sections.	<input type="checkbox"/>
D3.4.2		GR-5	Transition to Buildings		Narrative outlining the concepts, proposed uses, programming etc.	<input type="checkbox"/>

Applicable Standards





Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.2		DES-7	For GR-3 only: Access to adjacent buildings SHALL be kept clear and emphasised where appropriate.		Layout plan illustrating location of buildings' access and specific landscape treatment if appropriate.	<input type="checkbox"/>
D3.4.2		DES-8	For GR-3 only: Planting within utilities corridors SHALL be carried out in accordance with the Utility Corridor Design Manual (UCDM) and use root barriers where appropriate.		Layout plan illustrating location of underground services and above/ below ground utilities boxes etc, access and screening needed and landscape treatment in accordance to guidelines.	<input type="checkbox"/>
D3.4.2		DES-9	For GR-4 only: Total seating area requirements SHALL be calculated based on: <ul style="list-style-type: none"> 1 seating area per 60 linear metres of primary pathway; 1 seating area per 80 linear metres of secondary pathway. 		Layout plan indicating number and location of seating areas.	<input type="checkbox"/>
D3.4.2		DES-10	For GR-4 only: Planting within utilities corridors SHALL be carried out in accordance with the Utilities Corridor Design Manual (UCDM) and use root barriers where appropriate.		Layout plan illustrating location of underground services and above/ below ground utilities boxes etc, access and screening needed and landscape treatment in accordance to guidelines.	<input type="checkbox"/>
D3.4.2		DES-11	For GR-5 only: Access to adjacent buildings SHALL be kept clear and emphasised where appropriate.		Layout plan illustrating location of buildings' access and specific landscape treatment if appropriate.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.2	la	DES-12	For GR-5 only: Continuity of movement and access SHALL be ensured.		Layout plan illustrating movement and access areas.	<input type="checkbox"/>
D3.4.2	la	DES-13	For GR-5 only: Kerb upstands height SHALL be in accordance with USDM standards.		Levels' plan illustrating finished ground levels for all areas, falls and cross-falls ratio. Detailed sections illustrating upstands height and cross-falls.	<input type="checkbox"/>
D3.4.2	la	DES-14	For GR-5 only: Kerb upstands height at transit stops SHALL be in accordance with USDM standards.		Levels' plan illustrating finished ground levels for all areas, falls and cross-falls ratio. Detailed sections illustrating upstands height and cross-falls.	<input type="checkbox"/>
D3.4.2	la	DES-15	For GR-5 only: If higher kerb upstands are required in retrofitting, careful consideration SHALL be given to people with mobility impairments.		Levels' plan illustrating finished ground levels for all areas, falls and cross-falls ratio. Detailed sections illustrating upstands height and cross-falls.	<input type="checkbox"/>
D3.4.2.	la	DES-16	For GR-5 only: The standard cross-fall for the sidewalk SHALL be up to and no steeper than 1:40 for new developments.		Levels' plan illustrating finished ground levels for all areas, falls and cross-falls ratio. Detailed sections illustrating upstands height and cross-falls.	<input type="checkbox"/>





Public Art						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.3	p	GR-6	Public Open Space - Public Art		Plan indicating location of all Public Art elements and their surroundings context and landscape treatment.	<input type="checkbox"/>
D3.4.3	p	GR-7	Streetscape - Public Art		Narrative outlining the concepts for the Public Art elements, their design, materials, colours etc.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.3	la	DES-17	For GR-6 only: Public Art SHALL be designed to ensure public safety.		General layout plan and construction details: demonstrating compliance with safety and security standards.	<input type="checkbox"/>
D3.4.3	la	DES-18	For GR-6 only: Public Art SHALL be designed to ensure public safety.		General layout plan and construction details: demonstrating compliance with safety and security standards.	<input type="checkbox"/>

Transit

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.4			Transit Corridors		Plan of Transit related POS/Streetscape, its design, connections and context.	<input type="checkbox"/>
D3.4.4			Transit Interchanges		Sections.	<input type="checkbox"/>
					Narrative outlining the concepts for the Transit Open Space/Streetscape, proposed treatments, operation and programming etc.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.4			The design of the streetscape and POS connected with transit hubs SHALL be considered in their entirety, to provide a uniform and coordinated landscape interface to all the transport facilities.		Layout plan illustrating coordinated landscape interface for all transport facilities within the interchange.	<input type="checkbox"/>
D3.4.4			Above-ground utility structures SHALL be located outside of movement areas.		Utilities infrastructure plan outlining position of all above-ground elements, their access areas and screening if appropriate.	<input type="checkbox"/>









Design Elements' Standards for POS

A2
DS



Conservation						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.5	p	GR-10	Conservation		Plan outlining design of Conservation POS, its context and connections.	<input type="checkbox"/>
					Narrative outlining the concepts for the Conservation POS, proposed uses, operation and programming etc.	<input type="checkbox"/>
					NS-R2	Submission requirements outlined within PRRS.

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.5	la	DES-21	Access SHALL NOT be allowed in areas of high environmental sensitivity.		Access and movement plan: illustrating areas of high environmental sensitivity's exclusion zone.	<input type="checkbox"/>
D3.4.5	la	DES-22	Vehicular access SHALL be restricted.		Access and movement plan: illustrating vehicular and pedestrian areas.	<input type="checkbox"/>
D3.4.5	la	DES-23	Softscape SHALL incorporate the native landscape of the conservation area.		Survey plan illustrating existing native landscape, its location and condition.	<input type="checkbox"/>
D3.4.5	la	DES-24	Softscape SHALL use locally occurring, drought tolerant plant materials at natural densities.		Planting plan, illustrating areas of existing/retained landscape and proposed planting species and their density.	<input type="checkbox"/>
D3.4.5	la	DES-25	The natural ecosystem SHALL be allowed to be self-maintaining to the greatest extent possible.		Proposed Management Plan for the area.	<input type="checkbox"/>
D3.4.5	la	DES-26	Natural turf or areas of open grass SHALL NOT be allowed.		Planting plan, illustrating areas of existing/retained landscape and proposed planting species and their density.	<input type="checkbox"/>
D3.4.5	la	DES-27	Buildings SHALL be located off-site and designed to reflect the unique character of the conservation area.		Layout Plan indicating buildings location.	<input type="checkbox"/>
					Mood Board outlining the character of the conservation area and how this is reflected in the design of the buildings.	<input type="checkbox"/>




Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.5			Only low-level lighting SHALL be used.		Lighting plan and visualisations illustrating areas/elements to be illuminated and the proposed lighting effects reflecting the character of the conservation area.	<input type="checkbox"/>
D3.4.5			A primary pathway with a maximum width of 2.5m SHALL be provided.		Layout plan indicating location and width of pathways.	<input type="checkbox"/>
D3.4.5			Total seating areas requirement SHALL be calculated based on: <ul style="list-style-type: none"> • 1 seating area per 40 linear metres of primary pathway; and • 1 seating area per 80 linear metres of secondary pathway. 		Layout plan indicating number and location of seating areas.	<input type="checkbox"/>
D3.4.5			Total picnic tables requirements SHALL be calculated based on: <ul style="list-style-type: none"> • 1 picnic table per 60 linear metres of secondary pathway. 		Layout plan indicating number and location of picnic tables.	<input type="checkbox"/>

Family/Community

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.6			Family / Community		Plan outlining design and appropriate features.	<input type="checkbox"/>
					Narrative outlining proposed activities and features, surrounding context and uses etc.	<input type="checkbox"/>

Food Growing

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.7			Food Growing		Submission requirements outlined within PRRS.	<input type="checkbox"/>

Heritage						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.8	p	GR-13	Heritage		Statement of Heritage Significance.	<input type="checkbox"/>
					Conservation Management Plan for the Heritage Asset.	<input type="checkbox"/>
					Plan outlining proposed design for the Heritage Open Space.	<input type="checkbox"/>
					Narrative including design response and proposed interpretation strategy.	<input type="checkbox"/>
				NS-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.8	la	DES-32	Vehicular access SHALL be restricted.		Access and movement plan: illustrating vehicular, pedestrian and parking areas.	<input type="checkbox"/>
D3.4.8	la	DES-33	Bollards or other design alternatives SHALL be provided at access points to prevent vehicle access.		Access and movement plan: illustrating location of bollards to restrict vehicular access.	<input type="checkbox"/>
D3.4.8	la	DES-34	A wayfinding map and interpretative displays SHALL be provided in staging area and along primary pathway.		Access and movement plan: illustrating location of wayfinding map and interpretative displays.	<input type="checkbox"/>
D3.4.8	la	DES-35	Parking SHALL be provided outside of the heritage site boundary.		Access and movement plan: illustrating vehicular, pedestrian and parking areas.	<input type="checkbox"/>
D3.4.8	la	DES-36	Softscape features SHALL be used to frame views and allow for optimum viewing.		Layout plan, illustrating areas of feature planting.	<input type="checkbox"/>

Oases Buffer

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.9	p	GR-14	Oases Buffer		Oases Management Plan if available.	<input type="checkbox"/>
					Plan outlining proposed design for the Oases Buffer Open Space.	<input type="checkbox"/>
					Narrative including design response to Oases character and proposed interpretation strategy.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.9	la	DES-37	Walls SHALL be replaced or repaired using materials and design consistent with original oases walls.		Walls' survey report, illustrating areas of repair needed and proposed materials for repair.	<input type="checkbox"/>

Parking						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.10	p	GR-15	Parking		Plan of parking areas, including design, connections and context. Illustrating areas of hard and soft landscape.	<input type="checkbox"/>
					Planting Plan illustrating location and type and size of planting used.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.10	la	DES-38	Parking areas SHALL be designed to provide efficient, safe, attractive parking areas for shared use.		Parking Area Plan: illustrating vehicular and pedestrian/cycle access and movement, parking provisions, separation, planting and screening as appropriate.	<input type="checkbox"/>
					Hard landscape details, illustrating finished levels, materials and stormwater management proposals.	<input type="checkbox"/>
D3.4.10	ee	DES-39	All parking spaces and circulation routes SHALL be well-lit.		Lighting plan and details of lighting elements used.	<input type="checkbox"/>
D3.4.10	ee	DES-40	Light SHALL be directed downwards and avoid light overspill on adjacent properties, streets and POS.		Lighting plan and details of lighting elements used.	<input type="checkbox"/>

Play

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.11	la	GR-16	Play		Population demand-based assessment to guide the provision of facilities.	<input type="checkbox"/>
					Plan outlining proposed design for the Play Space.	<input type="checkbox"/>
					Narrative outlining the concepts for the Play Space.	<input type="checkbox"/>
					Mood board of Play Equipment and Surfacing.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.11	la	DES-41	The Draft Abu Dhabi Sport Council's (ADSC) Sport Master Plan SHALL be referred to for detailed guidance on demand-based play provision.		Population demand-based assessment to guide the provision of facilities.	<input type="checkbox"/>
D3.4.11	la	DES-42	Equipped play areas SHALL be provided with 90% shade.		Shading Plan: illustrating location and type of shade provided.	<input type="checkbox"/>
				LS-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
D3.4.11	la	DES-43	Lighting to play areas SHALL be provided in accordance with DMT's Lighting Standards.		Lighting Plan: illustrating type of illumination to be provided, in accordance with standards.	<input type="checkbox"/>
D3.4.11	la	DES-44	Provision of facilities for accompanying adult SHALL include a minimum of: <ul style="list-style-type: none"> 1 shaded seating per 20m² of play area; and 1 picnic table for 40m² of play area. 		Layout plan indicating location of shaded seating and picnic tables associated with play facilities.	<input type="checkbox"/>

Regional Culture						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.12	p	GR-17	Baraha		Plan indicating location of Regional Culture POS, its design, connections, context and specific features.	<input type="checkbox"/>
D3.4.12	p	GR-18	Meyadeen		Sections.	<input type="checkbox"/>
D3.4.12	p	GR-19	Souq			

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.12	la	DES-45	For GR-17 only: Parking SHALL NOT be allowed adjacent to a Baraha.		Pedestrian Access and Parking Plan: illustrating location of parking provisions outside of pedestrian-only areas.	<input type="checkbox"/>
D3.4.12	la	DES-46	For GR-18 only: Parking SHALL NOT be allowed adjacent to a Meydan.		Pedestrian Access and Parking Plan: illustrating location of parking provisions outside of pedestrian-only areas.	<input type="checkbox"/>
D3.4.12	la	DES-47	For GR-19 only: Vehicle restrictions SHALL apply to the Souq during public opening hours. Appropriate times for goods delivery and loading by vehicles SHALL be established.		External and internal movement plan for all areas of the Souq, outlining hours of operation and vehicles access.	<input type="checkbox"/>
D3.4.12	la	DES-48	For GR-19 only: The Souq SHALL include continuous and obstacle-free through-zones to allow for safe, uninterrupted movement.		External and Internal movement plan for all areas of the Souq, illustrating width of obstacle-free through zones.	<input type="checkbox"/>

Religious

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.13	p	GR-20	Religious		Narrative outlining the concepts for the POS, proposed uses, operation and programming related to specific religious use.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.13	a	DES-49	Lighting used SHALL be appropriate to the character of the Mosque.		Lighting plan and visualisations illustrating areas/ elements to be illuminated and the proposed lighting effects reflecting the character of the Mosque.	<input type="checkbox"/>
D3.4.13	a	DES-50	All requirements of the Abu Dhabi Mosque Development Regulations (MDR) SHALL be complied with.		Plan and narrative outlining specific MDR requirements and how these have been incorporated in the design.	<input type="checkbox"/>



1: Grand Mosque, Abu Dhabi City, UAE

1

Sport						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.14	ρ	GR-21	Sport		Population demand-based assessment to guide the provision of facilities.	<input type="checkbox"/>
					Plan outlining proposed design for the Sport facilities and its surroundings.	<input type="checkbox"/>
					Narrative outlining the concepts for the Sport POS.	<input type="checkbox"/>
					Mood board of Sport Equipment and Surfacing.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.14	la	DES-51	The Draft Abu Dhabi Sport Council's (ADSC) Sport Master Plan SHALL be referred to for detailed guidance on demand-based sport provision.		Population demand-based assessment based on ADSC's guidance.	<input type="checkbox"/>
D3.4.14	la	DES-52	International best practice for design of sports facilities SHALL be followed.		Detail design for sport facilities referencing International best practice.	<input type="checkbox"/>
D3.4.14	la	DES-53	Pitches SHALL be oriented to avoid low sun angles.		Layout plan illustrating sport pitches's and courts orientation.	<input type="checkbox"/>
D3.4.14	la	DES-54	Chain-link or other appropriate fencing SHALL be provided to enclose sport pitches, with a minimum height of 1.2m to a maximum height of 3m.		Layout plan illustrating sport pitches's fencing enclosure location and height.	<input type="checkbox"/>
D3.4.14	la	DES-55	Drinking water fountains SHALL be provided in close proximity to sport facilities.		Layout plan illustrating location of drinking water fountains.	<input type="checkbox"/>
D3.4.14	la	DES-56	Sport's lighting to suit specific sports SHALL be provided in accordance with DMT's Lighting Standards.		Lighting Plan: illustrating type of illumination to be provided, in accordance with standards.	<input type="checkbox"/>
D3.4.14	la	DES-57	Lighting along the primary pathway SHALL be provided in accordance with DMT's Lighting Standards.		Lighting Plan: illustrating type of illumination to be provided, in accordance with standards.	<input type="checkbox"/>

Urban Spaces

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.15		GR-22	Urban Spaces		Plan indicating location of Urban Space, its design, and connections.	<input type="checkbox"/>
					Sections.	<input type="checkbox"/>
					Narrative outlining the concepts, proposed uses, programming etc.	<input type="checkbox"/>

Water Features

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.16		GR-23	Water Features		Plan indicating location of Urban Space, its design, and context.	<input type="checkbox"/>
					Sections.	<input type="checkbox"/>
					Narrative outlining the concepts, proposed uses, programming etc.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.16		DES-58	Water features SHALL be employed sparingly and judiciously, and located near areas of high activity and use.		Plans and narrative as above.	<input type="checkbox"/>
D3.4.16		DES-59	Public water features creating a 'ponding' effect SHALL not exceed 300mm of water depth.		Sections through the water feature illustrating depth of water and its relation to surrounding topography.	<input type="checkbox"/>

Waterfront						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.17	p	GR-24	Natural Waterfronts		Plan outlining proposed design for the Waterfront facilities and its surroundings.	<input type="checkbox"/>
D3.4.17	p	GR-25	Preservation Areas		Narrative outlining the concepts for the Waterfront Space,	<input type="checkbox"/>
D3.4.17	p	GR-26	Recreation Areas		Sections.	<input type="checkbox"/>
D3.4.17	p	GR-27	Urban Waterfront Areas			

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.17	p	DES-60	Continuous access to the waterfront SHALL be provided.		Layout plan, demonstrating continuous access to the waterfront.	<input type="checkbox"/>
D3.4.17	la	DES-61	Physical and visual connectivity to the waterfront from surrounding areas SHALL be maintained and enhanced.		Layout plan, illustrating views and physical connections to the waterfront from the surrounding areas.	<input type="checkbox"/>
D3.4.17	la	DES-62	Access points SHALL be utilised to frame waterfront views.		Layout plan, illustrating access point treatment to emphasise views.	<input type="checkbox"/>
D3.4.17	la	DES-63	The minimum width of waterfront area SHALL be designed to be at least 12m from the highest observable tide line to the kerb-line of the street.		Layout plan, annotated with measurements and high-low tide level marks.	<input type="checkbox"/>
					Sections illustrating changes to the waterfront width at high and low tide, ensuring a minimum of 12m at all times.	<input type="checkbox"/>
D3.4.17	la	DES-64	All furniture SHALL be oriented to the water's edge.		Layout plan, illustrating position and orientation of furniture.	<input type="checkbox"/>
D3.4.17	la	DES-65	Parking lots, storage areas and similar uses SHALL be located away from the waterfront's edge and in unobtrusive locations.		Layout plan, illustrating position of all utilitarian uses that might detract from visual amenity of the waterfront.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.17	la	DES-66	In designing lighting levels and colours, the overall effect on patterns, repetition, focal points and rhythm within the panorama of the waterfront SHALL be considered.		Lighting plan and visualisations illustrating the overall effect of lighting on the panorama of the waterfront.	<input type="checkbox"/>
D3.4.17	la	DES-67	Use of red and green lighting SHALL be carefully considered to avoid causing potential navigation hazard.		Lighting plan and visualisations illustrating the overall effect of lighting on the panorama of the waterfront.	<input type="checkbox"/>
D3.4.17	la	DES-68	Feeder pillars and utility cabinets SHALL be placed in underground chambers wherever possible.		Utilities layout plan including locations and depth of all underground utilities and associated infrastructure such as underground chambers.	<input type="checkbox"/>
D3.4.17	la	DES-69	For GR-24 only: Access to environmentally sensitive areas SHALL be restricted.		Access and movement plan outlining accessible and restricted areas (if applicable).	<input type="checkbox"/>
D3.4.17	la	DES-70	For GR-24 only: Boardwalks and viewing platforms SHALL be sensitively integrated with the landscape.		Plans and 3D modelling of boardwalks and viewing platforms illustrating their contextual integration with the landscape.	<input type="checkbox"/>
D3.4.17	la	DES-71	For GR-25 only: Disturbance and impact to the natural environment SHALL be minimised.		Layout plan outlining existing and proposed features, illustrating minimal impact to the natural environment.	<input type="checkbox"/>
					Construction area plan outlining measures employed to protect the natural environment during construction (including work access, material storage on site etc.).	<input type="checkbox"/>
D3.4.17	la	DES-72	For GR-25 only: Access to environmentally sensitive areas SHALL be restricted.		Access and movement plan outlining accessible and restricted areas (if applicable).	<input type="checkbox"/>
D3.4.17	la	DES-73	For GR-26 only: Access to environmentally sensitive areas SHALL be restricted.		Access and movement plan outlining accessible and restricted areas (if applicable).	<input type="checkbox"/>
D3.4.17	la	DES-74	For GR-26 only: Disturbance and impact to the natural environment SHALL be minimised.		Layout plan outlining existing and proposed features, illustrating minimal impact to the natural environment.	<input type="checkbox"/>
					Construction area plan outlining measures employed to protect the natural environment during construction (including work access, material storage on site etc.).	<input type="checkbox"/>
D3.4.17	la	DES-75	For GR-26 only: A continuous boardwalk promenade SHALL be provided at beach areas.		Plan illustrating location and design of continuous boardwalk promenade at beach areas.	<input type="checkbox"/>

Applicable Standards						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.17	la	DES-76	For GR-27 only: A primary promenade pathway SHALL be provided with a minimum width of 6m.		Hard landscape plan: indicating size and location of hard landscape features and proposed materials.	<input type="checkbox"/>
D3.4.17	la	DES-77	For GR-27 only: A mix of on-site and off-site parking SHALL be provided with direct and convenient access to the waterfront.		Pedestrian Access and Parking Plan: illustrating location of parking provisions and their connection to the waterfront.	<input type="checkbox"/>



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1: Natural Waterfront, Abu Dhabi City, UAE

Design Elements' Standards for Streetscapes

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Gateways						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.18	p	GR-28	Gateways		Plan outlining design of the Gateway its context and connections.	<input type="checkbox"/>
					Rendered views.	<input type="checkbox"/>
					Narrative outlining the concepts for the Gateway.	<input type="checkbox"/>








1: Council Bluffs Gateway, Iowa, US













2: The Kelpies, Scotland

Pedestrian and Shared Use

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.19			Mushtarak		Plan of Pedestrian/Shared Use Streetscapes, their design, connections and context.	<input type="checkbox"/>
D3.4.19			Pedestrian First Corridor		Sections.	<input type="checkbox"/>
D3.4.19			Sikka		Narrative outlining the implementation of Abu Dhabi Sikka Policy and the concepts for the Streetscapes, proposed treatments, operation and programming etc.	<input type="checkbox"/>

Applicable Standards

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
D3.4.19			For GR-29 only: The design SHALL balance the needs of pedestrians, cyclists and vehicles.		Plan outlining how the design of the streetscape balance the needs and ensure comfort and safety for the different users identified for the streetscape.	<input type="checkbox"/>
D3.4.19			For GR-29 only: Emergency vehicles access SHALL be accommodated.		Plan outlining emergency vehicles route and areas of hardscape suitable for emergency vehicles use.	<input type="checkbox"/>
D3.4.19			For GR-30 only: Pedestrian and bicycle circulation SHALL be accommodated.		Plan outlining pedestrian and bicycle circulation routes.	<input type="checkbox"/>
D3.4.19			For GR-31 only: Vehicular access and parking SHALL not be allowed in sikkak.		Streets and parking layout plans, indicating location of parking on vehicular RoW only.	<input type="checkbox"/>
D3.4.19			For GR-31 only: Low-level, pedestrian-scaled lighting SHALL be provided.		Lighting Plan.	<input type="checkbox"/>

Scenic							
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance	
D3.4.20	p	GR-32	Scenic		Views study identifying important views.	<input type="checkbox"/>	
					Plan indicating location, layout and design of Scenic streetscape.	<input type="checkbox"/>	
					Narrative outlining the concepts for the Scenic streetscape, its design, materials, colours etc.	<input type="checkbox"/>	
					Rendered views.	<input type="checkbox"/>	
					Visual Impact Assessment.	<input type="checkbox"/>	



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1: Fossil dunes near Mussafah, Abu Dhabi City, UAE

Operation Stage Universal Standards for Public Realm

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OS

Operation						
Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
O2	la	OS-1	An Operation Manual SHALL be prepared, structured in accordance with this guidance and identifying all operations requirements.		Operation Manual comprising all sections outlined in Section O2.	<input type="checkbox"/>
O2	la	OS-2	Contact details of approved maintenance contractors and location of maintenance log SHALL be identified in the Operation Manual.		Operation Manual comprising contact details of approved maintenance contractors.	<input type="checkbox"/>
O2	i	OS-3	An up-to-date copy of the Operation Manual SHALL be kept at the on-site office (if applicable) or at the operators' office.		Copy of Operation Manual available at the on-site or operator's office.	<input type="checkbox"/>
O2		OS-4	A Legionella Management Plan SHALL be prepared for all water systems on site.	LS-R6	Submission requirements outlined within PRRS.	<input type="checkbox"/>
O2	i	OS-5	An incident log-book SHALL be produced and maintained by the management team, detailing all incidents (operational and maintenance related).		Incident log-book to detail any incidents occurring.	<input type="checkbox"/>
O2		OS-6	Lighting SHALL be operational in accordance with Estidama and DMT requirements.	RE-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
O2	i	OS-7	All maintenance staff SHALL be trained on the requirements of the Maintenance Manual.		Record of staff training to be kept on file at Management's Office.	<input type="checkbox"/>
O2	i	OS-8	A record of all training SHALL be kept on file within the Management's Office.		Record of staff training to be kept on file at Management's Office.	<input type="checkbox"/>
O2	i	OS-9	Smoking SHALL be prohibited within POS.		Monitoring report.	<input type="checkbox"/>

Maintenance

Section	Reviewer	Ref No.	Standard	Estidama	Submission Requirements	Compliance
03		OS-10	A maintenance manual SHALL be prepared, structured in accordance with this guidance and identifying all maintenance requirements.		Maintenance Manual comprising all sections outlined in Section O3.	<input type="checkbox"/>
03		OS-11	All maintenance equipment SHALL be stored within a safe area not accessible to the public.		Monitoring report.	<input type="checkbox"/>
03		OS-12	A list of maintenance requirements SHALL be drawn up, during monthly inspection reports and be actioned within a week.		Monitoring report.	<input type="checkbox"/>
03		OS-13	Processes SHALL be put in place in case of emergency maintenance.		Maintenance Manual outlining processes to be followed for emergency maintenance.	<input type="checkbox"/>
03		OS-14	A waste and recycling strategy SHALL be prepared for each project.	SM-R6 SM-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>
03		OS-15	All maintenance requirements and works occurring within the public realm SHALL be recorded within a maintenance activity log-book, its location to be identified in the operations manual.		Maintenance activity log-book to detail all maintenance requirements and works occurring.	<input type="checkbox"/>
03		OS-16	A strategy for the efficient operation and maintenance of irrigation systems SHALL be prepared.	PW-R1	Submission requirements outlined within PRRS.	<input type="checkbox"/>
03		OS-17	Water meters SHALL be installed and monitored for efficiency and leak detection.	PW-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>
03		OS-18	A strategy for efficient operation and maintenance of stormwater systems SHALL be prepared.	PW-R3	Submission requirements outlined within PRRS.	<input type="checkbox"/>
03		OS-19	All trades (electricians, engineers etc.) SHALL be accredited in their respective fields to qualify for appointment.		Copy of accreditation documentation or professional body registration number.	<input type="checkbox"/>
03		OS-20	An MEP manual SHALL be produced by the appointed maintenance contractor for all MEP systems on site.		MEP Manual for all MEP systems on site.	<input type="checkbox"/>
03		OS-21	Electricity meters SHALL be installed and energy consumption monitored.	RE-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>
03		OS-22	Any abnormal monitoring results SHALL be immediately investigated and rectified.	RE-R2 PW-R2	Submission requirements outlined within PRRS.	<input type="checkbox"/>

A3

Plant List



The Corniche,
Abu Dhabi



Planting

Planting within the Public Realm in Abu Dhabi should take account of and reflect the different environmental conditions within the Emirate. These stretch from the humid, salt laden coastal environment to the drier inland locations.

This will result in planting that is relevant and suitable to its location, and reflects and enhances the character of the area. Appropriate planting will ensure that plant material establishes quickly and thrive in the environment, as well as a reduction in the amount of irrigation, fertilisers and pesticides needed, and generally a reduction in future maintenance needs.

The 7 principles of Xeriscaping are particularly appropriate and should be employed wherever possible:

1. Water Conservation

Consideration should be given to plot orientation and existing features, areas of sun and shade, which will help to establish zones of differing water needs.

Natural or man made contours and the drainage patterns of the plot can be utilised by concentrating planting in lower areas where water would naturally drain to.

Plants with similar watering needs should be grouped (in hydrozones) to allow for a more efficient use of water.

2. Soil Improvement

The ideal soil in a water-conserving landscape does two things simultaneously: it drains quickly and stores water at the same time.

This is achieved by increasing the amount of organic material in the soil and keeping it well aerated. Compost is the ideal organic additive, unless the xeriscape contains many succulents species as these species prefer lean soil.

3. Limit Turf Areas

The size of turf areas should be reduced as much as possible, while retaining some turf for open space, functionality and visual appeal. When planting new turf, water-saving species adapted to your area should be used.

4. Appropriate Plants

Plants that are native to the region and/or drought-resistant should be used whenever possible.

Plants should be selected for their ultimate size. This reduces over-planting and future pruning maintenance.

For hot, dry areas with south and west exposure, plants that need minimum water should be used. Along north and east-facing slopes and walls, plants that are less drought tolerant could be chosen. Sunlight calculators should be used to help establish the ideal planting location for the landscape layout.

Trees help to reduce evaporation by blocking wind and shading the soil.

5. Mulch

The soil's surface around plants should be covered with a mulch, such as leaves, coarse compost, coarse palm bark, wood chips, bark or gravel. Mulch helps retain soil moisture and temperature, prevent erosion and block out competing weeds. Organic mulch will slowly incorporate with the soil, and will need to be re-applied, "top-dressed", from time to time. To be effective, mulch needs to be a minimum of 3-5cm thick. There should be no areas of bare soil.

6. Irrigation

Water conservation is the goal, so avoiding overwatering is essential.

Soaker hoses and drip-irrigation systems offer the easiest and most efficient watering for xeriscapes because they deliver water directly to the base of the plant. This reduces moisture loss from evaporation. They also deliver the water at a slow rate which encourages root and soil absorption and reduces pooling and erosion. In general, it's best to water deeply and less frequently.

7. Maintaining the landscape

Low-maintenance is one of the benefits of xeriscape. Mulching will avoid most weeds from growing and any that grow should be removed to avoid competition for water.

Planting in general should not be over-fertilised as plants that grow quickly have softer leaves that require more water.




Turf areas should not be cut too short - taller grass is a natural mulch which shades the roots and helps retain moisture.

Plant List

The plant list includes a variety of species suitable for the different environments of Abu Dhabi Emirate. Types of plants identified include:

- Trees
- Palms
- Shrubs
- Groundcover and Ornamental Grasses
- Succulents and Perennials
- Climbers
- Native plants (currently being developed for commercial use)

Each plant identified as suitable for use within the public realm is listed in the matrix. The matrix provides the following information:

- Shape and expected size at maturity
- Botanical Name
- Common Name
- Native Species
- Irrigation Classification:
 -  Low Irrigation Required
 -  Medium Irrigation Required
 -  High Irrigation Required
- Hazards (Plants that are serious hazards should be excluded from POS.)
- Inland Suitability
- Coastal Suitability
- Tolerance to different environmental elements:
 - Drought Tolerance (can tolerate periods of drought)
 - Salinity Tolerance (can tolerate salt air and different salt levels in the soil)
 - Sun Tolerance (can tolerate full sun)
 - Wind Tolerance (can be used in windy conditions)

- Tolerances are rated as:
 - High (highly tolerant)
 - Medium (can be used with discretion)
 - Low (should be avoided or used sparingly, and/or provided with buffer treatment)


- Users Notes

In addition, please refer to the Irrigation Rate Matrix in Appendix 3 for detailed information regarding the irrigation rate according to classification for each plant category.

Trees and Shading

When trees are planted specifically to provide shade, shading calculations should be carried out in accordance with the shade requirements outlined within the PRRS.

The final shade provision can be calculated using the tree canopy sizes outlined within the plant list and by planting trees at appropriate spacing to achieve the required shade at the trees' full maturity.

 This methodology applies to the PRRS **LS-R1** Outdoor Thermal Comfort Strategy.



1: Streetscape, Saadiyat Island, Abu Dhabi City, UAE


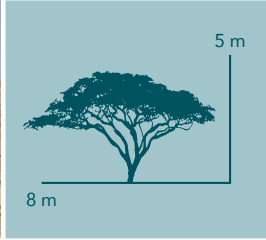

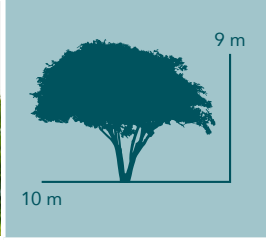

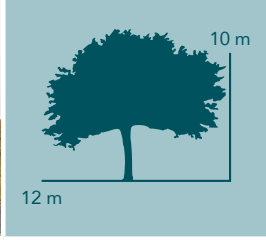

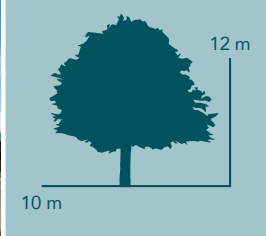
2: Seating Area, Saadiyat Island, Abu Dhabi City, UAE

3: Linear Tree Planting, Al Maryah Island, Abu Dhabi City, UAE

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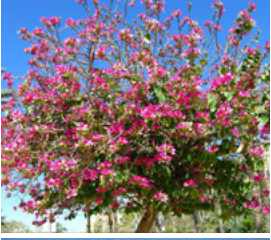


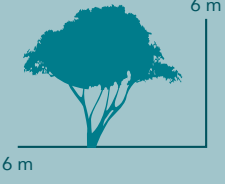


TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Acacia arabica	Arabic Acacia		●	Thorns	■		High	Medium	High	High	May be used as a street tree, park tree or for scenic routes but not for locations that depend on uniformity. May also be appropriate for heritage locations. Suitable for shelter belts.
		Acacia farnesiana	Sweet Acacia	*	●	Thorns	■	■	High	Medium	High	High	Good hardy species. Has fragrant flowers that appear in clusters in late winter, followed by persistent fruits which are good for birds and wildlife.
		Acacia ehrenbergiana	Salam		●	Thorns	■		High	Medium	High	High	Good hardy species. Has fragrant flowers that appear in clusters in late winter, followed by persistent fruits which are good for birds and wildlife.
		Acacia nilotica	Arabian Gum		●	Thorns	■		High	Medium	High	High	Good hardy species. Has fragrant flowers that appear in clusters in late winter, followed by persistent fruits which are good for birds and wildlife.

*Water Consumption Range: ● 9.5 to 35 l/day ●● 21 to 79 l/day ●●● 27 to 101 l/day


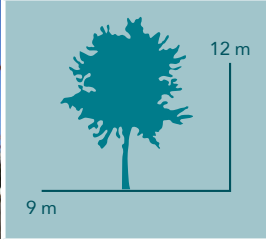

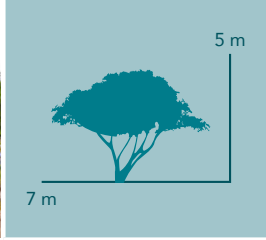

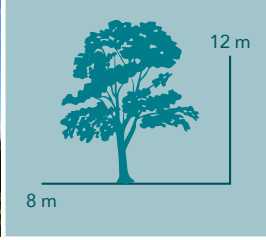

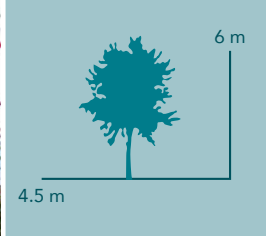
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		Acacia tortilis	Samar		●	Thorns	■		High	High	High	High	Considered as an important part of the regional culture. Suitable for heritage parks, desert parks and scenic roads but not for urban parks or streets. It may need insecticides spray yearly for stem borer insect.
		Albizia julibrissin	Silk Tree	*	●●●		■	■	Medium	Medium	High	Medium	Good park tree, popular for its light dappled shade, tropical effect and fragrant flowers. Short lived (approx. 20 years).
		Albizia lebbek	Women's Tongue		●●●		■	■	High	High	High	High	Excellent street and park tree for urban areas. Good deciduous multi-stemmed park tree, with widely spreading habit.
		Alstonia scholaris	Devil Tree		●●●		■		Medium	Medium	High	High	Good park or street trees for urban areas.

*Water Consumption Range: ● 9.5 to 35 l/day ●● 21 to 79 l/day ●●● 27 to 101 l/day

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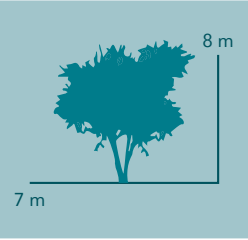

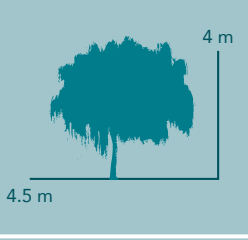

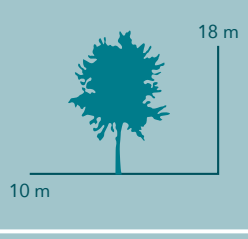

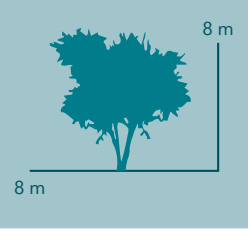
TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION*	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Azadirachta indica</i>	Neem Tree		●●●		■	■	Medium	Low	High	High	Excellent urban tree for streets, public plazas and parks. Very successful in Al Ain. It sheds leaves if it does not receive sufficient irrigation.
		<i>Bauhinia purpurea</i>	Purple Orchid Tree		●●●			■	Medium	Medium	High	Medium	Needs some shelter and west sun protection. Better grouped with other trees.
		<i>Bauhinia variegata</i>	Orchid Tree, Poor Man's Orchid		●●●			■	Medium	Medium	High	Medium	Needs some shelter and west sun protection. Better grouped with other trees.
		<i>Bauhinia variegata 'Alba'</i>	White Orchid Tree		●●●			◆■	Medium	Medium	High	Medium	Needs some shelter and west sun protection. Better grouped with other trees.

*Water Consumption Range: ● 9.5 to 35 l/day ●● 21 to 79 l/day ●●● 27 to 101 l/day


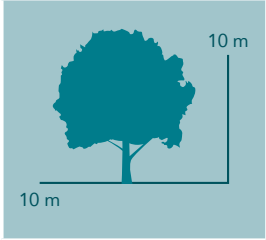

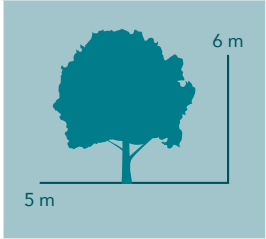

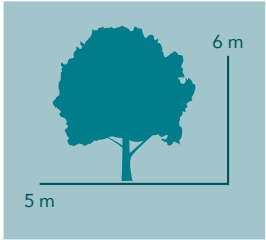

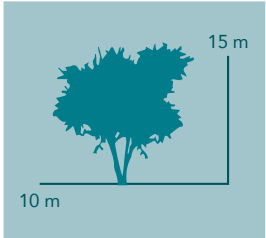
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		Bombax ceiba	Red Silk Cotton Tree		◆◆	Spines	■	■	High	High	High	High	Spiny trunk when young, bright red flowers in spring. Suitable for diverse conditions.
		Boswellia sacra	Frankincense Tree		◆◆		■	■	Medium	Medium	Medium	Medium	Culturally significant species as the source of Frankincense, although not native to the Arabian Gulf region. It grows successfully on Sir Bani Yas and in Al Ain with low irrigation rates so has wide application.
		Brachychiton populneus	Bottle Tree		◆◆		■	■	High	Medium	High	High	Extended trunk is a water storage device to ensure survival in a very dry climate.
		Callistemon viminalis	Weeping Bottlebrush		◆◆◆		■	■	High	Medium	High	High	Best suited to park use in Al Ain. Water application should be reduced in winter months to achieve good flowering.

*Water Consumption Range: ◆ 9.5 to 35 l/day ◆◆ 21 to 79 l/day ◆◆◆ 27 to 101 l/day

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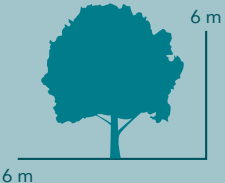

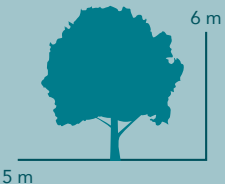

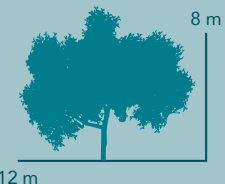
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		Cassia siamea	Sunshine Tree		♦♦		■	■	High	Medium	High	High	Attractive, fast growing, small tree for urban areas.
		Cassia surattensis (syn C.glauca)	Scrambled Egg Bush		♦♦			■	Medium	Medium	High	High	Attractive, fast growing, small tree for coastal urban areas.
		Casuarina equisetifolia	Ironwood, Coastal She-oak		♦♦			■	High	High	High	High	Requires low irrigation levels. Excessive water is counterproductive as the tree grows rapidly then declines and loses its shape.
		Chitalpa tashkentensis	Pink Butterfly Bush		♦♦♦		■		Medium	Medium	Medium	Low	Best suited to the drier climate of Al Ain, where there are already good specimens. Needs shelter from wind and afternoon sun.

*Water Consumption Range: ♦ 9.5 to 35 l/day ♦♦ 21 to 79 l/day ♦♦♦ 27 to 101 l/day


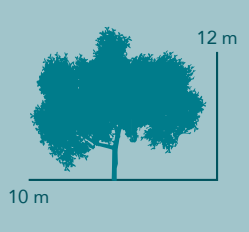

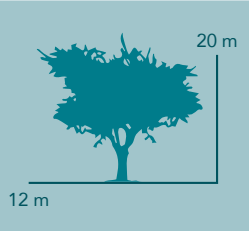

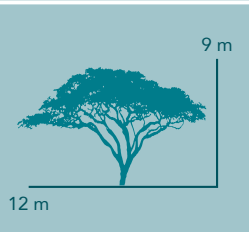

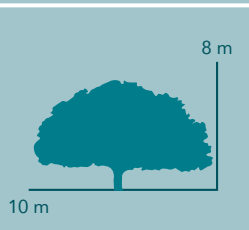
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		Chorisia speciosa	Silk Floss Tree		◆◆	Thorns	■	■	High	Medium	High	High	Best suited in the drier climate of Al Ain, where there are already a good specimens. Needs shelter from wind and afternoon sun.
		Citrus maxima	Pomelo		◆◆◆		■		Low	Low	High	High	Citrus fruit tree, suitable for oases or parks.
		Citrus mitis	Calamondin		◆◆◆		■		Low	Low	High	High	Citrus fruit tree, suitable for oases or parks.
		Conocarpus erectus	Buttonwood, Button Mangrove		◆◆			■	High	High	High	High	Although tolerant of harsh conditions, it is best used along highways or in locations where the pollen will not aggravate allergy sufferers. Can create problems with roots spreading into irrigation pipes (confirm with Municipality if acceptable).

*Water Consumption Range: ◆ 9.5 to 35 l/day ◆◆ 21 to 79 l/day ◆◆◆ 27 to 101 l/day

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TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Conocarpus erectus 'Silver Form'	Silver Buttonwood		●●	Pollen Allergy Source		■	High	High	High	High	Although tolerant of harsh conditions, it is best used along highways or in locations where the pollen will not aggravate allergy sufferers.
		Cordia myxa	Lasura Tree	*	●●●		■	■	Medium	Medium	High	Medium	Well suited for Al Ain and Abu Dhabi as a street tree and park tree.
		Cordia sebestena	Geranium Tree	*	●●●		■		Medium	Medium	High	Medium	Well suited for Al Ain and Abu Dhabi as a street tree and park tree.
		Cordia subcordata	Kou, Sea Trumpet		●●●			■	Medium	Medium	High	Medium	Coastal location only. Good, small tree for waterfront parks and urban plazas near the sea.

*Water Consumption Range: ● 9.5 to 35 l/day ●● 21 to 79 l/day ●●● 27 to 101 l/day




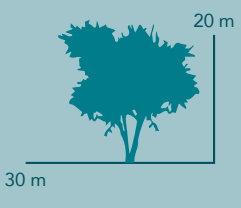

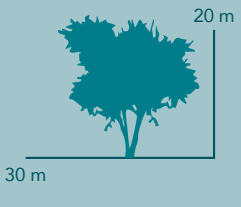

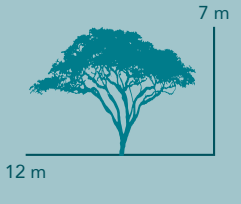
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		Cupaniopsis anacardioides	Carrotwood, Tuckeroo Tree		◆◆◆			■	Medium	Medium	High	Medium	Coastal location only. Good , small tree for waterfront parks and urban plazas near the sea.
		Dalbergia sissoo	Indian Rosewood		◆◆◆			■	High	Low	High	High	Not suitable for coastal locations.
		Delonix regia	Royal Poinciana, Flamboyant		◆◆			■	High	Low	High	High	Use only in humid coastal areas. Excellent park, urban plaza and street tree but will not be uniform in character as they are grown from seed. Not attractive during cooler months when leaves fall. Needs to be irrigated with sweet water.
		Dracaena draco	Dragon or Dragon's Blood Tree		◆◆			■	High	Medium	Medium	Medium	Limited use as a park curiosity. Comes from Canary Islands, so climatically it needs protection from afternoon summer sun and is best used in Abu Dhabi.

*Water Consumption Range: ◆ 9.5 to 35 l/day ◆◆ 21 to 79 l/day ◆◆◆ 27 to 101 l/day

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TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Erythrina caffra</i>	Kaffir Coral, Kaffirboom Tree		●●●	Thorns		■	Medium	Medium	High	High	Good, resilient tree. May be used in parks or open spaces, sikkas etc. where their informal shape is not an issue. Good for urban conditions.
		<i>Erythrina cristagalli</i>	Brazilian Coral Tree		●●●	Thorns		■	Medium	Medium	High	High	Good, resilient tree. May be used in parks or open spaces, sikkas etc. where their informal shape is not an issue. Good for urban conditions.
		<i>Erythrina variegata</i>	Indian Coral Tree		●●●	Thorns		■	High	Medium	High	High	Good, resilient tree. May be used in parks or open spaces, sikkas etc. where their informal shape is not an issue. Good for urban conditions.
		<i>Eucalyptus camaldulensis</i>	River Red Gum		●●●			■	High	High	High	High	Large feature tree, best suited to parks. It can create problems with instability in sandy soils due to the long stems.

*Water Consumption Range: ● 9.5 to 35 l/day ●● 21 to 79 l/day ●●● 27 to 101 l/day




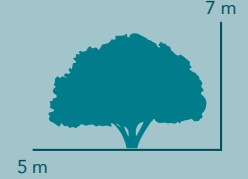




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		<i>Eucalyptus citriodora</i>	Lemon Scented Gum		◆◆◆		■	■	High	High	High	High	Large feature tree, best suited to parks. Leaves can be used to make lemon tea.
		<i>Ficus altissima</i>	Lofty Fig, False Banyan, Council Tree		◆◆		■	■	Medium	Medium	High	High	Good street and park tree; providing dense shade in a climate where shade is critical.
		<i>Ficus benghalensis</i>	Indian Banyan Tree		◆◆		■	■	Medium	Medium	High	High	Good street and park tree; providing dense shade in a climate where shade is critical. Should be located where its extensive root system would not cause problems.
		<i>Ficus carica</i>	Fig		◆◆		■	■	Medium	Medium	Medium	High	Important tree for oases.

*Water Consumption Range: ◆ 9.5 to 35 l/day ◆◆ 21 to 79 l/day ◆◆◆ 27 to 101 l/day

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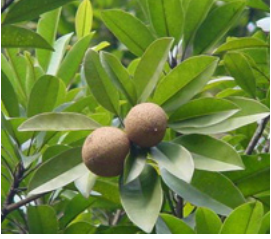
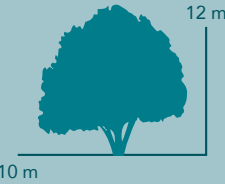

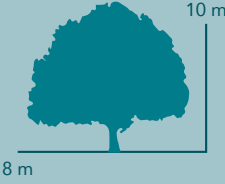
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		Ficus cordata	Wadi cordata Salicifolia	*	♦♦		■	■	High	Medium	Medium	High	Good street and park tree; providing dense shade in a climate where shade is critical.
		Ficus microcarpa	Malayan Banyan		♦♦			■	Medium	Medium	High	Medium	Good street and park tree; providing dense shade in a climate where shade is critical.
		Ficus microcarpa 'Benjamina'	Weeping Fig		♦♦			■	Medium	Medium	High	Medium	Good street and park tree; providing dense shade in a climate where shade is critical. Can be pruned to more formal shapes.
		Ficus religiosa	Bodhi		♦♦			■	Medium	Medium	High	Medium	Good street and park tree; providing dense shade in a climate where shade is critical.

*Water Consumption Range: ♦ 9.5 to 35 l/day ♦♦ 21 to 79 l/day ♦♦♦ 27 to 101 l/day


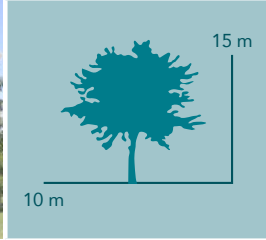

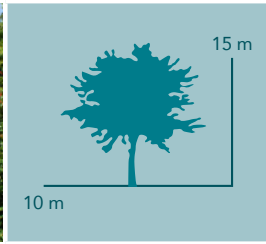

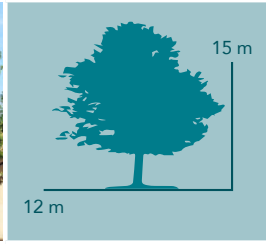

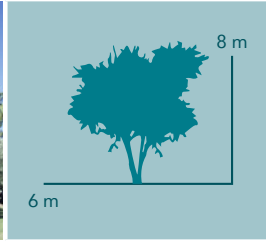
TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION * CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Ficus salicifolia	Willow Leaf Fig		◆◆			■	Medium	Medium	High	Medium	Needs shelter from wind and best if sheltered from summer afternoon sun.
		Hibiscus tiliaceus 'Variegata'	Tricolour Sea Hibiscus		◆◆◆			■	Medium	High	High	High	Well suited to coastal areas, especially where there is salt laden air.
		Hibiscus tiliaceus	Beach, Sea or Linden Hibiscus		◆◆◆			■	Medium	High	High	High	Well suited to coastal areas, especially where there is salt laden air.
		Kigelia africana	Sausage Tree		◆◆◆		■	■	Medium	Medium	High	High	Best used as a curiosity in public parks and gardens.

*Water Consumption Range: ◆ 9.5 to 35 l/day ◆◆ 21 to 79 l/day ◆◆◆ 27 to 101 l/day

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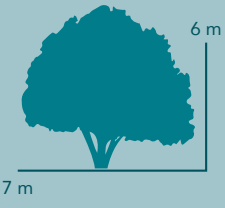
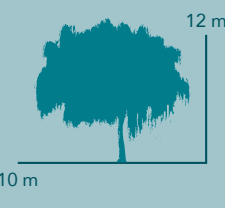

TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Leucaena leucocephala</i>	White Tamarind	*	●●●		■	■	High	Medium	High	High	Best used as a curiosity in public parks and gardens.
		<i>Mangifera indica</i>	Mango Tree		●●●		■	■	Medium	Medium	High	Medium	Best used as a curiosity in public parks and gardens.
		<i>Manilkara zapota</i>	Sapodilla		●●●		■	■	High	High	High	Medium	Best used as a curiosity in public parks and gardens.
		<i>Melia azadarach</i>	Persian Lilac		●●		■	■	High	Medium	High	Medium	Good small shade tree, ideal for sikkas and small parks.

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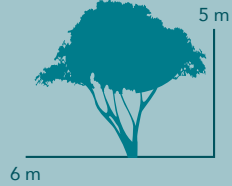



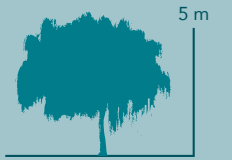


TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION * CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Millingtonia hortensis	Indian Cork Tree, Tree Jasmine		◆◆◆		■	■	Medium	Medium	High	Medium	Very good urban park tree, with highly scented flowers. Produces suckers, so not suitable for streets or where a neat appearance is required.
		Moringa oleifera	Horseradish, Drumstick, Benoil tree		◆◆		■		High	Low	Low	High	Good source of edible seed pods. Suitable for community gardens and oases.
		Morus alba	White Mulberry		◆◆◆		■	■	Medium	Low	High	Medium	Best limited to oases where the fruit can be harvested and not stain pavements.
		Olea europaea	Olive		◆◆		■		Medium	Low	High	High	Best suited for inland areas away from humidity. Best used in community oriented parks, where fruits (olives) can be harvested.

*Water Consumption Range: ◆ 9.5 to 35 l/day ◆◆ 21 to 79 l/day ◆◆◆ 27 to 101 l/day

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TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Parkinsonia aculeata	Jerusalem Thorn		♦♦	Thorns	■	■	High	High	High	High	Wide usage, often spoiled by poor pruning and overwatering.
		Peltophorum pterocarpum	Yellow Poinciana, Yellow Flame Tree		♦♦		■	■	High	High	High	High	Excellent urban tree, particularly in coastal areas.
		Pithecellobium dulce	Madras Thorn, Manila Tamarind	*	♦♦♦	Thorns	■	■	High	Medium	High	Medium	Hardy tree for urban streets.
		Plumeria obtusa	Singapore or White Frangipani		♦♦♦	Sap Allergy	■	■	6.5	Medium	Medium	Medium	Widely used in coastal areas. Can tolerate full sun or partial shade. Tolerant of salt laden winds. Has an extensive root system so needs to be located with consideration.

*Water Consumption Range: ♦ 9.5 to 35 l/day ♦♦ 21 to 79 l/day ♦♦♦ 27 to 101 l/day


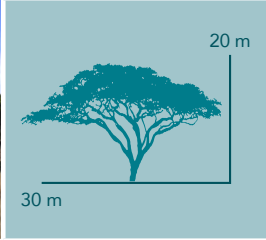

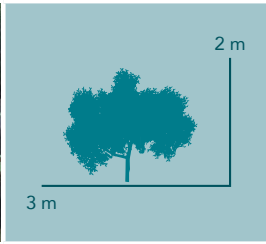

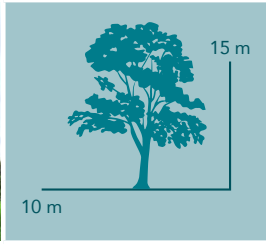

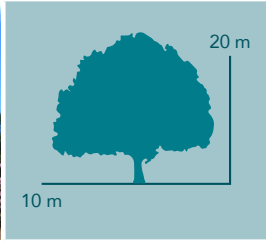
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		Plumeria rubra 'Acutifolia'	Frangipani or Temple Tree, West Indian Jasmine		◆◆◆	Sap Allergy	■	■	Medium	Medium	Medium	Medium	Widely used in coastal areas. Can tolerate full sun or partial shade. Tolerant of salt laden winds. Has an extensive root system so needs to be located with consideration.
		Pongamia pinnata	Pongam Tree		◆◆◆			■	Medium	Medium	High	High	Very good urban tree for streets, plazas, souks and parks. Best in coastal regions. Produces pink, fragrant flowers in spring.
		Prosopis cineraria	Ghaf Tree	*	◆◆	Thorns	■	■	High	High	High	High	Significant to the UAE cultural history. Has application on highways and in urban parks and streets. The Ghaf can access water at great depths, and will grow in size according to the amount of water it receives.
		Prosopis glandulosa	Honey Mesquite		◆◆	Thorns	■	■	High	High	High	High	Has application on highways and in urban parks and streets. This tree can access water at great depths, and will grow in size according to the amount of water it receives. Produces yellow flowers from June to September.

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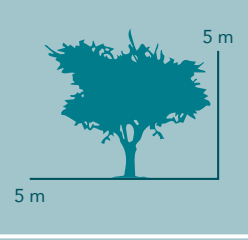
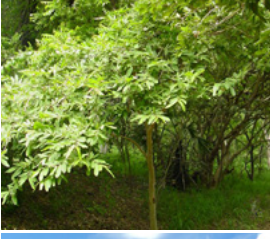
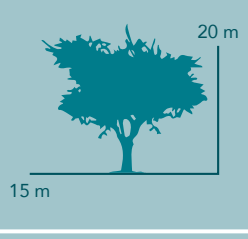

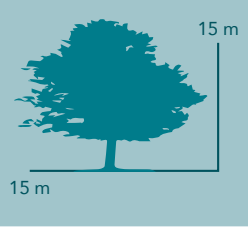
TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Psidium guajava	Tropical Guava	*	●●●		■		Medium	Low	High	Medium	Guava is commonly found in oases, but can be useful as an urban small tree. Not suitable for salt laden air.
		Psidium littorale	Cattley Guava		●●●		■		Medium	Low	High	Medium	Guava is commonly found in oases, but can be useful as an urban small tree. Not suitable for salt laden air.
		Punica granatum	Pomegranate		●●●		■		Low	Low	High	High	Good fruit tree for oases or small parks.
		Salvadora persica	Arak	*	●		■	■	6.5	High	High	High	Hardy plant for highway landscape. Best if allowed to grow without cutting.

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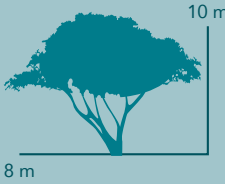



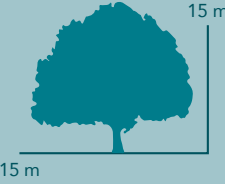

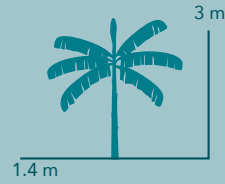
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		Samanea saman	Rain Tree		◆◆		■		Medium	Medium	High	High	Wide spreading canopy. Best suited to large open spaces.
		Sophora tomentosa	Kowhai		◆◆		■		High	Medium	High	High	Small spreading tree. Best suited to sikkas, small parks or local streets.
		Spathodea campanulata	African Tulip Tree		◆◆◆			■	Medium	Medium	High	Medium	In its native habitat Spathodea grows to a very large tree, but this does not happen in the UAE. The few specimens in Abu Dhabi are medium sized trees enjoying shelter and shade from afternoon summer sun.
		Tabebuia rosea	Pink Trumpet Tree		◆◆			■	High	High	High	Low	Hardy but slow growing species, suitable for Abu Dhabi. Grows best in wind-sheltered location in parks or urban plazas.

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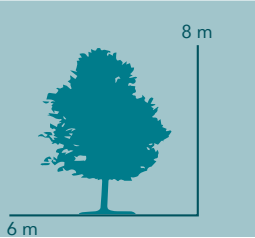

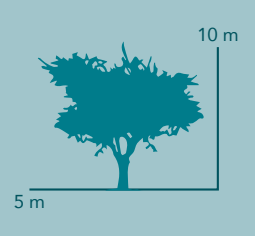
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TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Tamarindus indica	Tamarind		◆◆◆		■	■	Medium	Medium	High	High	Hardy, well shaped and textured tree.
		Tecomella undulata	Rohida, Desert or Marwar Tree	★	◆◆		■		Medium	Medium	High	High	Hardy and colourful small tree native to the Hajar Mountains. Best suited to scenic highways, linear parks and desert parks.
		Terminalia arjuna	Arjuna, White Marudah		◆◆		■	■	High	Medium	High	Low	Very good shade tree for urban streets and parks.
		Terminalia catappa	Indian Almond		◆◆			■	6.5	High	High	Low	Very good umbrella shaped shade tree for coastal areas including marinas and waterfront parks.

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TREES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION *	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Thespesia populnea</i>	Portia Tree, Indian Tulip Tree		◆◆		■	■	Medium	High	High	High	Very good shade tree for coastal areas and inland.
		<i>Ziziphus jujuba</i>	Common Jujube, Chinese Date		◆◆		■	■	High	High	High	High	An oasis species producing edible fruit. Also can be used as an urban park, street or plaza tree.
		<i>Zizyphus spina-christi</i>	Sidr Tree	*	◆◆	Thorns	■	■	High	Medium	High	High	Symbolic of Abu Dhabi, found in oases, along wadis, in parks, along highways, school grounds, urban parks and streets. It can survive with little irrigation or it can benefit from a higher level of irrigation and be a much larger tree.
		<i>Musa paradisiaca</i>	Banana Tree		◆◆◆		■		Low	Low	Low	Low	An oasis species or a small park species producing edible fruit. Provides immediate tropical effect through its spectacular foliage.


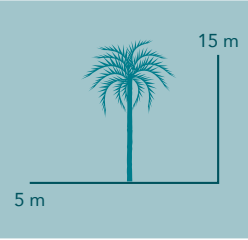

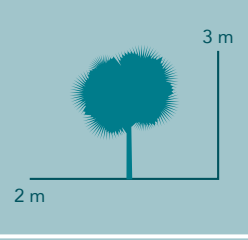

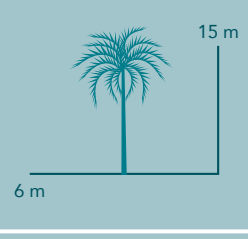

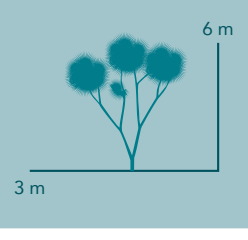
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		<i>Syzygium samarangense</i>	Water Apple or Java Apple		●		■		Medium	Low	Low	Medium	Can provide small shade and suitable for residential garden, large planters and fruit gardens.
		<i>Ziziphus mauritiana</i>	Indian jujube or Indian plum or Chinese date or Chinese apple		●	Thorns	■	■	High	High	High	High	A good windbreaker tree that can assist in soil and sand dune stabilization.


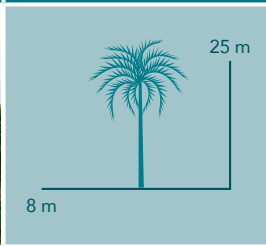

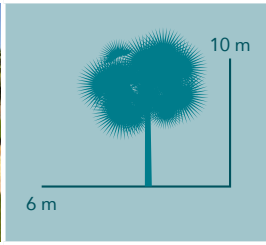
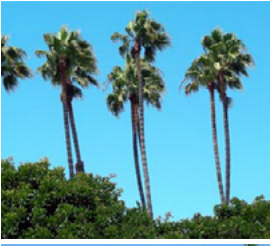
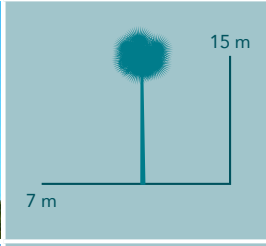

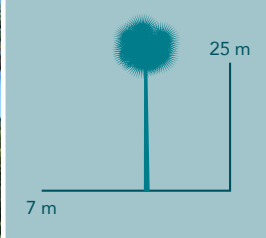
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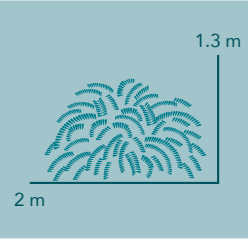

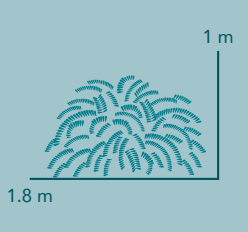
PALMS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION **	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Carpentaria acuminata</i>	Carpentaria Palm		◆◆◆		■	■	High	Medium	High	High	Tall slender palm, suitable for small spaces, can be used in groups to frame gateways.
		<i>Coccothrinax argentata</i>	Silver Palm		◆◆		■	■	High	Medium	High	High	Small palm. Better used as a large shrub.
		<i>Cocos nucifera</i>	Coconut Palm		◆◆◆		■	■	High	High	High	High	Large palm producing fragrant flowers and coconut fruits. Suitable for any location, including waterfronts but better located where fruits can be harvested without causing nuisance.
		<i>Hyphaene thebaica</i>	Gingerbread Palm		◆◆◆		■	■	High	High	High	High	Medium size palm, often with multiple trunk. Suitable for parks, plazas and streetscapes.

**Water Consumption Range: ◆ N/A ◆◆ 21 to 79 l/day ◆◆◆ 55 to 150 l/day

PALMS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION **	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Roystonea regia	Royal Palm		◆◆◆			■	Medium	Medium	High	High	Not suitable for this region except where sheltered from wind and from afternoon summer sun.
		Thrinax morrisii	Thatch Palm		◆◆◆			■	High	High	High	High	Hardy small palm. Suitable for all environments including waterfronts.
		Washingtonia filifera	California Fan Palm		◆◆◆	Leaf and Stem Spikes		■	High	High	High	Medium	Hardy palm. Suitable for most urban conditions including waterfront, although salt laden winds do cause some leaf burn in summer.
		Washingtonia robusta	Mexican Fan Palm		◆◆◆	Leaf and Stem Spikes		■	High	High	High	Medium	Hardy palm. Suitable for most urban conditions including waterfront, although salt laden winds do cause some leaf burn in summer.

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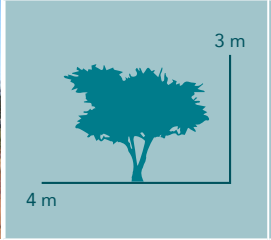

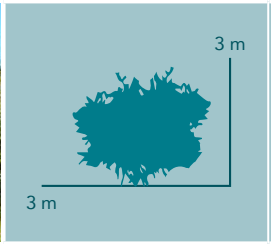

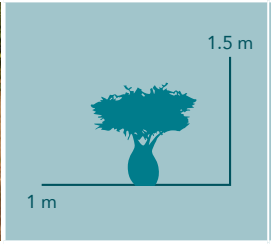

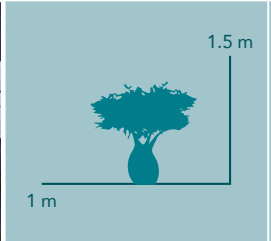
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		Zamia furfuracea	Cardboard Palm		◆◆		■	■	Medium	High	High	High	Hardy, small, shrub-like palm. Suitable for all environments including waterfronts.
		Zamia pumila	Florida Arrowroot		◆◆		■	■	Medium	High	High	High	Hardy, small, shrub-like palm. Suitable for all environments including waterfronts.

**Water Consumption Range: ◆ N/A


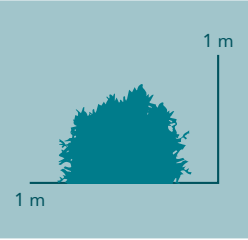





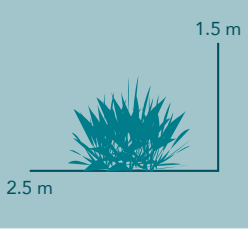
◆◆ 21 to 79 l/day

◆◆◆ 55 to 150 l/day

SHRUBS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION #	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Acacia ehrenbergiana	Samal	*	1	Thorns	■	■	High	High	High	High	Suitable for use in desert parks and any location requiring low irrigation status.
		Acacia floribunda	Weeping Acacia		1		■	■	High	High	High	High	Weeping form of Acacia, suitable for all conditions.
		Adenium obesum	Desert Rose		2	Sap Allergy	■	■	High	Medium	High	High	Deciduous shrub with showy flower. Best used where it is not in direct contact with people.
		Adenium obesum 'Grumbly White'	Snowbell		2	Sap Allergy	■	■	High	Medium	High	High	Deciduous shrub with showy flower. Best used where it is not in direct contact with people.

Water Consumption Range: ● 1.5 to 6 l/day ●● 3 to 13 l/day ●●● 5 to 20 l/day

A3


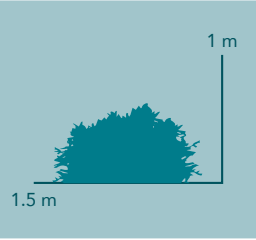



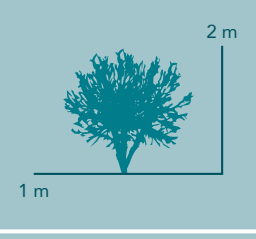

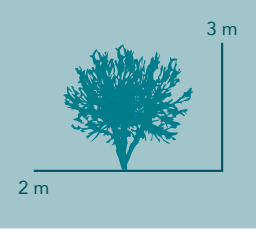
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		<i>Aerva javanica</i>	Al Ara	*	1		■	■	High	Medium	High	High	Occurs widely throughout the UAE. Does not require irrigation after establishment but has maintenance needs (subtle trimming) and is yet to be tested in urban environments.
		<i>Anastatica hierochuntica</i>	Kaf Marriam	*	1			■	High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		<i>Artemisia sieberi</i>	Besser	*	1		■		High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		<i>Arthrocnemum macrostachyum</i>	Hamadh	*	1			■	High	High	High	High	Waterfront species, as yet not produced by nursery industry.

Water Consumption Range: ♦ 1.5 to 6 l/day ♦♦ 3 to 13 l/day ♦♦♦ 5 to 20 l/day


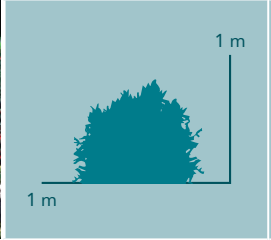
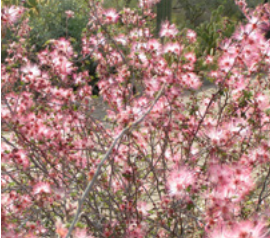
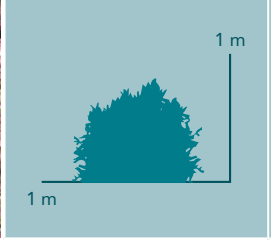



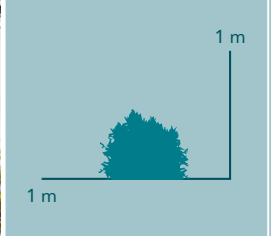
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		Atriplex canescens	Four-wing Saltbush		◆			■	6.5	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		Atriplex glauca	Waxy Saltbush, Grey Saltbush		◆			■	High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		Atriplex halimus	Sea Orach		◆			■	High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		Atriplex nummularia	Giant or Old Man Saltbush		◆			■	High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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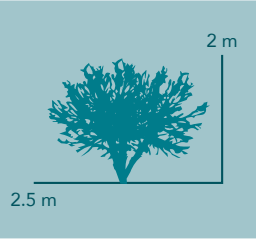

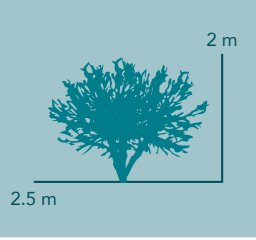

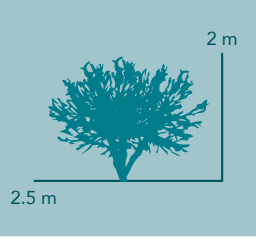

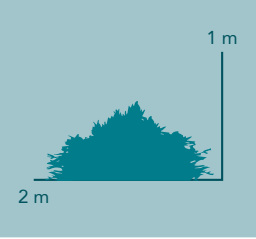
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		Baccharis Hybrid 'Starn'	Trailing Desert Broom		1		■	■	High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		Baccharis sarothroides	Desert Broom	*	1		■	■	High	High	High	High	Very good species for low water demand landscapes, meeting sustainable targets with ease.
		Caesalpinia gilliesii	Bird of Paradise, Paradise Poinciana		2		■	■	High	Medium	High	High	Very common species, widely used. Not suitable for waterfront.
		Caesalpinia pulcherrima	Red bird of paradise, Pride of Barbados		2		■	■	High	Medium	High	High	Very common species, widely used. Not suitable for waterfront.

Water Consumption Range: 1 1.5 to 6 l/day 2 3 to 13 l/day 3 5 to 20 l/day


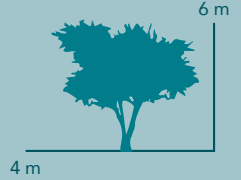



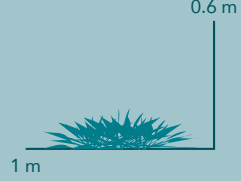

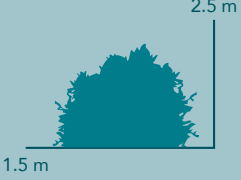
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		Calliandra californica	Baja Fairy Duster		◆◆		■	■	High	High	High	High	Very useful shrub for xeric landscapes. Requires low maintenance and provides year round colour.
		Calliandra eriophylla	Fairy Duster		◆◆		■	■	High	High	High	High	Very useful shrub for xeric landscapes. Requires low maintenance and provides year round colour.
		Calligonum comosum	Abal	*	◆		■		High	Medium	High	High	Good species for low irrigation water availability. It should be noted that all species need some water to survive. When new landscapes are installed there is a need for low irrigation application in order to increase or sustain a higher vegetation density than in natural context.
		Cassia artemisioides	Silver Cassia		◆◆		■	■	High	Medium	High	High	Evergreen shrub. Suitable for most situations.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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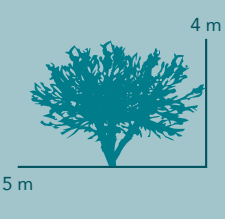

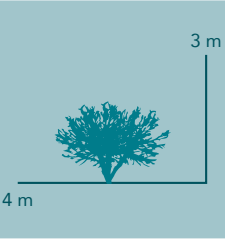

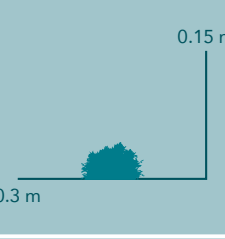

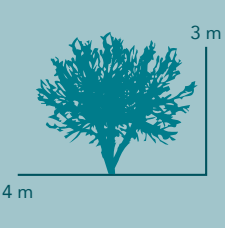
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		<i>Cassia bicapsularis</i>	Winter Cassia		◆◆		■	■	High	Medium	High	High	Large semi-evergreen shrub. Suitable for most situations with plenty of space.
		<i>Cassia corymbosa</i>	Texas Flowering Senna		◆◆		■	■	High	Medium	High	High	Large semi-evergreen shrub. Suitable for most situations with plenty of space.
		<i>Cassia didymobotrya</i>	Popcorn Cassia		◆◆		■	■	High	Medium	High	High	Large semi-evergreen shrub. Suitable for most situations with plenty of space.
		<i>Clerodendrum inerme</i>	Wild Jasmine		◆◆		■	■	High	Medium	High	High	Evergreen sprawling shrub. Suitable for parks and open space.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


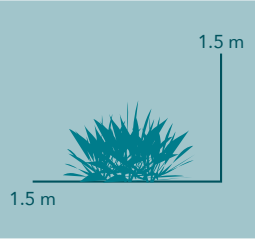

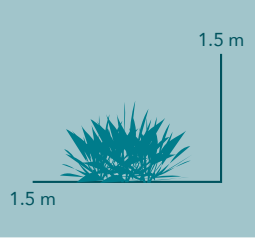



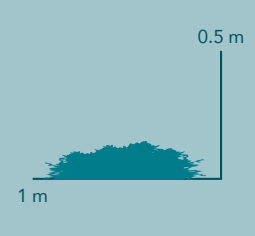
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		<i>Coccothraustes coccoloba</i>	Seagrape		◆◆			■	High	High	High	High	Excellent coastal tree with large round leaves and edible fruit, very tolerant of salt laden winds. Will also grow inland.
		<i>Deverra triradiata</i>	Shammar		◆		■	■	High	High	High	High	Aromatic shrub. Good for desert landscape and areas where low irrigation is required.
		<i>Dipterygium glaucum</i>	Dipterygium	*	◆				Medium	Medium	High	High	Good shrub for desert landscape and areas where low irrigation is required.
		<i>Dodonaea viscosa</i>	Shahus	*	◆◆		■		High	High	High	High	Hardy locally occurring species in Hajja Mountains. Needs little water and frequent light trimming to produce a good sustainable hedge. Not suitable for Abu Dhabi.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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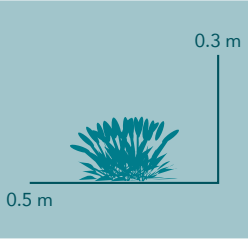

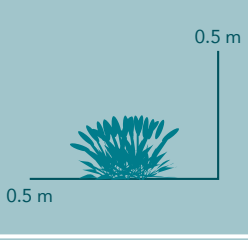

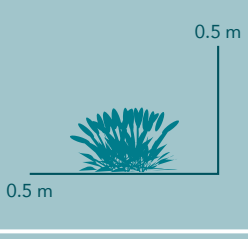

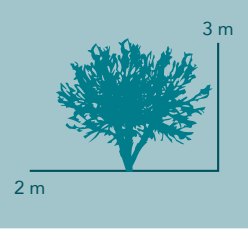
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		Dombeya wallichii	Dombeya wallichii		◆◆		■	■	Medium	Medium	Medium	Medium	Semi herbaceous large shrub with attractive pink ball flowers. Needs to be in semi shade and shelter.
		Dombeya x seminole	Pink Cloud		◆◆		■	■	Medium	Medium	Medium	Medium	Semi herbaceous large shrub with attractive pink ball flowers. Needs to be in semi shade and shelter.
		Gazania uniflora	Treasure Flower		◆◆		■	■	Medium	Medium	High	High	Hardy species for coastal parks and roadsides.
		Haloxylon ammodendron	Bunge		◆		■		High	Medium	High	High	Best used inland. Untested as a landscape plant and will need special skills to properly maintain, however well worth developing for highway landscape use.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


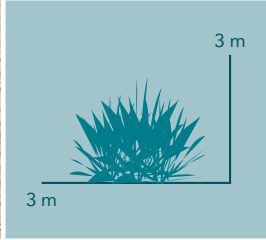

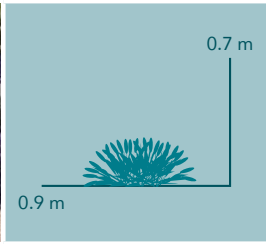

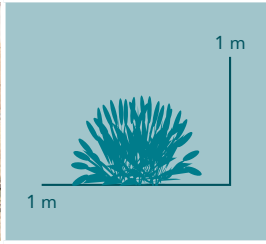

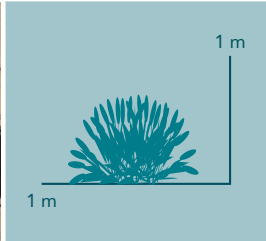
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		Haloxylon salicornium	Rimth	*	1		■	■	High	Medium	High	High	Best used inland. Untested as a landscape plant and will need special skills to properly maintain, however well worth developing for highway landscape use.
		Hammada elegans	Bunge		1		■		High	Medium	High	High	Very useful shrub for desert landscapes and areas requiring low irrigation and maintenance.
		Heliotropium curassavicum	Khashafa	*	1		■	■	High	Medium	High	High	Can grow well in all areas including primary dune/ foreshore locations, some salt tolerance. Untested as a landscape plant and will need special skills to grow properly.
		Heliotropium kotschy	Ramram	*	1		■	■	High	High	High	High	Very useful shrub for desert landscapes and areas requiring low irrigation and maintenance.

Water Consumption Range: ● 1.5 to 6 l/day ●● 3 to 13 l/day ●●● 5 to 20 l/day

A3

SHRUBS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION #	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Hyssopus officinalis	Hissop		♦♦		■	■	High	Medium	High	High	Brightly coloured shrub with fragrant flowers. Good for bees and honey production.
		Lavandula dentata	French Lavender		♦♦		■		Medium	Low	High	High	Small grey-leaved shrub with fragrant flowers. Not suitable for coastal situations.
		Lavandula vera	English Lavender		♦♦		■		Medium	Low	High	High	Small grey-leaved shrub with fragrant flowers. Not suitable for coastal situations.
		Lawsonia inermis	Henna Plant, Mignonette Tree		♦♦♦		■		Medium	Low	High	Medium	Henna is commonly grown in oases and along mountain wadis. It is culturally significant so should also be associated with heritage sites and community gardens. Not suitable for coastal situations.

Water Consumption Range: ♦ 1.5 to 6 l/day ♦♦ 3 to 13 l/day ♦♦♦ 5 to 20 l/day


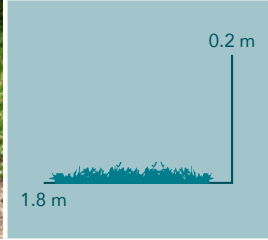

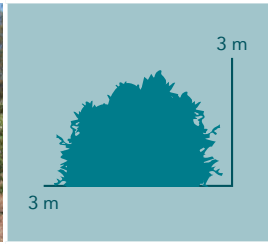



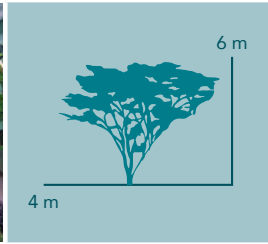
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		Leptadenia pyrotechnica	Fire Plant, Merekh	*	1		■		High	High	High	High	Very hardy shrub. Best used as a wind break along highways where there is little or no irrigation.
		Leucophyllum candidum 'Thunder Cloud'	Thunder Cloud Texas Sage		1		■	■	High	High	High	High	Very good hedge plant for most areas. Low water demand and easy to maintain.
		Leucophyllum frutescens	Texas Ranger, Texas Sage		1		■	■	High	High	High	High	Very good hedge plant for most areas. Low water demand and easy to maintain.
		Leucophyllum frutescens 'Green Cloud'	Texas Sage		1		■	■	High	High	High	High	Very good hedge plant for most areas. Low water demand and easy to maintain.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

A3

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		Lycium shawii	Desert Thorn	*	1	Thorns	■		High	Medium	High	High	Hardy plant. Could be an excellent hedge plant but untested. Thorns restrict it's use to hedge planting.
		Malvaviscus arboreus	Turk's Cap		3		■	■	Low	Low	High	Low	Widely used in public gardens providing colour for most of year.
		Murraya exotica	Orange Jasmine, Satin Wood, Honey Bush, Chinese Box		2			■	High	Medium	High	High	Quite hardy plant but does better with a bit of shade.
		Murraya paniculata	Orange Jasmine, Chalcas		3			■	High	Medium	High	High	Quite hardy plant but does better with a bit of shade.

Water Consumption Range: 1 1.5 to 6 l/day 2 3 to 13 l/day 3 5 to 20 l/day


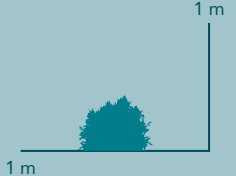

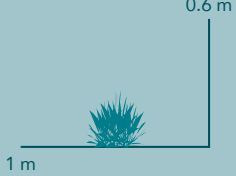




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		Myoporum parvifolium	Myoporum		◆◆		■	■	Medium	Medium	High	Medium	Quite hardy spreading shrub, but does better with a bit of shade.
		Myrtus communis	True Myrtle		◆◆		■		Low	Low	High	Medium	Small shrub. Well suited to urban plazas and parks. Not suitable for coastal situations.
		Panicum turgidum	Thaman	*	◆		■		High	Low	High	High	Sand binding characteristics and self-propagation by stem rooting, make it a useful shrub for naturalising on large areas with little available irrigation.
		Plumeria acutifolia	Frangipani Tree, Temple Tree		◆◆◆	Sap Allergy	■	■	Medium	Medium	High	Low	Can tolerate full sun or partial shade.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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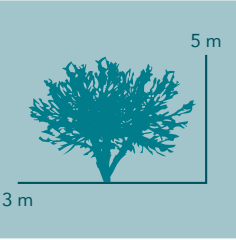

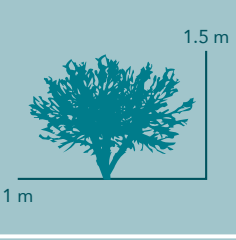

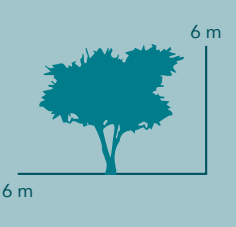
SHRUBS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION #	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Pseuderanthemum atropurpureum</i>	Purple False Eranthemum		◆◆◆		■	■	Low	Low	Medium	Medium	A good plant for under tree locations in parks or urban plazas. Must have shade and shelter.
		<i>Pseuderanthemum reticulatum</i>	Yellow-Vein Eranthemum		◆◆◆		■	■	Low	Low	Medium	Medium	A good plant for under tree locations in parks or urban plazas. Must have shade and shelter.
		<i>Salvadora persica</i>	Toothbrush Tree	*	◆		■	■	High	High	Low	Low	Very hardy large shrub, suitable to most situations. Requires little maintenance.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


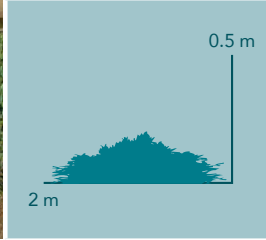

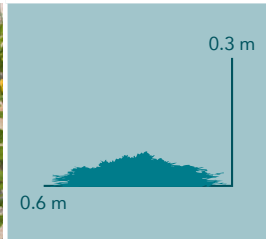

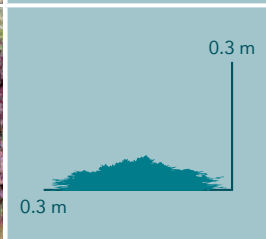

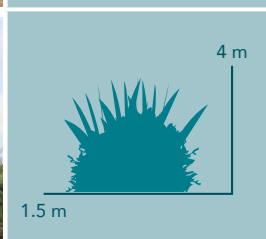
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		<i>Scaevola frutescens</i>	Beach Naupaka		◆◆			■	High	High	High	Medium	Hardy waterfront species. Best suited to Abu Dhabi.
		<i>Senna italica</i>	Senna	*	◆◆		■	■	Medium	Medium	High	Medium	Small hardy shrub. Commonly found along wadis beds.
		<i>Tamarix parviflora</i>	Salt Cedar		◆◆◆		■	■	High	High	High	High	Hardy big shrub or small tree. Suitable for most situations.
		<i>Tecoma smithii</i>	Orange Bells		◆◆◆		■	■	Medium	Medium	High	High	Hardy species with wide application. Needs little water in winter months.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

A3




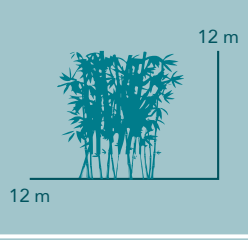

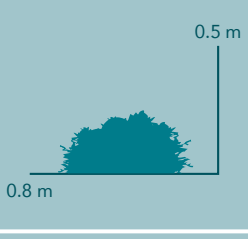

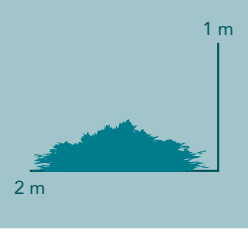
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		Tecoma stans	Yellow Trumpet Bush		◆◆		■	■	Medium	Medium	High	High	Hardy species with wide application. Needs little water in winter months.
		Tecomaria capensis	Cape Honeysuckle		◆◆		■	■	Medium	Low	Medium	High	Hardy species with wide application. Needs little water in winter months.
		Vitex agnus-castus	Chastetree, Vitex	*	◆◆		■	■	Medium	High	High	High	Useful hedge plant and wind break.

Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


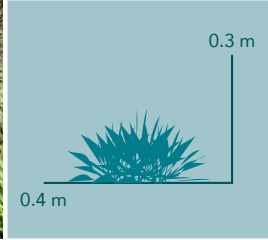

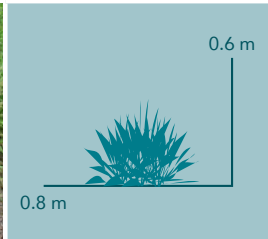

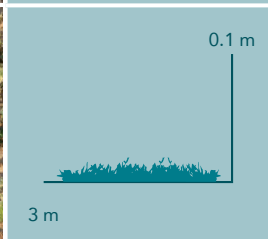
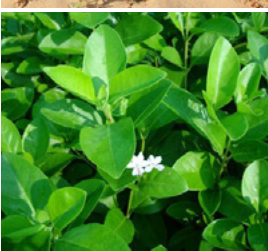
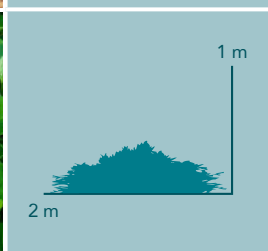
GROUND COVER AND GRASSES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION ## CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Acacia redolens	Prostate Acacia		◆◆		■	■	High	High	High	High	Very useful ground cover plant for parks or streetscapes as it requires little maintenance. Spines can be a problem if used near pathways.
		Alternanthera flavescens	Yellow Joyweed		◆◆		■	■	Medium	Medium	High	High	Needs partial shade to avoid burning in extreme summer conditions.
		Alternanthera versicolor	Rose Bush		◆◆		■	■	Medium	Medium	High	High	Needs partial shade to avoid burning in extreme summer conditions.
		Arundo donax	Giant Reed	*	◆◆◆		■	■	Low	Medium	High	High	Strong, spreading bamboo. Suitable as a screen and for growing near water locations.

**Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

A3


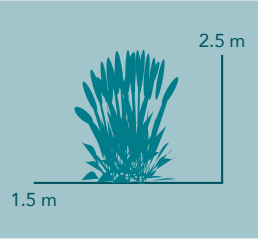

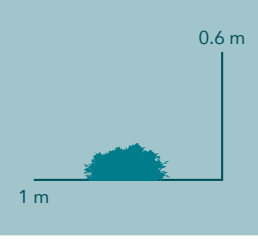

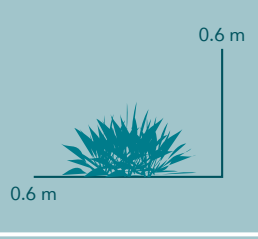

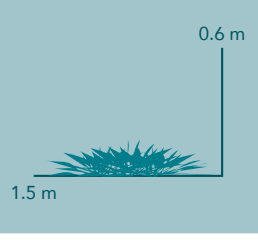
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		<i>Atriplex semibaccata</i>	Australian Saltbush		●		■	■	High	High	High	High	Very useful ground cover plant for parks or streetscapes. Tolerant of different environments and requires little maintenance.
		<i>Bambusa vulgaris</i>	Common Bamboo		●●		■	■	Medium	Medium	High	High	Vigorous, tropical bamboo, useful as windscreen for more delicate plants. Suitable for open spaces.
		<i>Boerhavia elegans</i>	Hamra	*	●●		■		High	Low	High	High	A particularly beautiful perennial flower but one that has not been grown in urban context. Flowers in the winter months then virtually disappears so it has limited value in urban landscapes. The species would require specialist maintenance skills.
		<i>Capparis spinosa</i>	Caper Plant	*	●		■	■	High	High	High	High	Locally occurring species, survives where roots have access to moisture (most on Jebel Hafeet). Suitable as a ground cover and has attractive flowers. Needs competent maintenance re trimming and minimum irrigation.

Water Consumption Range: ● 2 to 8 l/day ●● 2.5 to 11.5 l/day ●●● 3 to 12 l/day

GROUND COVER AND GRASSES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION ## CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Carex hachijoensis	Japanese Sedge		◆◆			■	High	Low	Low	Medium	Attractive grass. Needs to be used sparingly.
		Cenchrus ciliaris	Blue Buffalo Grass	*	◆		■		High	Low	High	High	Good grass for inland locations. Needs little maintenance and irrigation. Does not tolerate shade and can be invasive.
		Citrullus colocynthis	Desert Gourd	*	◆		■		High	Low	High	High	Useful spreading groundcover that require little irrigation. Produces melon-type fruits with a bitter pulp. Seed can be used in biofuel production.
		Clerodendrum inerme	Seaside Glory-Bower		◆◆		■	■	High	High	High	High	Widely used as a hedge species. Hardy but too often trimmed too hard and dies back leaving exposed woody branches and no leaf.

**Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

A3


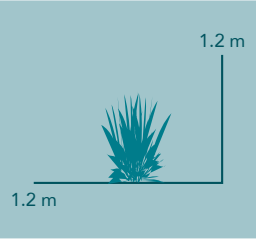

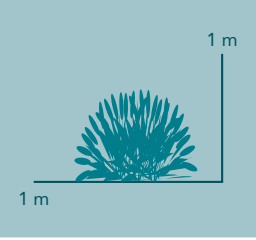

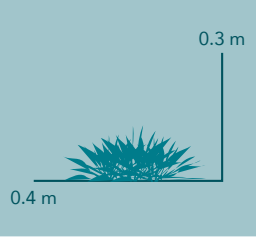

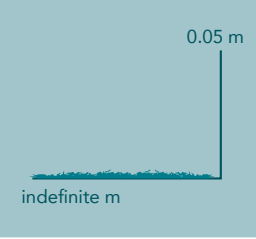
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		<i>Cortaderia selloana</i>	Pampas Grass		♦♦		■	■	High	Medium	High	High	Tall grass. Suitable as a specimen plant in most parks. Requires space.
		<i>Crotalaria aegyptiaca</i>	Nzah	*	♦		■		High	Medium	High	High	Limited use given it has not been developed as a landscape plant. Needs similar level of sensitive maintenance as Haloxylon and Aerva javanica.
		<i>Cyperus conglomeratus</i>	Tamachek	*	♦♦		■	■	High	Medium	High	High	Good grass for all locations. Needs little maintenance and irrigation.
		<i>Cyperus laevigatus</i>	Hasal		♦♦♦		■	■	Low	Low	Medium	High	Reed bed plant. Used in association with fresh-water, waterfeatures etc.

Water Consumption Range: ♦ 2 to 8 l/day ♦♦ 2.5 to 11.5 l/day ♦♦♦ 3 to 12 l/day


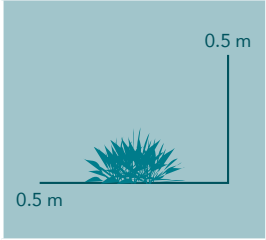

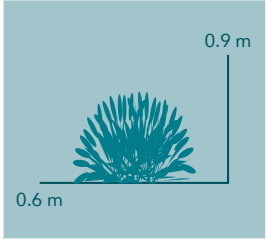

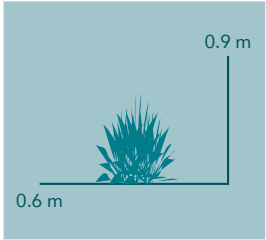

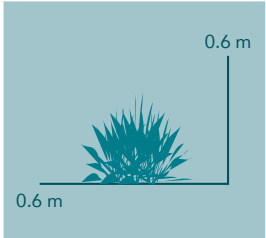
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		Diets grandiflora	Wild Iris, Fairy Iris		◆◆			■	Medium	Medium	High	High	Limited use in private urban plazas.
		Gazania hybrids	Treasure Flower		◆◆		■	■	Medium	Medium	High	High	Hardy species for coastal parks and roadsides.
		Indigofera intricata	Baysha	*	◆		■	■	High	Low	High	High	Appropriate for Al Ain. Not suitable for humid locations.
		Juncus rigidus	Sea Rush		≈			■	High	High	High	High	Grows in shallow water. Suitable for saline or brackish water, such as salt marshes, coastal sand dunes.

**Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

A3


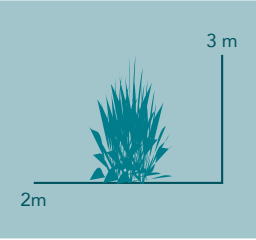

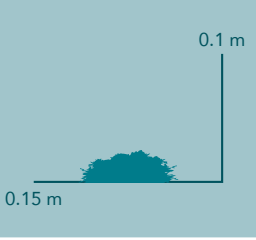

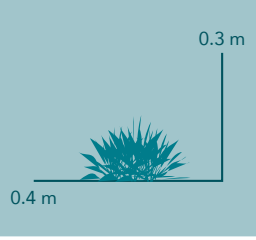

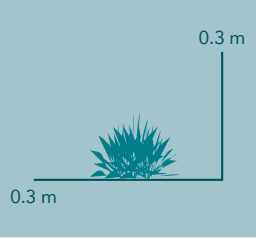
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		Juncus socotranus	Buchenau		≈		■		Low	Low	High	High	Grows in shallow water. Good as a reed bed filtration species. Not suitable for saline or even slightly brackish water.
		Muhlenbergia capillaris	Texas Muhly Grass		◆◆		■	■	Medium	Medium	High	High	Clumping grass. Suitable for more informal locations.
		Ophiopogon japonicus	Tuft Grass		◆◆		■	■	High	Medium	Medium	Medium	Good small grass. Useful for open spaces or streetscapes.
		Paspalum vaginatum	Seashore Paspalum		◆◆		■	■	High	High	High	High	Good amenity grass. Very salt tolerant. Useful for parks or where good grass cover is required.

Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day




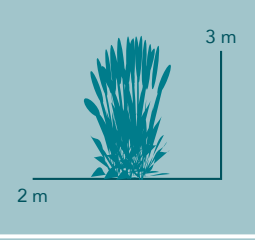

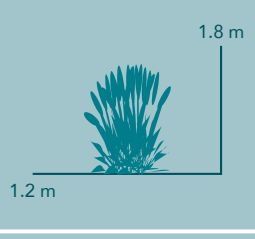
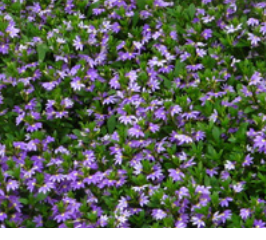
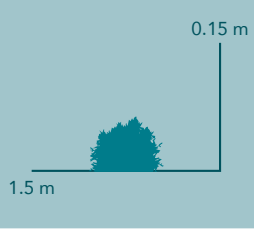
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		Pennisetum divisum	Bristle Grass	*	◆◆		■	■	High	Medium	High	High	Widespread hardy grass species. Very suitable for highway landscapes and desert parks. Excellent for dune stabilizing.
		Pennisetum setaceum	Crimson or African Fountain Grass	*	◆◆		■	■	High	Medium	High	High	Widespread use in urban areas. Often overwatered.
		Pennisetum setaceum rubrum	Purple or Red Fountain Grass		◆◆		■	■	High	Medium	High	High	Widespread use in urban areas. Often overwatered.
		Pennisetum villosum	Feathertop, White Fountain Grass		◆◆		■	■	High	Medium	High	High	Widespread use in urban areas. Often overwatered.

**Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

A3

GROUND COVER AND GRASSES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION ## CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Phragmites australis	Common Reed	*	≈		■	■	Low	High	High	Medium	Salt tolerant reed.
		Portulaca grandiflora	Moss Rose		◆◆			■	Medium	Low	Medium	Medium	Widely used summer annual.
		Rhoeo discolor	Tree men in a boat		◆◆		■		Medium	Low	Medium	High	Needs a shaded and sheltered location. Not suitable for waterfronts.
		Rhoeo spathacea	Oyster Plant, Moses-in-the-Cradle		◆◆		■	■	Medium	Low	Medium	High	Needs a shaded and sheltered location. Not suitable for waterfronts.

Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

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		Ruellia caroliniensis	Wild Petunia, East Tennessee Pinkroot		◆◆◆		■	■	Medium	Low	Medium	High	Needs afternoon shade and shelter. Can be invasive by seed distribution. Useful ground cover for urban park, street and plaza uses.
		Saccharum officinarum	Sugarcane		◆◆◆		■		Low	Low	Medium	Medium	Oasis species with limited uses in community gardens.
		Saccharum ravennae	Ravenna or Sugarcane Plume Grass	*	◆◆◆		■		Low	Low	Medium	Medium	Needs to grow next to fresh water or receive higher irrigation rate during growing season.
		Scaevola aemula	Fairy Fan Flower		◆◆		■	■	High	Medium	High	Medium	Suitable for parks and open spaces.

**Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

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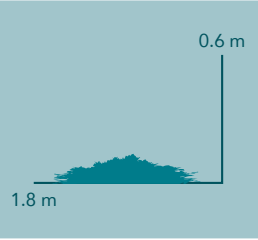
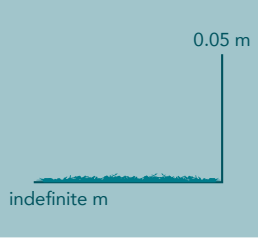

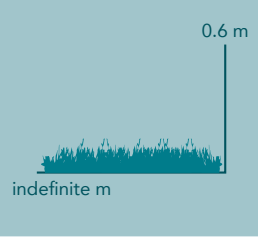
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		Senecio cineraria	Dusty Miller		●		■	■	High	Medium	High	High	Perennial suitable for urban street, plaza or park use as a low water demand ground cover.
		Sesuvium portulacastrum	Sea Purslane		●		■	■	High	High	High	High	The best hardy ground cover requiring very low water and maintenance. S. portulacastrum grows flat on the ground whereas S. verrucosum is approx. 150 to 200mm high.
		Sesuvium portulacastrum 'Red Form'	Red Sea Purslane		●		■	■	High	High	High	High	Rusty red version of S. portulacastrum.
		Sesuvium verrucosum	Rohama	*	●			■	High	High	High	High	Taller growing and frequently overwatered. Grows best on a low water regime. Should not be taller than 120mm.

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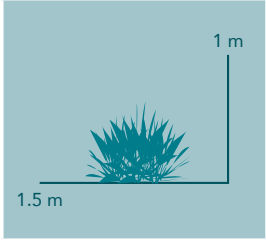

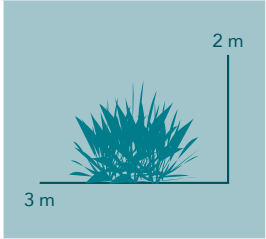

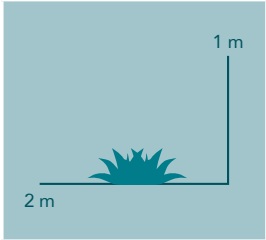

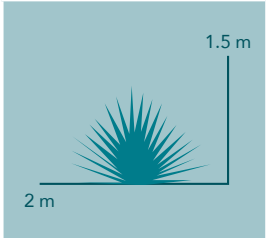
GROUND COVER AND GRASSES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION ## CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Setcreasea purpurea	Purple Heart syn Tradescantia purpurea		◆◆		■	■	Medium	Medium	Medium	High	Good ground cover for under shade of trees or palms. Burns if unshaded.
		Tephrosia apollinea	Dhafra	*	◆		■	■	High	Low	High	High	Hardy small shrub for desert areas and low water demand urban landscapes. Untried as an urban plant.
		Tribulus arabisicus 'Hosni'	Zahar	*	◆		■	■	High	Low	High	High	Good ground cover needing little irrigation. Suitable for open spaces or streetscapes in inland locations.
		Vitex rotundifolia	Beach Vitex		◆◆		■	■	Medium	Medium	High	High	Tolerant of most conditions, but grows bigger if protected from wind and salt sprays. Suitable for open spaces and streetscapes.

**Water Consumption Range: ◆ 2 to 8 l/day ◆◆ 2.5 to 11.5 l/day ◆◆◆ 3 to 12 l/day

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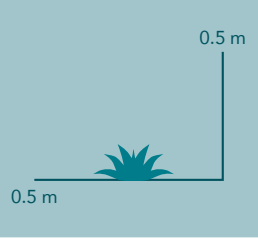
GROUND COVER AND GRASSES	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION ##	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Wedelia trilobata	Creeping Daisy, Yellow Dots		♦♦		■	■	Medium	Medium	High	High	Roots from the leaf nodes and spread widely. Useful to cover large areas, otherwise due to its vigour it has limited applications.
		Zoysia japonica	Korean Lawngrass		♦♦		■	■	Medium	Medium	High	High	Good amenity grass. Tolerant of shade or sun. Useful for parks or where good grass cover is required.
		Sporobolus spicatus	Salt grass	*	♦♦		■	■	Medium	High	High	High	Can be used as a general ground covers in interchanges, roads centre-medians and public areas.

Water Consumption Range: ♦ 2 to 8 l/day ♦♦ 2.5 to 11.5 l/day ♦♦♦ 3 to 12 l/day


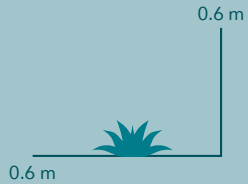
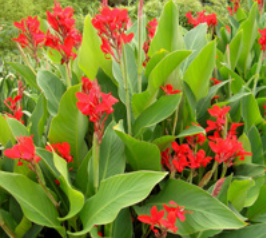
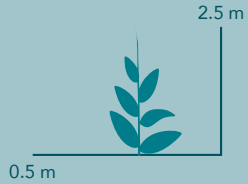

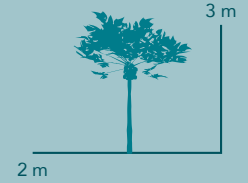

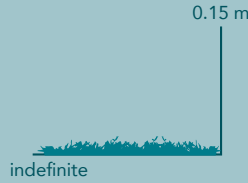
SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION &	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Agave americana angustifolia	Century Plant		◆◆	Leaf Spines	■	■	High	High	High	High	Agave is a hardy genus, however, plants have been burnt during periods of extreme heat. They present a problem for maintenance due to the sharp leaf tips.
		Agave americana 'Green'	Century Plant		◆◆	Leaf Spines	■	■	High	Medium	High	High	Agave is a hardy genus, however, plants have been burnt during periods of extreme heat. They present a problem for maintenance due to the sharp leaf tips.
		Agave attenuata	Swan's Neck, Fox Tails		◆◆	Leaf Spines	■	■	High	Medium	High	High	Agave is a hardy genus, however, plants have been burnt during periods of extreme heat. They present a problem for maintenance due to the sharp leaf tips.
		Agave 'Blue Agave'	Blue Agave, Tequila Agave		◆◆	Leaf Spines	■	■	High	Medium	High	High	Agave is a hardy genus, however, plants have been burnt during periods of extreme heat. They present a problem for maintenance due to the sharp leaf tips.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

A3


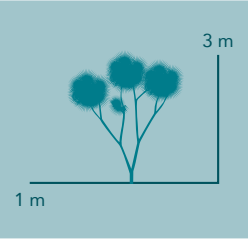

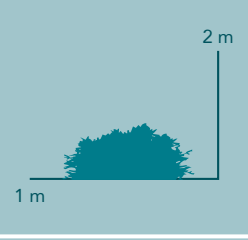

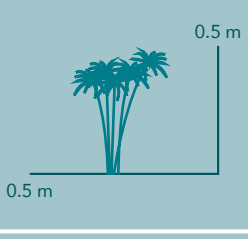


SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION & CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Agave colorata	Mescal Ceniza, Century Plant		◆◆	Leaf Spines	■	■	High	Medium	High	High	Agave is a hardy genus, however, plants have been burnt during periods of extreme heat. They present a problem for maintenance due to the sharp leaf tips.
		Agave deserti	Desert Agave		◆◆	Leaf Spines	■	■	High	Medium	High	High	Agave is a hardy genus, however, plants have been burnt during periods of extreme heat. They present a problem for maintenance due to the sharp leaf tips.
		Aloe arborescens	Krantz Aloe		◆◆	Leaf Spines	■	■	High	Medium	High	High	Has been known to burn in full summer sun. Does best in partial shade from Date Palms.
		Aloe striata	Coral Aloe		◆◆	Leaf Spines	■	■	High	Medium	High	High	Has been known to burn in full summer sun. Does best in partial shade from Date Palms.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


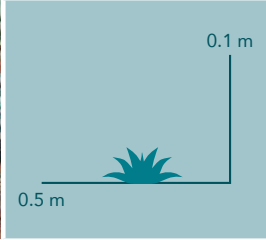

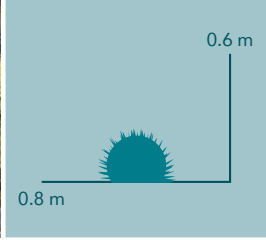

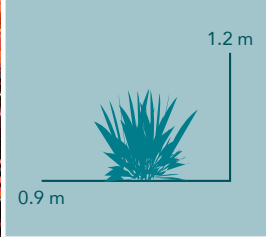

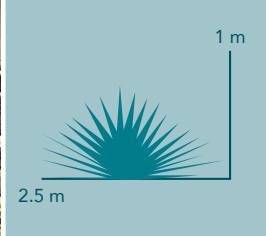
SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION & CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Aloe vera	Aloe Vera	*	●●	Leaf Spine	■	■	High	Medium	High	High	Has been known to burn in full summer sun. Does best in partial shade from Date Palms.
		Canna indica	Indian Shot		●●●		■	■	Low	Medium	Medium	Medium	Widely grown but should be used sparingly to allow for greater use of lower water demand species.
		Carica papaya	Papaya or Paw Paw		●●●		■	■	Medium	Low	High	Medium	Important oases species. May be grown in Community Gardens, but otherwise of limited use.
		Carpobrotus edulis	Fig Marigold		●●		■	■	High	Medium	High	High	Widely spreading succulent plant. Good for covering large areas of ground in parks or streetscapes. Needs little maintenance. Produces edible, fig-like brown fruit.

*Water Consumption Range: ● 1.5 to 6 l/day ●● 3 to 13 l/day ●●● 5 to 20 l/day

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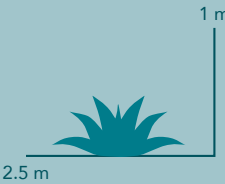

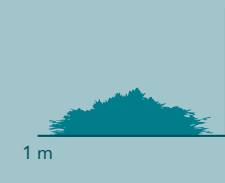

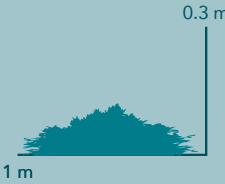

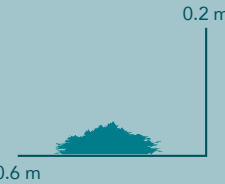
SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION &	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Cordyline australis</i>	Cabbage Palm		◆◆		■		High	Low	High	High	Erect eye-catching plant. Suitable for parks and urban spaces.
		<i>Crassula argentea</i>	Jade Plant		◆◆		■	■	High	High	High	High	Can be widely used as a low water requirement ground cover plant.
		<i>Cyperus alternifolius</i>	Umbrella Plant		◆◆◆			■	Low	Medium	Medium	Medium	High water demand to grow properly, therefore limited application. Needs shelter and partial shade.
		<i>Cyperus involucratus</i>	Umbrella Sedge, Dwarf Papyrus		◆◆◆			■	Low	Medium	Medium	Medium	High water demand to grow properly, therefore limited application. Needs shelter and partial shade.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


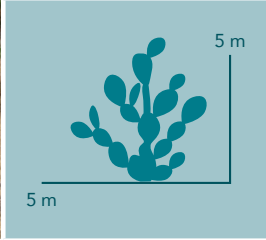

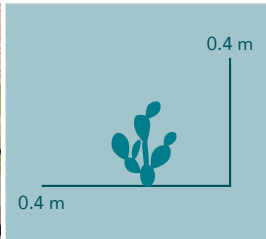

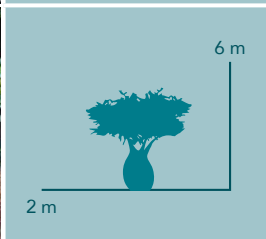

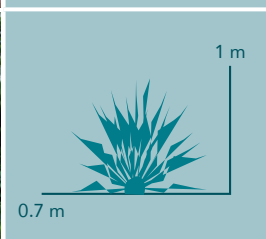
SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION &	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Echeveria elegans</i>	Hen and Chicks		◆		■	■	High	Medium	High	High	Useful groundcover plant for streetscapes or open spaces.
		<i>Echinocactus grusonii</i>	Golden Barrel Cactus		◆	Spines	■	■	High	Medium	High	High	Rounded cactus. Good for desert type open spaces, or streetscapes.
		<i>Euphorbia tirucalli</i>	Sticks on Fire		◆		■	■	High	Medium	High	High	Good eye-catching plant. Good for open spaces or streetscapes. Requires little maintenance.
		<i>Fulcræa gigantea</i>	Malagache Aloe		◆◆		■	■	High	Medium	High	High	Bears strongly scented white flowers in summer. Suitable for open spaces or streetscapes.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION &	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Fulcræa gigantea</i> 'Mediopicta'	Malagache Aloe		◆◆		■	■	High	Medium	High	High	Eye-catching variegated leaves. Bears strongly scented white flowers in summer. Suitable for open spaces or streetscapes.
		<i>Heliotropium curassavicum</i>	Salt Heliotrope		◆◆		■	■	Medium	High	High	High	Good ground cover plant. Thrives in coastal / salt laeden environments.
		<i>Lampranthus spectabilis</i>	Trailing Ice Plant		◆◆		■	■	High	Medium	High	High	Good ground cover plant. Suitable for open spaces or streetscapes.
		<i>Malephora crocea</i>	Ice Plant		◆		■	■	High	High	High	High	Good ground cover plant. Suitable for open spaces or streetscapes.

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SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION & CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Opuntia ficus-indica</i>	Indian Fig		◆	Spines	■	■	High	Medium	High	High	Tall cactus. Suitable for desert type open spaces or streetscapes Produces edible fruits.
		<i>Opuntia microdasys</i>	Funny Bunny		◆	Spines	■	■	High	Medium	High	High	Small cactus. Suitable for desert type open spaces or streetscapes.
		<i>Pachypodium lamerei</i>	Madagascar Palm		◆	Spines	■	■	High	High	High	High	Tree-like succulent, with spines along its trunk. Suitable for desert type open spaces or streetscapes.
		<i>Pandanus sanderi</i>	Pandanus		◆◆		■	■	High	High	High	High	Low maintenance, medium size plant. Suitable for open spaces or streetscapes. Variegated leaves when mature.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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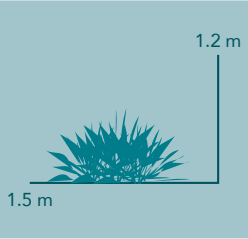

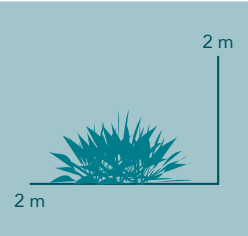
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		Pandanus veitchii	Veitchs Screw Pines		◆◆		■	■	High	High	High	High	Low maintenance, tree-like plant. Suitable for open spaces or streetscapes.
		Pedilanthus tithymalooides	Devils Backbone		◆◆		■	■	High	Medium	High	High	Upright shrub. Suitable for parks.
		Pedilanthus tithymalooides 'Variegatus'	Variegated Devils Backbone		◆◆		■	■	High	Medium	High	High	Smaller variegated version. Suitable for parks or urban spaces.
		Portulacaria afra	Elephant Bush		◆◆		■	■	High	Medium	High	High	Tall shrub. Suitable for larger parks.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day




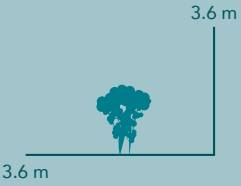

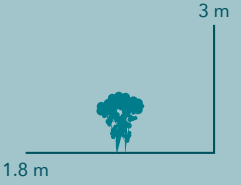

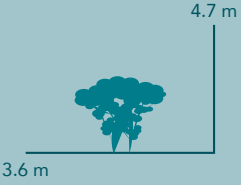
SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION &	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Sansevieria cylindrica	Snake Plant		◆◆		■	■	High	Medium	Medium	High	Hardy understorey for shade trees in urban context.
		Sansevieria trifasciata	Mother-in-Law's Tongue		◆◆		■	■	High	Medium	Medium	High	Hardy understorey for shade trees in urban context.
		Sesuvium portulacastrum	Sea Purslane		◆◆		■	■	High	High	High	High	Good ground cover. Requires very low water and maintenance.
		Yucca aloifolia	Spanish Bayonet		◆◆	Sharp Pointed Leaves	■	■	High	High	High	High	Dramatically shaped plant for coastal locations. Best allowed to grow freely as a multistemmed specimen.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

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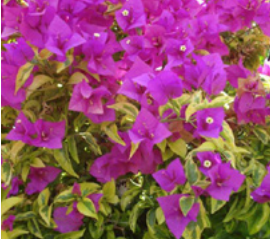


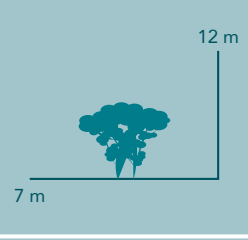




SUCCULENTS AND PERENNIALS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION & CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Yucca brevifolia	Joshua Tree		◆◆	Sharp Pointed Leaves	■	■	High	High	High	High	Best suited to inland areas
		Yucca desmetiana	Soft Yucca		◆◆		■	■	High	High	High	High	Has soft leaves so can be used in contact with public. Useful plants for open space or streetscapes.
		Yucca gloriosa	Spanish Dagger		◆◆	Sharp Pointed Leaves	■	■	High	High	High	High	Leaves fold downward so less hazardous than other species of Yucca. Better suited to coastal locations in association with shade of palms.

*Water Consumption Range: ◆ 1.5 to 6 l/day ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day


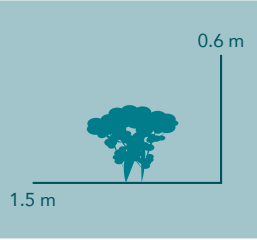

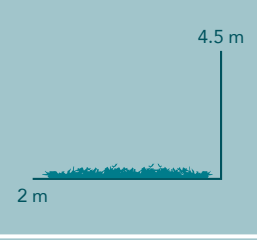




CLIMBERS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION && CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Allamanda cathartica	Golden Trumpet		◆◆◆		■	■	Medium	Medium	High	High	Vine best suited to sheltered, shaded environments.
		Allamanda cathartica 'Cherries Jubilee'	Lavender Trumpet		◆◆◆		■	■	Medium	Medium	High	High	Vine best suited to sheltered, shaded environments.
		Antigonon leptopus	Coral Vine		◆◆		■	■	High	Medium	Medium	High	Best where shaded from afternoon summer sun, otherwise very hardy. Can be invasive.
		Bougainvillea glabra	Bougainvillea, Paper Flower		◆◆	Thorns		■	High	Medium	High	High	Very common species, widely used. Needs low water regime but is often overwatered.

&& Water Consumption Range: ◆ N/A ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day

A3


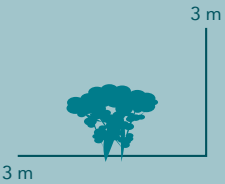

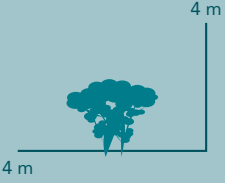

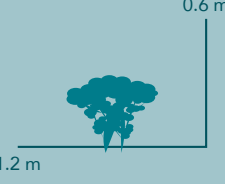


CLIMBERS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION && CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Bougainvillea hybrids	Bougainvillea, Hybrids		☹☹	Thorns		■	High	Medium	High	High	Very common species, widely used. Needs low water regime but is often overwatered.
		Bougainvillea spectabilis	Bougainvillea, Paper Flower	*	☹☹	Thorns		■	High	Medium	High	High	Very common species, widely used. Needs low water regime but is often overwatered.
		Campsis radicans	Common Trumpet Creeper		☹☹☹			■	Medium	Medium	High	High	Vigorous climber. Useful to hide unwelcome structures.
		Clitoria ternatea	Butterfly Pea, Blue Pea Vine		☹☹☹			■	Medium	Low	Medium	Medium	Limited use in parks and urban plazas.

**Water Consumption Range: ☹ N/A ☹☹ 3 to 13 l/day ☹☹☹ 5 to 20 l/day


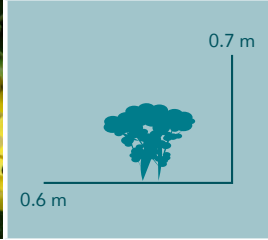
CLIMBERS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION && CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		<i>Ipomoea batatas</i> 'Blackie'	Sweet Potato Vine		●●●		■	■	Medium	High	High	High	Very unusual purple colour. Useful as a feature. Will grow in most locations except foreshore.
		<i>Ipomoea biloba</i>	Morning Glory		●●●		■	■	Medium	High	High	High	Mainly used to hide unwelcome structures, walls and fences. Grows in most locations except foreshore.
		<i>Ipomoea palmata</i>	Messina, Mile-a-Minute Vine		●●●		■	■	Medium	High	High	High	Mainly used to hide unwelcome structures, walls and fences. Grows in most locations except foreshore.
		<i>Jasminum angulare</i>	South African Jasmine		●●●		■	■	Low	Low	Medium	Medium	Most jasmines are hardy but do best where shaded from afternoon summer sun and are sheltered from wind. Grows in coastal or inland urban areas.

**Water Consumption Range: ● N/A ●● 3 to 13 l/day ●●● 5 to 20 l/day

A3

CLIMBERS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION && CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Jasminum azoricum	Azores Jasmine		●●●		■	■	Low	Low	Medium	Medium	Most jasmines are hardy but do best where shaded from afternoon summer sun and are sheltered from wind. Grows in coastal or inland urban areas.
		Jasminum grandiflorum	Spanish or Royal Jasmine	*	●●●		■	■	Low	Low	Medium	Medium	Most jasmines are hardy but do best where shaded from afternoon summer sun and are sheltered from wind. Grows in coastal or inland urban areas.
		Jasminum nitidum	Angelwing or Shining Jasmine		●●●		■	■	Low	Low	Medium	Medium	Most jasmines are hardy but do best where shaded from afternoon summer sun and are sheltered from wind. Grows in coastal or inland urban areas.
		Jasminum sambac	Arabian Jasmine		●●●		■	■	Low	Low	Medium	Medium	Needs more water than other jasmines. Best used as a low growing shrub in semi shaded and sheltered locations.



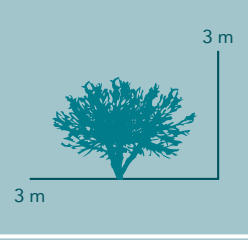

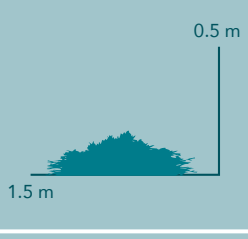


** Water Consumption Range: ● N/A ●● 3 to 13 l/day ●●● 5 to 20 l/day

CLIMBERS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION && CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Thunbergia alata	Black-Eyed Susan Vine		◆◆◆		■	■	High	Medium	High	High	Limited use in urban plaza or community garden context.
		Thunbergia battiscombei	Blue Glory, Clock Vine, Scrambling Sky Flower		◆◆◆		■	■	High	Medium	High	High	Limited use in urban plaza or community garden context.

&& Water Consumption Range: ◆ N/A ◆◆ 3 to 13 l/day ◆◆◆ 5 to 20 l/day




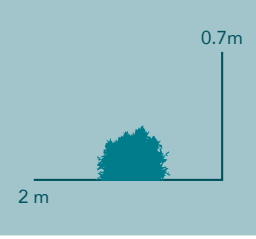

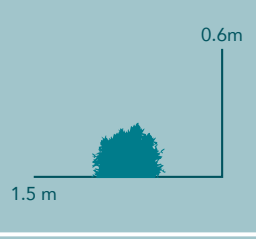

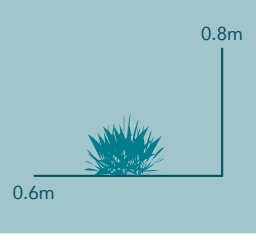
The following plant species are native of either Abu Dhabi or the region. They are encouraged for use throughout the Public Realm in Abu Dhabi. Most of the species are currently undergoing field trials to determine their growing characteristics, water requirements, and other features. Currently little detail is available for them, however they are all species that have some positive characteristics or potential for use within the Public Realm.




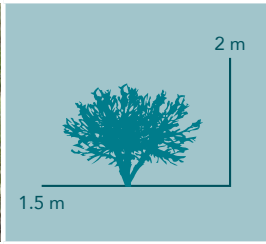

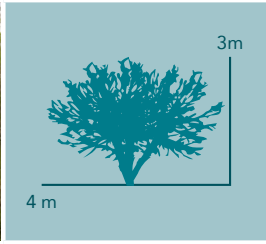

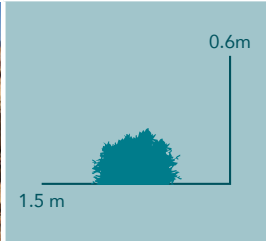
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NATIVE PLANTS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Boerhavia repens	Spreading Hogweed, Red spiderling		☹☹		■	■	High		High	High	
		Ficus johannis	Fig		☹☹		■		High		High		
		Indigofera arabica			☹☹		■		High		High		
		Indigofera colutea	Rusty indigo/ Sticky indigo		☹☹		■		High		High		


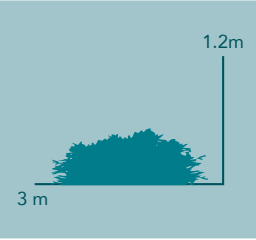

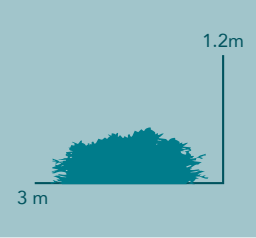
NATIVE PLANTS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Indigofera intricata	Baysha	*					High	Low	High	High	
		Indigofera oblongifolia							High		High	High	
		Iphiona scabra		*					High		High	High	
		Ochradenus arabicus		*					High		High	High	

A3

NATIVE PLANTS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Ochradenus aucheri		*	●●		■		High		High	High	
		Ochradenus baccatus			●		■		High		High	High	
		Rhazya stricta		*	●●			■	High		High	High	
		Stipagrotis ciliata	Large Busman Grass	*	●			■	High		High	High	

NATIVE PLANTS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Stipagrotis plumosa		*	1			■	High		High	High	
		Tamarix aphylla		*	1			■	High		High	High	
		Tamarix nilotica			2			■	High		High	High	
		Taverniera glabra			1			■	High		High	High	

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NATIVE PLANTS	SHAPE	BOTANIC NAME	COMMON NAME	NATIVE SPECIES	IRRIGATION CLASSIFICATION	HAZARDS	INLAND SUITABILITY	COASTAL SUITABILITY	DROUGHT TOLERANCE	SALINITY TOLERANCE	SUN TOLERANCE	WIND TOLERANCE	USER NOTES
		Taverniera spartea		*	●		■		High		High	High	
		Tephrosia apollinea		*	●		■		High		High	High	

A4
Irrigation



Streetscape,
Saadiyat Island

A4

Irrigation Guide

The Abu Dhabi Emirate is taking part in the global effort to manage water-use for landscape and minimise the use of non renewable resources.

Research has been undertaken to determine the actual irrigation needs and best irrigation practice for the public realm. This research has informed the irrigation guide.

The condition and composition of the soil is very important in both plant health and efficiency of water use. Sandy soils have little capacity to hold on to water and nutrients therefore, the water need, as per this Irrigation Guide is greatly influenced by the use of natural mineral and organic based soil moisture-retention additives.

Mineral additives, such as clay or similar provide a permanent restructuring of soil while organic matter and polymers provide nutrient as well as soil conditioning but break down eventually and are a more temporary solution. Using a mix of both it is possible to increase the water and nutrients holding capacity of the soil and establish a soil able to hold sufficient moisture to sustain plants with irrigation events every three days during the summer and every 7-10 days during winter.

PRDM Irrigation Guide

The PRDM Irrigation Guide provides general guidance on the irrigation needs of plants that may be used throughout the Abu Dhabi Emirate. Because this is a guide only, some of the information may not apply directly to all areas of the Emirate. While the Guide provides minimum irrigation levels that, through a combination of soil improvers, irrigation management and appropriate irrigation systems will be achievable, these rates, which complement and are in line with Estidama Requirements, will require a robust design and maintenance programme including implementing the following best practices:

1. Water-conserving irrigation technologies (such as subsurface irrigation) should be used wherever possible to optimize water delivery rates to evapotranspirational demand.
2. Preference should be given to desert landscape design that use strategic size and placement of plant materials.
3. Where appropriate and functional, turf grass should be used to provide evapotranspirational cooling in landscapes as well as providing for amenity needs.
4. A goal should be set to use 100% recycling of landscape green waste to encourage water retention, soil formation, nutrient recycling, and inhibit soil heating.
5. Plant materials should remain naturalised to the greatest extent possible. Combined with conservative water use, minimalised pruning strategies result in lower rates of green waste production and salt deposition in landscape soil.

Using the Guide

Planting plans in the Emirate must better utilise draught and salt tolerant materials. The Guide provide direction on achieving an attractive, functional landscape within the constraints of our irrigation resources. By strategically combining plants with lower water needs with plants of higher water needs, the public realm design can still be attractive, yet more functional and appropriate for the local climate. A proper balance can help to achieve the desired Estidama rating.

Each plant species listed has a recommended water requirement indicated by water droplets. The droplets show water requirements ranging from one to three.

Plants should be planted in hydrozones, based on these water requirements, to ensure that those with the same water requirement are clustered. One and two droplet plants are preferable in public realm design. Three droplet plants typify the sub-tropical plants that have been used regularly in the Emirate but that should be used strategically in public realm design because of their higher water requirements.

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Acknowledgements

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