

- Retail Streets
- Neighbourhood Tram Street
- Central Boulevard
- Universities
- Conference Centre
- Hospital Campus

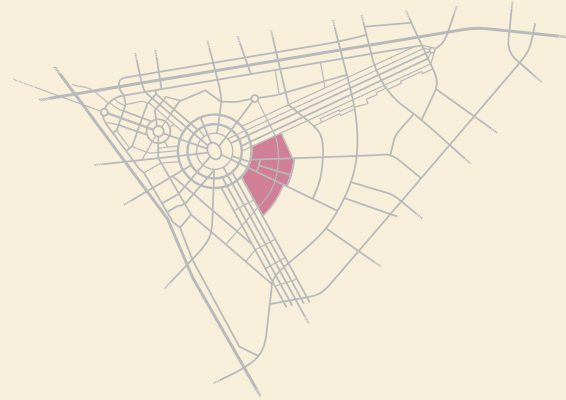


Conference Centre

Directly adjacent to the CBD is a multipurpose conference centre and concert hall. Hotels and retail uses are organized to draw users through the site from all sides via a linked pedestrian system while spaces within and around the venue are generously shaded to accommodate a range of public and cultural events.

City Centre Precinct

Federal Mosque District



The Federal Mosque District will provide a variety of low and medium-density housing options intertwined with vibrant open spaces and community and cultural uses. At the heart of the District, a national mosque will preserve the nation's Islamic identity and local government offices will anchor a major civic open space.

The Federal Mosque District's character is that of a lower scale residential neighbourhood, especially along its central core. Low-rise buildings complemented by large open spaces and schools create a strong community environment. The Federal Mosque District is surrounded by the CBD, the North Spine, the Emirati neighbourhood (a low density residential zone) and the South Spine (with similar uses as the North Spine). Streets along the Mosque District connect to these adjacent neighbourhoods making it a convenient place of residence.





City Centre Precinct

Federal Mosque District



A Distinct Residential Neighbourhood

The Federal Mosque District acts as a buffer between the high density CBD and the low density zone to the south east, the Emirati neighbourhood. A range of housing types and arrangements, from single family villas, to town homes and row-houses, to courtyard apartment buildings provide housing options for residents and contribute to the area's quiet, residential character. Villas along the Emirati Neighbourhood serve as a buffer between the higher density areas of the Mosque District and the Emirati neighbourhood.

A diversity of public open spaces, streetscapes and private open spaces add to the Mosque District's neighbourhood feel.

Along the central collector street are a series of neighbourhood retail centres, which coincide with tram station locations.

Civic and Institutional Spaces

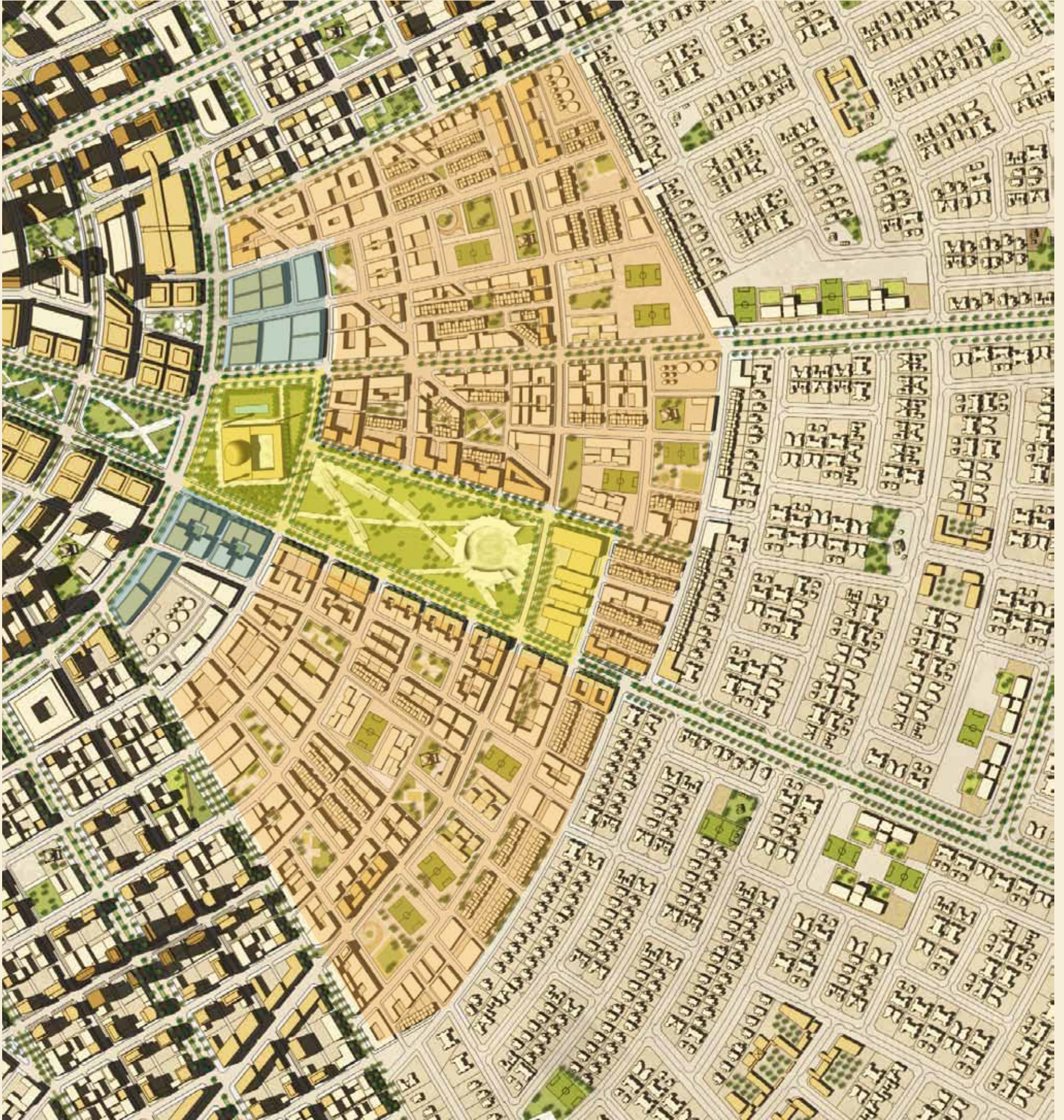
One of the defining elements of this district is the large formal open space at its centre. This space is important to the overall form of the Capital District, and relates to a prominent visual axis between the Federal Mosque, the National Oval and the Federal Precinct.

A large institutional facility is located opposite to the Federal Mosque and becomes the focal terminus of this grand civic space.

There are eight large school parcels in the district, located in close proximity to neighbourhood open space and community facilities.

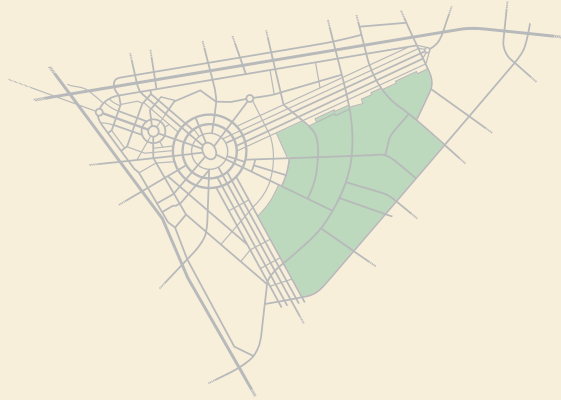
Local Government Office Zone

Adjacent to the landmark Federal Mosque and open spaces of national importance is this node of Government office uses. These buildings will house important local institutions and agencies that will benefit from being located within the high density CBD.



- Civic and Institutional Spaces
- Local Government Offices
- Low & Medium Density Residential Neighbourhoods

Emirati Neighbourhood



The Emirati neighbourhood is an integral element of the Capital District that will provide a more peaceful and relaxed low-density ambience than will exist in the largely middle and high density districts surrounding it. The goal of the Emirati neighbourhood is to create a residential community for Emirati national families living in villas that reflect the current standards and aspirations of the community and provide residences for some 3,000 families.

Each of the twelve individual sub-neighbourhoods is comprised of individually owned villa plots with all the necessary support facilities and amenities will be woven into the neighbourhood including the following:

1. Cycle 1 – 3 schools, both public and private.
2. Parks and recreational facilities
3. Neighbourhood centres with small scale retail and community development.
4. Mosques of three different size footprints:
 - a. 2,000 sq m.
 - b. 500 sq m.
 - c. 200 sq m.
5. Civil defence facilities.
6. One large retail centre

The Emirati neighbourhood will create an attractive and comfortable environment for all residents while employing state of the art sustainable planning and landscape design principles.





Emirati Neighbourhoods



Neighbourhood Centres

At the heart of each of the sub-neighbourhoods within the Emirati neighbourhood is a neighbourhood centre. Along with mosques and parks, these centres will be the main focus of community activity. Neighbourhood centres will contain multiple local services including commercial and retail establishments, and community support facilities such as recreation centres, day-care centres, medical clinics and men's and women's health clubs.

There are two types of retail activity within the Emirati Neighbourhood. The first consists of small scale, local shops located within each neighbourhood centre. The amount of retail in each neighbourhood is based upon its population. Examples of local retail businesses are restaurants, barber shops, pharmacy's and medium size grocery or convenience stores. The second type is a larger retail centre, centrally located in sub-neighbourhood CD 3. This retail centre terminates the axis extending from the Capital District centre circle and is bordered by the tram line providing adequate pedestrian access to the centre from all of the Capital District.

Cultural and Community Facilities

Adjacency to the higher density districts in the Capital Districts will allow residents of the Emirati neighbourhood to take short trips to reach their work place, while still maintaining the relaxed ambience in the Emirati neighbourhood. Emirati schools are also well distributed throughout for closer proximity to maximum neighbourhood residents.

Local neighbourhood centres will provide residents with places to gather including spaces for mosques, retail centres, recreational open spaces and community centres.

Mosques are distributed throughout the neighbourhoods so that each mosque is within a maximum 5 minute walk of all residents. The mosques can accommodate approximately two hundred worshippers, in keeping with the populations of their service areas. They are located adjacent to the neighbourhood parks and neighbourhood centres, reinforcing the role of these amenities as community gathering spaces. There are also five significantly larger mosques intended to serve the broader public for Friday prayers, and will be designed to accommodate up to 3,000 worshippers. They are located in several of the larger neighbourhood centres where users can take advantage of existing parking facilities as well as the surrounding retail and community developments. The mosque distribution is designed to encourage pedestrian movement through the neighbourhood streets. In keeping with design principles found within the Pearls Design System for New Communities, the short walk to a mosque from any place within the neighbourhood will be along pleasant, tree lined, pedestrian friendly streets, reducing the necessity for car use.

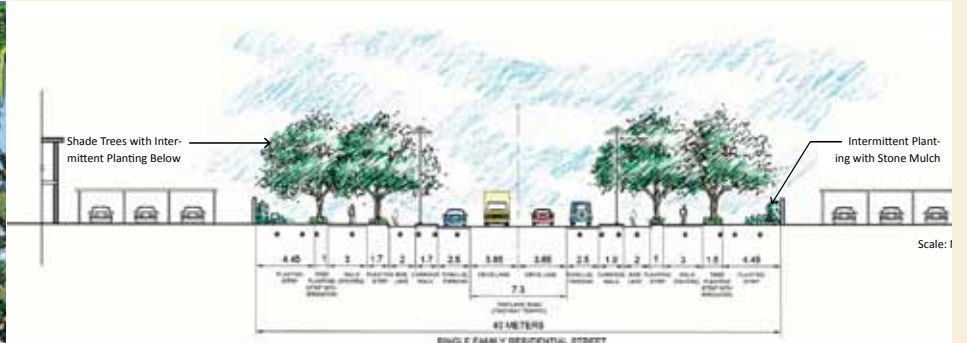


Figure 98. 40 Meter ROW Streetscape Section

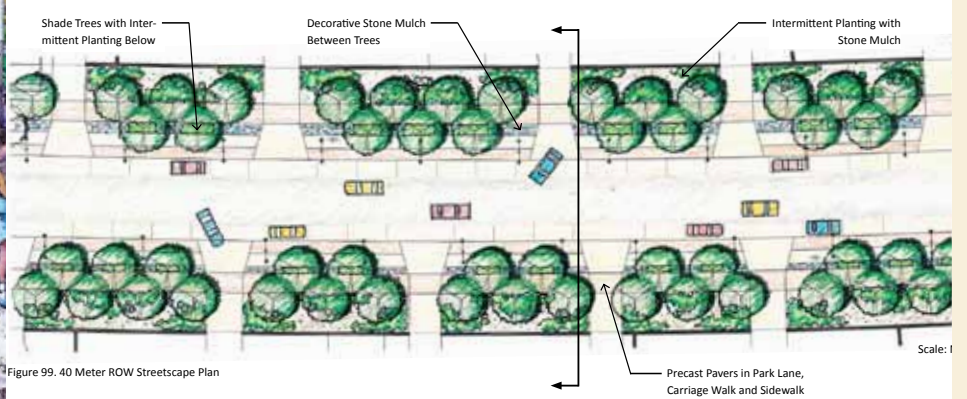


Figure 99. 40 Meter ROW Streetscape Plan

Community Parks

The intention of the Emirati neighbourhood open space plan is to provide park facilities strategically located within walking distances to the residents. Park spaces are connected to each other and to the neighbourhoods by a high quality streetscape and sidewalk network that promotes and encourages pedestrian activity.

Neighbourhood parks are carefully located throughout the Emirati neighbourhoods at approximately the same frequency as mosques. That is, every villa will be within a five minute walk of a public park. The design of the parks will accommodate small gatherings, events and a variety of recreational activities.

The Capital District will employ aggressive guidelines for water conservation in open spaces and use only grey water for irrigating public areas. As such, the parks will take on a non-traditional, yet exciting new appearance. There will be a strong emphasis on shade producing canopies, both natural and man made, and turf grass will be minimized in all parks, in favour of more drought tolerant, climate appropriate plant species.

Connections

The street system in the Emirati Neighbourhood is designed to allow for efficient travel through the neighbourhood on an interconnected system of arterials and collectors, while preserving the quality and character of each individual sub-neighbourhood. A tram service will be provided to connect the neighbourhood with the high density CBD and the neighbouring Khalifa City B development.

The fine-grain network of streets are intended to promote pedestrian connectivity and social interaction. All streets have generous sidewalks on both sides of the street and the primary collector routes have dedicated bicycle paths. Most importantly, all neighbourhood streets will be lined with shade trees. Shade trees produce the most positive impact on the landscape with an efficient use of irrigation water. The trees will form a living canopy over the sidewalks, providing much needed shade as well as colour, movement and natural beauty. The result will be an inviting streetscape, encouraging people to walk short distances in lieu of driving.



Next Generation Planning

منطقة العاصمة
Capital District



A number of influences - cultural, political, social, environmental and aesthetic - are shaping the Capital District's identity. These influences allow Emirati communities to share the development of their city and the overall vision of Plan Abu Dhabi 2030. The foresight to plan for infrastructure ahead of time will ensure that a difference is made to the next generation's individual lives.

Abu Dhabi's Plan 2030 has established a clear vision for sustainability as the foundation of the new Capital District development. This commitment is a reflection of the values and ideals of the Emirati nation. This clearly explains why the Capital District Masterplan is based on creating culturally rich, vital, architecturally attractive and sustainable urban form for this new Capital.

Capital District is the symbol of an inspired vision for governance and community development. It promotes a new mind-set for building and promoting a forward thinking global capital through four predefined pillars: environmental, economic, social and cultural.

Abu Dhabi is a cultural icon of the Middle East region. The emirate is a leading financial centre, a major industrial zone and home to a truly cosmopolitan population that promotes tolerance and acceptance. The importance of the overall quality of the Capital District's urban development is based on many factors. These factors address specific community concerns and present a multidimensional view of urbanization, acting as the model for the new kinds of leadership that will make the next generations proud of their Capital. The Masterplan projects a vision of a controlled development within a harmonious society. Encompassing the vision of a society which is diverse, culturally rich and evolving into a continuously stable environment.

This vision will make a truly impactful difference to the future of the next generation.



Appendix

Design Guidelines

World class cities, especially high density downtown environments, demand a coordinated approach to building design and the creation of inviting public spaces. A number of influences – cultural, ecological, political, social, and aesthetic – shape the built environment and public realm and the proper urban design framework can allow a variety of players to share in the development of the city without compromising the overall vision and character of the environment.

Urban design guidelines can assist city planners in setting up parameters by which to review and endorse proposed projects; they also provide a description of a community's expectations to developers who will play a key role in shaping the built environment. Derived from a thoughtful awareness of relevant market conditions and influences, an appropriate set of design guidelines for any site should consider the context within which the building sits and the desired street character.

The design guidelines for the Capital District are an important element of achieving the Masterplan vision. The primary purpose of the guidelines is to ensure the design intent of the Masterplan and of Plan 2030 is carried forward to the development of individual sites and plots.

This section includes a representative summary of design guidelines for buildings, public open space, and transportation taken from the individual Masterplans for the Federal Precinct, City Centre Precinct and the Emirati Neighbourhood. While not meant to be an exhaustive summary, it illustrates in more detail a number of specific design requirements and performance parameters that will guide all future development within the Capital District.

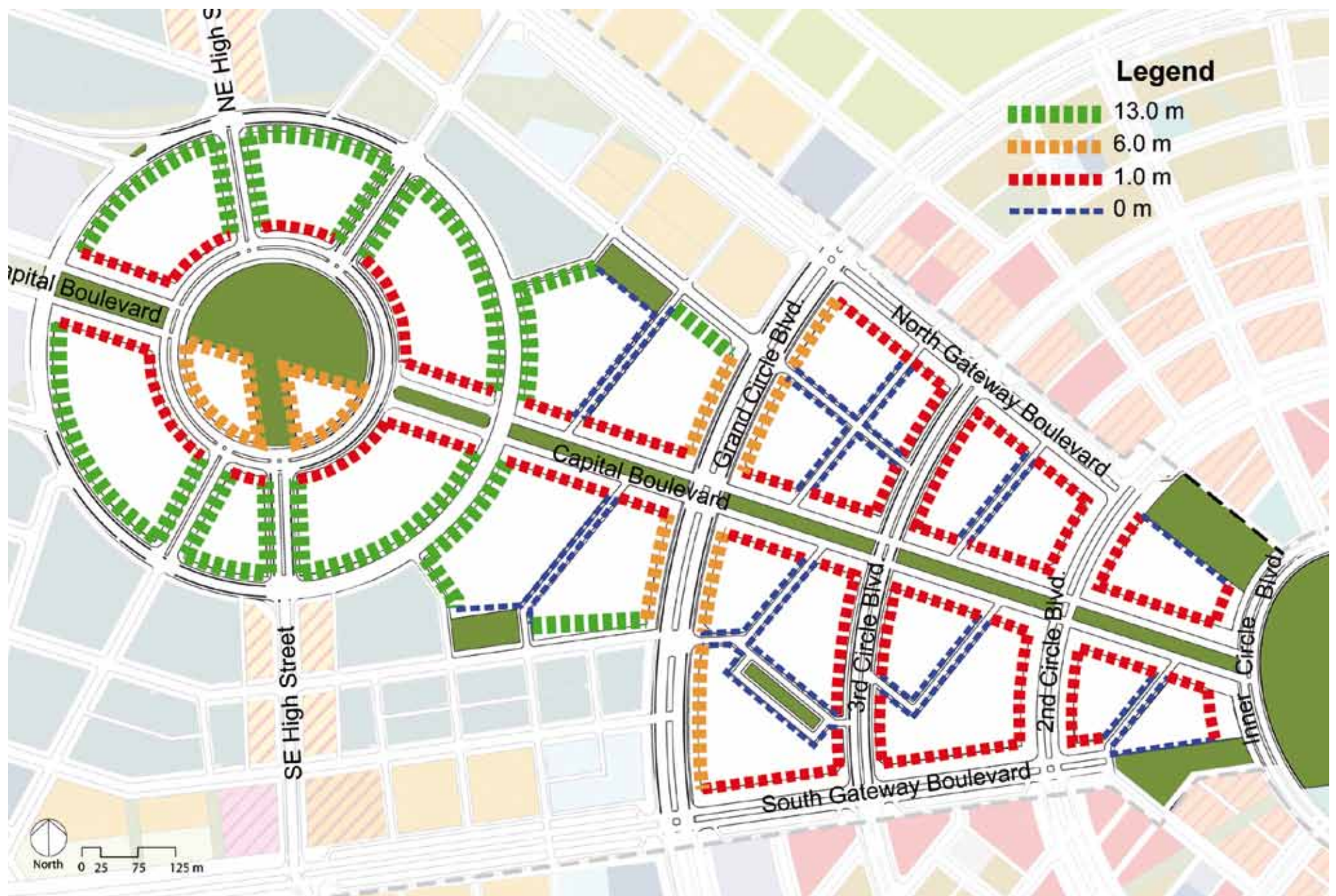
Development Guidelines

Federal Precinct - Ministries Zone



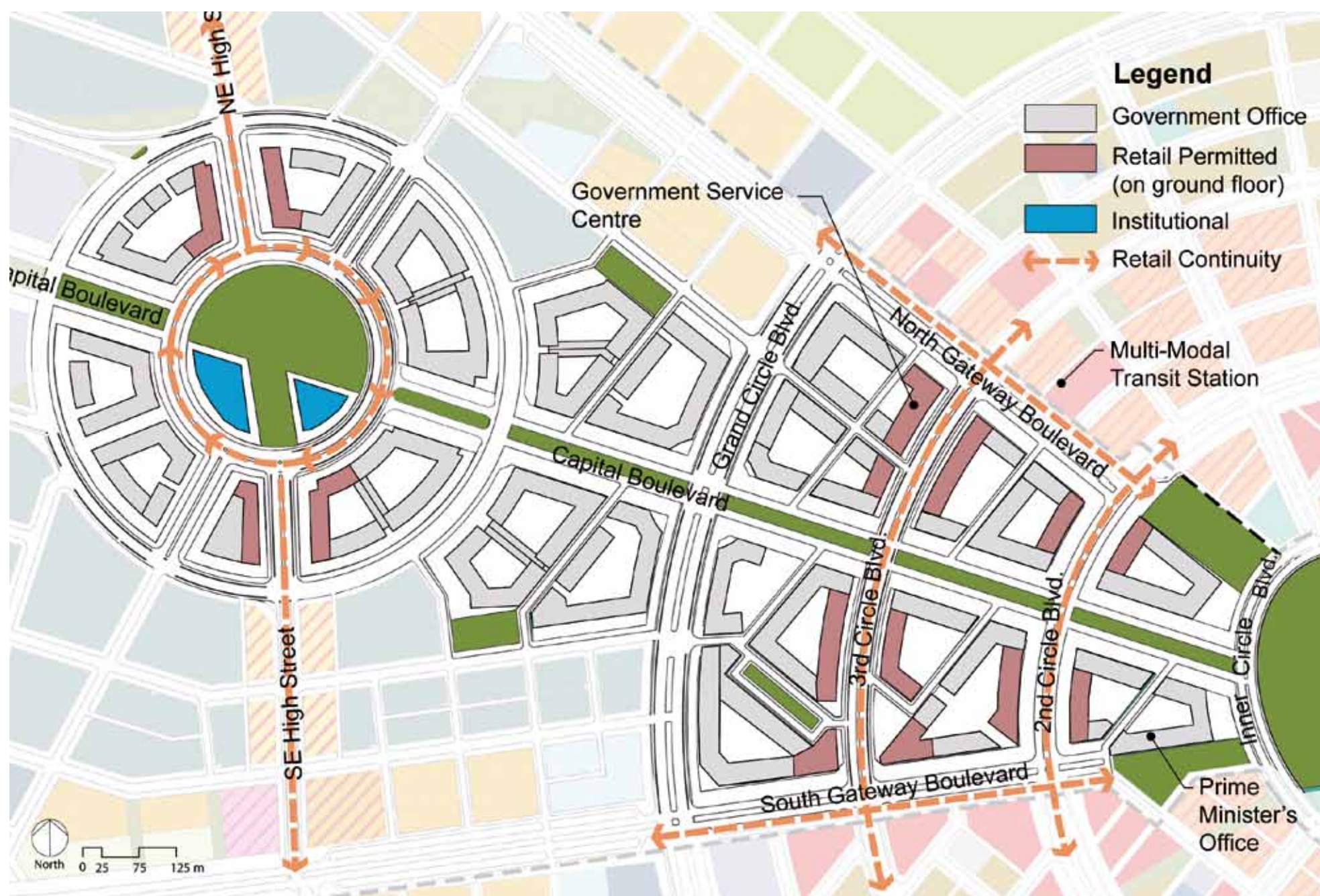
Setbacks

- Setbacks, as depicted below, are build-to lines.
- Minimum setbacks are indicated on the setback plan and are relative to the parcel property line.
- Setbacks have been created to maintain a prominent streetwall and urban edge along boulevards and city streets while maintaining recommended distances between street curb and building face for security reasons.



Permitted Uses - Government Office/ Ministries

- Government office buildings shall be predominantly for government office use including administrative offices, ministerial offices, and other government-related functions.
- Ground-floor uses such as retail, restaurants or other offices are permitted to provide services for government employees and customers and to maintain the continuity urban street activity through the Ministries Zone.
- Ground floor retail uses shall not be permitted along the Capital Boulevard in order to maintain a street frontage with a visible Government presence.
- Public access shall be allowed to the retail frontages only. There shall be no internal public accessibility from the retail to the government offices, in order to maintain secure building access.
- A Government Service Building shall be located along the North Gateway Boulevard as shown below.



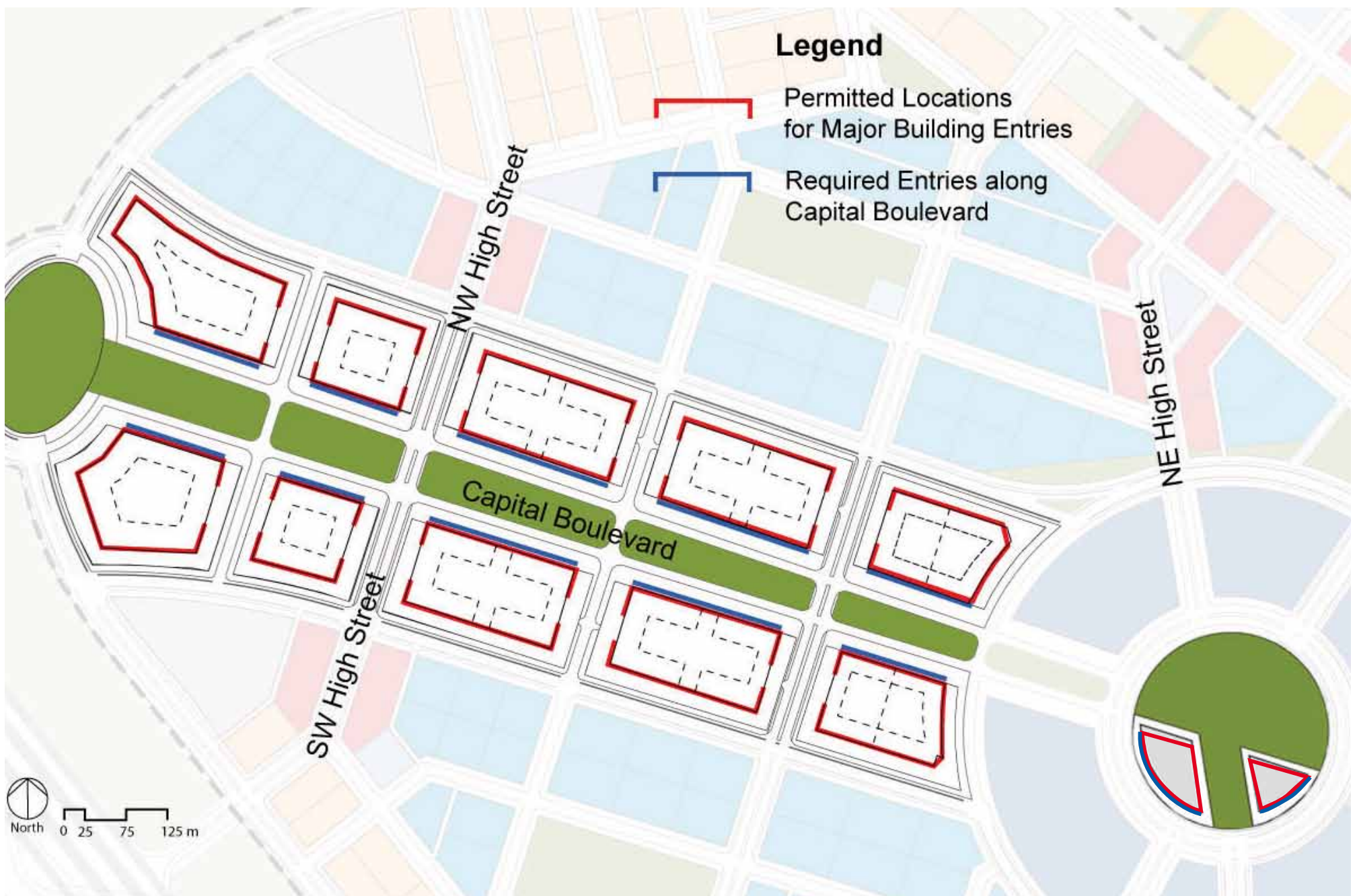
Development Guidelines

Federal Precinct - Institutions Zone



Building Entries

- Pedestrian entries are to be located to minimize a change in grade from the sidewalk.
- Entries are to be universally accessible.
- The entry door may be recessed to provide a more articulated and fine grain appearance.
- Location of entries are to comply with the Building Entries Plan which indicates acceptable locations.
- Buildings fronting along the Capital Boulevard should have visually prominent entries which address the Capital Boulevard. No minor or service entries are permitted. Minor building entries, such as service entries or employee entries, are permitted along other streets.

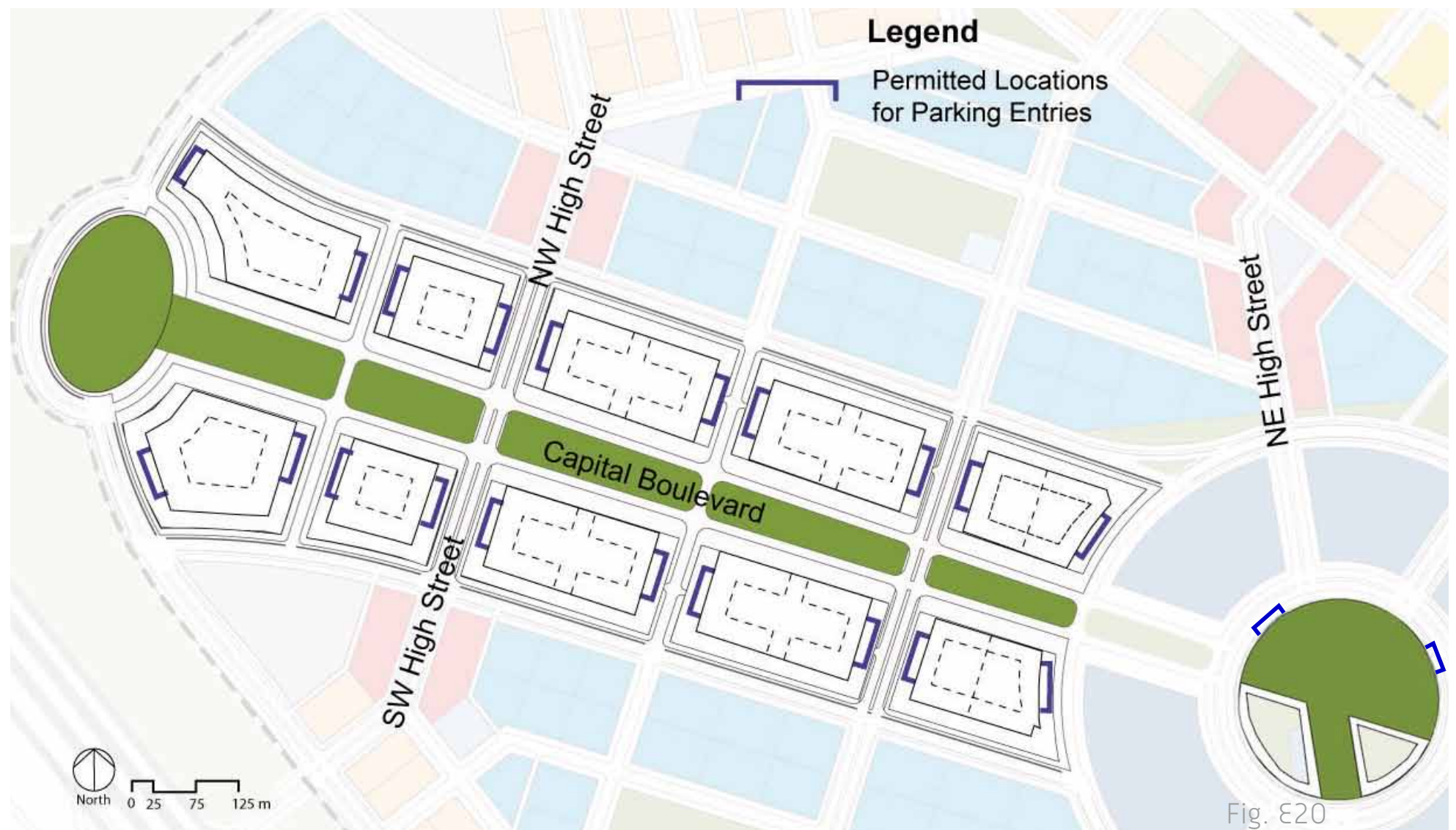


Parking Entries - Underground Parking

- The majority of parking is provided in underground garages.
- Underground car parks may be located anywhere within the parcel boundaries.
- Access to, and use of, the underground parking shall be easy, legible, comfortable, and secure.
- The number of access points to underground parking shall be limited to key locations to facilitate traffic management, wayfinding, and to minimize the visual impact of parking entries on the streetscape.
- Car park locations shall be limited to locations indicated in the parking entries plan.
- Within the underground parking, vertical circulation cores should provide obvious and safe access to the street level above.
- Entries to underground car parks shall be clearly identified with appropriately scaled and discrete signage.
- Lighting within car parks must provide sufficient illumination levels to ensure visibility and safety.
- Any car parks located above ground shall be sleeved with building uses.
- Entries shall be perpendicular to the street.
- Parking entries shall be spaced 30 m minimum.
- Parking entries shall be 8 m to 12 m wide.
- High quality materials shall frame entries and wrap one metre minimum into the portal.
- A minimum 3m setback from the property line is required for all underground parking.



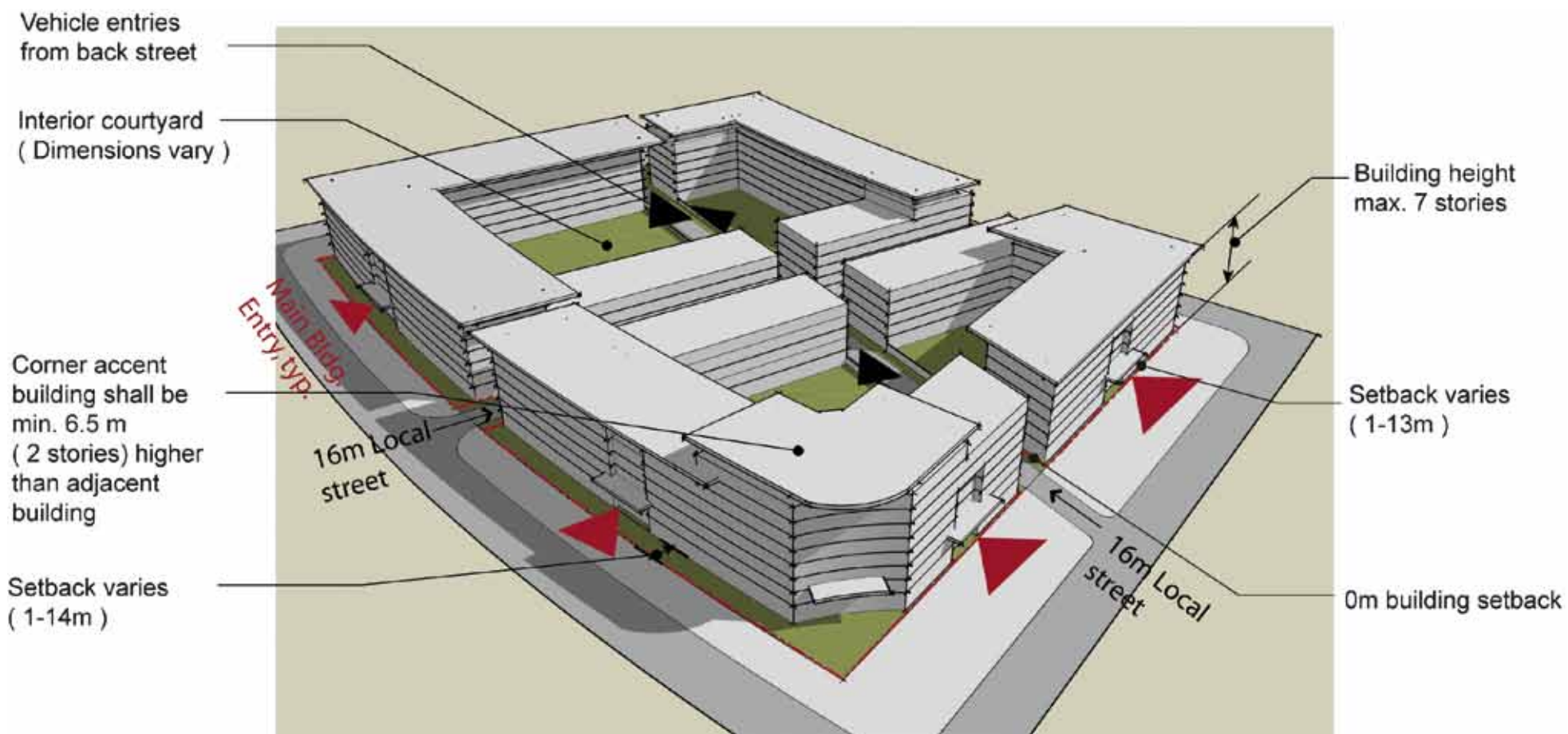
Institutions zone



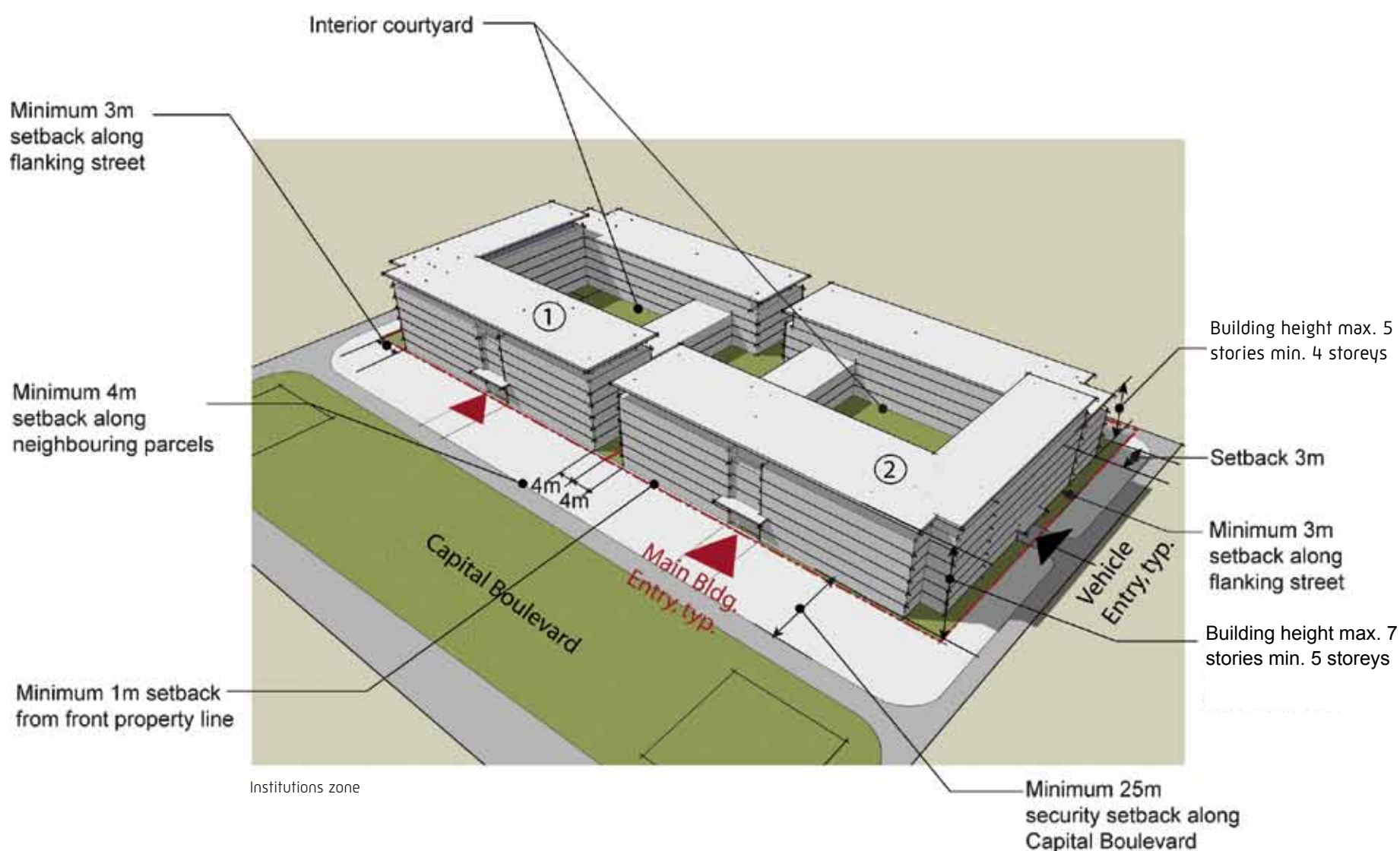
Institutions zone

Development Guidelines

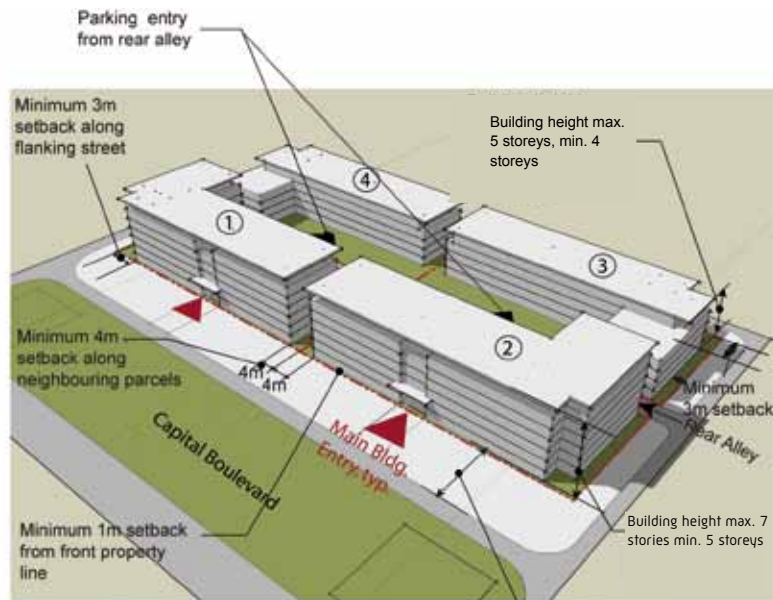
Federal Precinct - Building Massing Prototypes



Ministries zone

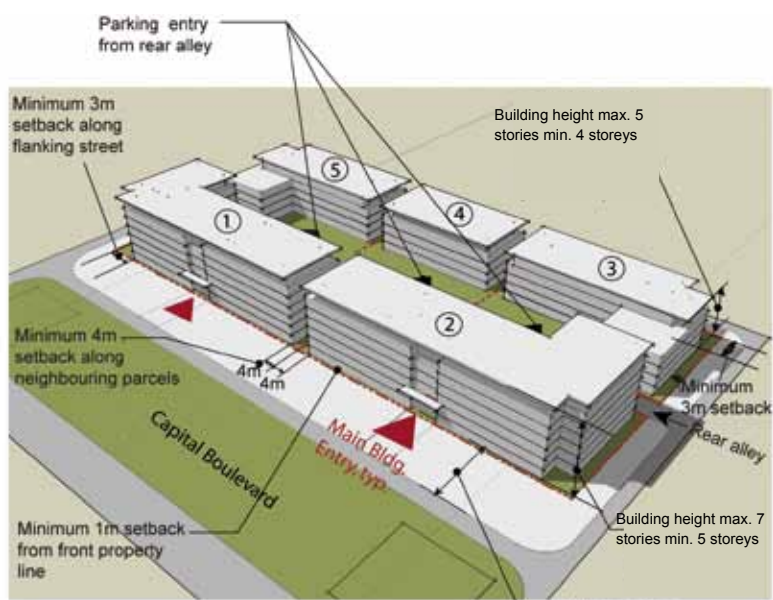


Institutions zone



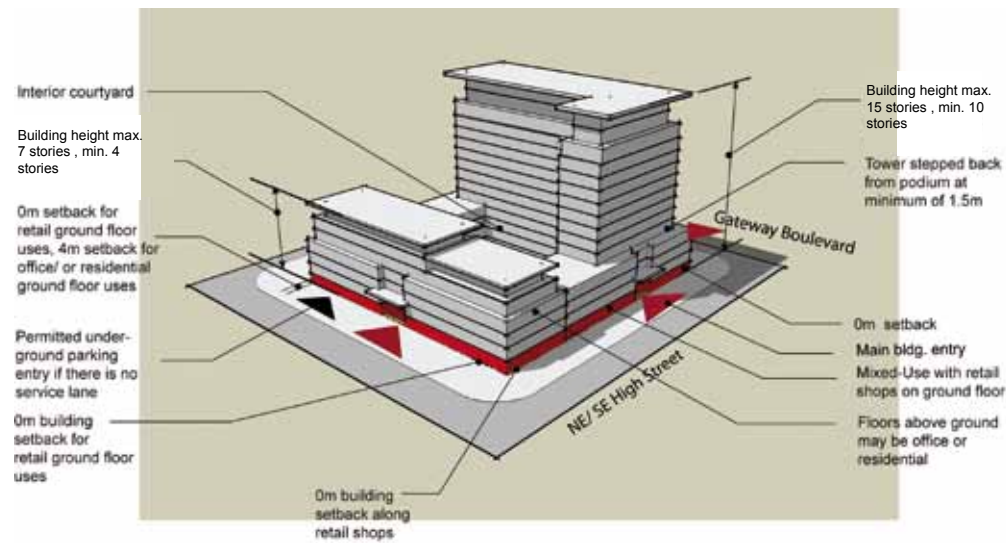
Institutions zone

Minimum 25m security setback along Capital Boulevard

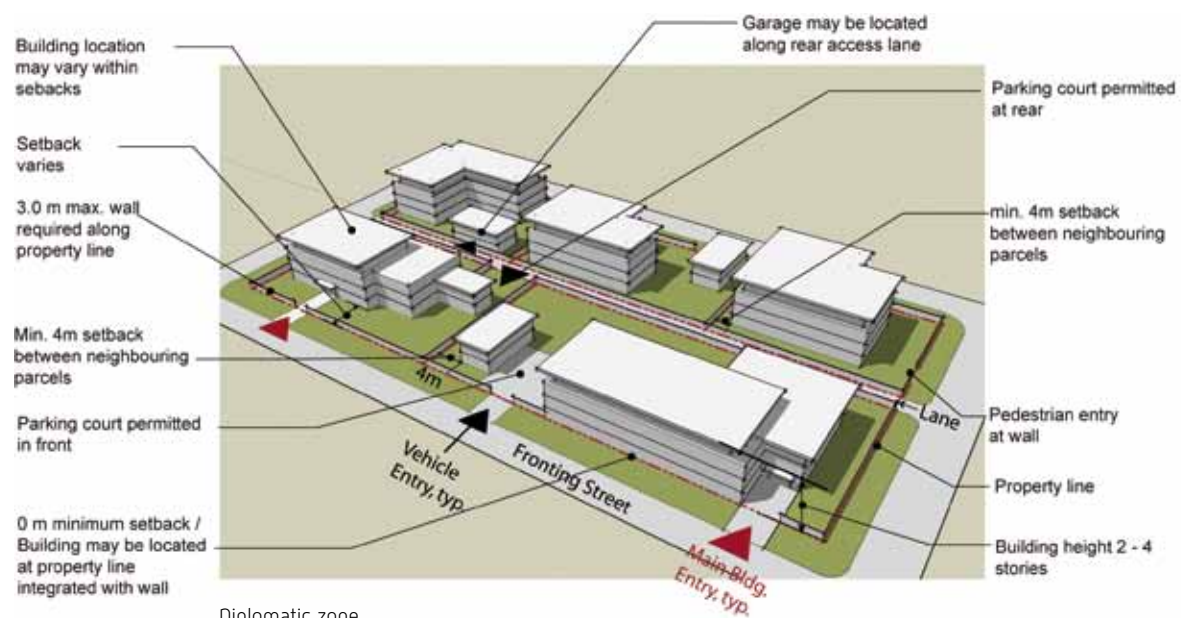


Institutions zone

Minimum 25m security setback along Capital Boulevard



High Density Block



Diplomatic zone

Development Guidelines

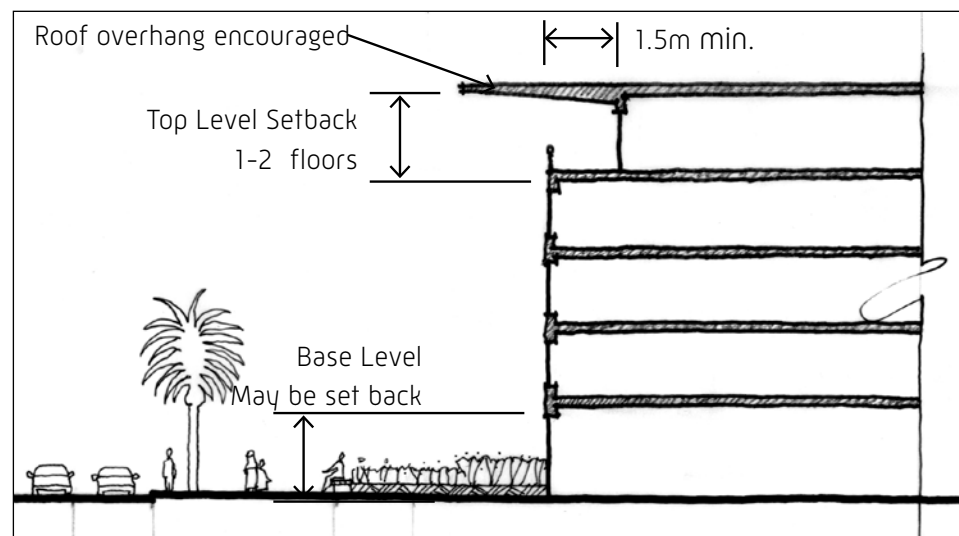
Federal Precinct - Building Edges and Articulation



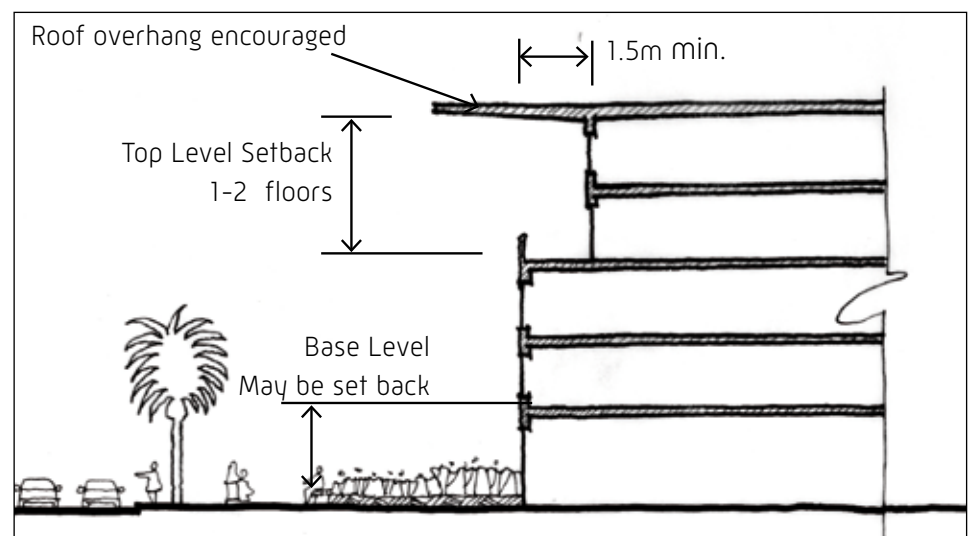
Variation of Streetwall - Ministries

- The overall intent is that the various streetwalls should demonstrate variation in how building facades address the varying street types.
- The various streetwall articulations should be suited to the mix of uses which may exist within the vertical space of each building and block.
- There are certain common elements that should be evident throughout and be afforded similar expression, particularly a general stepping back of the facade at the top 1 or 2 floors by 1.5 m minimum, responding to the base, middle and top conditions, and generous roof overhangs.
- A predominantly 5-7 story building height should exist along the Capital Boulevard. Other major boulevards have varying building heights minimum 2 stories - maximum 7 stories.

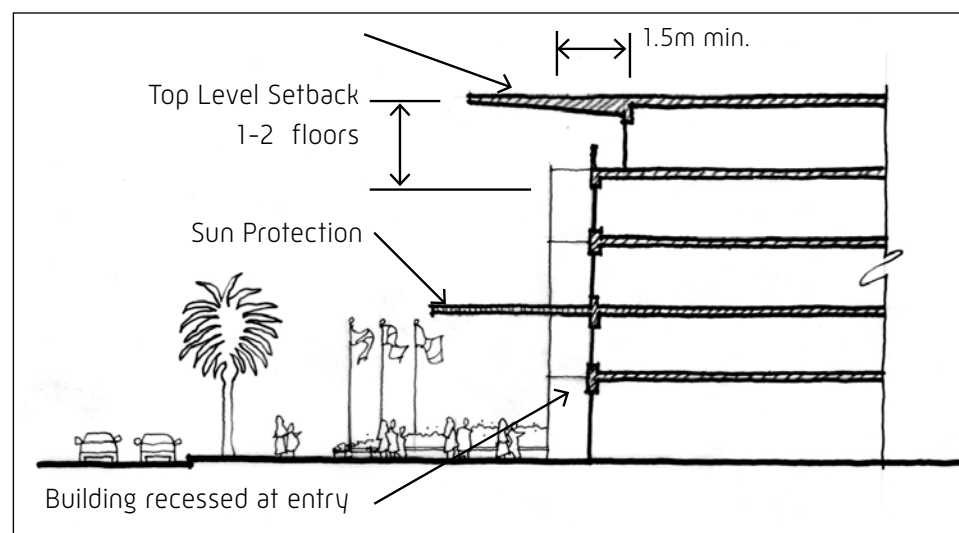
Vertical Articulation Examples



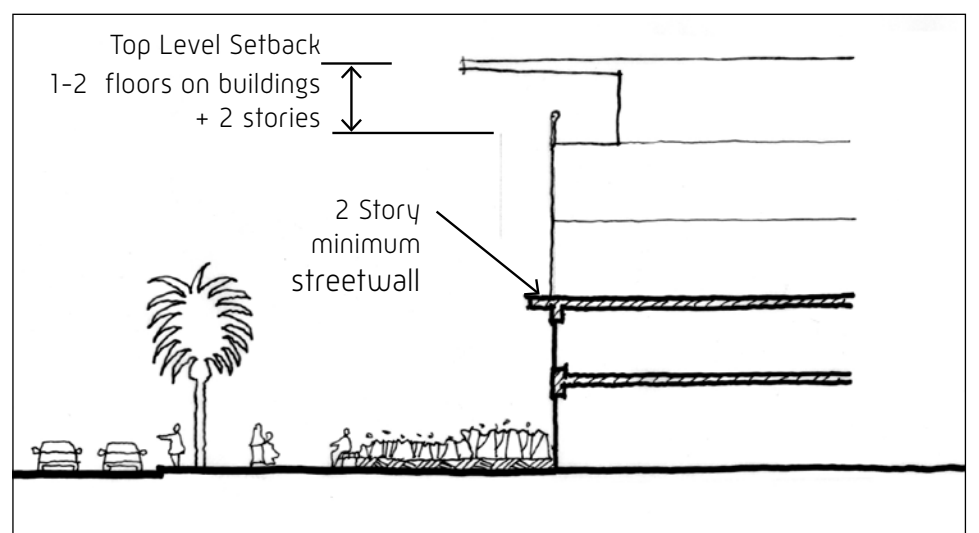
Vertical streetwall articulation along Capital Boulevard



Vertical streetwall articulation along Capital Boulevard



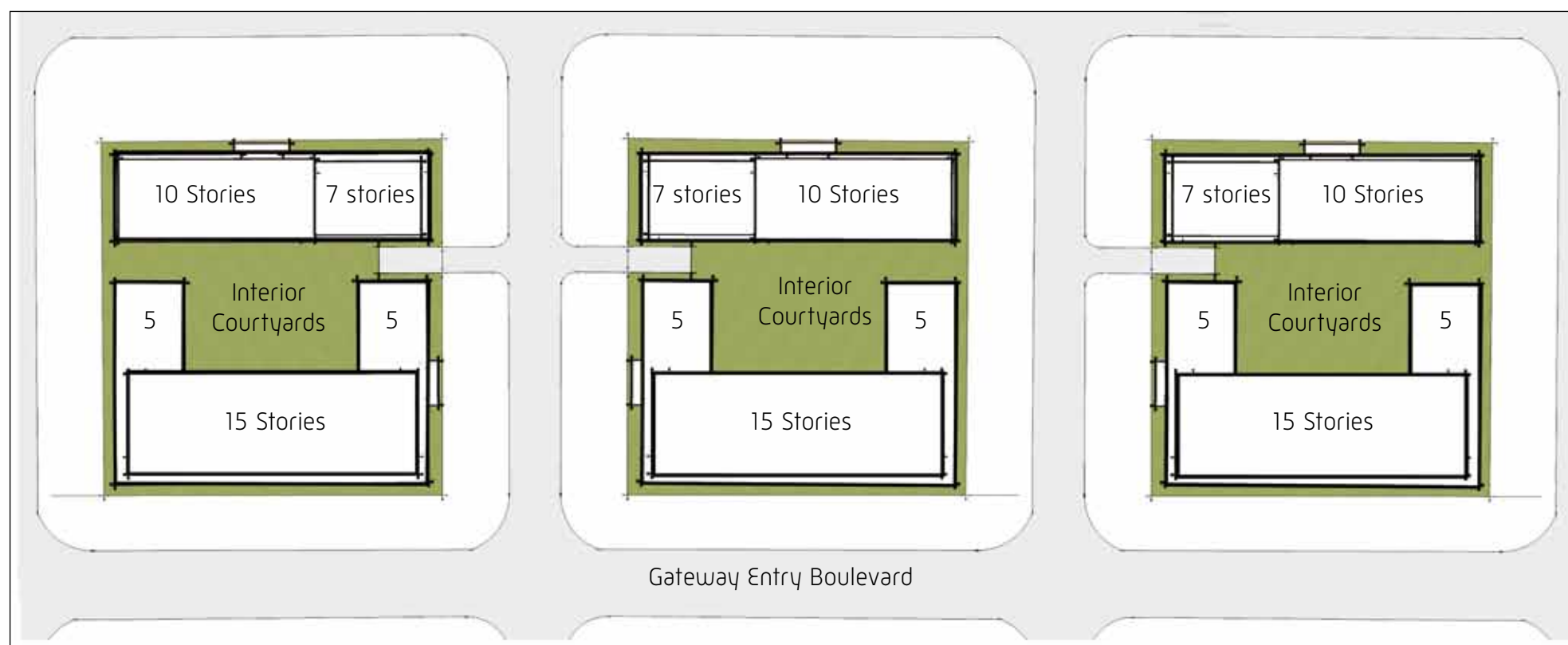
Vertical streetwall articulation along Capital Boulevard depicting entries.



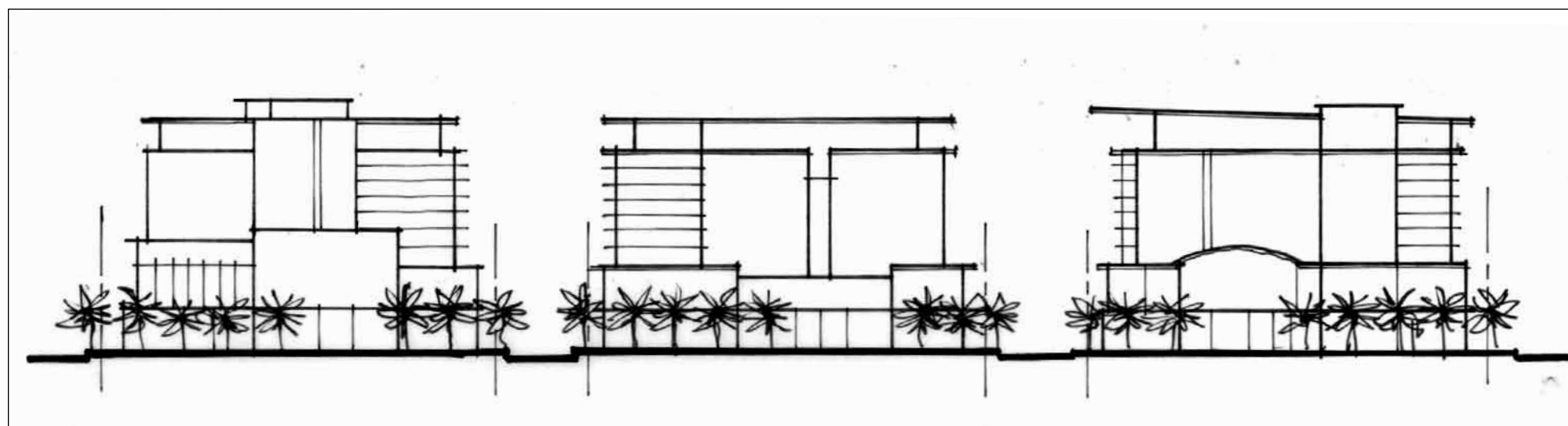
Vertical streetwall articulation along collector and local streets.

Building Edges - High Density Blocks

- The overall intent is to create continuous 10 - 15 story streetwall along the Gateway Boulevard.
- Building edges should be residential, diplomatic, or office in use.
- A green planted edge for government or other office shall be provided to provide a buffer of privacy and security for ground floor office users.
- Green edges shall consist of a raised planter separating the sidewalk or pedestrian area from the building. The width of this planter may vary due to servicing and/or security requirements along various street types.
- Breaks in the planting treatment shall be allowed for building entries.
- Benches, seating, and appropriate planting shall be required in order to create a high quality pedestrian environment.



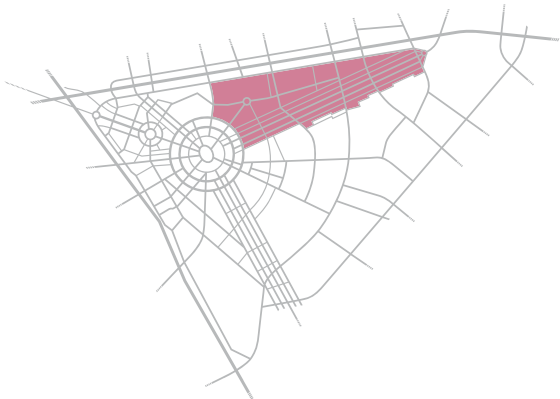
4 FAR High Density Block - Illustrative Plan



4 FAR High Density Block - Gateway Boulevard Elevation

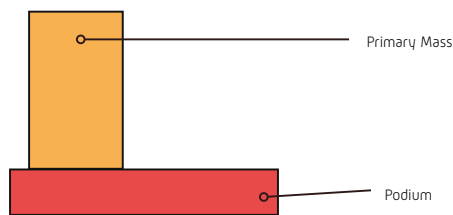
Development Guidelines

City Centre Precinct - North Spine District







Building Massing/Urban Design

- The Primary Mass in this diagram represents the location on a site where the majority of the building's mass should be located to satisfy the urban design goals for the Precinct.
- The diagram does not seek to represent any particular building shape or height but rather to show recommended mass locations.
- The street wall should be defined by buildings or their podiums. Podium minimum height requirements are identified in the diagram. In lower density zones the street wall will be defined by the mass of the building. This is identified as a requirement for facades at the build-to line.
- Podiums should be continuous, especially along major ring and radial boulevards, in order to form a strong street edge and shape the scale and proportion of these important streets.



Key

-  Recommended Primary Mass*
-  Minimum 4 floor podium required at build-to line
-  Minimum 3 floor podium required at build-to line
-  Required facade at the build-to line



* Heights and floor plates of building elements will vary per FAR, building prototype guidelines, and precinct height requirements.

Streetscape Continuity

To maintain a pleasant and safe pedestrian zone along the street it is desirable to avoid service directly into the pedestrian way.

Service Access

- All building service entries should be from service alleys when available.
- When a service alley is not available, service entrances should be clustered and avoid major streets.
- Access for service areas, and for parking ramps should not interfere with the pedestrian way.
- Curb cuts should be minimized on radial boulevards to maintain their symbolic identity.
- Trash collection will be handled from service alleys and service streets.
- Primary building access should be located along boulevards, ring roads, at tram stops and near the corner of the block.
- The primary building access location should be used to enhance the pedestrian way and the image of the district.
- Awnings and other types of shading devices should be used to identify the primary entrance location and provide weather protection to pedestrians.

Primary Building Access

- Landscaping is encouraged to enhance the pedestrian space and give identity to the building's street frontage.
- Secondary Use Entrances
- For secondary uses on the parcel, entrances should not compete with the primary building entrance character but work with it to create a cohesive street edge.
- Secondary entrances should also create shelter for pedestrians. Arcades may be required when secondary entrances are located on a major street or tram stop. See Arcade Zones diagram for more information.

Key

- Allowable Service Access Location
- Recommended Primary Entrance Location
- ||||| Allowable Secondary Use Entrances



Development Guidelines

City Centre Precinct - North Spine District

Arcade Overview

Arcade zones are located in relation to major streets, in conjunction with retail or tram stops, and on government offices. The Arcade system will be the main route for pedestrians through the district and aims to connect key public places in the city.

The primary propose for arcade zones along the ground floor is to provide pedestrian comfort. This zone will create a shaded pedestrian environment to encourage on-street activity at all times of the day. This shaded zone shall also protect the ground floor of the building from heat gain throughout the day.

Ground floor secondary uses are encouraged within the arcade zone to activate the space (for example retail and lobbies).

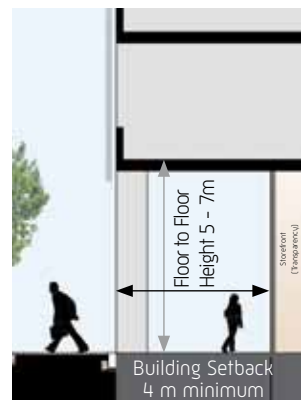
Arcade Requirements

- Areas requiring an arcade zone must incorporate a minimum of a four meter setback along the street frontage.
- This space must be a minimum of 5 metres high.
- Transparency in the facade of this zone is required (see Building Design Guidelines) to create a pleasant pedestrian environment.

Key



Required Arcade Frontage



District Parking Strategy

- Parking in the precinct will be handled through a combination of limited above grade garages and below grade parking structures.
- All residential parking will be in private below grade parking structures within buildings.
- Many of the streets will allow on-street parking which will provide alternative parking for retail and other first floor uses.
- Parking needs in this district associated with the mosque or community facilities will be handled with two below grade parking structures that will have green roof parks above.
- Precinct recycling centres should be located on the ground floor of public parking garages and on the first level of underground parking structures.



Development Guidelines

City Centre Precinct

Prototype Considerations

Individual development projects can affect their surrounding environment in many ways – both positively and negatively. In particular, high rise urban buildings are complex and if not designed in a sensitive manner they run the risk of creating a unpleasant street level environment. Therefore, high rise buildings require careful design at three levels: street, podium, and tower. Through the use of building prototypes, this chapter outlines design parameters at each of those scales.

These three scales, however, cannot be addressed in isolation and must be considered holistically at the precinct level to ensure that the building design will support the character of the entire street by contributing the right mix of activities, services, and access points. As such, the building prototypes must be utilized in conjunction with the Precinct Guidelines which provide details on the desired character of each district within the City Centre.

The Precinct Guidelines provide the relative location of a parcel within a given Precinct. They also provide general direction on district level requirements that include the following building guidelines::

- Podium Streetwall
- Primary Entrance Locations
- Transportation Requirements
- Allowable Service and Parking Access Points

Arcades

A building prototype is a simplified architectural form that is typical of the modern requirements and needs of today's office, residential, retail, hotel or community functions. In an urban environment these prototypes can vary greatly based on height, parcel size or geometry. In particular, urban high rise buildings require significant coordination to address streetwall design, retail storefront, arcades, stacking of uses, appropriate floor plate sizes and tower orientation.

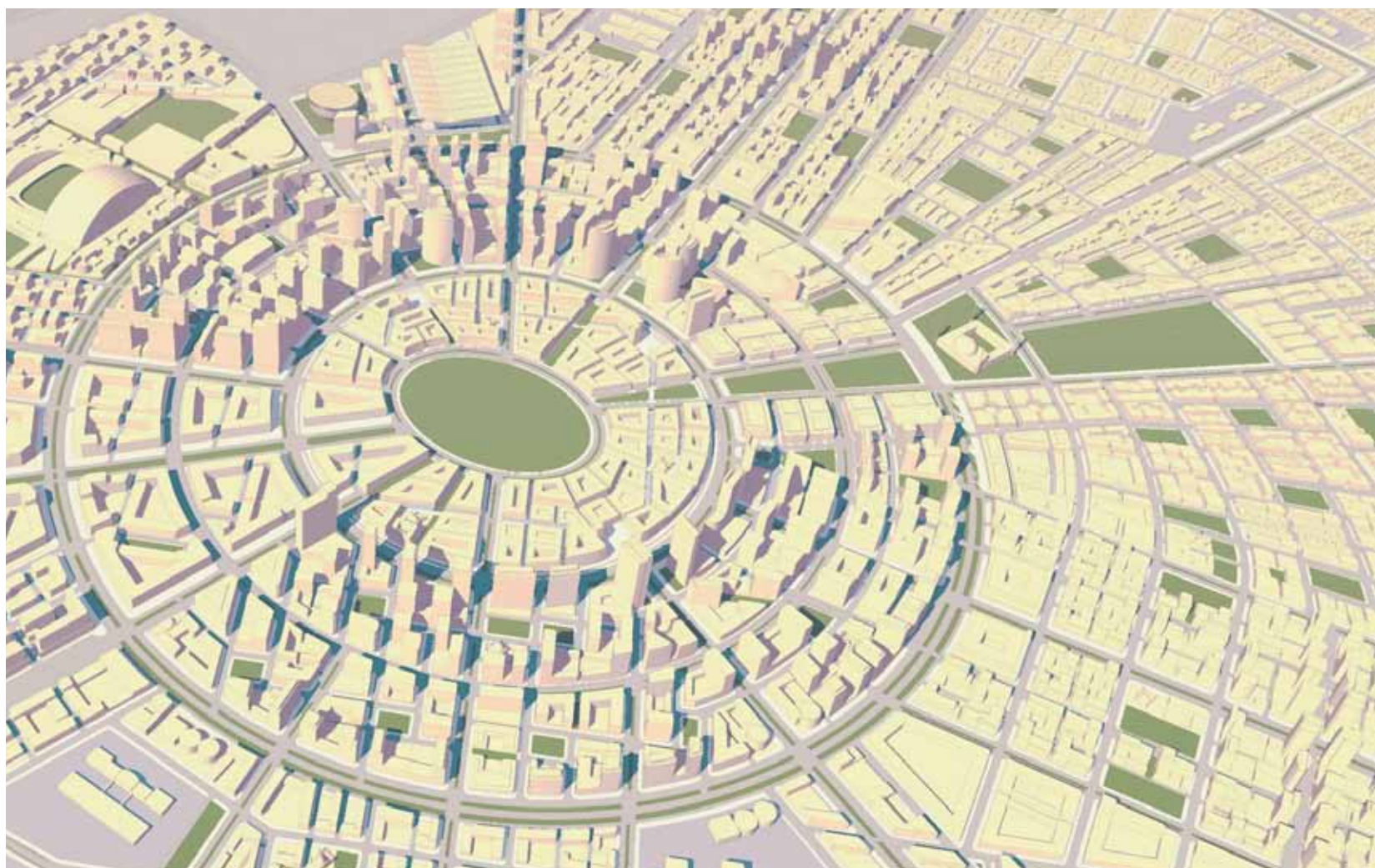
The pages that follow provide direction on how the development of parcels should occur in regard to:

- Architectural massing
- Tower position and setback
- Streetwall character
- Building frontage of podium
- Floor to floor heights

Architectural Massing

The mass of a building, its three-dimensional form, must be shaped in order to provide an appropriate scale and relationship to exterior spaces. In the City Centre, architectural massing is characterized by a multi-story podium structure combined with single or double tower structures above. The following additional conditions shall be met:

- Architectural design of urban buildings must address the building base or street level, middle or mid-rise podium streetwall and tower form.
- Architectural expression of landmark buildings should provide an impressive skyline image through the use of strong vertical forms and expressive roof design.
- The podium structure contains lobbies and service areas, parking access and retail areas at the street level.
- Podium floors above the street level may contain permitted uses (see last page of this chapter) and parking areas as required.
- In order to create a largely continuous street wall, a portion of the podium façade is required to be built along the parcel line.
- Towers for the primary building use are positioned above the podium. Guidelines for maximum height, orientation and position are established in the Precinct Guidelines.
- Below grade levels are required for parking and building service levels. Specific requirements are established in the Parking Strategies portion of the Precinct Guidelines.



Detail of illustrative massing model showing portions of the CBD, Souk Precinct and the North Spine.

Building Prototype Overview

The building prototype design guidelines provide a framework for the type of building that is allowed to be built on a specific site. These prototypes are designated within the precinct guidelines. There are 16 building prototypes for the City Centre District separated by program type:

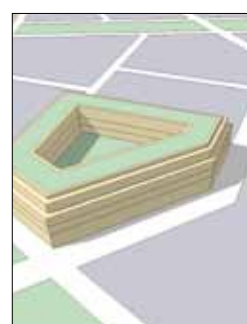
Office = **O**
 Hotel = **H**
 Residential = **R**
 Souk = **S**

The prototypes are further categorized by density:

High-Rise = **HR**
 Mid-Rise = **MR**
 Low-Rise = **LR**

Hence, the prototype label for an office high rise would be **O-HR.2** - the number indicates floor plan type (e.g., single tower, two tower, etc.). Requirements associated with each prototype are detailed in the plot development standards.

Souk



S-LR.1
 'O' Courtyard Low-Rise

- S-LR.O**
Office
- S-LR.H**
Hotel
- S-LR.R**
Residential

Souk Prototypes
 Souk building programs vary based on their office, hotel or residential overlay. Generally, the arrangement would be a courtyard building serviced below grade with a shared parking facility. Retail is also a significant component of the ground floor program.

Office

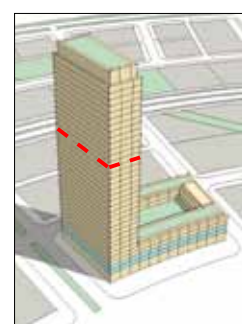


O-LR.1
 Square Shaped Courtyard Low Rise



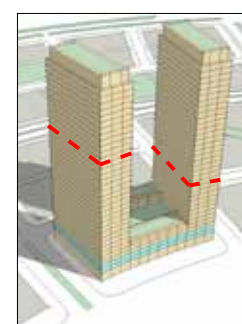
O-MR.1
 Single Tower Mid-Rise

O-MR.3 (red line indicates line between midrise and highrise)



O-HR.2
 Single Tower High-Rise

O-MR.2 (red line indicates line between midrise and highrise)



O-HR.1

Office Prototypes
 Office buildings contain class A, B & C office spaces, health care and / or medical studios above the second floor. See Permitted Land Uses section for more specific information.

Hotel



H-MR.1
 Square Shaped Courtyard Mid-Rise



H-HR.3
 Single Tower High-Rise



H-HR.2
 'L' Shaped Courtyard High-Rise



H-HR.1
 'U' Shaped Courtyard High-Rise

Hotel Prototypes
 Hotel buildings contain hotel rooms and / or service apartments above the second floor. See Permitted Land Uses section for more specific information.

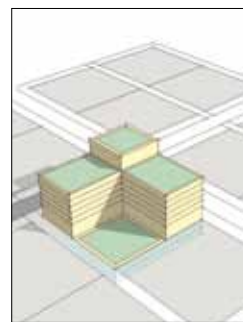
Residential



R-TH.1
 Townhouse Low-Rise



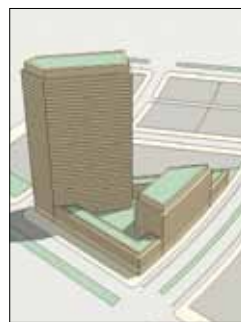
R-LR.2
 Square Shaped Courtyard Low-Rise



R-LR.1
 'L' Shaped Courtyard Low-Rise

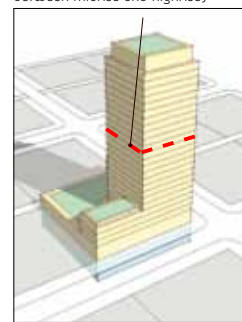


R-MR.1
 'U' Shaped Courtyard Mid-Rise



R-HR.3
 Two Tower High-Rise

R-MR.2 (red line indicates line between midrise and highrise)



R-HR.2
 Point Tower High-Rise



R-HR.1
 Single Tower High-Rise

Residential Prototypes
 Residential buildings contain multi family and / or senior housing above the second floor. See Permitted Land Uses section for more specific information.

Sustainable Building Performance

Introduction

Sustainability is one of the key imperatives of the design of the Capital District and must be manifested in the Capital District. Plan Abu Dhabi 2030 outlines three basic elements of sustainability:

1. The natural environment,
2. Economic development, and
3. Cultural heritage

The following guidelines aim to facilitate these elements, and are meant to function in concert with the directives of the Urban Planning Council's (UPC) Pearls Design System for Estidama, whose mandate is to achieve the highest level of sustainable built-environment in the UAE building on a foundation of five core elements:

- Integrative Design Process
- Living Systems
- Liveable Buildings, Livable City
- Precious Water
- Resourceful Energy
- Stewarding Materials

The following provides an overview of broad strategies for building design that should be employed through the design of the Capital District, using the above core elements as touchstones.



Ancient Watchtower on Abu Dhabi Coast



Sustainable Building Performance

Building: Performance Standards

The guidelines outlined below are intended to complement the Estidama Pearls Rating System in the following categories:

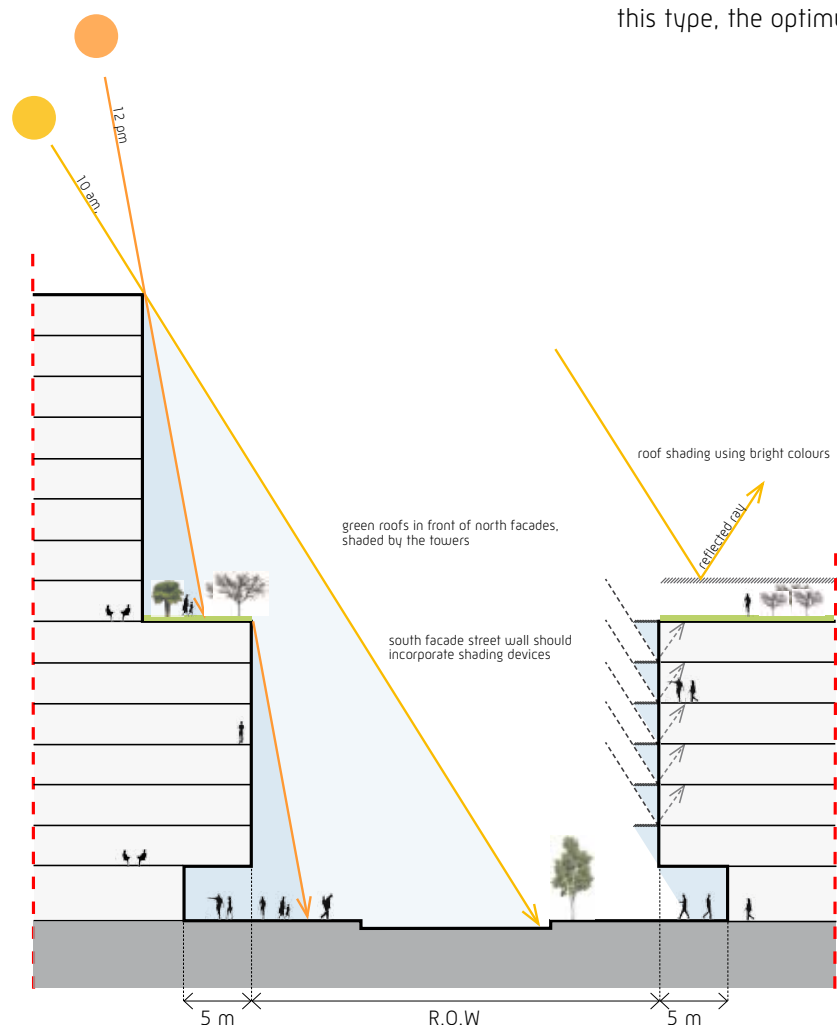
- Solar Protection
- Roof Design
- Wall Systems
- Mechanical Ventilation
- Solar Energy

Solar Protection

In Abu Dhabi, shading is required throughout the year; there are only a couple of days in winter season where passive solar gains will be welcome in residential settings. As a result, the general rule is to protect all facades from excessive amount of solar radiation. In summer, north and south facades get only limited solar radiation due to the high sun altitude at noon time. In winter, the sun rises in the south east and climbs up to 45 degree altitude. Hence, south facades can get shading by horizontal louvers such as the brise-soleil. East and west facades receive a high portion of solar radiation at low sun angles; hence, fixed horizontal louvers, as applicable for south facades, are not so effective. For east and west facades, moveable shading systems are recommended.

The table below details the best shading device based on amounts of solar energy directed toward the building's surface.

The main function of windows is to provide views to the outside and natural daylight for the indoor environment. For the purpose of daylight supply, a limited amount of windows in the facade will be sufficient due to Abu Dhabi's location in relation to the path of the sun. The highest window-to-wall ratio will occur in commercial settings, where desire for a maximum amount of daylight supply and a minimum of cooling load exists. For unobstructed facades of this type, the optimum window-to-wall ratio is about 30 percent.



Solar shading from streetwall setbacks and overhangs provide shading.

Solar Protection Criteria

Facade orientation	Total solar energy/year	Recommended shading
North	550 kWh/m ²	Shallow horizontal louvers/awning
South	1250 kWh/m ²	Horizontal louvers/awning with depth-to-distance ratio of 1:1
East	1050 kWh/m ²	Adjustable external shading
West	1100 kWh/m ²	Adjustable external shading
Horizontal roof	2200 kWh/m ²	Fixed horizontal shading
Northwest	700 kWh/m ²	Horizontal and/or north oriented vertical louvers
Northeast	700 kWh/m ²	Horizontal and/or north oriented vertical louvers
Southeast	1250 kWh/m ²	Adjustable external shading
Southwest	1300 kWh/m ²	Adjustable external shading

Shading device recommendations relative to facade orientation. Solar energy measured in watts per square metre per kelvin, or W/m²K.

Roof Design

The design of a building's roof system plays an important role in reducing energy consumption. For example, a non-insulated dark roof can transfer high heat gains into the interior of a building, inducing uncomfortably hot temperatures at the ceiling level and creating a large cooling load. There are two mechanisms determining the heat transfer from outside to inside.

1. The heat transfer caused by the air temperature difference between outside and inside. It is expressed by the U-value, measured in W/m^2K , describing the amount of heat travelling through a component. Typical values range from $0.1 W/m^2K$ (well insulated roof) to $6.0 W/m^2K$ (single pane glass).
2. The solar heat gain caused by the absorbance of solar energy, which is then converted into heat. A part of this heat travels to the inside. This part is expressed as solar heat gain coefficient or g-value, measured as a number between 0 and 1 or percentage. It is defined for opaque and transparent components. At well insulated components, like roof constructions with bright exterior colour, the solar heat gain coefficient is below 2%.

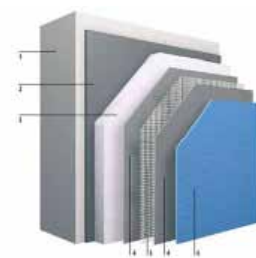
There are a number of ways to reduce the heat gain at the roof level including:

- Material and colour selection - Bright and light-coloured surfaces will do a better job of reflecting solar radiation, reducing the heat gain absorbed by the roof.
- Increased insulation - Common materials for roof insulation are polyurethane, polystyrene, mineral wool, and foam.
- Green vegetated roofs - A green roof is one that is partially or completely covered with vegetation and soil or a growing medium, planted over a waterproofing membrane. A green roof does not replace insulation layers, but affects the surface temperature in a positive way, reducing the heat island effect. Extensive green roof systems operated with low water consumption plans and, due to low water availability in Abu Dhabi, such a system is recommended over any other.

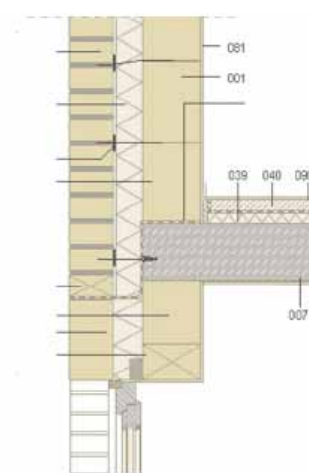
Wall Systems

Although most vertical building walls do not obtain solar heat throughout the entire day, like roof systems, they present another opportunity to improve the thermal performance of a building.

Wall insulation can be achieved in several ways using the same materials as roof insulation: polystyrene, polyurethane, and mineral wool. Additionally, there are also monolithic blocks from clay or aerulated concrete that achieve good thermal insulation performance. All construction methods demand consideration of vapour transfer from outside to inside, which is present year round in Abu Dhabi. The merits of wall insulation are not only cooling energy savings, but also improvement of thermal comfort by getting interior surface temperatures closer to air temperature (both in cold and in hot weather)



Wall insulation system with polystyrene layer and plaster. Applicable inside or outside.



Wall insulation between the building structure and decorative brick work.



Example of a low-irrigation green roof.

Solar Energy

As described above, in the worst case scenario, solar energy received by the facade will be converted into cooling load; however, these guidelines strive for the better solution of converting solar energy received into useful energy such as light and electric energy. At least 10% of the total energy consumption in the Capital District should be generated by renewable sources.

Sunlight can be converted into electricity using photovoltaics, concentrating solar power, and various experimental technologies. Photovoltaics have mainly been used to power small and medium sized applications, from the calculator powered by a single solar cell to entire homes powered by a photovoltaic array. Horizontally positioned receivers are not recommended for Abu Dhabi because of the potential for sand and dust collection on the horizontal surface; however, solar thermal evacuated tube collectors are a better alternative. Solar receivers should be either tilted or mounted on vertical planes to minimize the collection of dust.

The most applicable technique would be electricity generation from photovoltaic cells. They can be applied on horizontal roofs (best location), but also on east, south or west oriented facades, although the output will be about 50% of a roof mounted system.

Solar thermal collectors generate hot water with an efficiency much higher than the electric efficiency of photovoltaic cells. However, the application of hot water is limited to residential units with domestic hot water demand or to solar thermal cooling systems.



Tilted roof-mounted solar panels.

Sustainable Building Performance

Summary of Building Performance Guidelines

Based on the conditions, tools, and techniques described above, the following are the key recommendations for building construction that, in conjunction with the Estidama guidelines, developers and builders should be well equipped to enjoy the benefits associated with high performance buildings.

- Thermal insulation of the building envelope will reduce the cooling load and, in combination with thermal mass, eliminate the heating demand. Moreover, it enhances the level of thermal comfort. A proper thermal insulation is, therefore, the most important measure for a new construction. Adding insulation to an existing building is costly, complicated and often less effective.
- Air leakage of the building envelope is to be minimized in order to reduce the infiltration of humid outdoor air.
- Roofs shall be generously insulated to reduce solar gains and indoor ceiling temperature. The minimum thermal insulation shall be equivalent to 20 centimetres of polystyrene. In addition, bright exterior colours help both by reducing the cooling load of the building and reducing the heat island effect caused by the roof surface temperature.
- Green roofs shall be applied in combination with regular insulation only. Due to scarcity of water, green roofs using low-irrigation planting is recommended.
- Walls shall have a thermal insulation equivalent to 6 centimetres of polystyrene. This can also be achieved by monolithic constructions, such as porous bricks and aerulated concrete blocks.
- Windows shall use solar control glasses with high light transmittance and low solar energy transmittance. Good glass achieves two times higher light than solar energy transmittance.
- The facade shall provide openings for natural ventilation which can replace mechanical ventilation in winter season.
- Office buildings need a minimum amount of windows in order to fulfil the indoor daylight requirements. All other utilization types should minimize window size.
- Mechanical ventilation systems with outdoor air supply shall be equipped with enthalpy recovery systems in order to reduce the sensible and latent cooling load due to fresh air supply.
- Provide energy metering per each unit (apartment, office, shop).



Parks & Open Space Guidelines

Federal Precinct

Landscape

Landscapes should be categorized according to management zones and water use. High water use plants may be most appropriate for concentrated areas that require texture, colour and shade such as plazas and parks. Medium to low water use plant material and indigenous species may be best suited to areas that have lower density/ use levels such as streetscapes and perimeter landscapes. All plant material to be robust and suitable to an arid and urban environment.

- Planting size (at maturity) should be used to enhance the pedestrian scale of public spaces.
- Use tree planting to help unify the public realm and provide definition to edges. Trees can help create the sense of 'outdoor rooms'.
- Use planting to help define specific spaces by using different planting themes or species in different areas.
- Use landscaping to provide shade during the summer and help ameliorate unpleasant climatic conditions.
- Use plant material native to the Middle East wherever possible to minimize water requirements, to provide food and habitat to native wildlife, and to reduce chemical pesticides and fertilizers.
- Plants that are arranged in massing should have similar hydrazone characteristics to reduce maintenance and water requirements.
- Sufficient planting depth and width should be provided when planting over built structures such as parkade roofs.

Landscape Typology:

- Commemorative Plazas Landscape
- Capital Boulevard Landscape
- Parks Landscape
- Street Landscape





Parks & Open Space Guidelines

Federal Precinct

General Tree Selection

- Tree selection is critical to the sustainability and usability of public spaces.
- Trees should be durable, well adapted to urban environments, and have low water requirements.
- Specific selection should be determined by height, spread, character, litter production (from fruit, seeds, leaves, etc), and root ball size.
- Tree should provide relief from intense summer heat and the sun's glare. The growth habit of the tree should be wide enough (8m or larger is recommended) to provide significant shade.
- Deciduous trees may be appropriate for areas that would benefit from increased solar access in winter.
- Evergreens should suit areas that require visual screening and maximum sun protection.

Tree Planting Typology

- Commemorative Plazas / Parks Trees
- Iconic Street Trees
- Street Trees
- Retail Street Trees
- Lane Trees

The following lists the types of trees that are appropriate to major areas of the public realm:

Commemorative Plazas / Park Trees

- Tree should contain a broad mix of palms, shade trees and ornamental trees.
- Tree should contain a mix of evergreen and deciduous.
- Trees should be selected that support the character of the particular park or square. For example, formal Islamic garden-style areas can contain traditional species like date palms, citrus, and almond trees. In contrast, desert garden-style spaces can emphasize smaller-scale trees and large shrubs that are found in dry, rocky escarpments and canyons.

Boulevard (Iconic) Street Trees

- Trees should be a mix of palm trees and full canopy deciduous.
- Tree planting should contain formal, grid-like planting structure with on-centre spacing ranging from 4 m to 10 m.

Local Street Trees

- Trees should provide ample shade for pedestrians, cyclists and parked vehicles. Dense canopied, evergreen trees are recommended.
- Trees should typically be 8-10 m in spread and height.
- Tree spacing should reflect the mature size of the street tree. Trees should be planted with ample canopy and root space. 8-12 m on-centre spacing is recommended.
- Tree spacing should work in unison with crosswalks, on-street parking, light poles, and bicycle parking.



- Trees should have a compact root habit.
- Trees should be easy to maintain and have adequate clearance for cars and pedestrians.
- Trees should create a legible rhythm of vertical forms that compliments the rhythm of the architecture and site elements.

Retail Street Trees

- Trees should have the same features as street trees, except they should have a more ornamental and visually distinct habit.
- Features of the trees may include decorative flowers, special foliage, deciduous or evergreen species, or interesting branching structure.
- Trees should provide ample shade during summer months.

Lane Trees

- Trees shall be placed within private setbacks
- Smaller evergreen and/or deciduous trees, 3-5 m in spread and height is recommended.
- Tree placement should not interfere with lighting or access to garages.



Lighting

- Lighting within the public realm together with borrowed light from buildings should create an identity and ambience which reinforces the character of spaces at night.
- All pedestrian streets should be lit.
- Lighting should clarify and highlight linkages and aid in wayfinding and orientation.
- Lighting should promote the perceived and actual safety, as well as security of spaces.
- Lighting should emphasize the hierarchy, function, and use of spaces in the public realm.
- Lighting should be easy to install, respond to crime prevention, and be low maintenance.
- Lighting should illuminate key features and focal points to help enliven spaces and provide a sense of drama that in turn can help activate the public realm at night.
- Lighting should minimize the amount of light pollution or obtrusive spillover into surrounding residential areas.
- Lighting should utilize building facades as a surface on which to mount lighting fixtures for the public realm as well as enhancing building image.
- Lighting should provide a family of fixtures compatible and consistent in colour and character.
- Lighting should establish a hierarchy of functional luminaires for specific uses to comply with mandatory code requirements and standards.

Lighting Typology

- Commemorative Plazas / Capital Boulevard
- Parks
- Retail Streets
- Major Streets
- Internal Streets

Street Lighting

- Lighting to aid vehicle movement and safety.
- Lighting should be pole mounted with outreach arms.
- The style and height of the poles should be compliant with the local authority.
- Fixtures should have an optical lens with no upward light spill.
- Major streets should have high-intensity lighting (metal halide fixtures.)

Pedestrian Lighting

- Lighting to aid pedestrian movement and safety.
- Lighting should be situated at a lower level than Street Lighting and consist of post top/pole mount luminaires, fixtures under canopies and wall-mounted lights.
- The distribution and positioning of poles should comply with local authority requirements.
- Lights should be low intensity (high-pressure sodium.)

Crossing Lighting

- Lighting to aid pedestrian movement and safety.
- Provide lighting that increases awareness and that intensifies the illumination at pedestrian crossing points.

Wayfinding Lighting

- Lighting aids in pedestrian direction and circulation.
- Lighting should be low intensity such as bollards, in-ground lights, step and wall lights. Lights should supplement pedestrian lighting but not substitute it.

Feature Lighting

- Lighting to highlight and focus attention.
- Lighting should display and accentuate a space, structure, artwork, or monument. Lights include in ground up-lights, floodlighting that provide colour and movement. Location, positioning and specific fitting types should be tailored for the subject matter.

Landscape Lighting

- Lighting to highlight landscape and foliage.
- Lighting should consist of fittings suitable for highlighting shrubs, trees, and flower beds and should compliment pedestrian and wayfinding lighting.

Parks & Open Space Guidelines

Federal Precinct

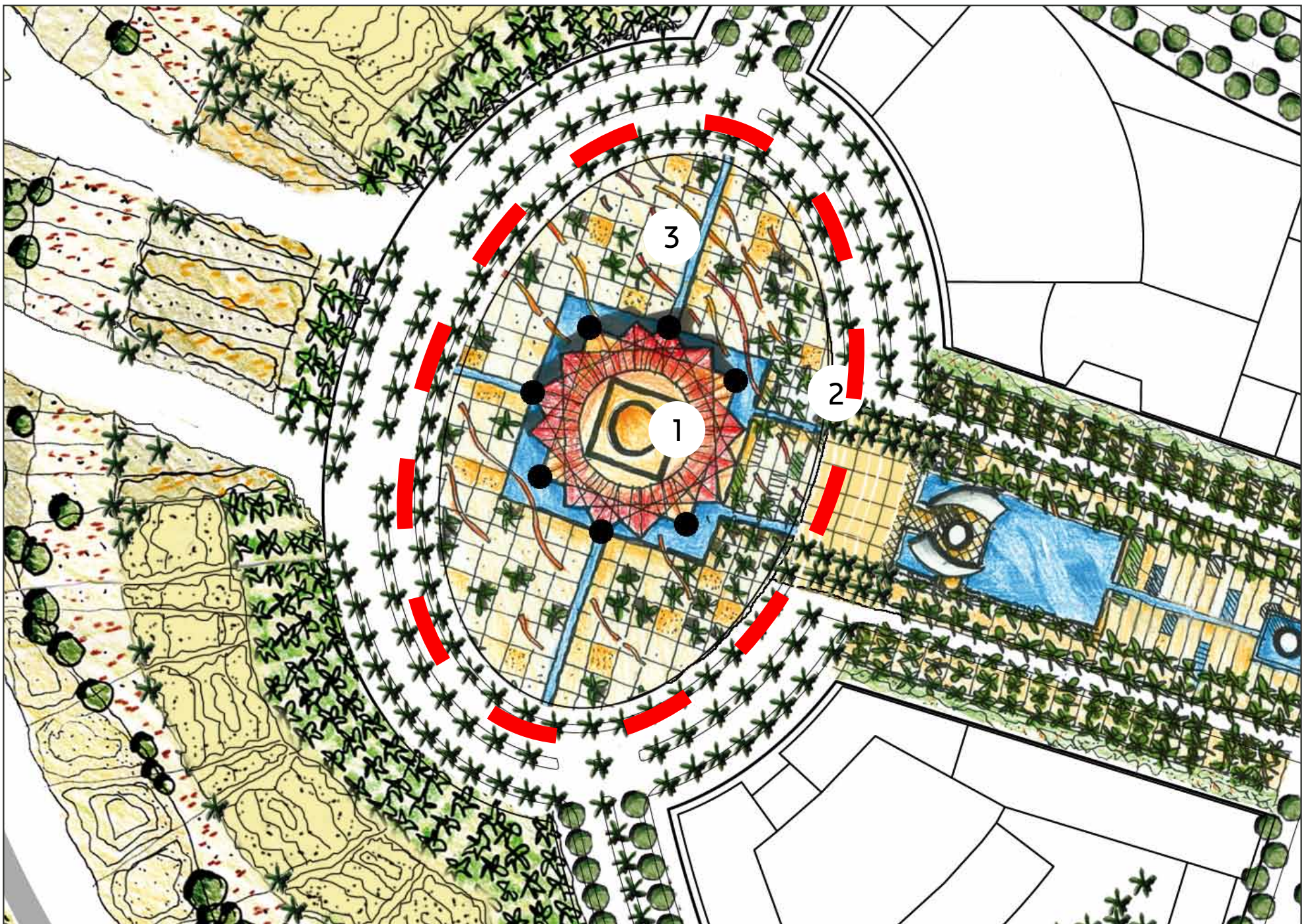
Monument Park Character

- Monument Park contains an iconic monument that pays homage to the heritage of UAE. The monument should be a distinctive architectural and/or sculptural structure that is a unique landmark for the Federal Precinct.
- The UAE Monument should act as a point of legibility within the Capital District. It should be visible from a great distance - easily seen when approaching from Dubai, Al Ain and the Western District of Al Gharbia, and on departing the island of Abu Dhabi.
- The park provides a public gathering space that serves as a transition from the 'urban' character of the Federal Precinct to the 'natural' character of the desert. In addition, it references the forms and principles of the traditional Islamic garden.
- The park should function as a major amenity providing distinctive and iconic open space. It should be a dynamic area with multiple uses and activities including a water feature, a shady square with seating, and cafes.
- The park should emphasize a 'desert' environment with soft and hard paving, palm trees, and shade structures.
- The park should emphasize a clear site line to National Square and the National Mosque.



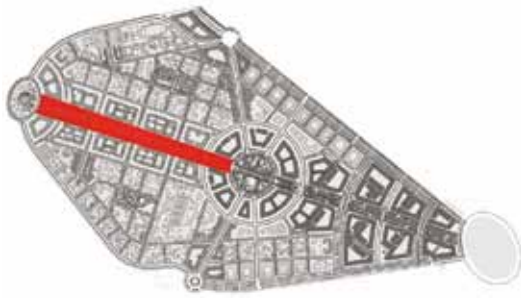
Key Uses Legend

1. UAE Monument with viewing deck, shaded perimeter, water feature at base and cafe
2. Entry plaza with seating, palms and dynamic lighting
3. Perimeter plaza with decorative soft surface paving, arid planting, water rills and palms



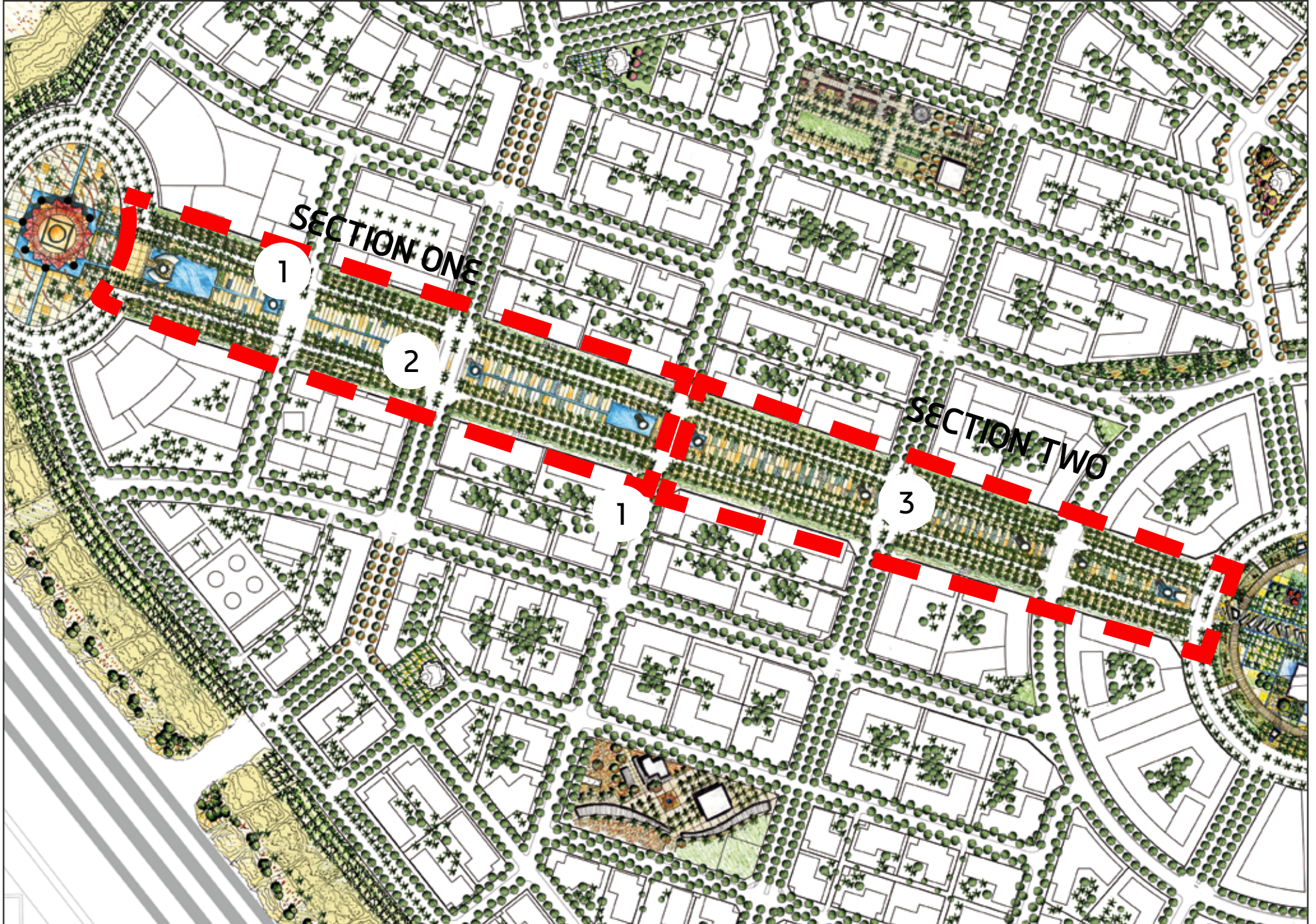
Capital Boulevard Character

- Capital Boulevard West is the western portion of the civic and open space spine of the Federal Precinct. It connects Monument Park to International Park.
- It is comprised of a series of character sections at block level. The character of these sections transition from a more arid, desert feel of at the western end to a more lush area at International Park.
- The built form along the edges of the Boulevard are primarily embassies in this zone.
- The civic spine should host a variety of monuments that celebrate the history of UAE.
- In order to provide significant pedestrian amenity, water features should be incorporated along the spine. Water features should be proportional to the width of the boulevard.



Key Uses Legend

1. Gathering area with water feature, seating and shade
2. Central promenade with decorative paving, water rills, seating, lighting and palms
3. Commemorative monuments



Parks & Open Space Guidelines

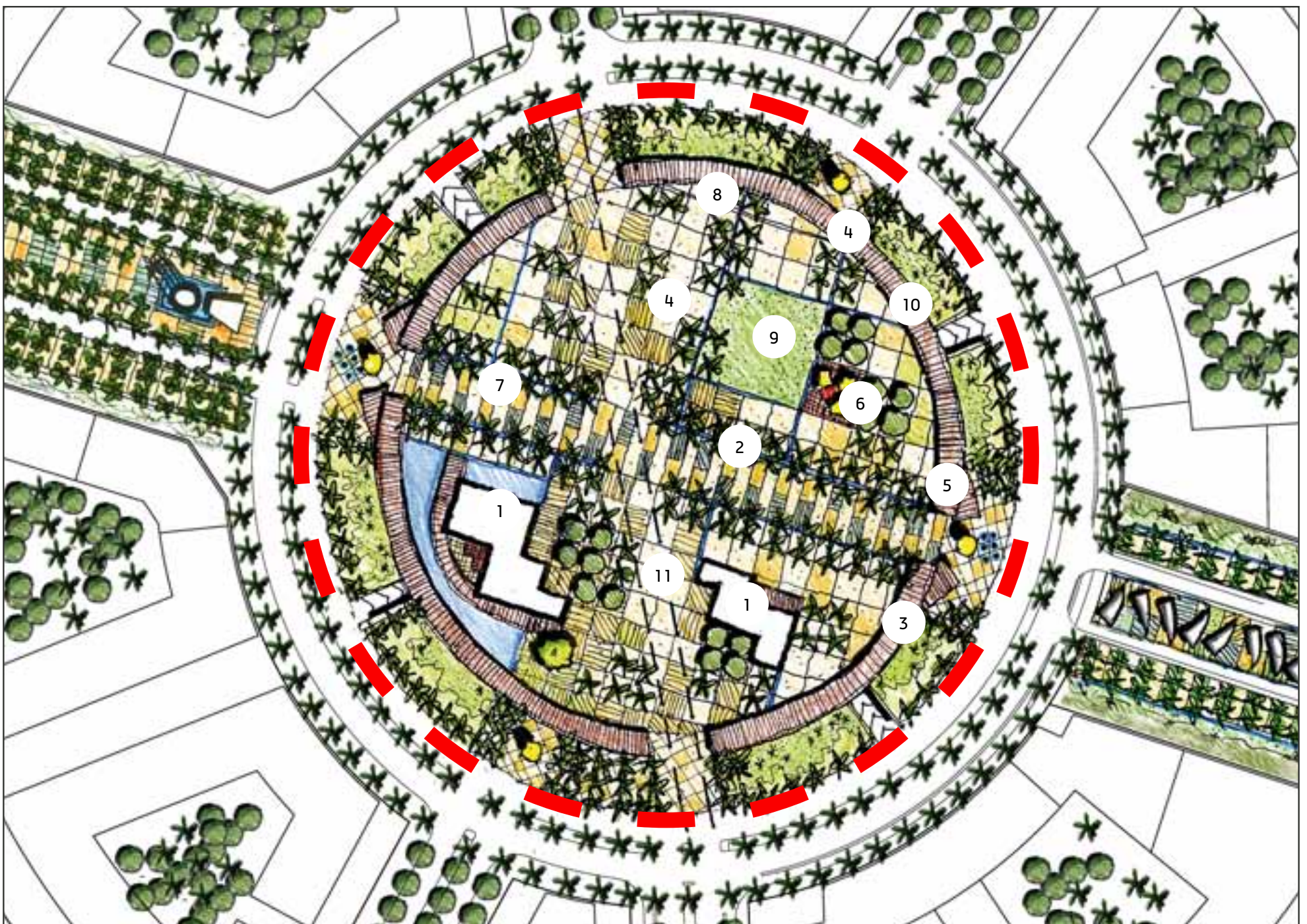
Federal Precinct

International Park Character

- International Park is the large circular focal open space at the heart of the Federal Precinct. It should contain lush and comfortable outdoor spaces.
- The park is organized on a four-quadrant grid that references Islamic traditions. A mix of shady and sunny spaces can be achieved through the use of bosques of palms and shade trees.
- The park should accommodate a variety of uses including recreation, civic, cultural, and religious amenity.
- The park should include underground parking, with appropriate parking access (entry and exit) points as needed.

Key Uses Legend

1. Cultural Amenity Building
2. Central promenade
3. Perimeter arbour
4. Monuments / garage vents / water features
5. Cafe / kiosk / pedestrian garage access
6. Play equipment and washroom
7. Formal gardens and seating
8. Botanic gardens and lush planting
9. Multi-use turf Areas
10. Vehicular parking access
11. Tram Route



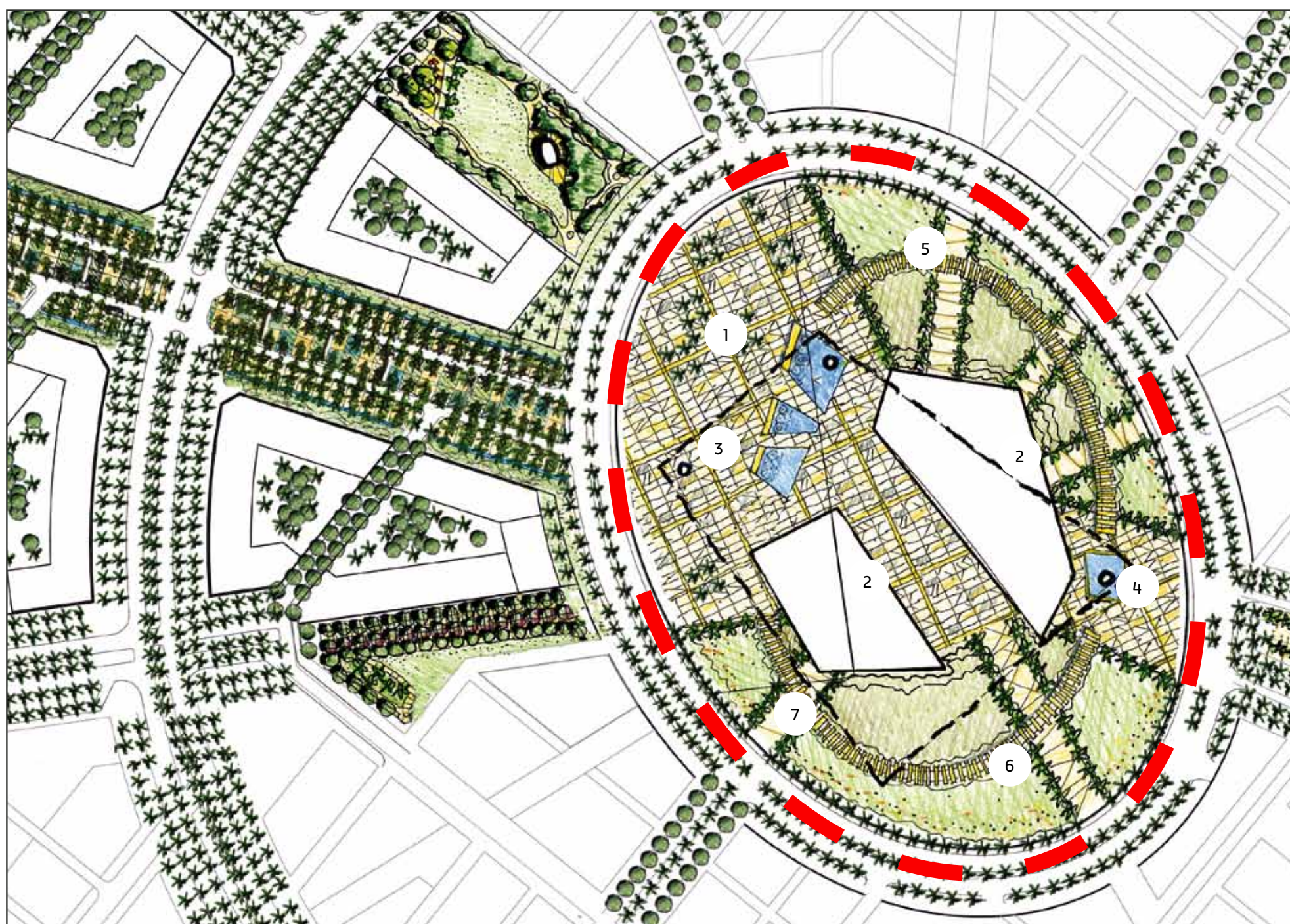
National Square Character

- National Square is the oval-shaped open space at the centre of the Capital District.
- It should be a highly formal and commemorative space that serves as a dignified compliment to a stately government building..
- The plazas and the architecture should be integrated both visually and functionally. This can be achieved through the use of a large shade structure and/or floating roof that extends from the building into the space, by having a common family of materials, and design details between the architecture and the public realm.
- Clear sitelines should be maintained along the central axis of Capital Boulevard to Monument Park to the west and the National Mosque to the east.



Key Uses Legend:

1. Precinct Plaza with multi-function decorative paving area, interactive fountain, seating and dynamic lighting
2. Government building with floating roof structure
3. Commemorative monuments may be incorporated into supports for floating roof
4. CBD Plaza with decorative paving area, interactive fountain, bench seating and dynamic lighting
5. Perimeter arbour
6. Decorative arid gardens
7. Building access aligned with street axial points



Parks & Open Space Guidelines

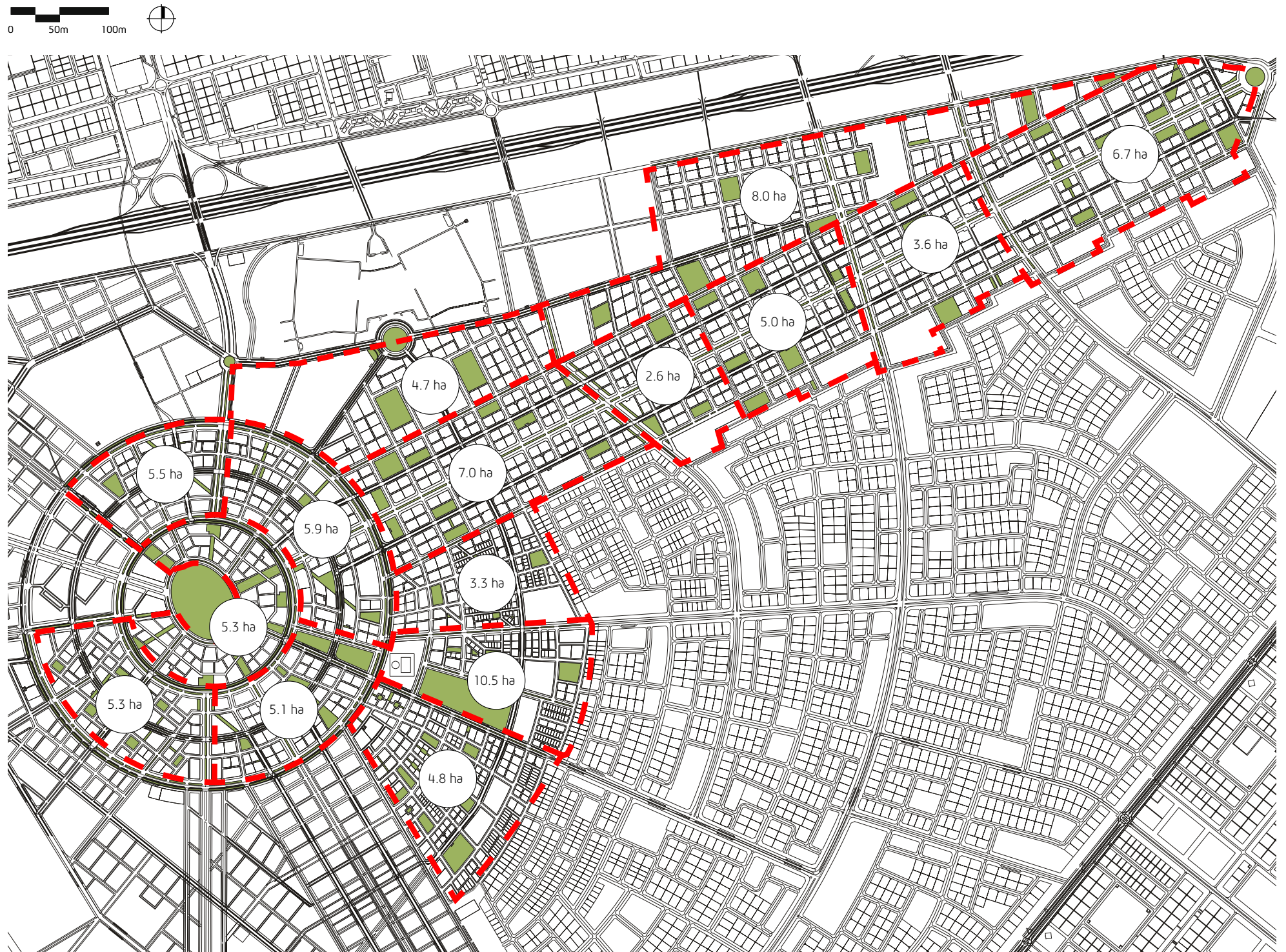
City Centre Precinct

Distribution Overview

The City Centre Precinct has a population of approximately 200,000 residents which is 55% of the entire residential population residing on 11% of the land area within the boundaries of the Capital City. The distribution of open space in the City Centre is based on balancing open standards with overall land densities and precinct populations.

The City Centre project area provides approximately 1 hectare of open space for every 1,000 people which is a substantial amenity in a dense urban environment and significantly greater than many world class cities. This ratio compares very favourably with other cities (New York City, San Francisco, Washington DC). The Capital District as a whole seeks to achieve Estidama goals of 2 hectares of open space for every 1,000 people, which will incorporate the lower residential population areas.

The diagram below illustrates the location of the various park spaces and the summary of the land area dedicated to open space in each precinct.

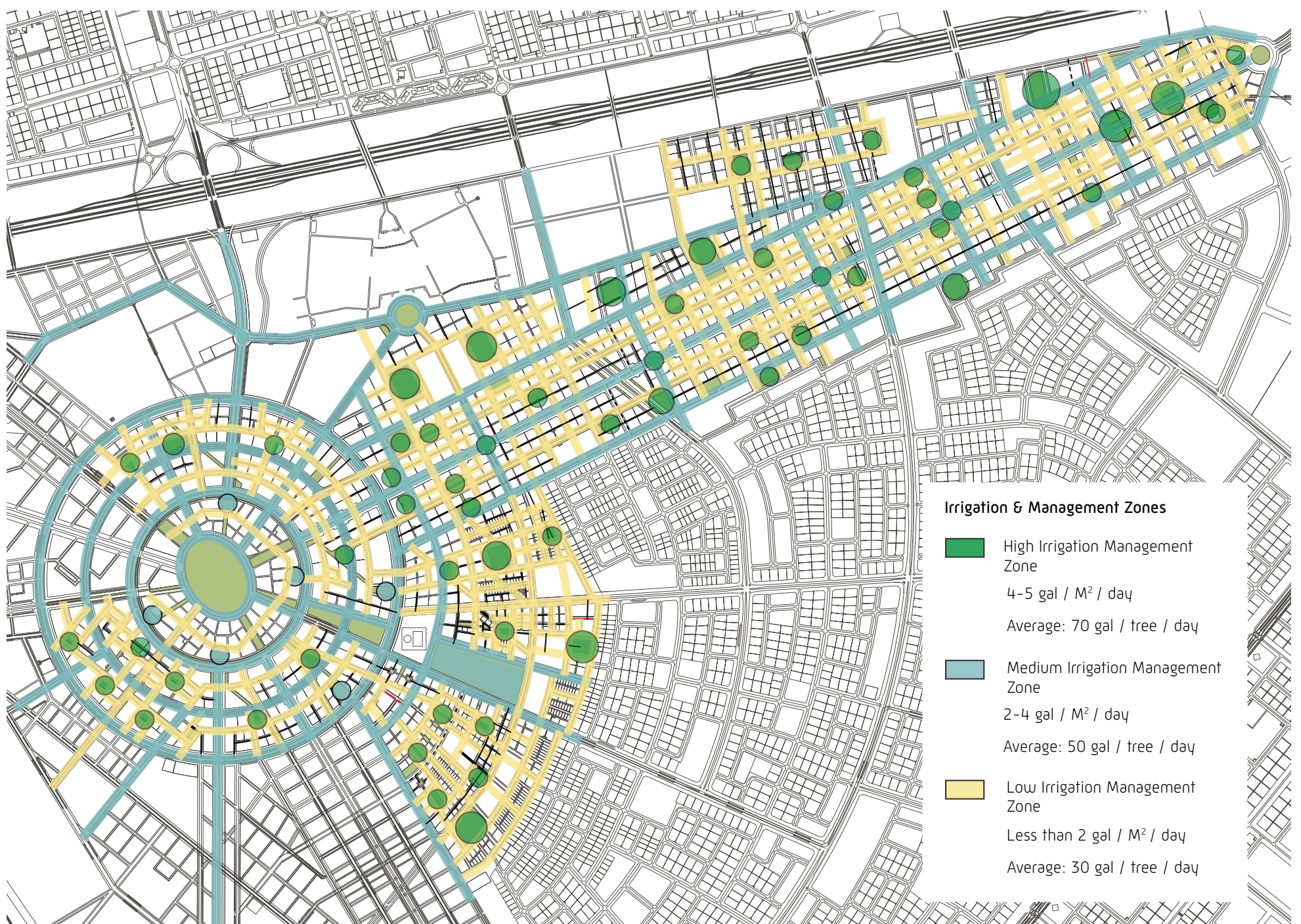


Irrigation Management Overview

Open spaces are managed according to the amount of water consumed with the areas of highest water consumption getting the greatest amount of horticultural care. The management strategy involves the use of plant materials and other landscape components that do not put additional strain on scarce natural resources.

It has been conceived to support the reuse of Treated Sewage Effluent (TSE), with a goal of keeping it under 50% of the total TSE produced. This strategy will allow for the potential of using the excess TSE within the private domain, as a primary irrigation source. The purpose of the management zone designation is to coordinate open space and landscape plantings with management strategies for the City Centre. These water management requirements provide enough flexibility to create a variety of high-quality public and private open spaces, while achieving city-wide water use and sustainability goals.

An overall goal for water consumption within the public realm for the Capital District is that irrigation should consume no more than 50% of total available TSE (Capital District Infrastructure Masterplan).



Parks & Open Space Guidelines

City Centre Precinct

Example of Treated Sewage Effluent (TSE) Use Analysis

The table below illustrates a method for calculating the irrigation requirements for Precinct Seven, taking into account the open space types within the precinct.

The water use calculations separate street trees from park land areas. Street trees water needs are based on a linear street frontage, corresponding number of street trees and water use by plant species. Where as park and other planted areas rely on a water use per square meter of park space.

Sub-Precinct Seven, on the North Spine, has a sum of 266, 211 gallons of TSE required for public space and 177,629 gallons required for private domain spaces for a total of 443,840 gallons of TSE required.

The projected population for Sub-Precinct Seven is 27,848 residents, with each generating 60.72 gals. for a total of 1,690,930 gals of TSE. This indicates that only 26% of the TSE generated by the population is required for irrigation, which is substantially below the 50% goal of TSE for irrigation use. This leaves a substantial amount of TSE water available for to provide water features and other water related elements within the new Capital District.

ROW's					
Trees/Shrubs	Net (L)	Tree spacing	No. of trees	TSE per tree	Total TSE
S 9-30	4790	8	599	30	17963
S 12-41	4872	8	609	50	30450
S 7-21	5450	8	681	30	20438
S 13-62	2410	8	301	50	15063
sidewalk	2410	8	301	50	15063
Plantings					
ROW's	Planted Area (SM)		TSE/gal/ SM	L/SM	Total TSE
S 13 Median	7840		3		23520
sidewalk	2410		1		2410
					0
S 12 median	9930		3		29790
sidewalk	4872		1		4872
					0
Parks					0
NP (1-6)	13037.5		4.5		58669
	0				0
RP (1-3)	9248.4		4.5		41618
	0				0
CP (1-2)	737.8		3		2213
	0				0
LP (1-4)	1381.45		3		4144
					0
					266211
Priv. Domain	Open Space	Planted	TSE/gal/ SM		Total TSE
	78946	39473	4.5		177629

Park Typology Overview

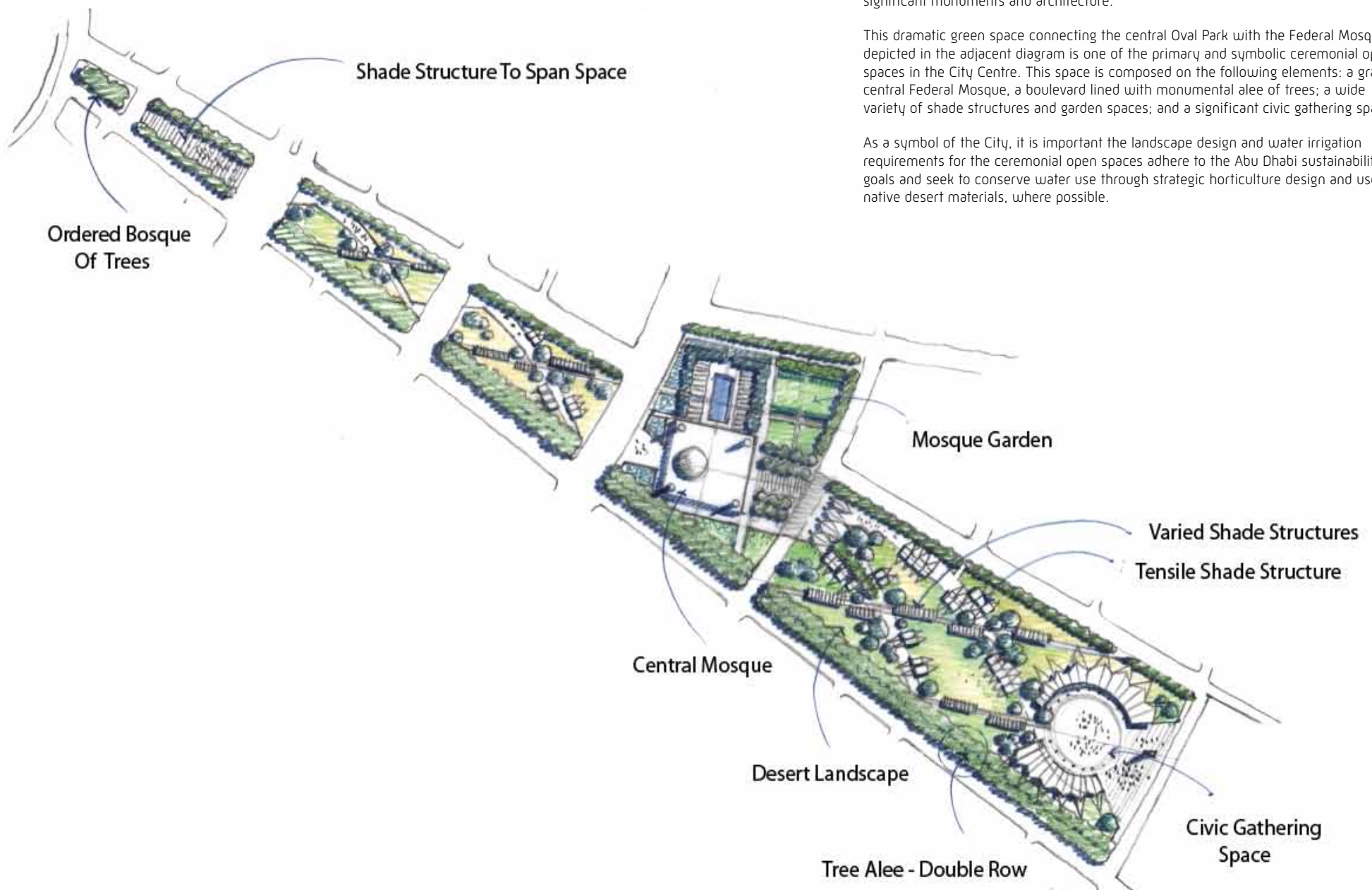
All open spaces in the City Centre are categorized into specific typologies based on the size, scale, and intended character of the space. These typologies include: ceremonial open spaces, recreational parks, neighbourhood parks, civic plazas, linear parks and pedestrian spaces within street rights-of ways.

Ceremonial Open Space

Ceremonial open spaces represent the largest parks in the plan and are intended to serve the entire population of the Capital District. These significant open spaces are intended to be the setting for national and local events, celebrations and locations of significant monuments and architecture.

This dramatic green space connecting the central Oval Park with the Federal Mosque depicted in the adjacent diagram is one of the primary and symbolic ceremonial open spaces in the City Centre. This space is composed on the following elements: a grand central Federal Mosque, a boulevard lined with monumental alee of trees; a wide variety of shade structures and garden spaces; and a significant civic gathering space.

As a symbol of the City, it is important the landscape design and water irrigation requirements for the ceremonial open spaces adhere to the Abu Dhabi sustainability goals and seek to conserve water use through strategic horticulture design and use of native desert materials, where possible.



Open Space Overview

City Centre Precinct

Neighbourhood Park

Neighbourhood Parks on average are less than one hectare in size and are designed to -serve the needs of a single residential neighbourhood. Typically located near Cultural Centres and Mosques, neighbourhood parks provide places for small community gatherings and recreation. The design should be neighbourhood oriented and can encompass children's play equipment, informal recreational/ multi-use turf areas, picnic areas, plaza, public gardens and seating areas.

The basic design parameters should have approximately 67% of the land area dedication towards active uses; with approximately 30% dedicated towards sports fields and the rest designed towards playgrounds and passive uses.

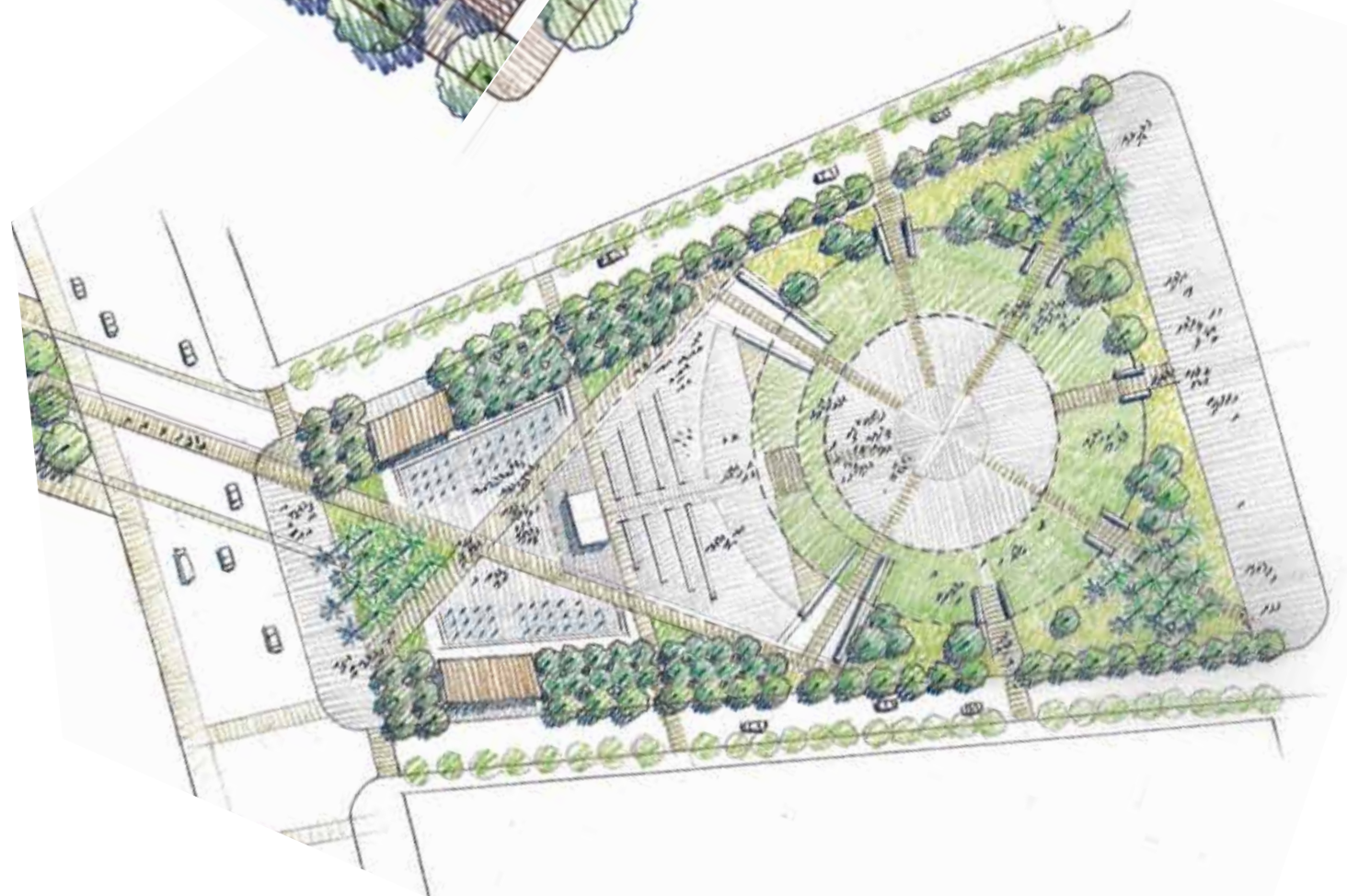
From a sustainability perspective, the design of neighbourhood parks should reflect their water management zone. However the water usage can vary through-out the park allowing for some higher and lush vegetative areas while still maintaining the average water use as defined by the water management zone. It is assumed that approximately 33% of the land area will be soft or vegetative surfaces versus hard or paved surfaces. Creating shading devices for neighbourhood gatherings are very important and it is recommended that 67% of the land area have shading devices.



Civic Plaza

Civic Plazas should be an aesthetically inviting space that works in concert with the immediate surroundings to create a sense of place. These plazas can range in size from small scale pocket parks to larger monument plazas surrounded by civic buildings. In the City centre these plazas tend to be located at important roadway intersections. Civic Plazas are typically adjacent to office, government office or institutional uses and should be designed to relate to adjacent entrances and uses. Typically civic plazas are designed for passive uses and do not accommodate sport facilities.

From a sustainability perspective, the design of civic plazas should reflect their water management zone. However the water usage can vary allowing for some higher and lush vegetative areas while still maintaining the average water use as defined by the water management zone. It is assumed that approximately 40% of the land area will be soft or vegetative surfaces versus 60% hard or paved surfaces. Creating shading devices for urban settings is very important and it is recommended that 75% of the land area have shading devices.





Linear Park

Linear Parks vary in length, width and scale and are designed to encourage pedestrian movement through public places in the city. These linear corridors may run through several precincts with visual connection and provide opportunities for locating monuments along strong visual / linear corridors. These spaces are often oriented towards the prevailing wind to encourage cooling through natural ventilation. Many of the linear parks in the City centre are designed with a formal line of trees flanking either side of a paved pedestrian walkway with opportunities for pavilions for bazaars or festivals.

The design of linear parks should reflect their water management zone. However the water usage can vary allowing for some higher and lush vegetative areas while still maintaining the average water use as defined by the water management zone. It is assumed that approximately 20% of the land area will be soft or vegetative surfaces versus 80% hard or paved surfaces. Creating shading devices for urban settings is very important and it is recommended that 80% of the land area have shading devices.



Recreational Park

Typically these recreational parks range from 1 to 2.5 hectares and serve the greater population beyond a single precinct or neighbourhood. These parks are oriented towards active recreation with many sports facilities incorporated in the design; including but not limited to playgrounds, soccer fields, tennis courts, swimming pools, cricket fields and indoor recreation facilities.

In the City Centre recreational park spaces are typically located adjacent to schools and Cultural Centres to encourage opportunities for shared use and neighbourhood gatherings. The basic design parameters should have approximately 80% of the land area dedication towards active uses; of that 60% dedicated towards sports fields and 20% dedicated towards playgrounds.

From a sustainability perspective, the design of recreational parks should reflect their water management zone. However the water usage can vary through-out the park allowing for some higher and lush vegetative areas while still maintaining the average water use as defined by the water management zone. It is assumed that approximately 50% of the land area will be soft or vegetative surfaces versus hard or paved surfaces. Creating shading devices for recreation sports is very important and it is recommended that 50% of the land area have shading devices that are designed to address the specific sport needs.

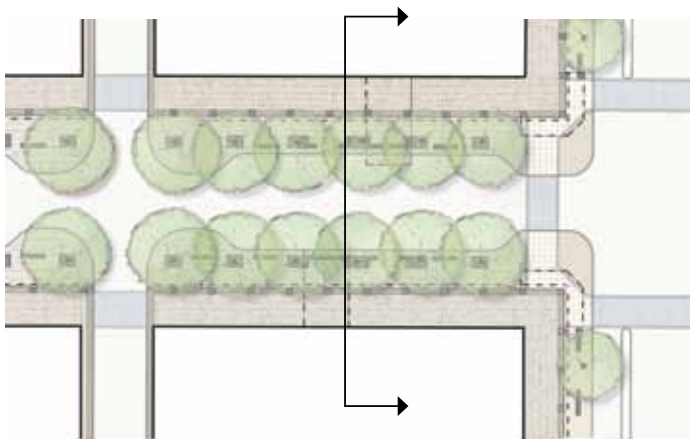
Transportation & Circulation

Streets

Within the Capital District there are three major types of streets, each relating to the scale of the traffic volume it is intended to carry and the type of character the street is intended to have.

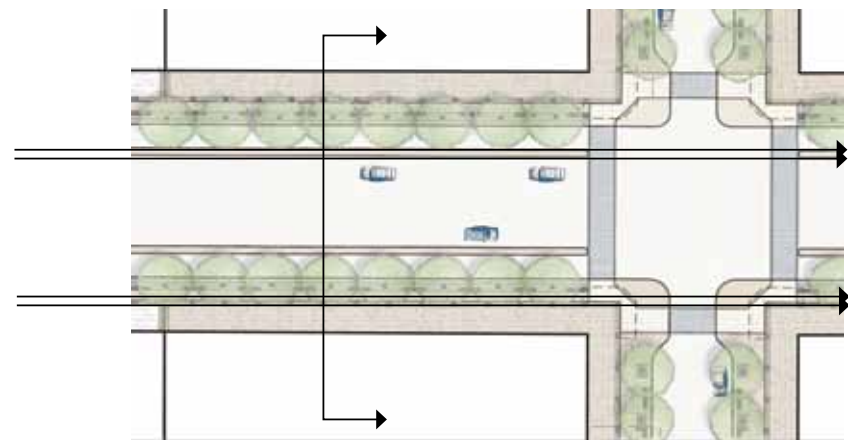
- Retail Streets (e.g., S7 - 21m) make up some of the narrowest right of ways within the plan. These streets are intended to be easily crossed by pedestrian traffic and have a small-scale character.
- Neighbourhood Streets (e.g. S8 - 25m and S9 - 30m), are mostly residential streets; these streets make up the majority of the plan. They have a pedestrian focus, but also connect neighbourhoods and connect traffic to major arterial streets.
- Boulevards in the plan are both symbolic and functional. Arterial boulevards move traffic in and out of the Capital District (e.g. S15 - 62m and S14m-48). They are also symbolically important to the city and will have national and local institutions, as well as public art along them. These will begin to form gateways to the City Centre. The widest and most important boulevards are the Outer Ring Boulevards (e.g. S17- 75m), which are circular and form the basic geometry of the plan.

Retail Streets



Illustrative retail street site plan.

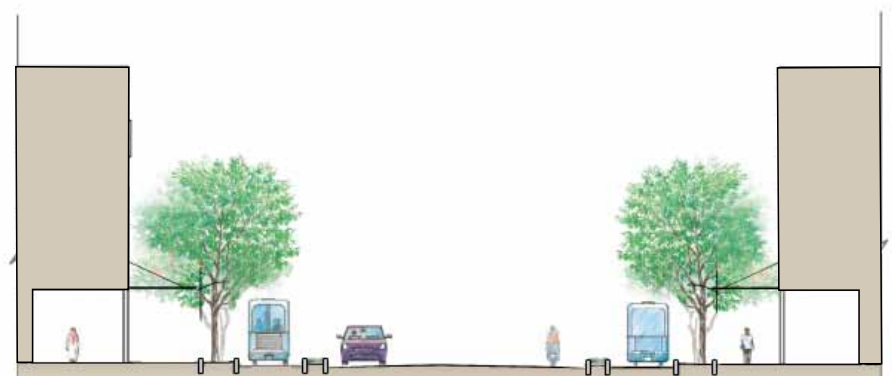
Neighbourhood Streets



Illustrative neighbourhood street site plan.

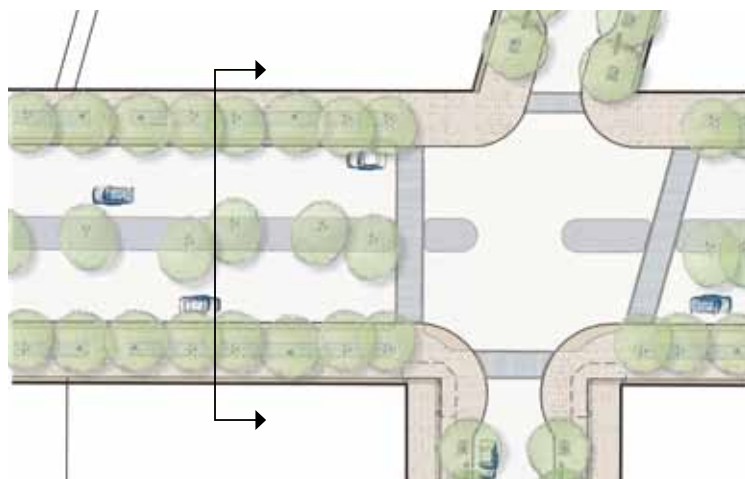


Illustrative retail street section.



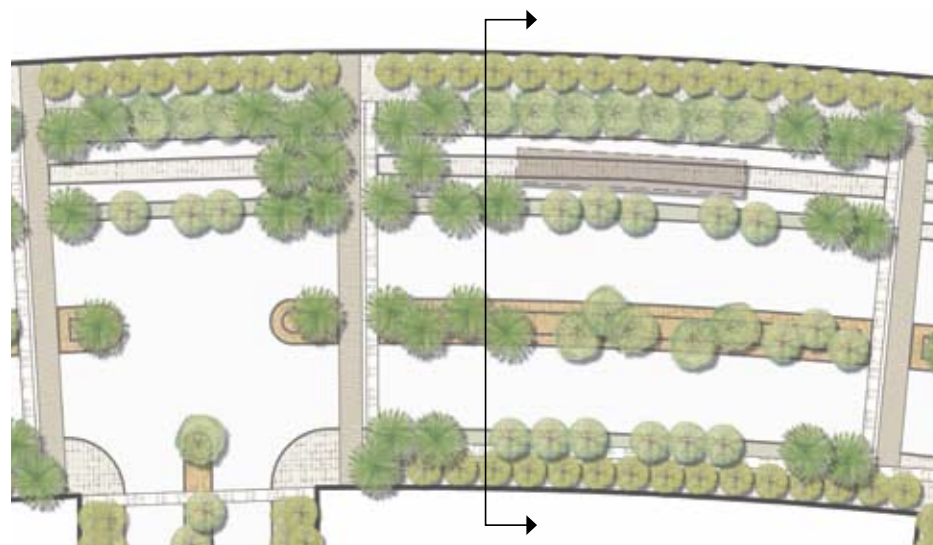
Illustrative neighbourhood street section.

Arterial Boulevards



Illustrative arterial boulevard street site plan.

Outer Ring Boulevard



Illustrative arterial boulevard street site plan.



Illustrative arterial boulevard street section.



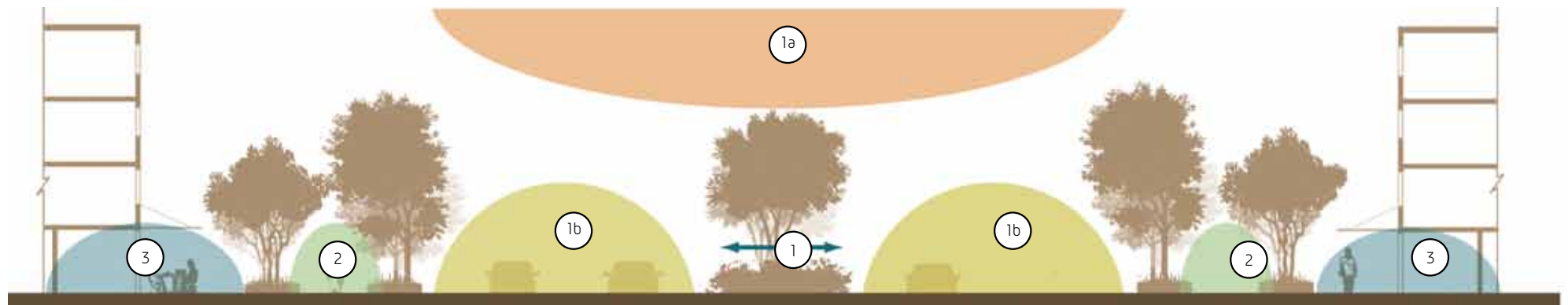
Illustrative arterial boulevard street section.

Transportation & Circulation

Streets

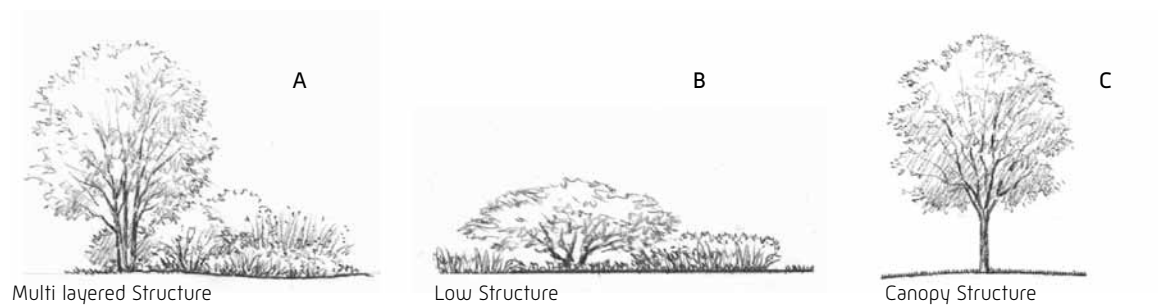
Scale and Proportion of Primary Boulevards

1. Vehicular corridor
 - 1a. The vehicular corridors are anchored by tall canopy trees that establish the overall scale.
 - 1b. Opposite travel lanes are scaled down by medians planted with medium sized trees. Planting in the medians should be designed to create long views and a variety of experiences for the driver and passenger.
 - 1c. Emphasis should be on informal groupings of multi-stemmed trees and shrubs set amidst native grasses, low woody ground cover, and desert elements.
2. Bicycle paths should be separated from the pedestrian and vehicular realm by two-layered planting with breaks for special events, creating intimate gathering spaces where pedestrians and bicyclists can interact and rest.
3. The pedestrian realm weaves through arcades and shaded sidewalks to create a varied environment for social interaction and an active street life.

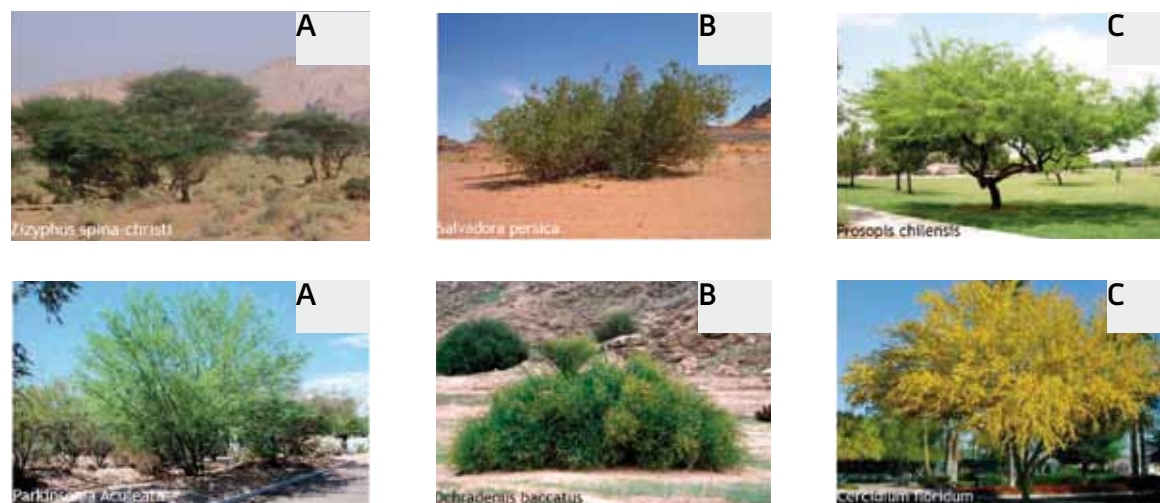


Conceptual primary street section highlighting key elements of scale, character and proportion.

Tree Structures



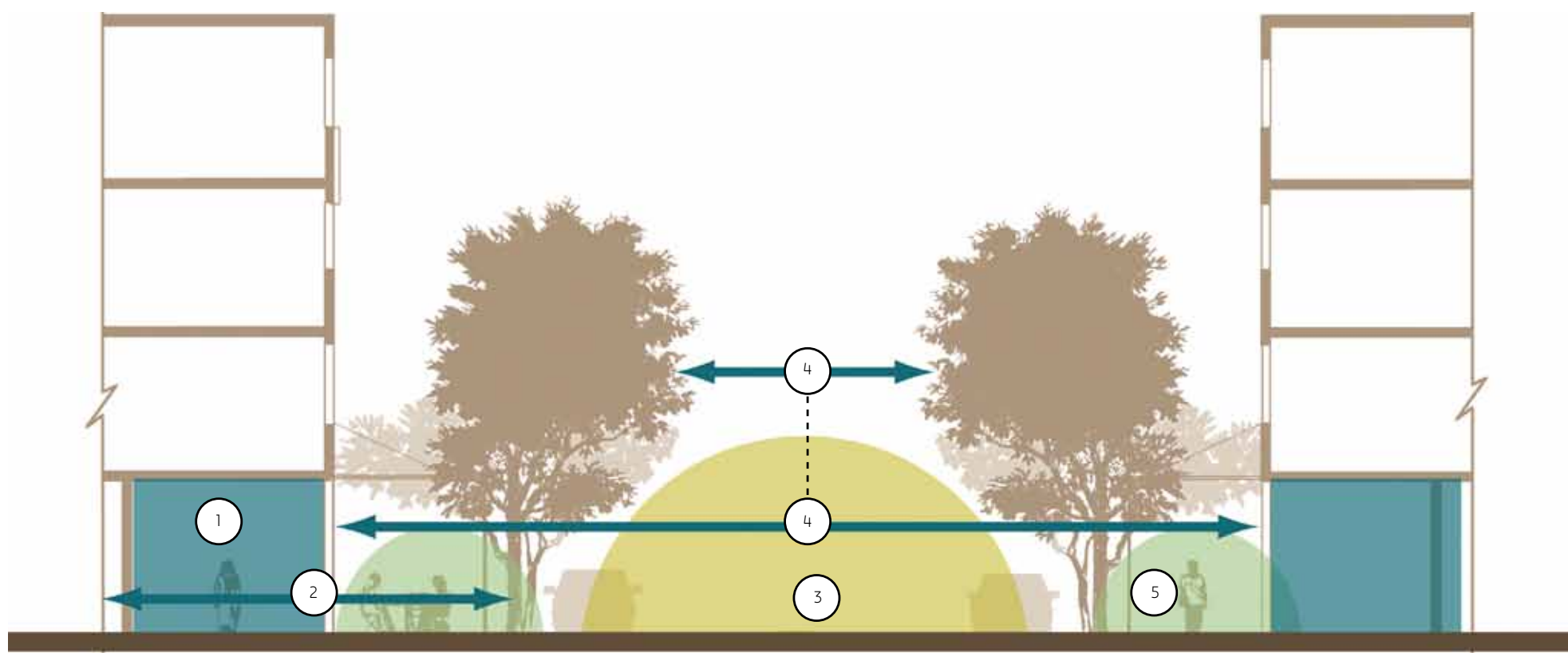
Types of tree structures appropriate to the Abu Dhabi streetscape.



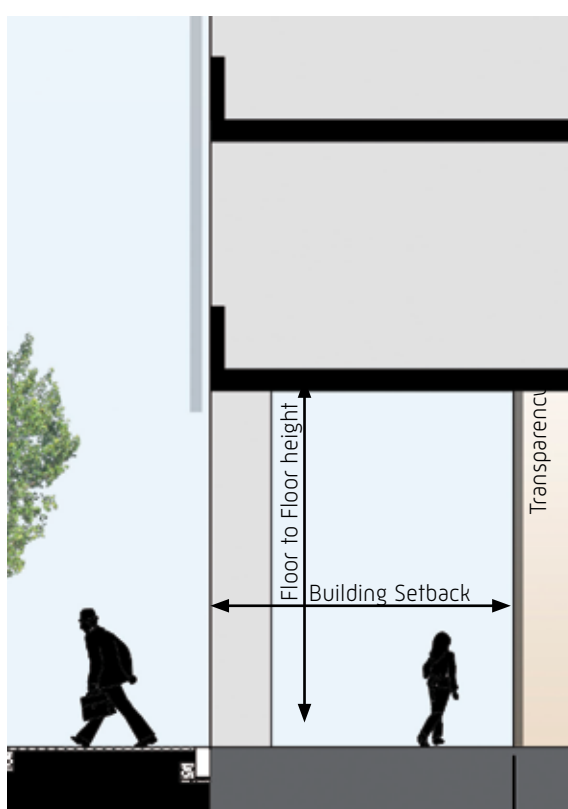
- A. Multi Layered Structure at Parks and wide medians of Boulevards.
- B. Low Structure at medians less than 1m wide and surrounding areas at City edges
- C. Canopy Structure at sidewalks.

Scale and Proportion of Retail and Neighbourhood Streets

1. In these small streets the arcades in front of the stores become important part of the public space.
2. To reinforce this extension of the public realm, the elaborate paving pattern under the arcade spills onto the public side
3. The planting is designed to create a tall shaded canopy over the whole corridor.
4. This elevated canopy allows visual connection across the street to encourage crossover retail activity.
5. The intimate spaces reinforce an animated street life.



Conceptual retail and neighborhood street section highlighting key elements of scale, character and proportion.



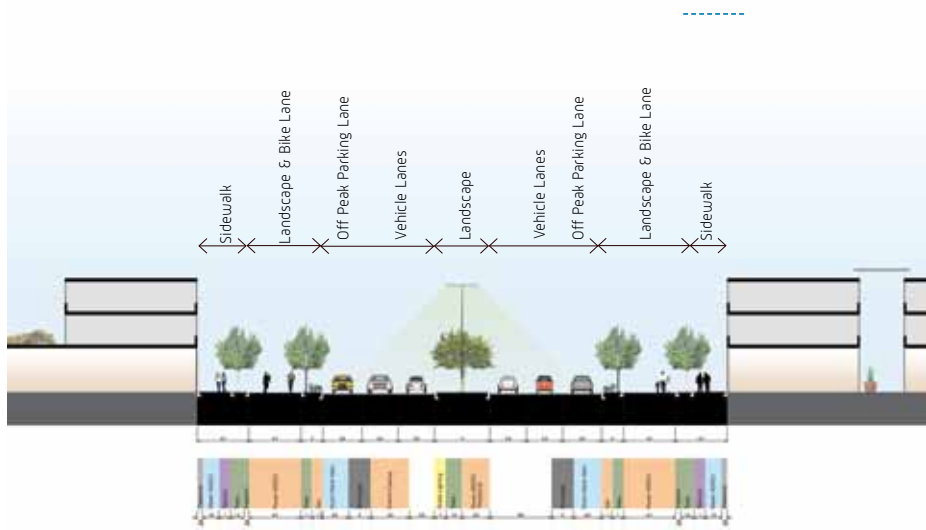
Arcades

- Building setback of 4m on the ground level.
- First level minimum floor to floor height: 5m.
- Transparency along the ground floor is required.

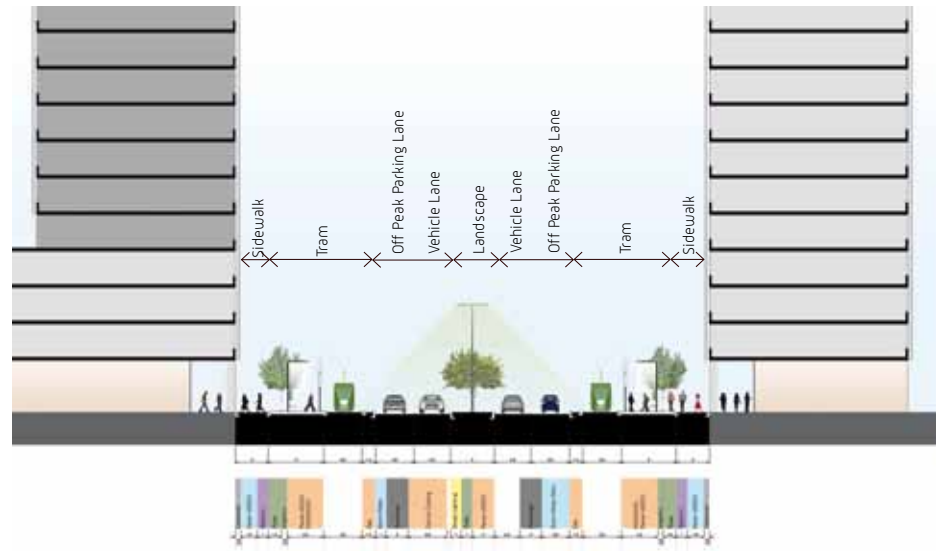
Transportation & Circulation

Typical Street Sections

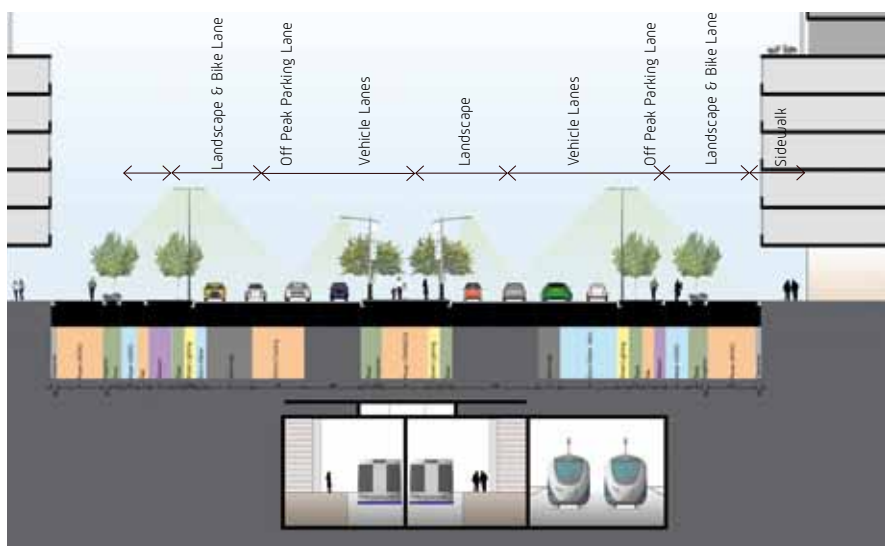
Illustrative Street Section - 48M



CBD Illustrative Street Section - Middle Ring - 43M



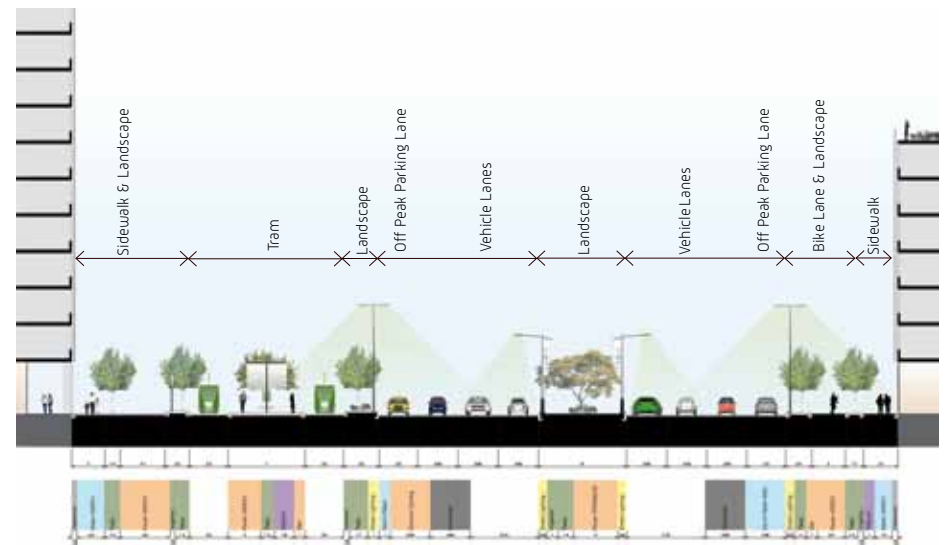
Spine Illustrative Street Section - Centre Spine - 62M



Illustrative Centre Spine street section.

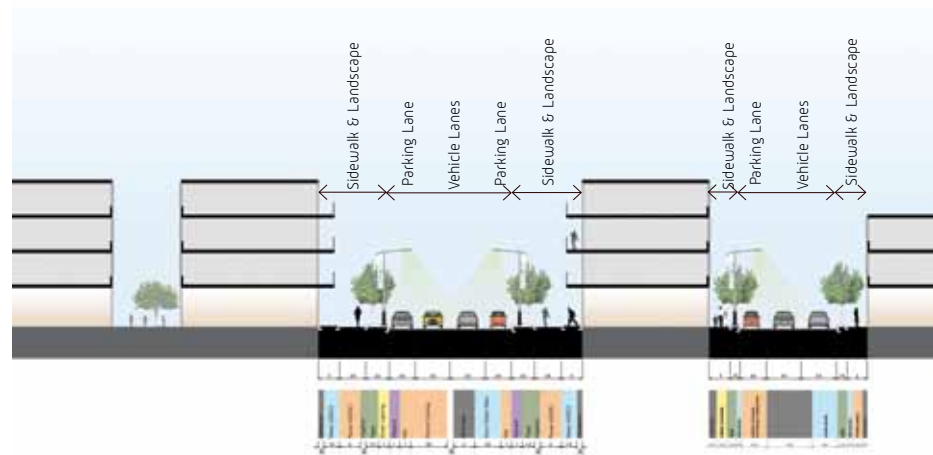
Sidewalk

CBD Illustrative Street Section - Outer Ring 75M



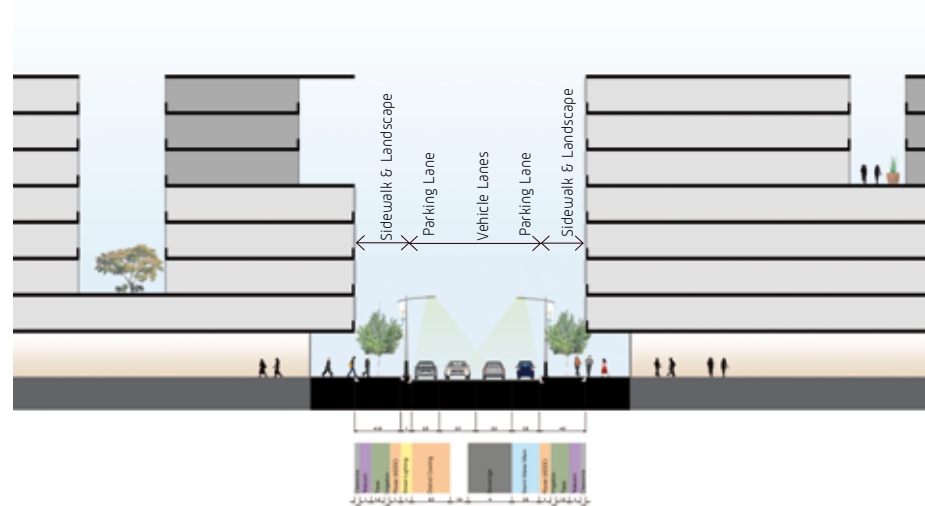
Illustrative CBD outer ring street section.

Mosque District Illustrative Street Section - Primary Road 25M
 Mosque District Illustrative Street Section- Secondary Road 16M



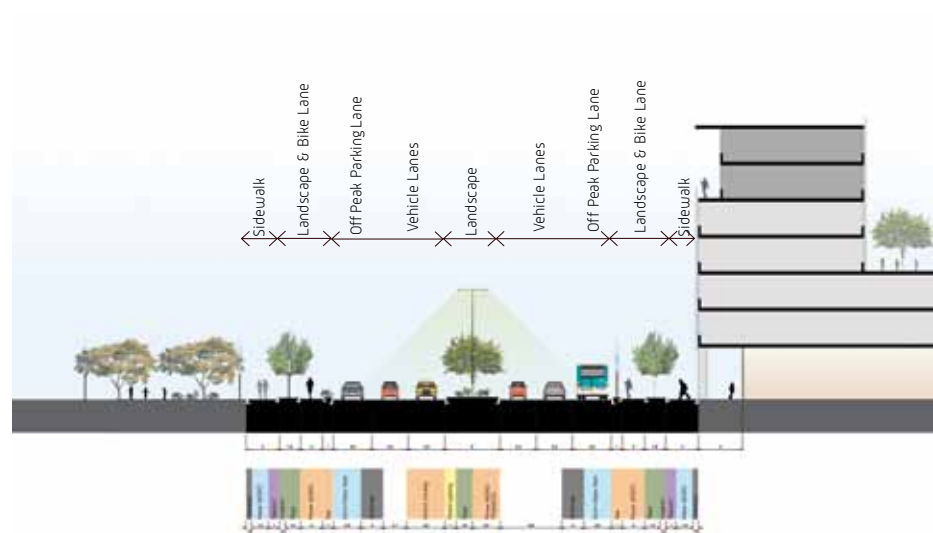
Illustrative Mosque District street sections.

Spine Illustrative Street Section - Retail Street 21M



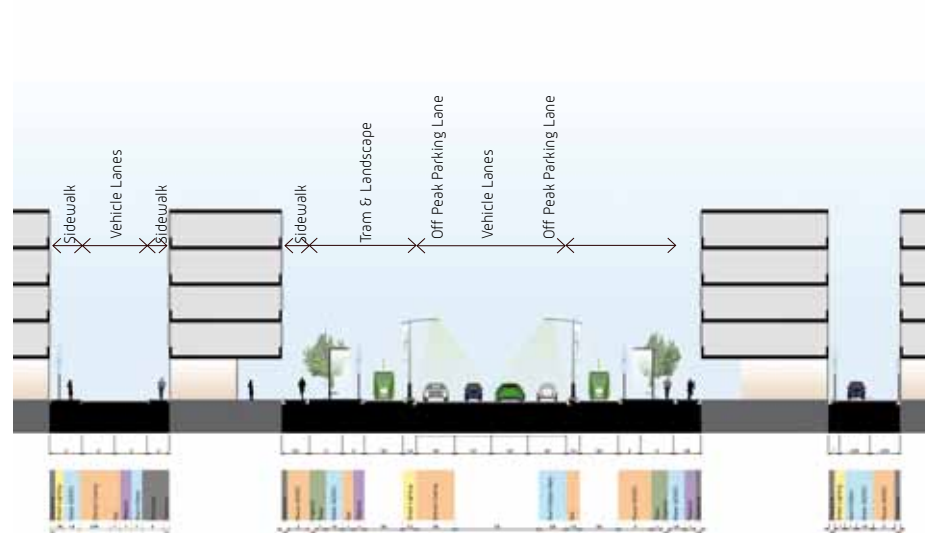
Illustrative retail street sections.

CBD Illustrative Street Section - Oval Ring 41M



Illustrative CBD oval ring street section.

Illustrative Street Sections - 11 M / 38M / 6.5M



Illustrative street sections.

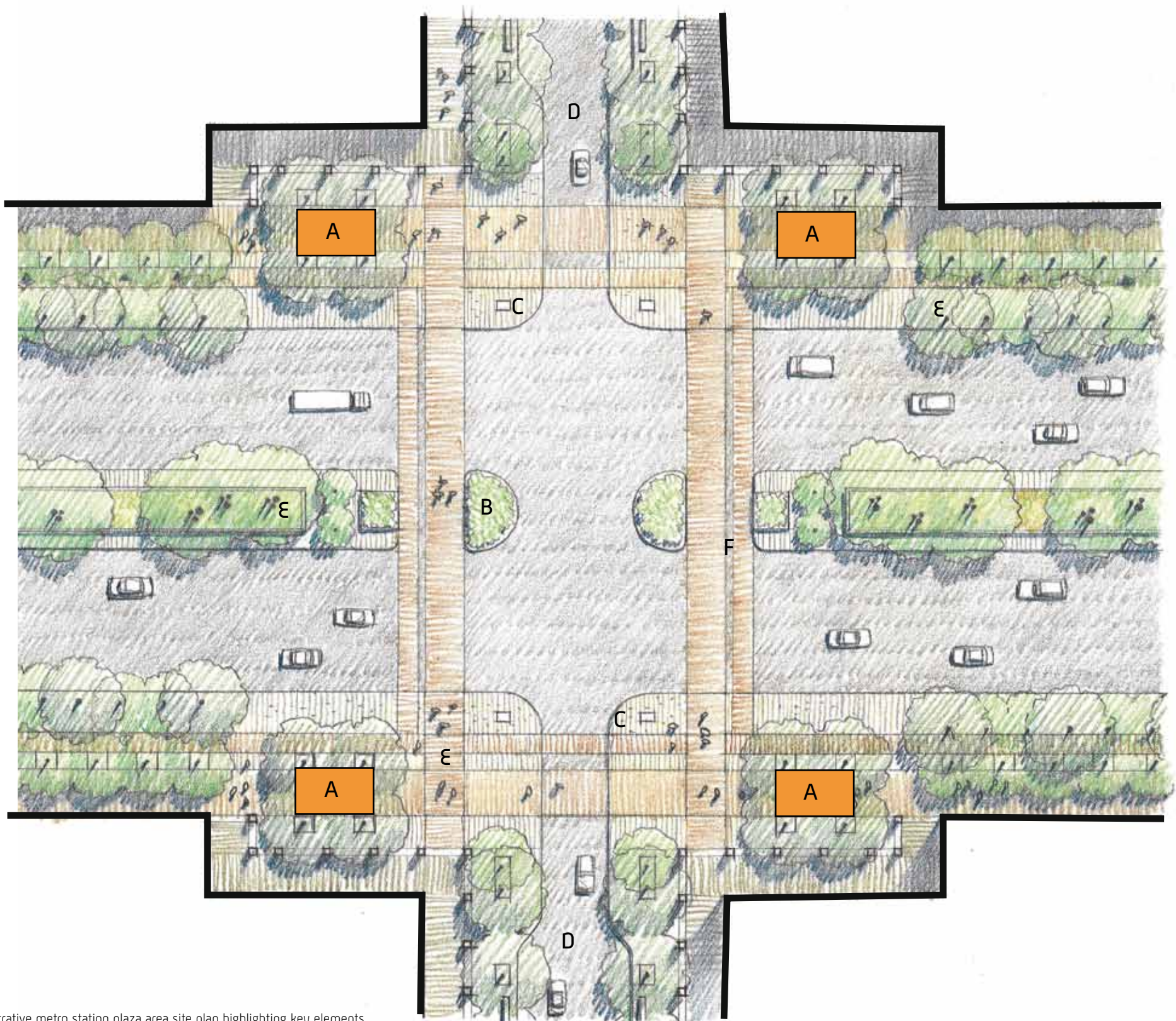
Tram & Landscape
 Sidewalk

Transportation & Circulation

Transit Stations

Metro Station Plazas Plan

- A Metro station access will be provided through station portals within the public realm. Locating metro station access points within commercial buildings may be an option during more detailed design stages. All metro stations will have a minimum of four station entries and a maximum of six (at either end of the platform and at mid-platform).
- B Boulevard ends create the opportunity for public art and signage that relate to the retail street and neighbourhood character.
- C A potential gateway condition at the entry to the retail street. The gateway could be marked with special sculpture, kiosks, plantings, or archway.
- D The retail corridor.
- E Plantings may vary at each corner, and in different zones. The character of the landscape at each plaza should be different.
- F Different types of paving will enhance the feel of the street.



Illustrative metro station plaza area site plan highlighting key elements.

Acknowledgements

The Capital District Masterplan was developed between February 2008 and March 2009 by the Urban Planning Council under the direction of Falah Al Ahbabi. The development of the Masterplan was undertaken by a several inter-disciplinary consulting teams and international experts and managed by UPC Policy and Plans Division with extensive involvement from other UPC departments and government agencies.

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منطقة العاصمة

Capital District



