



4.0 URBAN STRUCTURE FRAMEWORK PLANS

- Urban Structure Overview
- Environmental Framework
- Land Use Framework
- Transportation Framework
- Public Open Space Framework
- Capital City Framework

4.1 URBAN STRUCTURE OVERVIEW

The Plans presented on the following pages, that together comprise “Plan Abu Dhabi 2030”, the overall Urban Structure Framework Plan for the city, are conceptual solutions to the diverse array of challenges facing Abu Dhabi as it grows rapidly over the next quarter of a century. As sketch concepts, they should not be taken literally as one would a zoning map in regard to specific development allowances for individual plots or sites. Each of these Plans requires further refinement, testing and articulation at a much finer scale before it can be used to take on a regulatory role. Under no circumstances should any of the plans, drawings, models or sketches contained herein be construed as directives for specific sites or areas. Rather, they represent themes of land use, form, access, and character to be achieved through detailed planning and design.

The plans are organized into four sections:

The first section deals with the major issues that set the framework of the urban form: environment, land use, transport, public open space, and expression of the capital city. These plans consider the wider context of the city within the Emirate, Nation and region, and embody the large strategic moves necessary to balance the competing forces shaping the city.

The second section concerns patterns arising from the Framework Structural Plans, the ‘nuts and bolts’ that give the Plans their substance – precincts, densities, and building heights. These patterns provide specific metrics for the vision proposed in the frameworks and flesh out the implications of adopting this urban form.

The third section presents focus areas that warrant closer study due to their centrality to the proposed urban structural framework. These areas are presented at a higher level of detail in order to ensure that there are no major conflicts between the various systems that make the city work and their expression in the plan. The four focal areas are: the new Central Business District (CBD) and surrounding islands, the Capital District at a key crossroads on the mainland, the Grand Mosque District at the southeast side of Abu Dhabi Island, and Lulu Island.

The last section deals with prototypes of the building blocks of Emirati communities. These studies test the various assumptions inherent in the broader scaled plans and can be construed as the DNA of the urban structure of these communities. They are based on a pattern developed through analyzing the requirements of Emirati communities at different scales and different circumstances. The building blocks provide the fine grain, complementing the moves at the broader scales.

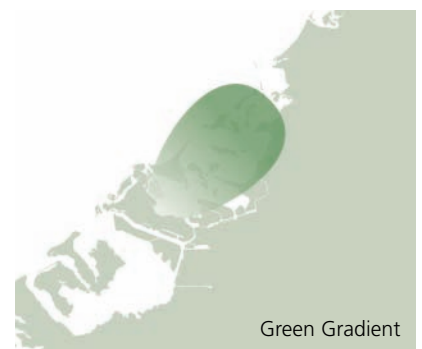
4.2 ENVIRONMENTAL FRAMEWORK

Many factors combine to give Abu Dhabi one of the most distinctive ecological contexts in the world. Fundamentally it is an edge, defined by the interface of desert and sea. While the desert is a very marginal environment for most forms of life, the shallow, sandy tidal flats created by its meeting with the Gulf are ideal for mangroves. These mangroves are a thin strip of biodiversity that provide an attractive habitat for the many species of birds that migrate between Central Asia and Africa. The tidal flats are also fertile ground for sea grass, which is the foremost hatchery for the Gulf's fish stocks. Taken together, the mangroves and sea grass beds that surround the city are the most important ecological resources in the entire country. That the city should sit astride them is both a challenge and an opportunity.

The Environmental Framework Plan is predicated on the notion that these vital ecologies must be preserved. The best way to accomplish this is through the establishment of a National Park system adjacent the city that takes in both terrestrial and marine environments. Development would be forbidden in the National Park, and all activity carefully regulated to ensure that the mangroves, sea grass beds, and migratory birds will always be a part of Abu Dhabi's ecological identity.

In order to accommodate the city's legitimate need to expand, the Plan incorporates the notion of a 'Green Gradient' between the natural core of the park and the urbanized core of the city. The Green Gradient proceeds through five echelons of increasing inhabitation, beginning with the 'Park Core Islands' where development is most stringently controlled. 'Park Edge Islands' permit a greater range of activities and structures, 'City Buffer Islands' an even greater range, and 'City Edge Islands' are slated to be developed as 'Island Eco-Villages'. These eco-villages, while being small settlements, would approach the residential densities of the urban areas of Abu Dhabi Island. Building and planning regulations for these areas will be more 'green' than for other parts of Abu Dhabi, to respond to their environmentally sensitive locales.

The third major device in the Environmental Framework Plan to safeguard the ecological wealth is a 'Sand Belt' ringing the city through the desert, defining the outer limit of growth. Nothing is worse for the environment than an unplanned, undifferentiated sprawl. Sprawl eats up land and taxes infrastructures that are already overstretched. It also adds distance to every journey residents must make and reduces the viability of public transit. The Sand Belt is a tool to contain this, adapted from the 'Green Belts' that ring other world cities, defining the limits of development. Outside the Sand Belt development is only permitted in Desert Eco-Villages along the axis to Al Ain.



Urban Structure Framework Plans

Plan Abu Dhabi 2030

Urban Structure Framework Plan



The final device developed to protect Abu Dhabi's environment is a series of 'Desert Fingers' that reach through to the Gulf shore to the north of Abu Dhabi along the axis to Dubai, and south of Abu Dhabi. There is a particular danger that development along the corridor to Dubai will create an endless sprawl, forever cutting the desert off from the water. As the junction of desert and Gulf is the most fundamental defining feature of Abu Dhabi's environmental context, this sprawl must be prevented. The Desert Fingers provide undeveloped buffers between the city, each coastal town, and Dubai, giving wildlife corridors to the protected coastal areas.

The level of land use allocation, the Green Gradient, Sand Belt, and Desert Fingers provide a framework that can accommodate both the needs of economic development, and the needs of ecological preservation. This ecological framework has informed all further aspects of the Urban Structure Framework Plan.

4.3 LAND USE FRAMEWORK

The Land Use Framework Plan addresses the critical issues facing Abu Dhabi through several strategic moves. Firstly, the Central Business District (CBD) that is scattered over several diverse islands in a number of pending developers' proposals is collected into a single concentrated district centered on Al Suwwah Island. This greatly improves its legibility and facilitates the close proximity big business requires. This CBD takes in the adjacent edges of Al Mina, Al Reem and Abu Dhabi Islands. The remainder of Al Mina, Al Reem and Saadiyat Islands are proposed as medium density residential with enough retail and commercial space to serve local demand only. This creates a scenario where the single, concentrated CBD – the major employment hub – is surrounded on all sides by residential neighborhoods, rather than being a dispersed assortment of cul-de-sacs on peripheral islands.

The second major move is to create a new Capital District on the mainland to the east of the city, in the midst of major new Emirati neighborhoods. This secondary core will have an equal amount of jobs and office space, but will be distinguished from the CBD by the type of employment it offers. Where the CBD is the center of finance and commerce, the Capital District is focused on the government and knowledge-based sectors. The two cores are separated by enough space, and have employment foci that are different enough that they will complement, rather than compete with each other. Balancing the bulk of jobs between two employment centers surrounded by residential districts will help to disperse traffic, rather than concentrating it into one destination route which becomes a bottleneck. The Capital District concentrates the functions and image of government into a single iconic precinct like other great capital cities around the world.

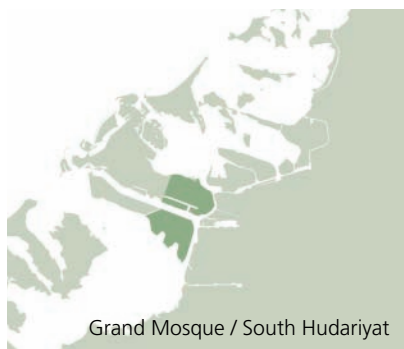
The third major initiative is to define the limits of growth for the city. This is essential for preserving the sensitive ecology on the city's edge, and for preventing an unending, undifferentiated sprawl through the desert to Dubai. Development through the islands to the northeast of the city is regulated by the Green Gradient of island eco-villages of descending intensity towards the National park. The mainland boundaries of the city are defined by the Sand Belt that meets the Gulf at the National park and arcs around the city following the new truck highway for goods movement (See 4.4: Transportation Framework). Development outside of the Sand Belt is only permitted as desert eco-villages along the axis to Al Ain and as coastal towns separated by Desert Fingers on the axis to Dubai.



Urban Structure Framework Plans

Plan Abu Dhabi 2030

Urban Structure Framework Plan

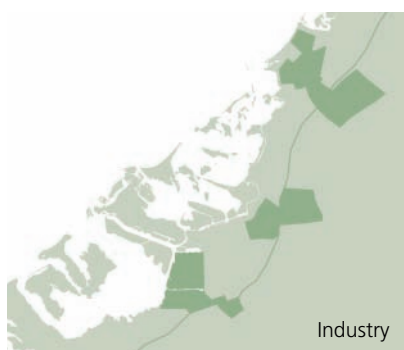


Two areas have been identified as major development opportunities to augment the two main cores. The Grand Mosque District is home to Sports City, the Exposition development, the Al Bateen Airport redevelopment zone, and as its name indicates, the Grand Mosque. As the Al Bateen airport moves out and the large amount of empty adjacent land fills in, a smaller employment and residential node will be created, strategically positioned almost exactly equidistant between the two major cores. This smaller node is an ideal location for a metro transit station that accesses the Sports City and the Grand Mosque. Adjacent the Grand Mosque District, the south portion of Hudariyat Island has been designated for Emirati neighborhoods in contact with the water and in close proximity to both city cores. South Hudariyat Island will be significantly expanded to the south and cut through by canals, with a transition to mangroves along its outer edge.



Several other areas are logical candidates for residential intensification. The area around the Marina Mall can absorb significant new housing, giving it the critical mass necessary to warrant a metro transit terminus. The transit corridor along the Airport Road needs to be densified in order to produce the critical mass of inhabitants necessary to support the transit line.

As previously described, Emirati neighborhoods have been strategically located around all higher-density commercial nodes, rather than being forced to spread further and further away from work places and entertainment or shopping venues. This strategy will also avoid segregation between Emirati and expatriate housing, and ensure good Emirati housing choice in all parts of the city. Most Emirati Nationals choose to live at lower densities, and the plan reflects this, but some medium and higher density alternatives are also included in the plan for more housing choice. The Plan proposes that Emirati neighborhoods be complete communities, with mixed uses and services at hand. Further, it proposes that they be scaled and configured to accommodate walking and to encourage clusters of family housing, reflecting the traditional fareej arrangement (see "Building Blocks"). In higher density situations, the Plan intends a 'vertical fareej' model.



Lastly, industrial lands are strategically allocated. Heavy industries surround the new port, putting them in close proximity to the in-bound materials that fuel them. High tech industries surround the airport, providing a clean, modern gateway image at this important entry portal. Smaller service-based industries are allocated to the Mussafah and Mafraq areas and as an integral part of every neighborhood in small, accessible enclaves. All three major industrial areas are linked by the freight rail corridor and truck highway.

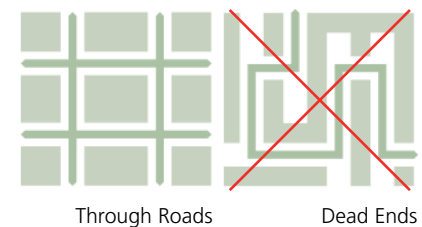
4.4 TRANSPORTION FRAMEWORK

Nothing is more fundamental to the smooth flow of traffic than the proper allocation of land use. By spreading traffic loads evenly through the roadway system, the Land Use Framework Plan lays the foundation for a viable Transportation Framework Plan. The best transportation plan starts with a good land use plan. A city of more than 3 million diverse inhabitants requires a developed transit system. ‘Modal shift’ to transit is one of several other keys to creating the comfortable and efficient transportation scheme that Abu Dhabi deserves. No matter what form of transportation people ultimately choose, every journey begins and ends with a walk, so provisions for walking are key to the Transportation Framework Plan.

The regular grid of boulevards running through Abu Dhabi has the virtue of distributing traffic evenly through the core, allowing congestion on one street to dissipate through the grid. Large freeways defeat this virtue by channeling all of the traffic flow through bottlenecks with very limited access and exit opportunities. Freeways also blight large swathes of land, devalue nearby property, and are a barrier to pedestrians. The most important principle for the roadway system in Abu Dhabi is to maximize connectivity, providing the largest amount of smaller options, rather than the smallest amount of large options. This is most graphically illustrated in the proposed new CBD area centered on Al Suwwah Island, where the Transportation Framework Plan proposes a distributed system of ten or more bridges, each a continuation of a normal city street, connecting the city to Al Suwwah and Al Reem Islands. These bridges will knit Al Suwwah and Al Reem into the fabric of the city, provide many options for relieving congestion, and comfort for pedestrians.

This same principle is also employed in the regeneration of the existing CBD – connectivity is enhanced by making through-roads out of the dead end streets within the super blocks. This provides congestion the maximum opportunity to dissipate, and eliminates the need to make three long right turns in order to make one short left movement.

Freeways still play an important role in the roadway network, but are only employed where they are truly needed: connecting Saadiyat Island to the Airport and connecting Al Reem and Saadiyat Islands to Al Raha Beach. These two new parkways will shorten the driving distance to Dubai, provide alternate entry points to the new island developments, and take the traffic pressure off Al Salaam Street, reducing the need to make this prime gateway to the city a tunnel or a freeway trench. These freeways should be designed to maximize their parkway character, with



Urban Structure Framework Plans

Plan Abu Dhabi 2030

Urban Structure Framework Plan



extensive landscaping and preservation of vistas. The final new highway is a truck route for goods movement to the east of the Capital District, proposed as the furthest extent of development into the desert.

A well-conceived transit network will help guide and phase development as Abu Dhabi's population increases. The first component is a high speed rail line, originating at the Central Souq train station, connecting the downtown to the Capital District, Airport, and ultimately Dubai. A freight rail line will operate in the same right-of-way, connecting the new port, airport, and Jebel Ali with the other GCC countries. The city needs at least two high capacity metro lines. One of these would have spurs originating on Saadiyat Island and Al Mina, turn left at Central Station to follow the Airport Road out to the Grand Mosque District, Capital District, and Raha Beach. The other line would traverse the downtown from east to west, connecting Al Reem and Al Suwwah to the Central Station and the Marina Mall development.



The next layer is a fine-grained network of surface light rail, street-cars and buses to ensure that no one ever has to walk more than five minutes to use public transit. The generous boulevards of Abu Dhabi provide ample space for median light rail or dedicated transit lanes for street cars or buses.



Finally, since walking is inescapable with even the most advanced transit planning in the world, improving the streetscapes to maximize pedestrian safety and comfort is an absolute priority. This will involve increasing the width of sidewalks, adding shade trees and shading devices, and comprehensively designing the entire public realm.

4.5 PUBLIC OPEN SPACE FRAMEWORK

The Public Open Space Framework Plan is based on a hierarchy of open spaces, informed at a macro level by the Environmental Framework. That framework envisions a ring of undeveloped land around the furthest extent of the city to protect vital ecological assets and maintain a compact footprint for the city. It is the contrast between built up areas and undeveloped areas that gives the city its character. Unregulated development produces an unending undifferentiated sprawl that eliminates this important contrast. Not only is this bad for ecology, but it will also make a city that is difficult to live in. Services will be too spread out, infrastructures overstretched, and the sense of being somewhere unique and special will be significantly diminished. The ring of undeveloped land is defined by the Sand Belt to the east of the city, and the National Park System to the northeast.

The next echelon in the open space hierarchy is the 'City Park', of a scale and magnitude that it serves the entire city. There are three important parks that fit this description: the Mangrove Park, the Corniche, and Lulu Island. Each of these parks has a stature that recommends it as a City Park, and each is distinguished by the programming it offers. The Mangrove Park is an 'urban wild', the Corniche a 'public water front', and Lulu a space for 'recreation, tourism and commemoration'. Golf courses are similar in size to City Parks, but are not shown as they will be an integral part of development proposals.

The third echelon of open space is a distributed network of community parks and recreation spaces – sports fields, playgrounds, and landscaped squares. The network of community parks embeds local green spaces within the structure of the city, creating a 'garden' ambience. The community parks ensure, among other things, that children have safe play areas close to their homes and all citizens can find green relief when they need it (see "Building Blocks" for design directions).

Continuing the policy set by the late Sheikh Zayed, Father of the Nation, echelon four is a continuous framework of planted boulevards and byways linking the community parks to each other and to the City Parks. These green links make it possible to traverse the city under the cover of shade trees and reinforce the vision of the city as a garden on the shores of the Gulf. In this way all streets, especially local streets, can be seen and used as public open space, not just as traffic routes. Planted byways are facilitated in the CBD by putting parking underground or in structures (see the CBD regeneration scheme in "Building Blocks"). Grade-separated parking frees up space for a comprehensively planted public realm, and lowers the temperature of the microclimate by replacing hot metal and pavement with plants and permeable ground. Of special note is the preservation of the green link to Al Ain.



Open Edge



Major City Parks



Community Parks / Recreation



Green Boulevards

Urban Structure Framework Plans

Plan Abu Dhabi 2030

Urban Structure Framework Plan



The final echelon of the open space hierarchy is open spaces associated with certain kinds of buildings. Large government and public buildings like train stations traditionally have squares in front of them to emphasize their importance and create view opportunities. Mosques usually require open space in front of them to accommodate worshippers. In all cases, these spaces should be comprehensively landscaped and planted to ensure the coolest possible microclimate. These squares will also help emphasize and accentuate important elements of the capital city framework.

Golf courses, as private open spaces, are not mapped, but may be included in large comprehensive community developments outside the main intensive business districts. With the inclusion of golf courses in residential schemes, the identified densities and heights in this plan may need to vary modestly. The viability of this will be reviewed on a case-by-case basis.

4.6 CAPITAL CITY FRAMEWORK

The Capital City Framework Plan is predicated on movement – how one arrives in Abu Dhabi and proceeds through the city – as well as identifiable districts for government functions and important places for commemoration and celebration.

First impressions are formed by the entry portals, which therefore warrant special treatment. The airport is already slated for expansion and, as the primary portal for international visitors, this is an opportunity to create an iconic building that immediately indicates the power and stature of Abu Dhabi as a major world capital. Main road portals into and through the city should be distinguished by characteristic landscaping, monuments and signage to indicate to motorists that they are now in the nation's capital.

The approaches to the city are the second major experience that every visitor to Abu Dhabi has. There are four main approaches that each emphasizes and showcases the very unique ecology that makes the city so special. They are: the Wetlands Parkway, the Mid-Island Parkway, the Mangrove Corniche, and the western approach. Although there are other ways to enter the city, these main approaches give the visitor calibrated views of the skyline across the expanses of mangrove, reinforcing the grandeur and monumentality of the city as capital.

Once in the city, a network of grand processions down monumental boulevards further expresses the monumentality of the capital. The processional routes link the precincts in the city that express the capital city functions and are the obvious places for monuments and landmarks as the need for these arises. The processional boulevards include the Corniche, Al Saada St., the Mangrove Corniche, and the Capital Boulevard. As in other world capitals, these boulevards are the ideal thoroughfares for the parades, celebrations, and events that are an integral part of the life of a capital. The Capital Boulevard is a particularly important component of the procession, as it links the Presidential Palace and Emirates Palace to the new Capital District. It is enhanced to provide a beautiful and dramatic procession past the row of palaces, the Grand Mosque and the Embassy Precinct. The approach to the Capital District is very visual, symbolic, and memorable. For example, the Capital Boulevard might travel under seven high arches – the 'Avenue of the Emirates' – representing the seven Emirates of the UAE, and terminate at a main capital square.



Urban Structure Framework Plans

Plan Abu Dhabi 2030

Urban Structure Framework Plan



The most important expression of government will be the identified Capital District. In addition to National health and education institutions, this District will increasingly be a key seat of the Emirate and National governments, with departmental offices, embassies, and a coherent open space system of monuments and commemoration..

A second focus of institutions and commemoration will be the Corniche in Downtown Abu Dhabi. This high-profile waterfront area should ultimately provide a showcase of important National activities.

Other iconic precincts within the fabric of the city are designated to further reinforce the capital framework. These iconic precincts include the Cultural District on Saadiyat Island, the 'Palace Row' on the western edge of the island, and the Grand Mosque. The special quality and importance of these areas should be highlighted with special public realm treatments, signage, and mapping.

Lastly, Lulu Island is identified as perhaps the most important element of the Capital City Framework. Situated at the head of Abu Dhabi Island, every trip to the downtown ends with a view of it. It has immense symbolic importance and is proposed as a primary site for unfolding the story of Abu Dhabi's history, achievements, personality and culture.

What emerges with the consolidation of this Capital City Framework is a distinct Royal City, a National place triangulating the key aspects of Abu Dhabi and UAE identity: state, culture, and religion.

