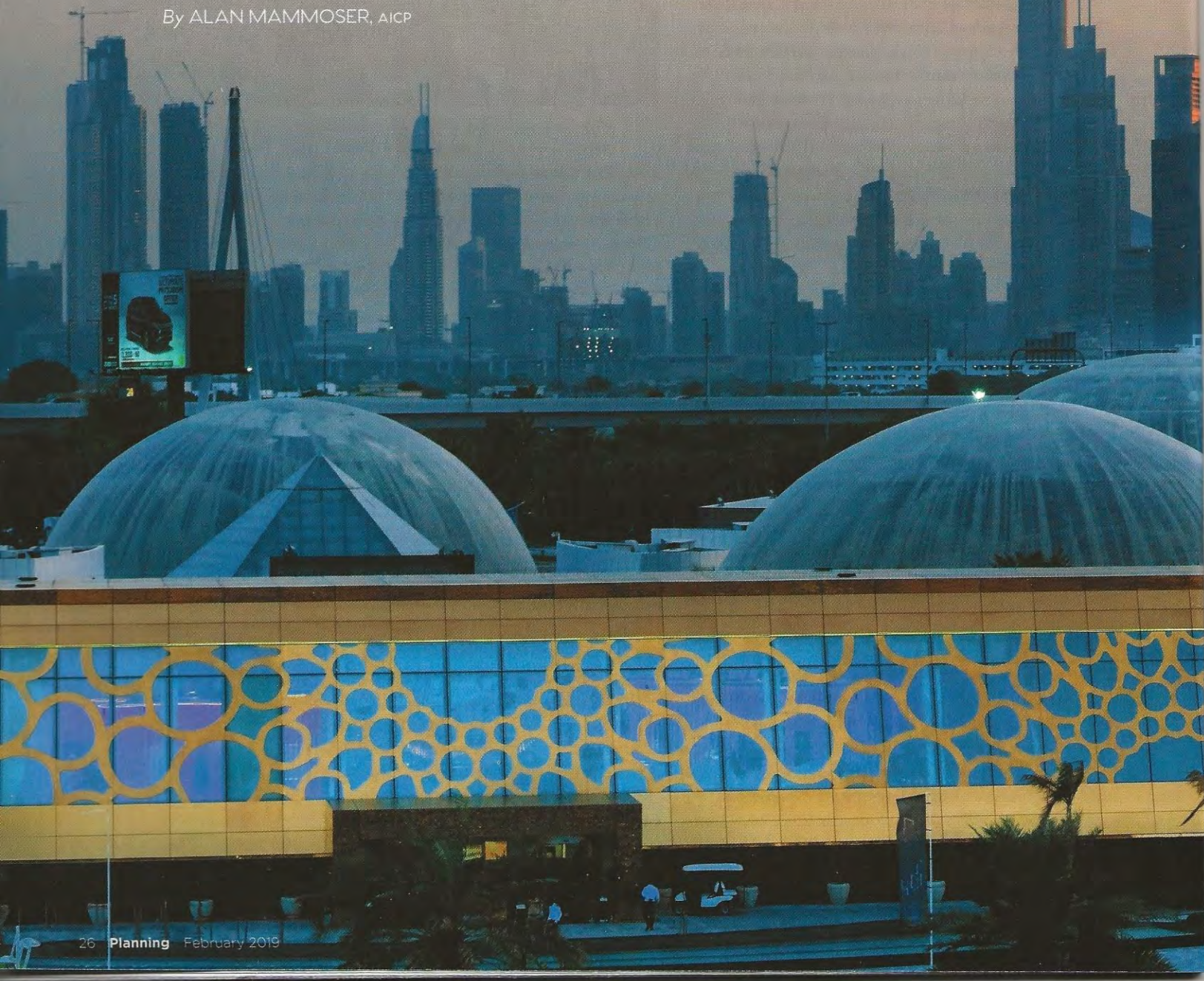


Dubai's Planning Paradox

A city known for having the biggest and tallest now wants to be known for the smallest (carbon footprint).

By ALAN MAMMOSER, AICP





The city skyline seen through the Dubai Frame—called the biggest picture frame on the planet—in Zabeel Park. At the center is the Burj Khalifa building, the world's tallest.

PHOTO BY PJO3/SHUTTERSTOCK



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By Alan Mammoser

In Dubai almost anything seems possible. The city itself, which is often described as something built from nothing, is rather miraculous. As you drive toward it from the east through the open desert, the silvery, sun-glinted Burj Khalifa — the world's tallest building — appears before you like a mirage that you can't quite believe is there.

I've traveled to Dubai several times in recent years to research and write about energy markets. I quickly became impressed with its solar energy program and, as a curious planner, intrigued by the city itself.

Dubai is an impressive accomplishment — and a fun place to be. It has arisen in an unlikely place, in a forbidding climate on the edge of the Arabian Desert, and has transformed itself into a thriving city of expats of more than 150 nationalities. It's become a great tourist draw offering one fantastic attraction after another. There's really no other city quite like it in the world.

But it is far from paradise. It is stained by a dark record of poor treatment of South Asian guest workers whose labor made its rapid construction possible. And its hardworking, multinational population of noncitizens is faced with significant affordable housing and transportation problems.

It is also ranked as one of the least environmentally sustainable cities in the world. All food, save dates and camel milk, is imported. Almost all drinking water is desal. The main street is a 10-lane expressway. The main public places are gargantuan air-conditioned shopping malls, one of which features an indoor ski run that is open throughout the summer, when outside temps hover around 120 degrees Fahrenheit.

Yet people like Dubai. The same sustainability rankings that place it low on environment place it high on economy and economic opportunity (see, for example, the *Arcadis Sustainable Cities Index 2016*). So people come from all over the world to work, earn (no income tax), and advance their careers.

"It's a happy city," says my friend Ayeh Naraghi, with just a slight tinge of irony. Of Canadian and Iranian background, she has set up a successful management consulting practice in Dubai.

In fact, I've learned that happiness — and sustainability — are taken quite seriously here. They are the two great themes of the day in Dubai.

Last year the Dubai Land Department and the International Real Estate Federation hosted a "Happy Cities" conference in a huge World Trade Center conference hall. And in 2015, it released its *Clean Energy Strategy 2050*, which set forth a goal to become a world leader in renewable energy and the city with the smallest carbon footprint in the world — quite fitting for a place where superlatives are so prolific.

But can a city that remains transfixed by a growth-oriented approach that overshadows comprehensive planning for its future realistically achieve such noble objectives?



The Master Plan of Dubai, completed in 1960, extended the old city into large, repetitive grids of concrete blocks with interior streets. These blocks offer relatively affordable apartments in a walkable neighborhood. Photos by Alan Mammoser.

Building on the past

Despite a common misperception, Dubai was not built from nothing, and it's actually done some good planning in the past.

The city existed for centuries as a small port and trading center where Dubai Creek joins the Gulf. It never had much oil but its rulers deployed their limited assets wisely. In the 1950s and '60s they built infrastructure, including the largest dry dock in the world, at Jebel Ali Port farther south along the coast.

They built a major airport and founded an airline to serve it. In the '80s and '90s Dubai took off, thanks in large part to its superb location in the middle of Eurasia — equidistant from Europe and China — its two ports and airport, and its numerous special districts and free trade zones that allow foreign companies to operate and expatriate their profits freely.

It was a growth spurt back in the 1950s that spurred the sheikhs to hire British architect John Harris to draw up a city plan. The *Master Plan of Dubai*, completed in 1960 and updated in 1971, extended the old city into large, repetitive grids of concrete apartment blocks with interior streets. It's close-grained, plain but useful urbanism that still offers relatively affordable apartments in a walkable environment. Today, these blocks are fairly well served by Dubai Metro's Green and Red Lines. They cover large areas of Deira, Bur Dubai, Karama, and other districts near Dubai Creek.

These districts, together with the intricate streets and souks of the old city, are my favorite parts of Dubai. They're filled with juice, jewelry, and spice shops and some good Persian, Lebanese, and South Asian eateries. There are many mosques and a Hindu temple, and lively streets hum till late in the evenings.

The 1979 opening of the 39-story World Trade Center tower, designed by Harris as the tallest building in Arabia, marked a new phase of expansion and population growth.

In a rush to build quickly, to gain advantage in the emerging global economy, the discipline of the Harris plan was abandoned. Instead, pieces of desert were parceled out to a few key developers — controlled by or associated with the ruling regime — who competed to create world-class business districts and spectacle for tourism.

The results on the ground are what can be expected when planning is dominated by developers and traffic engineers: insular districts connected by a network of high-speed one-ways and right turns. The Downtown, Business Bay, and nearby sectors are adjacent but have poor traffic and pedestrian connections. Throughout the city, sidewalks terminate in sandy patches or, in many places, don't exist at all.

The metro — though a valuable addition to an otherwise car-centric city — was added as something of an afterthought. Opened in 2009, the Red Line is an air-conditioned vein running the long length of Sheikh Zayed Road in the expressway median, linking all the big malls and office clusters.

On a recent visit I discovered a nice addition, a street-level tram that joins two metro stations and circles through the posh Marina district. Unfortunately, the little tram is lightly used and has provoked complaints from impatient motorists, who must wait for it at crossings.



A Dubai Red Line Metro station in the Jumeirah Lake Towers area. Photo by Mohammed Shamaa/Getty Images Plus.

Seeking sustainability

Modern Dubai faces significant urban planning challenges, particularly in how it manages its current urbanized area and how it expands eastward over the desert. It needs better transit and housing options for a struggling middle class.

It must also reduce a carbon footprint that is among the largest in the world (approximately 20 metric tons of CO₂ emissions per person per year, twice that of New York and Toronto and much more than even Los Angeles) to achieve its goal.

On that environmental sustainability front, it is making headway in the form of its impressive solar program. Last year, it opened a new phase of the Mohammed bin Rashid Al Maktoum Solar Park as part of its *Clean Energy Strategy 2050*.

Located some 30 miles southeast of the city, the park is the largest array of solar panels in the world, and it continues to spread. In 2016, it achieved the lowest price for solar-powered electricity globally. As such, it will play an important role in Dubai's plan to reduce its carbon footprint, which includes shifting 75 percent of the city's total power output to clean energy by 2050.

Currently just a small percentage of the Emirate's power derives from solar. But Robin Mills, a Dubai-based expert on the geopolitics of energy, is optimistic about its prospects. "So far they're on track to achieve the large proportion of solar power called for in the *Clean Energy Strategy*," he told me. "They will need to build about 500 to 600MW of solar annually to 2050, and that seems achievable."

To address its other planning challenges, the city has two other mid-range plans in place. The *Dubai 2020 Urban Master Plan* is a spatial plan overseen by the Dubai Municipal Planning Department, a large department with offices in Deira near the creek; conceived before the 2008 financial crisis but not finished until 2012, it maps large general areas for urban growth and conservation and provides good guidance and principles for new development in an arid region.

There is also a strategic plan called *Dubai Plan 2021*, stewarded by the executive council that governs Dubai. Launched in 2014, it is an admirable document that sets out a broad range of social, environmental, and economic goals, with three subsequent reports measuring progress.

But in planning, as in everything else, Dubai reveals its perplexing character as a city.

Just last fall, the Dubai Statistics Center reported that the Emirate's population had surpassed three million — an increase of 50 percent over the last eight years, according to Sami Ibrahim, a senior consultant in the executive council's strategy and governance sector. If that trend continues, "the city might touch five million inhabitants in 2030," he says.

But with an 85 to 90 percent foreign population, large proportions of which are nonresident and temporary resident workers who will come and go according to global economic forces far beyond the city's control, it is nearly impossible for planners to accurately forecast that growth.

Dubai: A Planner's Perspective

A look at some of the major developments dotting this thriving desert metropolis, as seen through the eyes of an American planner.



Map by Haisam Hussein.

Planning in pieces

This unpredictable rapid growth has necessitated rapid development, which comes with challenges of its own.

A few companies controlled by the ruling family and its close associates have led Dubai's expansion: Dubai Holding, Emaar, Nakheel, Meeras. Other important family companies include Damac Properties, the two Al-Futtaim groups and others.

"Planning in Dubai is done in pieces," says Rafik Ibrahim, a planner and researcher who has lived and worked in the UAE for years. He likes Dubai's plans — he even contributed to an early phase of the master plan — but he sees that they're trying to accommodate enormous political and economic forces.

"Each developer is an authority within an authority," he told me. "They can do pretty much whatever they want in the areas they have their hands on."

Ibrahim says the developers do good community planning in their specific areas, branding them to maximize market appeal. "They're nice within their context," he says, "but if you look beyond each one and see them from a user perspective, you see congestion, you see a lack of affordable housing."

The broad framework of Dubai now appears along four main roads, each successively inland from the coast. Last year, I noticed several big growth areas: the huge Dubai South district; the Al Barsha district where construction cranes filled the sky; and the Dubai Creek Harbour development where the fantastical Creek Tower — the next world's tallest — is under construction.

Dubai South, a project led by a special government-owned entity, could set a new threshold for large-scale development in Dubai. Conceived as an enormous 55-square-mile district that will someday have a million people and a half-million jobs, it will anchor Dubai near its border with Abu Dhabi. It encompasses Al Maktoum airport (the city's second airport — planned to become the largest in the world), which connects through a huge free trade and logistics corridor to Jebel Ali Port three miles away on the coast. It's also the site of World Expo 2020, upon which Dubai has pinned a lot of hopes for its next round of tourism and development.

Dubai South's large commercial and residential districts are quite dense, though the *Planning Regulations & Development Guidelines* for residential areas look rather conventional, mandating "self-contained neighborhood communities connected with a viable and efficient road network." There will be one high-profile transit connection: a nine-mile extension of the Red Line to the Expo 2020 site now under construction. Otherwise, the Dubai Road and Transport Authority will need to serve the area with buses.

For this new section of the city, Dubai appears to be emphasizing economic and social dimensions of sustainability. The official literature describes Dubai South as "an emerging ... master-planned city based on happiness of the individual." That's a significant statement in Dubai-speak, in which happiness and sustainability are wrapped into one concept.

At the Happy Cities conference last year, developers and public officials engaged in serious discussion of how Dubai South can tackle affordable housing, which has become a big problem.

Incredibly, as much as 37 percent of Dubai's active daytime population comes from outside the emirate. For example, there is a large influx of professionals from Sharjah, just north of Dubai, where the price of comfortable housing is considerably lower. This, as one might expect, causes quite a traffic jam.

A key road, E 311 (called Sheikh Mohammad Bin Zayed Road) was widened 12 years ago but was soon overwhelmed again with rush hour traffic. Now the RTA is building a work-around, a big road extension opening a Dubai-Sharjah alternative route, but that may just fill up again. More sustainable would be a metro extension that pushes the Red Line northward into Sharjah, though everyone I talked to about this idea replied that the political complexities of it are quite daunting.

Dubai South could help change the paradigm. Maysa Sabah, a Dubai-based planner and housing specialist, sees a lot of potential for affordable housing in the developing desert. "We're generally talking about what's affordable for middle-income households earning AED 10,000 to 30,000 (US \$2,700 to \$8,200) monthly," she told me. "Areas such as Dubai South have unlocked accessible land to build housing for this middle group and even for low income."

She points out that market trends are also moving in the right direction for affordability, as overbuilding and a slowing economy have dampened the housing market. "Prices have come down significantly and the market is very soft right now," she says.

Another new project on Dubai's developing periphery that's attracted attention is The Sustainable City by Dubai-based Diamond Developers. It is a dense, mixed use, solar-powered residential community, where water is recycled and residents travel within the city only by foot or electric vehicle. While striving to achieve net-zero energy, it features new homes in the \$1 million range for a community of a few hundred families. So its positive regional impact is debatable; it might become an important paradigm or just another example of planning in pieces.



The Mohammed bin Rashid Al Maktoum Solar Park, south of the city, is part of Dubai's *Clean Energy Strategy 2050*. Photo by Luca Locatelli/Institute.

Looking toward the future

Gordon Gill, whose firm Adrian Smith + Gordon Gill Architecture is currently working on Expo 2020, has observed a maturation of the city that he believes bodes well for sustainability.

"A decade ago, we were questioning whether this would really become a city," he says, speaking of the Downtown district around the skyscraper. "But recently, standing by the fountain at the base of the tower, I was amongst a crowd of families and realized they were not tourists or temporary residents, that they were people putting down roots in Dubai."

He thinks Dubai, like all great cities before it, is moving from a period of immigration and rapid growth to a period of building cultural and educational institutions. He notes the new Dubai Opera now open near the tower, and the district's improving pedestrian environment.

In Gill's view, something critical for sustainability is finally appearing: a mixed use core that is adaptable to change. It is part of a process of infill that he believes should be emphasized on a regional scale. He would expand the Dubai Metro, link it closely to new residential areas, and integrate these into a regional system of local transit and urban open space.





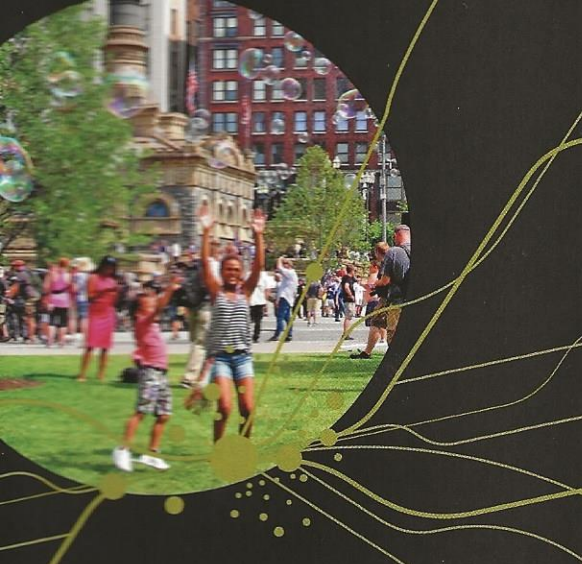
The Sustainable City is a dense, mixed use , solar-powered residential community striving for net-zero energy. Photos by Luca Locatelli/Institute.

"Make a holistic plan for the whole urbanizing area, for the long spine along the Gulf from Dubai to Abu Dhabi," he advises.

Such planning implies control over a developer-led expansion into the desert. It acknowledges the regional imbalances that have arisen and focuses first on these, strengthening the critical link between good transit service and affordable housing.

Empowering planners will be a major shift for Dubai after decades of rapid development, but it will be an important move if the sheikhs want Dubai to rise into the top of the sustainable city rankings with the likes of Zurich, Stockholm, and London. Such a rise would give Dubai what it craves: a new source of international respect and prestige. And as Dubai gets really big, perhaps even doubles in size, such sustainability will contribute large amounts of that most priceless commodity, happiness.

Alan Mammoser writes about cities, energy, infrastructure, and planning. He writes the blog warmearth.us (<http://warmearth.us/>).



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