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MANAGING THE CONFLICTING PRIORITIES OF PARKING MANAGEMENT.

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arking pricing remains an important aspect of parking management. The need to set prices at a level that is effective for road space management and to redress the gap between parking demand and supply is paramount. So too is the requisite to offset the cost of providing parking and its associated services through revenue generated from paid parking. The primary focus of a public-sector parking authority is the provision of parking as a public service to its people—residents and businesses. This includes the reduction of parking-related congestion, the mobility of goods and services, and the enhancement of safety and security. Traditionally in Abu Dhabi, the public sector is responsible for the provision and delivery of goods and services accomplished through organizations owned and run by the government (central or local). The organizations are operational for the purpose of providing those public services that are often free at the point of delivery and are deemed to be better provided by the sector. Public sector activities range from the administration of urban planning, organizing national defenses, public transport and roads, and parking management, to mention a few. In providing parking management, though the provision of public service is the primary focus, the aim of generating revenue for the government or authority remains underlying.



The conflicting priorities of providing a public service while aiming for revenue generation remain a challenge for public-sector parking management authorities; Abu Dhabi parking management is no exception. This article presents the strategic approach adopted by Abu Dhabi parking in managing the conflicting priorities through its implementation of a simple, yet considered, pricing strategy.

Overview

To put the scope of the service into perspective, a synopsis of Abu Dhabi parking is necessary. The emirate of Abu Dhabi (Abū Zabī), capital of the United Arab Emirate, launched its parking management program (ADPMP) Oct. 4, 2009. The ADPMP, also referred to as MAWAQiF (the Arabic term for parking), commenced with as little as 2,387 parking bays in two sectors of the central business district of Abu Dhabi. Prior to that point, the enforcement of illegal parking in Abu Dhabi was minimal, which led to congestion and associated environmental and safety issues.

Recent years in Abu Dhabi have seen significant growth in the economy due to vast development and modernization projects that were implemented in line with the capital's vision of becoming a world-class city. The capital experienced increasing immigration primarily due to expatriate workers moving to the country to execute the projects. As a culture that is heavily reliant on private vehicle ownership (due to inadequate public transportation and pedestrian facilities), the registration of private vehicles proportionately increased due to the increase in population. This had an expected knock-on effect on parking demand.

Available surface parking in the capital was free, and enforcement of illegal parking activities was minimal. Consequentially, illegal and obstructive parking practices were widespread across the capital. Congestion and difficulty in accessing some areas and accidents sites threatened public safety, introduced environmental issues, and encouraged deterioration of the urban quality of life.

A Strategic Approach

From 2,387 parking bays in October 2009, the Abu Dhabi Parking Division currently regulates and operates more than 100,000 parking bays (multistory and onstreet parking). A strategic approach seeks to redress the imbalance between parking demand and supply. The shortage of parking bays in Abu Dhabi city was estimated through assessment and monitoring of the supply and demand for parking spaces in each sector of the central business district. The appropriate parking management approach was based on the assessment of demand and supply where:

Demand (vehicles) < Supply (parking bays) = Parking management control (free parking with illegal parking control)

In areas where parking demand is less than the supply, parking is free but enforced to ensure illegal parking is eliminated.

Demand (vehicles) > Supply (parking bays) = Paid parking management

In areas where the parking demand is between 10 and 30 percent more than the supply, paid parking is implemented to ensure efficient use of parking bays.

Demand (vehicles) > Supply (parking bays) = Provide extra parking and implement the paid parking program.

In areas where parking demand is more than 30 percent more than supply, the strategy adopted was to assess and implement initiative(s) to create additional paid parking bays. The initiatives for creating supply include:

- Traffic rerouting and parking bays redistribution.
- Utilizing empty areas as surface parking.
- Building temporary parking structures.
- Building permanent parking structures (as a long-term solution).

The initiatives implemented are sector-specific based on shortages in supply, parking expansion, future planned alternative transport initiatives, and other planned smart road use initiatives that are expected to eventually reduce the demand for parking space. Such initiatives include:

- Re-habitation of sectors.
- Increased public transport ridership.
- Public transport improvement.
- Implementation of the parking ratio in new buildings.

Pricing Strategy

Supply and demand is considered the most fundamental concept in setting the price for parking. The relationship between these two concepts of economics (the price



A carefully thought-out pricing system coupled with a campaign to get the word out led to a new parking system that works for Abu Dhabi.

elasticity of demand) drives pricing, all other factors remaining the same. The responsiveness of parking demand to the introduction or increase in the fee for paid parking fee is dependent on the price elasticity of demand.

With the introduction of paid parking, as with parking price increases, parking demand decreases. The degree to which demand changes in response to price is the price elasticity of parking demand. Price elasticities of parking demand vary from city to city depending on the makeup of land use, demography, alternative transportation options, and other characteristics. With paid parking being newly introduced in the capital, the responsiveness of parking demand to price was unknown. However, with the rollout of paid parking and enforcement in new sectors of the city, the demand for parking at the locations shifted. With the absence of historic data and a confirmed degree of elasticity, reliance was on a common price elasticity of demand of 0.3, which is prevalent for cities in the U.S. The elasticity of 0.3 implies that for a 10 percent increase in price, there would be a 3 percent decrease in parking demand.

Price elasticity of demand in Abu Dhabi is subsequently assessed through monitoring exercises that assess a series of before and after parking studies that generally measure how much parking demand has decreased in response to the introduction of paid parking in sectors of the capital. The economic vitality of the three groups are analyzed this way: The social goals address the needs of all users of transportation and parking and consider how changes may affect them. Environmental goals consider how changes to parking policy may reduce the vehicle emission, deterioration of urban quality of life, and therefore support environmental protection.

The pricing strategy focuses on managing the conflicting economic and social goals. The approach considers:

- Analysis of parking demand versus parking supply.
- Sensitivity analysis for various price elasticities of parking demand.
- Cost of living.
- Various economic issues of parking pricing at individual, business, and government levels.
- Analysis of parking operation costs and projected potential revenue based on pricing and predicted use.
- Cost-benefit analyses to ascertain breakeven and profit margin.
- Assessment of social and environmental issues of parking pricing. The conflicting priorities of parking management are evident in the primacy to implement and maintain revenue generating.

in the primacy to implement and maintain revenue-generating, self-financing parking service that benefits the economy, environment, and service users who, predominantly, would advocate for parking at minimal or no cost.

Parking Priorities

The policy of paid parking in Abu Dhabi carefully considers demand and supply, the elasticity of demand, as well as a number of priorities relating to the economic, social, and environmental goals of the capital. This is to ensure the policy benefits the emirate and its population.

The economic goals consider the impact of paid parking on residents, businesses, and government in relation to the underlying goal of having a parking management scheme that is self-financing and revenue generating.

<u>Individual</u>

- Cost of living
 Salary allowance for transportation – 15 -20% of salary
- Cost of parking 5% of salary
- Car ownership Available alternatives

<u>Business</u>

- Cost of business operations Consumer
- selection of retail destination
- Increase in profit due to availability of parking

Government

- Cost of providing parking
- Revenue
- Other initiatives. Road users charging,....
- Economic cost of environmental impacts





Fee Structure Strategy

Abu Dhabi Parking Division currently operates a simple two-fee structure. The simplicity of the structure has many benefits:

- Ease of understanding for users.
- Low administrative cost due to uniform processing, organization, and understanding of users and enforcement staff.
- Ease of planning and policy implementation.
- Fewer signs required to define the start and end of the different rate zones, thereby leading to minimal cost of signage and line-marking.

The current paid parking fee structure is AED2 (\$0.54) per hour for standard spaces, AED15 (\$4.01) per day and AED3 (\$0.82) per hour for premium parking spaces. A maximum of four hours is permitted at premium parking locations. The standard parking is more affordable and well-suited for daily parking. The premium parking is set to enable higher turnover of vehicles.

The simplicity of the fee structure is significant to the planning and management of the priorities. Whilst a simple fee structure has obvious benefits, a slightly more complicated tiered fee structure is being considered for the future to ensure parking demand is met in an even more efficient way.

Success Factor

The parking program operates an effective simple parking fee structure. The economic returns led to the achievement of breakeven within three years of the launch of the operation. The enforcement of paid parking also saw the realization of sustained compliance to the paid parking regulations. This is measured through the compliance factor, which consistently averages at more than 98 percent.

Lessons Learned

Empirical experience demonstrates that the following are key to the success of a parking management scheme:

- The implementation of a carefully analyzed and planned parking pricing strategy.
- Comprehensive demand management, which should be reviewed through continual monitoring to assess the supply-and-demand ratio and effectiveness of existing parking prices.
- Planned alternative transport systems and solutions must be available. With predicted population growth, global warming, and the general need for environmental friendly alternative mode of transport, the drive is toward smarter solutions.
- Balance of economic growth, social needs, and environmental sustainability in parking management pricing. This requires an integration of urban, transport, and parking decisions through parking master planning.

The work and review for effectiveness is ongoing. The next phase is expected to look at a multi-tiered parking fee structure. While a simple fee structure worked effectively and provided desired benefits, a multi-tiered structure may be necessary to ensure more efficient use of the parking spaces. This may not be a replacement of the current fee structure but the introduction of varying fees at different locations to further improve space use efficiency and readdress imbalances in demand and supply. It is a continual process.

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