وزارة المواصلات
MINISTRY OF TRANSPORT

الخطة الشاملة لمواقف
المركبات في دولة قطر
Qatar Parking Master Plan

Executive Summary

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تنويه

الممارسات العالمية في هذا المجال، وبناءً على المعلومات، والاحصائيات، والبيانات المتوفرة عند إعداد هذا التقرير. لذا إن استخدام هذا التقرير لأي عمل لا يعفي المستخدمين من استخدام أحدث الممارسات العالمية، واتباع الأساليب الهندسية الصحيحة وفقاً لأحدث التقنيات العالمية المتبعة.

وعليه، وجب التأكيد على أن وزارة المواصلات لا تتحمل أي مسؤولية مالية أو قانونية يمكن أن تُعزى إلى هذا الاستخدام، كما أنه لا يحق للمستخدمين المطالبة أو استلام أي نوع من التعويض عن أية أضرار أو خسائر.

وللحصول على نسخة من هذا التقرير، يجب التقدم بطلب رسمي إلى وزارة المواصلات في دولة قطر، والذي يعد موافقة على ما ورد في هذا التنويه. ويجوز للمستخدمين عرض محتويات التقرير، ونسخها، وطباعتها للاستخدام الخاص فقط شريطة أن تحمل جميع النسخ والمطبوعات الخاصة بالمحتويات حقوق النشر، وإشعارات الملكية، وإخلاء المسؤولية الأخرى المعروضة على التقرير. كما لا يجوز للمستخدمين الإعلان، أو النشر، أو الإفصاح عن البيانات، و/ أو الكشف عن أي معلومات مدرجة في هذا التقرير على الإطلاق دون موافقة كتابية مسبقة من قبل وزارة المواصلات.

وفيما يخص التغييرات أو الإصدارات المستقبلية ستقوم الوزارة بتوفيرها، ويمكن الحصول عليها من خلال الاتصال بالإدارة المخولة في الوزارة. وعليه، يتوجب على المستخدمين التحقق بشكل متواصل بأن لديهم أحدث إصدار من هذا التقرير.

ملاحظة: ستقوم وزارة المواصلات بمواصلة تحديث وتعديل هذا التقرير مع الأخذ بعين الاعتبار النظريات الجديدة، وأحدث الأساليب التكنولوجية، والمواضيع المُستجدة التي تتعلق بتخطيط، وتحليل، وتصميم أنظمة النقل والمرور.

إن وزارة المواصلات تشجع المستخدمين على تقديم الملاحظات، والاقتراحات، والتعليقات، وردود الأفعال وذلك من خلال قنوات الاتصال الخاصة بالوزارة، وسيتم مراجعة هذه الملاحظات والاقتراحات، ومن ثم تقييمها؛ للنظر في إمكانية إدراجها ضمن الإصدار القادم من التقرير.

Foreword

The State of Qatar, inspired by the beacons of its visionary leaders, has witnessed significant population growth resulting in an extensive surge in the economy and in the need for efficient transportation infrastructure. To keep pace with the momentum of development, the Qatar Parking Master Plan (QPMP) has been designed to create an integrated package of parking plans, policies, and regulations applicable to Qatar. The QPMP addresses the current requirements of parking planning and management, design standards, guidelines, and specifications, as well as those for the years to come.

The mission of the QPMP is to integrate with the Transportation Master Plan for Qatar (TMPQ), the Qatar Trip Generation and Parking Rates Manual (QTGPRM), the Qatar Freight Master Plan (QFMP), and other Qatar strategic plans to ensure alignment with the State of Qatar National Vision (QNV 2030). The policies, strategies, and enhancements outlined in the QPMP address all parking modes and parking needs required to guide the management strategies for smart parking in the years ahead.

The development of the QPMP has involved eight distinct stages, beginning with a review of existing conditions, and culminating with an assessment of future parking supply and demand and relevant pricing and enforcement strategies. Each step in the development of the QPMP document has been validated by extensive study by a team of experts from all relevant fields.

Therefore, it gives Ministry of Transport (MOT) immense pleasure to present the QPMP, a sustainable framework for leveraging technological advancements to efficiently develop and manage parking supply and demand and prioritize integrated mobility and safe accessibility across all transportation modes.

While the Qatar Parking Master Plan (QPMP) was still under development, H.H. The Amir Sheikh Tamim bin Hamad Al Thani issued the Amiri Order No. 4 of 2021, reshuffling the Qatar Cabinet, and the Amiri Decision No. 57 of 2021, setting ministries' competencies. Therefore, any reference to the "Ministry of Transport and Communications" and/or its acronym "MOTC", in all QPMP documents, now refers to the "Ministry of Transport" and its acronym "MOT". And any reference to the "Ministry of Municipality and Environment" in all QPMP documents, now refers to the "Ministry of Municipality."

المقدمة تنويه

إنه لمن دواعي سرور وزارة المواصلات تقديم دليل تصميم مواقف المركبات في دوله قطر، والمستوحى من المراسيم المنصوص عليها في رؤية قطر الوطنية 2030، في ظل القيادة الرشيدة لحضرة صاحب السمو الشيخ تميم بن حمد آل ثاني أمير البلاد المفدى، قائد التطور السريع لدولة قطر.

تم تطوير هذا الدليل من قبل وزارة المواصلات، وبمشاركة ومساهمة العديد من الجهات الحكومية، والخاصة، والمختصين بهذا المجال.

يوفر دليل تصميم مواقف المركبات في دولة قطر المواصفات، والقواعد الإرشادية التي يجب استخدامها أثناء عملية تصميم مرافق وخدمات مواقف المركبات في دولة قطر؛ حيث يتماشى هذا الدليل مع احتياجات البنية التحتية لدولة قطر، ويضمن التنمية المستدامة للمدن، والمجتمعات، والاقتصاد بشكل عصري.

ولمواصلة تطوير هذا الدليل وضمان استخدامه بنجاح، تحث وزارة المواصلات جميع الجهات للاطلاع على هذا الدليل، والعمل معًا مسترشدين به؛ لتطوير أنظمة نقل بري متكاملة تلتزم بالأهداف الوطنية لمستقبل مزدهر ومستدام.

خلال إعداد مشروع الخطة الشاملة لمواقف المركبات في قطر، أصدر حضرة صاحب السمو الشيخ تميم بن حمد آل ثاني أمير البلاد المفدى الأمر الأميري رقم (4) لسنة 2021 بتعديل تشكيل مجلس الوزراء، والقرار الأميري رقم (57) لسنة 2021 بتعيين اختصاصات الوزارات. وعليه؛ يرجى العلم أن أي إشارة أو ذكر لـ (وزارة المواصلات والاتصالات) واختصارها (MOTC) في جميع مستندات الخطة الشاملة لمواقف المركبات في قطر، أصبحت تشير حالياً إلى (وزارة المواصلات)، واختصارها (MOT). وأن أي إشارة أو ذكر لـ (وزارة البلدية والبيئة) في جميع مستندات الخطة الشاملة لمواقف المركبات في قطر، أصبحت تشير حالياً إلى(وزارة البلدية).

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List of Abbreviations

Term	Definition
ALPR	Automatic License Plate Recognition
AM	Ante Meridiem
CBD	Central Business District
CCC	Capital City Center
CCTV	Closed Circuit Television
CPZ	Controlled Parking Zone
DBFM	Design Build Finance and Maintain
GDP	Gross Domestic Product
hr	hour(s)
ITS	Intelligent Transport System
KPI	Key Performance Indicator(s)
min	minute(s)
MLCP	Multilevel Car Park
MME	Ministry of Municipality and Environment
MOCI	Ministry of Commerce and Industry
MOF	Ministry of Finance
MOI	Ministry of Interior
MOT	Ministry of Transport
MOTC	Ministry of Transport and Communications
MSDP	Municipality Spatial Development Plan(s)
NRSS	National Road Safety Strategy
O&M	Operations & Maintenance
PA&PC	Public Awareness and Publicity Campaign

Term	Definition
PM	Post Meridiem
PMD	Parking Management District(s)
PMIS	Parking Management Information System
PPP	Public Private Partnership(s)
PRND	Parking Requirements for New Developments
PSA	Parking Safety Audit
PWA	Public Works Authority (Ashghal)
QAR	Qatari Riyal(s)
QARS	Qatar Area Referencing System
QNDF	Qatar National Development Framework
QNMP	Qatar National Master Plan
QNV	Qatar National Vision
QPCMP	Qatar Pedestrian Crossing Master Plan
QPDM	Qatar Parking Design Manual
QPMP	Qatar Parking Master Plan
RFP	Request for Proposal
RPZ	Resident Parking Zone(s)
sec	second(s)
SLUZ	Special Land Use Zone(s)
TMC	Transportation Management Center
TMPQ	Transportation Master Plan of Qatar
TNC	Transportation Networking Company
TOD	Transit-Oriented Development
VKT	Vehicle Kilometers Travelled

Section 1

Introduction

1. Introduction

The State of Qatar has experienced rapid economic growth and the country at present has one of the highest levels of GDP per capita in the world. This growth has resulted in significant increase in population and employment and subsequently, a demand for surface transportation. Parking is a key component of the transportation system. The State of Qatar is fully committed towards the improvement of its transportation system to maintain this rapid pace of development, and accommodate a sustainable growth and continued improvement in the quality of life.

1.1 Why a Parking Master Plan

Parking is an integral part of a good transportation system. A good parking system is one that not only meets the existing needs but responds to new developments and future parking needs for all users, including residents, employees, business establishments, and government. A good parking system is one that also furthers transportation and sustainability goals with policies that encourage modal shift to public transport and non-motorized options, such as walking and bicycling. The Qatar Parking Master Plan (QPMP) provides a sustainable framework for efficiently developing and managing parking supply and demand. It leverages technological advancements and prioritizes integrated mobility and safe accessibility across all transportation modes. An improved parking regime is needed to achieve the national vision.

1.2 National Vision

The Qatar National Vision of 2030 (QNV 2030) is an overarching vision document with the goal of transforming the State of Qatar into an advanced society, capable of sustainable development and a higher standard of living for all its people by 2030. The vision focuses on public transportation and sustainable development. The QPMP will play a significant role in supporting the QNV 2030 through its emphasis on institutional and organizational capacity building in parking policy and strategies, efficient delivery of parking services, effective public-private cooperation and partnerships in parking management, and creation of a vibrant climate for people and business through efficient parking management. The National Vision is implemented through the National Development Strategy and the resulting National Master Plan, Development Framework, and municipal plans.

The transportation-specific vision for the State of Qatar comes from the Transportation Master Plan for Qatar (TMPQ) which has laid out a modernized approach for transportation in 2008. It included several key directives, particularly the need to further develop the transportation plan, address modal needs and shifts to sustainable modes, and develop a strong modernized parking program. The most recent update, TMPQ 2020, lays out specific objectives that has influenced the QPMP mission, parking policy, strategies, and action plan, and parking design guidelines (**Exhibit-1**). TMPQ is supported by other national transportation plans, such as the National Road Safety Strategy (NRSS) and the Qatar Pedestrian Crossing Master Plan (QPCMP). It is also supported by a series of guidelines and manuals addressing transportation studies, trip generation, highway design, and traffic control. Finally, the QPMP and the Qatar Parking Design Manual (QPDM) are added to these documents to form a complete transportation regime.

Exhibit-1 QPMP Development Framework

1.3 Qatar Parking Master Plan

Mission

The QPMP mission statement summarizes the State of Qatar's aspirational parking management regime:

The Qatar Parking Master Plan provides a sustainable framework for efficiently developing and managing parking supply and demand that leverages technological advancements and prioritizes integrated mobility and safe accessibility across all transportation modes.

Goals

Eight QPMP goals were developed to achieve the Mission. These goals were developed as high-level statements to provide an overall context to the master planning process. They are designed to be short, concise, and easily memorable slogans to guide the overall Master Plan development. They are the Goals of the Master Plan and are reflective of the new parking regime, rather than the individual projects that comprise the parking regime:

- Effectively administered
- Financially sustainable
- Efficiently operated
- Effectively enforced
- Supportive of all transportation modes and integrated land use
- Safe and accessible
- Adaptable, technology-driven
- Easily understandable and value-driven

Parking Policies, along with parking principles were developed with direction from the Mission and Goals. These policies and principles form the basis of the actionable strategies (**Exhibit-2**).

Exhibit-2 QPMP Policy Framework

1.4 Scorecard

The scorecard (**Exhibit-3**) shows both the inputs to the QPMP as well as the results or outputs. The inputs, such as an inventory of spaces, parking occupancy, user surveys, a review of existing national policy documents and engagement with stakeholder Ministries and agencies provided the building blocks for an improved parking regime.

Through data collection, surveys, research, and consultations, the QPMP process developed a clear and complete understanding of the existing conditions, the needs of users and stakeholders and the knowledge of what constitutes a good parking regime in other locations around the world. The process has resulted in the QPMP Policies, Action Areas, Parking Management Districts (PMDs)/Activity Centers, Implementation Actions, the QPMP Volumes, the Qatar Parking Design Manual (QPDM) and the Parking Management Information System (PMIS).

1.5 Stakeholder Engagement

A systematic stakeholder engagement process has been integrated with the QPMP development process. A range of stakeholders, such as, Ministry of Municipality and Environment (MME), Ministry of Interior (MOI), Ministry of Commerce and Industries (MOCI), Public Works Authority (Ashghal), Qatar Rail (QRail), private developers, engineering consultants etc. has been consulted and the respective feedbacks have been incorporated accordingly. Consultations have been conducted through various communication channels, including workshops, meetings, letters etc. Following are the key areas where stakeholders have contributed considerably:

- Data collection process
- Development of Qatar Parking Design Manual
- Parking requirement for new developments
- Legal framework delineating the responsibilities in planning, designing, and managing parking facilities
- Parking pricing proposals
- Parking enforcement recommendations. Incorporation of preferential users in the new parking regime
- Promoting public transportation usage by providing suitably located Park & Ride (P&R) facilities

It is also recommended to strengthen the process of engaging stakeholders during the implementation phase within the proposed governance framework.

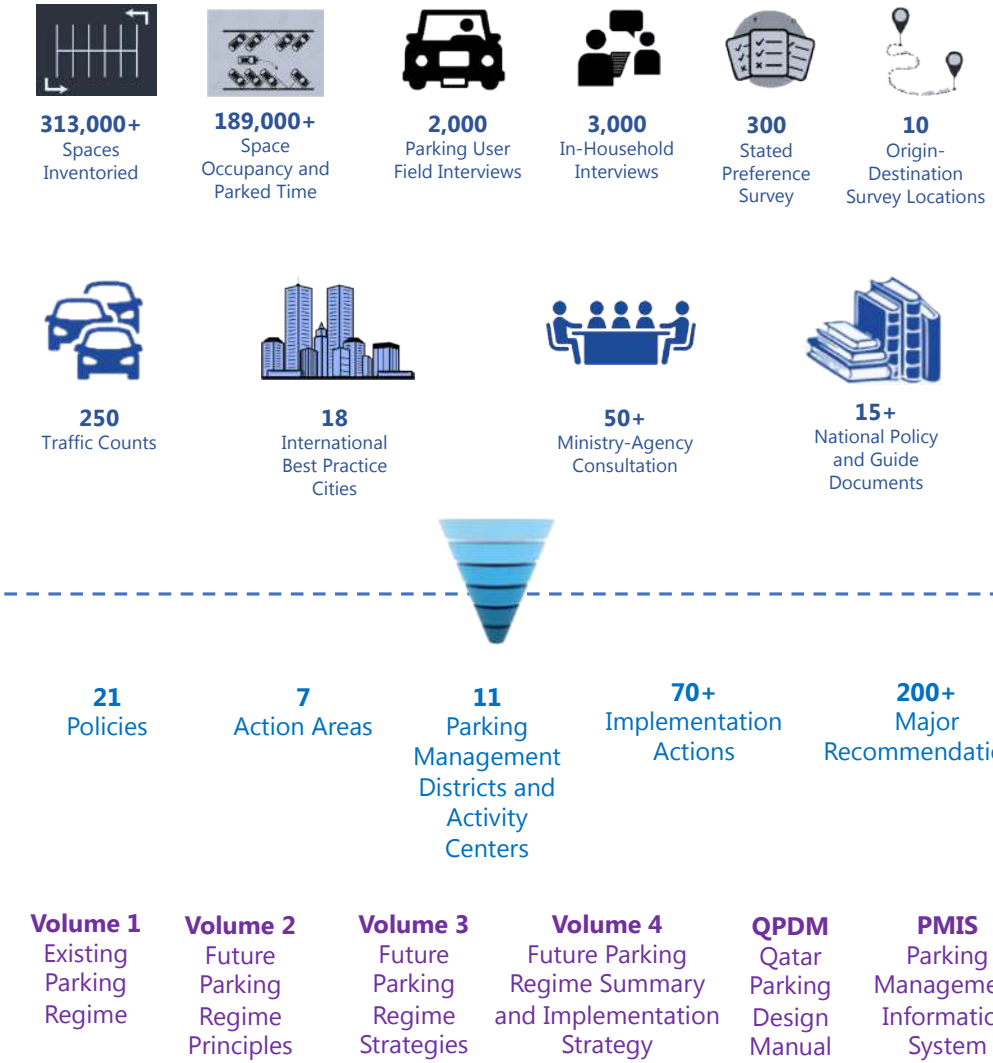

Exhibit-3 QPMP Scorecard

1.6 QPMP Development Process

The QPMP development process (**Exhibit-4**) consists of assembling the inputs or basis for the QPMP, analyzing the inputs and identifying the gaps between the QPMP mission, goals, policies, and principles, formulating an approach, and identifying the implementation solutions.

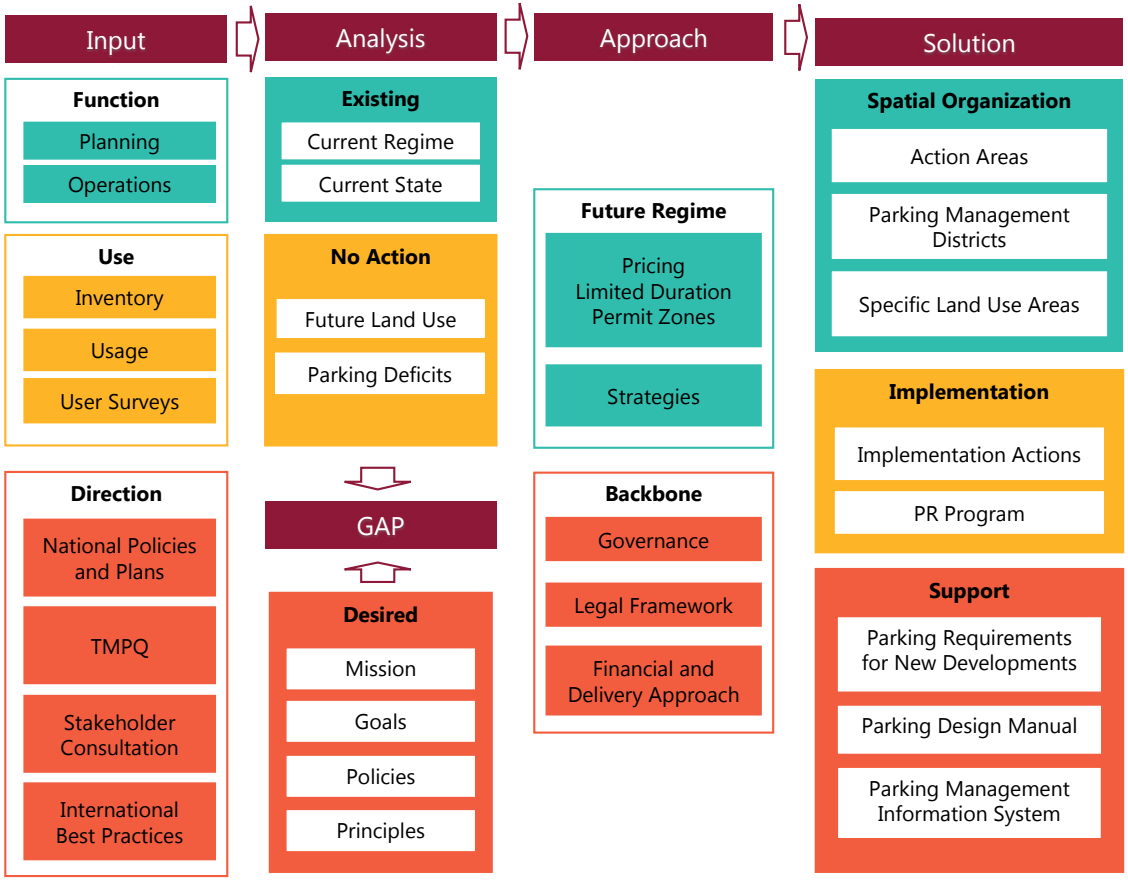

Exhibit-4 QPMP Development Process

Section 2

Qatar Parking Today

2. Qatar Parking Today

A detailed review and assessment of the existing physical parking conditions, administrative structure, and legal and governance framework was conducted to form the basis for the development of the improved parking regime. This extensive exercise delineated the study area, documented the land use characteristics, urban structure, parking criticality, operations, pricing, governance, and needed improvements.

2.1 Study Area

Delineation

For the QPMP development, the focus is on the area inside D-Ring Road, and the Al Wakra and Al Khor metropolitan areas defined as the Study Area. Corridors and detailed study areas known for parking challenges, including a few beyond the defined Study Areas were selected for focused surveys and analysis. Collectively, the Study Areas along with these extensions are referred to as the Wider Study Area (**Exhibit-5**).

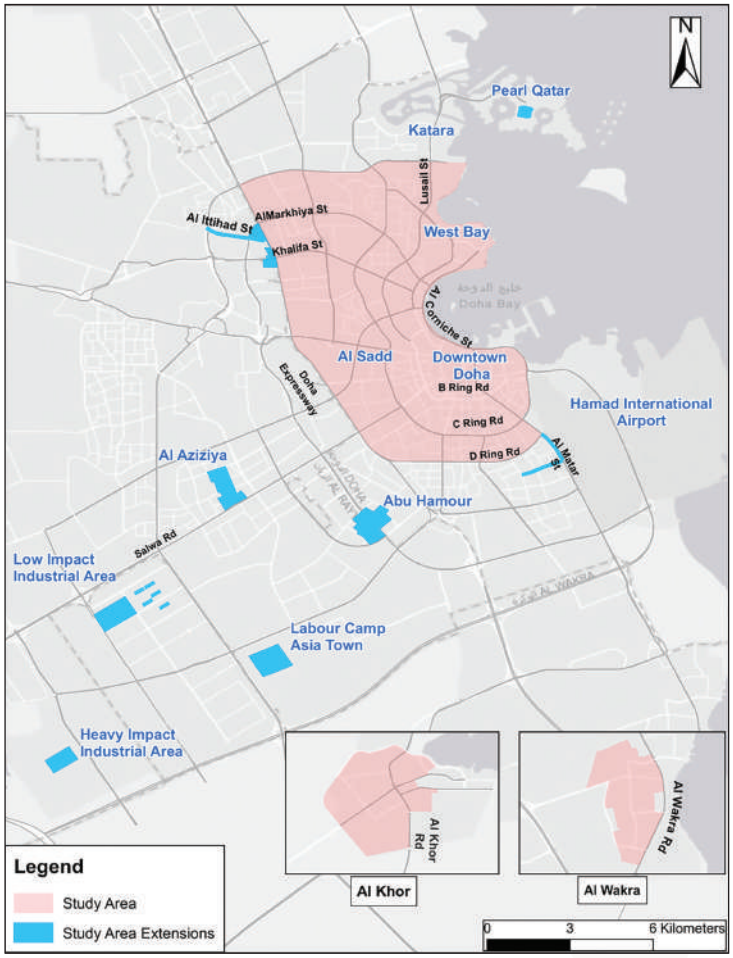

Exhibit-5 QPMP Wider Study Area

Existing Land Use

The Study Area consists of more intense land uses, such as commercial, office, governmental, tourist hotels, and high density residentials near the waterfront that are encompassed by residential uses of declining density. There are also corridors lined with commercial and retail uses with residential land uses adjacent to them. Pockets of smaller community facilities, such as schools, mosques, and clinics are interspersed in the residential uses (**Exhibit-6**). These are important factors in understanding the parking behaviors and assessing the parking demand.

Land Use	Percentage
Single-Family Residential	39
Multi-Family Residential	25
Tourism/Hotels	8
Governmental	5
Services/Offices	4
Mixed Use	4
Educational Facilities	3
Utilities	2
Retail/Commercial	2
Other	8
Total	**100**

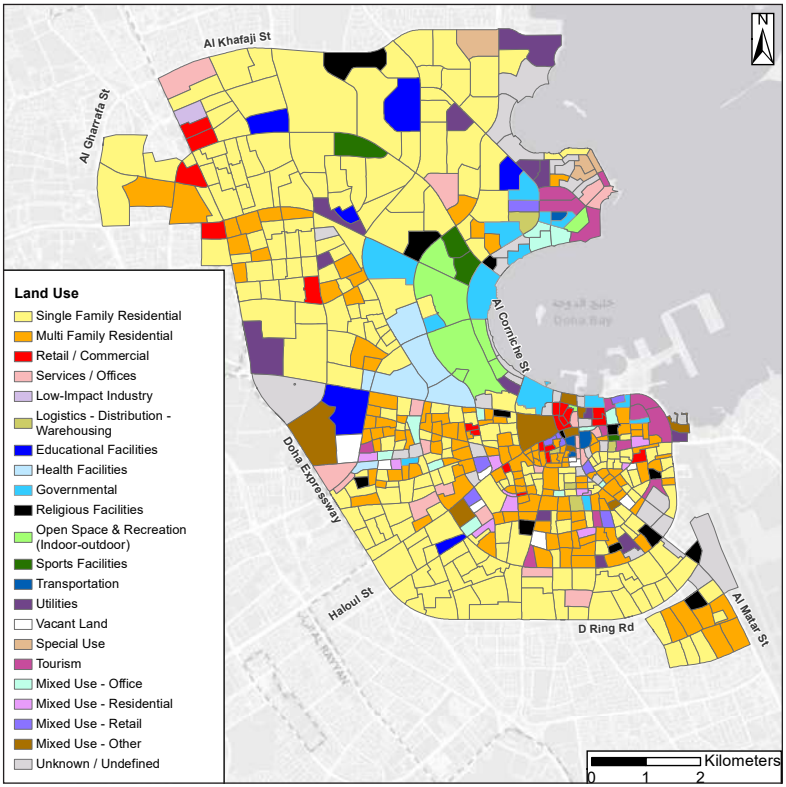

Exhibit-6 Existing Land Use Within the Study Area

Urban Structure - Activity Centers

An Activity Center-based approach, designated by the Ministry of Municipality and Environment (MME) forms part of the urban development plan for the State of Qatar. These Activity Centers are planned to be provided with necessary local facilities to support the residential population and promote self-sustaining development supported by the existing or future public transport. They are further categorized into Capital City Center, Town Center and other centers in a hierarchical manner based on their density, land use and other urban complexities (**Exhibit-7**). These centers are used as a basis for delineating the parking zones.

Parking Critical Corridors: The road segments with high commercial density and parking activities have been thoroughly analyzed (**Exhibit-8**). Detailed parking characteristics were collected along these corridors and used to identify the parking needs.

Future Land Use (2035)

The proposed land use information has been collected from MME and reviewed in detail. It has been inferred that the land use is expected to change significantly with major increases in mixed use, multifamily residential, retail/commercial, hotels, community & cultural facilities, and open space & recreational land uses. Decreases are expected in standalone uses, such as single-family residential, services/offices, low impact industry/ logistics, education, health, government, and sports facilities.

Slight change is anticipated in West Bay and Downtown Doha as they are already very dense. Density increase is anticipated in the south between Al Diwan Street/Ras Abu Abboud Expressway and C-Ring Road.

Consequently, it is important to manage West Bay and Downtown Doha parking while planning for anticipated parking needs in Najma, Rawdat Al Khail, Al Sadd, and Umm Ghuwailina.

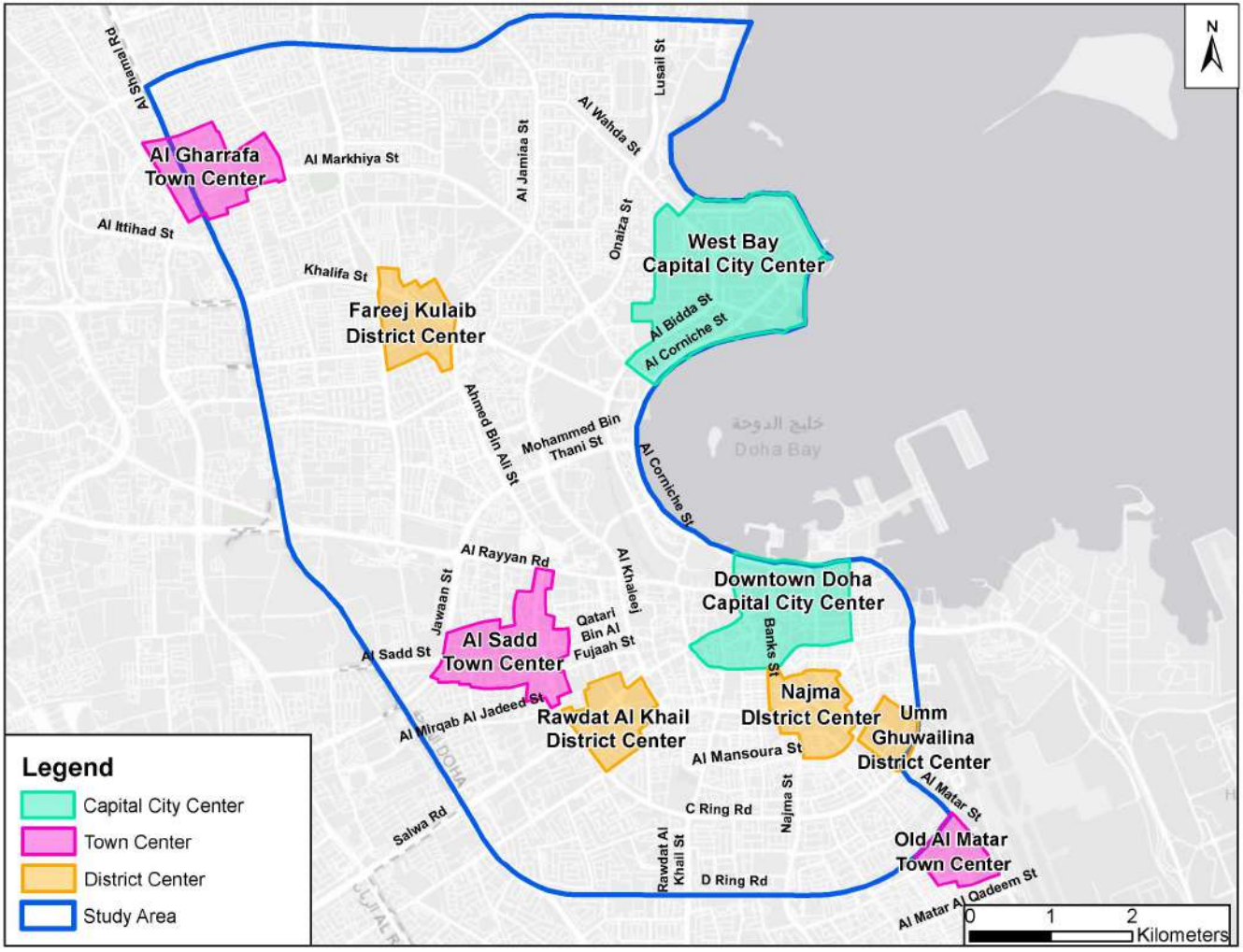

Exhibit-7 Activity Centers Within the Study Area

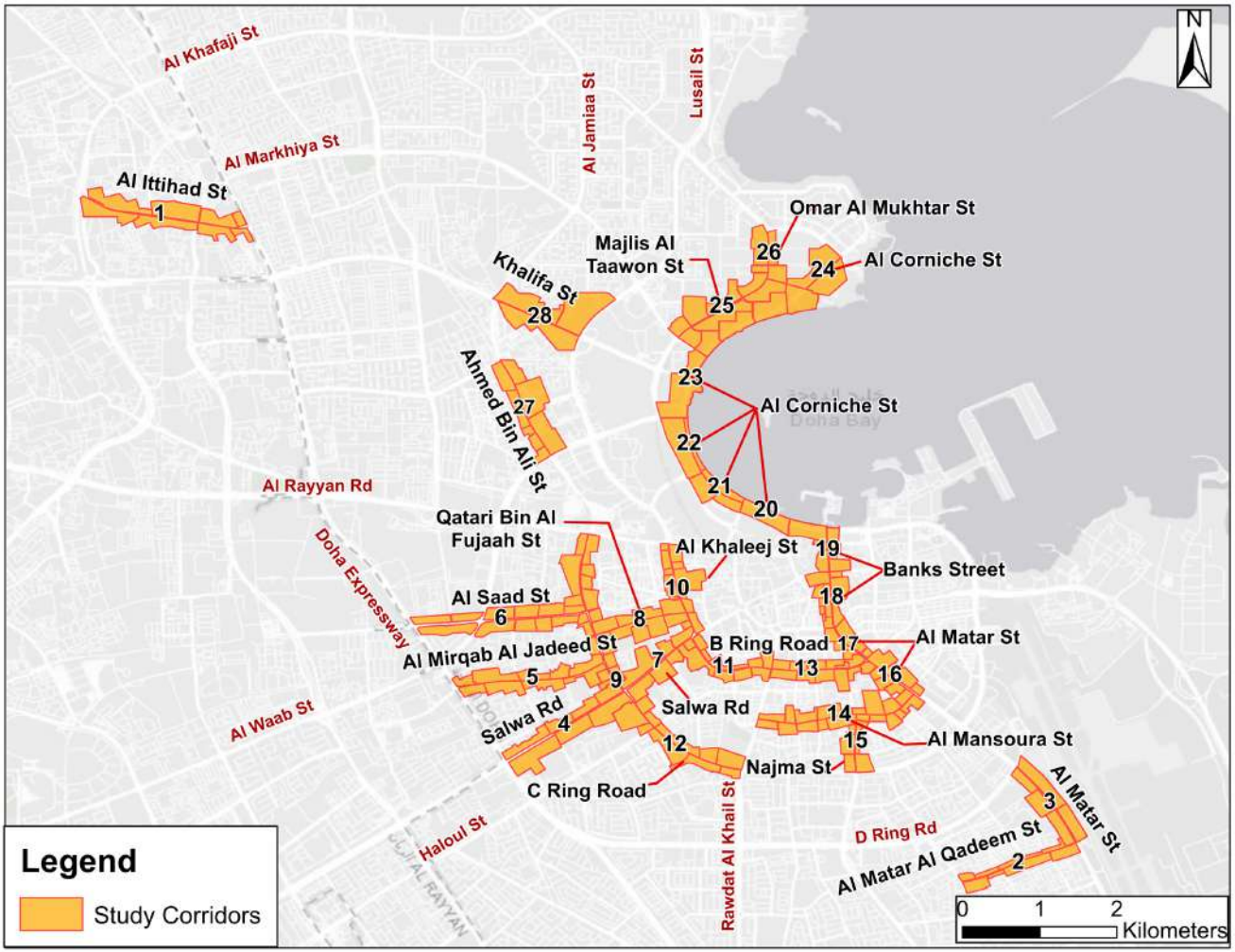

Exhibit-8 Parking Critical Corridors

2.2 Parking Operations

Administration and Planning

A number of organizations currently play a role in the planning, management, operations, and maintenance of parking in the State of Qatar as well as regulating the parking in new developments (**Exhibit-9**). However, key parking functions, shown in the figure below, were not aligned with the agency mandates, thus resulting in the following:

- Overlap of mandated and assumed responsibilities between various agencies.
- Lack of clarity in responsibility of relevant governance functions.
- Scattering of parking governance functions.
- No one entity is responsible for integration of all functional aspects of defined roles, causing a disconnect in service delivery.

ORGANIZATIONS IN PARKING

Ministry of Transport and Communications (MOTC)
Ministry of Municipality and Environment (MME)
Ministry of the Interior (MOI)
Ashghal Public Works Authority (PWA)
Ministry of Commerce and Industry (MOCI)
Ministry of Finance (MOF)

Role	Planning	Guidelines	Implementation	Operations	Enforcement	Legislation
Mandated Role	MOTC	MME, MOTC	MOTC, MME	MME	MME, MOI	MOTC, MOI, MME
Assumed Role	MOTC, PWA, MOCI, MOI	MOTC, MME, PWA	MOTC, MME, PWA	MME, PWA, MOF, MOI	MME, MOI	MOTC, MME, MOI, MOCI

Exhibit-9 Current Parking Governance

Parking Inventory

Public parking in the State of Qatar consists of on-street and off-street parking (parking lots and multilevel parking facilities) open to all users without any restrictions. Drivers and visitors rely on public parking for many land uses. On-street parking serves the adjacent residential, commercial and office land uses and is widely prevalent in the country.

PUBLIC PARKING FACTS

47.62% On-street spaces
52.38% Off-street spaces
0.7% Accessible spaces
<0.1% Loading/Unloading spaces

Over 189,000 (**Exhibit-10**) public parking spaces were inventoried in the Wider Study Area including both legal and undesignated parking ones. Undesignated parking spaces, which is about 39% of the inventory are those that are not signed as public parking but are not in areas where parking is prohibited. These can be both on-street or in vacant lots. These spaces could be converted to designated public parking spaces with appropriate signage and markings.

Public Parking Space Inventory		On-street	Off-street	Total	Percentage
Legal	Legal Marked	25,431	61,088	86,519	45.74
	Legal Marked Accessible	103	1,176	1,279	0.68
	Loading/Unloading	8	99	107	0.06
	Legal Unmarked	22,380	5,606	27,986	14.80
Undesignated		42,143	31,101	73,244	38.73
Total		90,065	99,070	189,135	100
		47.62%	52.38%	100%	

Exhibit-10 Existing Parking Inventory

Private parking facilities which are a major component in understanding the overall picture of parking supply in the study area were also considered. Private parking is primarily in surface parking lots and structured garages are restricted to employees or tenants of the associated land use or building. The estimates were developed since the parking supply for private land uses is not covered in the primary surveys. About 122,000 spaces were counted as part of the inventory survey and, in addition about 188,000 spaces were estimated. Nearly all (99%) of the inventoried private parking facilities are legal spaces.

Pricing

Currently, on-street parking is free and there are no time limit signs, parking meters, or monitoring systems for them. There are a few public off-street parking facilities serving Souq Waqif, City Center Mall, and Bank Street that charge for parking. Some of these facilities lack proper information on the pricing and regulations. There are several private parking facilities that charge users for parking. These facilities generally provide clear pricing information.

Currently all parking charges are regulated, and maximum rates set by the Ministry of Commerce and Industry (MOCI). Current maximum rates range from QAR 3 per hour to a daily maximum of QAR 70.

Parking Characteristics

A set of parameters were identified and assessed for their performance. These performance values are a key input of policy and strategy interventions (see **Exhibit-11**).

PARKING SEARCH TIME	PARKING DURATION	PARKING TURNOVER
Average time spent by the drivers to search for a parking:	Average time spent by a vehicle continuously in a parking stall:	Number of vehicles that use each parking stall in a day:
More than 15 minutes during peak hours.	Highly dependent on land use characteristic & parking type.	Highly dependent on land use characteristic & parking type.
In West Bay, users were not able to find parking spaces even after searching for 30 minutes during peak hours, and had eventually parked illegally.	On-street: 1.3 hr.	On-street: 8.6 vehicles
	Off-street: 1.5 hr.	Off-street: 3.6 vehicles
11 min 15 sec in congested areas during peak hour.	Residential: 88 – 213 min.	Residential: 1 – 6.5 vehicles
	Non-residential: 15-330 min.	Non-residential: 1 – 18 vehicles

Exhibit-11 Existing Parking Characteristics

Illegal Parking

Parking activity that results in inconvenience to other road users, pedestrians, or landowners is categorized as illegal parking and defined in the Qatar Traffic Law No. 19 of 2007 (Amended Law No. 16 of 2015). Encroachment of vehicles on pedestrian sidewalks, double parking, and parking on access drives are common at many locations (**Exhibit-12**). Infringements by parked vehicles in the older parts of Doha reduce roadway capacity, block sidewalks, and create operational challenges. Illegal parking was more prevalent in densely populated residential areas, like Mansoura, Najma, Old Salata, New Salata, Al Mirqab Al Jadeed, Fareej Bin Mahmoud, Umm Ghuwailina, Fareej Abdul Aziz and Msheireb areas. Illegal parking activity was observed in the West Bay area during working hours. Significant short-term illegal parking was observed in commercial areas where people park in front of shops/restaurants for take-away, causing both internal and external queueing.

QUICK FACTS

32.8% of the total parking demand was met through illegal parking.

The proportion of on-street parking which was met by illegal parking was 75% in Najma and Downtown Doha.

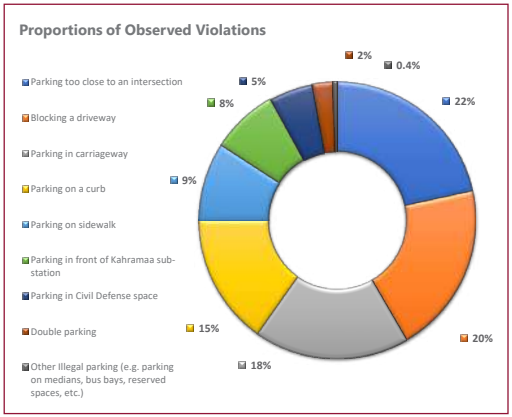

Exhibit-12 Illegal Parking Characteristics

2.3 Current Parking Shortfalls

To define existing parking shortfalls and surpluses, the adjusted parking spaces are compared with the estimated parking demand based on surveys and existing land uses.

To get an accurate idea of the shortfall in parking spaces, 70% of the inventoried legal but undesignated on-street parking spaces have been added to the existing designated parking spaces to calculate the existing parking supply. In addtion, the capacity is adjusted downward by 10% for on-street spaces and 15% for off-street spaces to reflect the inefficiency caused by ingress and egress maneuvers, account for variations in activity levels on different weekdays and at other times of the year, to account for parkers who occupy two spaces, and to allow for a slight reserve of spaces.

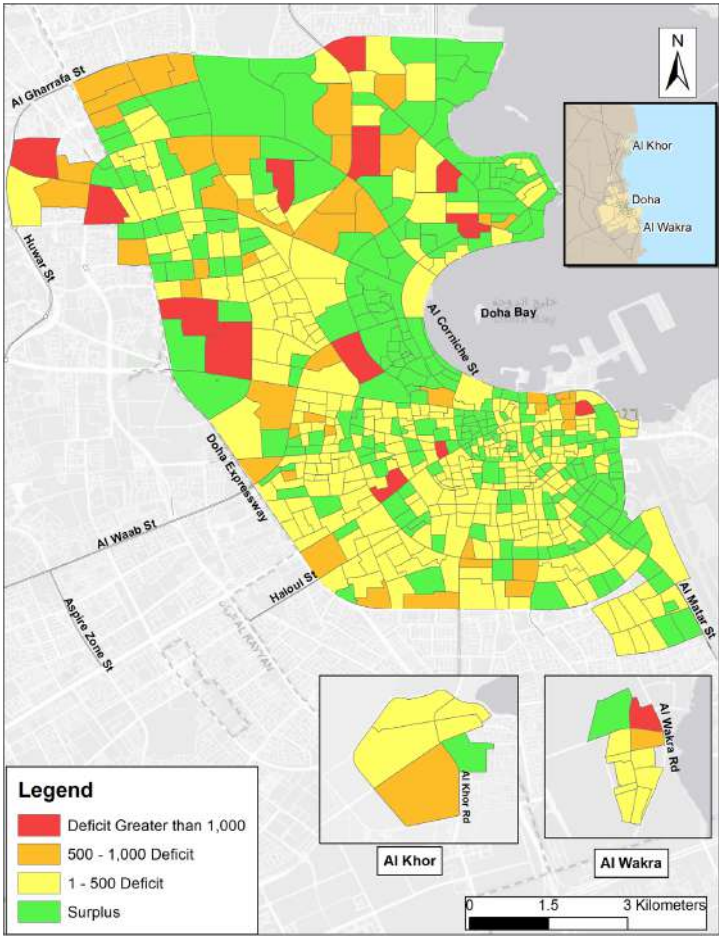

Exhibit-13 Current Parking Surplus and Shortfalls

The resulting existing adjusted parking supply for the Study Area is 383,000 spaces. The parking demand has been estimated at 442,000 spaces and assumes a 94% driving mode share(3% public transport, 2% walk, and 1% bicycle), resulting in an existing parking shortfall of 59,000 spaces. However, not all surplus spaces are readily available to fulfil deficits due to the location of the shortfalls (due to access, distance etc.) against the additional capacity. Once location is considered, the base-year shortfall is 114,000 spaces (**Exhibit-13**).

Section 3

Future State

3. Future State

The QPMP has carefully considered both the scenarios: first if there is no change in the parking regime and secondly the desirable changes, to develop a comprehensive decision-making process. By examining the current parking problems without change and identifying the desired future state of parking, it is possible to develop the justification for a change. The expected results help to realize the scope of the QPMP.

3.1 Future Without QPMP and Parking Regime Improvement

A state-of-the-art parking model, developed for the QPMP, has estimated a shortfall of approximately 114,000 spaces for the year 2019. The model also predicts that despite the assumptions that new developments will create more supply, parking shortfalls will continue to exist through 2050 in the absence of the QPMP and an updated parking regime (**Exhibit-14**). With the implementation of the QPMP and improving the parking regime, parking shortfalls can be greatly reduced, and parking will be available in the areas where it is needed.

Without the QPMP, it is estimated that there will be a parking shortfall of 128,000 parking spaces in 2050.

Items	Items				
	2019	2025	2030	2035	2050
Legal	358,000	461,000	490,000	535,000	575,000
On-Street Undesignated (70%)*	25,000	22,000	21,000	21,000	21,000
Total Supply	383,000	483,000	511,000	556,000	596,000
Demand	442,000	408,000	458,000	529,000	608,000
Net Surplus/Shortfall	-59,000	75,000	53,000	27,000	-12,000
Shortfall Considering Location	-114,000	-59,000	-74,000	-93,000	-128,000

**Assumes 70% of on-street undesignated spaces added to legal supply and 94% driving mode share.*

Exhibit-14 Parking Supply, Demand and Shortfall Without QPMP

3.2 Future Desired State

The culmination of outlining the policy framework for the State of Qatar, best practices, expert knowledge, and parking principles have provided a clear picture of the desired future state of parking in the country. The desired future state focus areas are used as policy focus areas (**Exhibit-15**).

Exhibit-15 Future Desired State

Enforcement

Implemented policies, laws, regulations, institutions, and operations which create a legible and effective enforcement system by applying traditional and new technologies and which equitably balances safety, access, mobility, economic vitality, and sustainability for all transportation users

On-Street

A well designed and operated on-street parking and curb management system utilizing time limits and pricing to prioritize parking and loading needs is safe for all users, consistent with adjacent land uses and accessibility needs and supports alternative modes and sustainability.

Off-Street

A well-managed and operated public and private off-street parking system that optimizes parking usage through shared parking, considers local context and accessibility, supports alternative modes and sustainability. It is safe for all transportation users and is contextually designed and priced.

New Development Parking Standards

Established and consistently enforced development standards, review and compliance processes, and design guidelines resulting in parking requirements that support wider parking policy and operations plans, transportation modal objectives and sustainability goals, local context, and is paid for by the development.

Public Transport & Land Use Impacts

Parking policies, facilities, and systems that account for and encourage transit and alternative mode options while supporting sustainable land use policies and plans.

Freight

On- and off-street parking and curb management policies, regulations, and facilities that reflect the challenges of goods' movement and delivery, inclusive of driver needs, public safety, and location context, while supporting sustainability goals.

General Parking

Clear and effective parking governance and operations structure with defined roles, responsibilities, and coordination; a financially sustainable parking development and operations system; flexible parking governance, policy, plans, and systems that can evolve with changing technology, opportunities, and threats.

Special Generators

Established plans and procedures for non-routine, high impact parking generators and events which reduce and accommodate overall impact and spill over without creating additional public financial burden; established requirements and plans for special parking generators, including religious, civic, medical, recreational, and educational facilities which support the wider Qatari national, cultural, and family values.

3.3 Justification for Change

The justification for evolving and developing the parking regime in the State of Qatar comes from several sources. Primary to these are state planning documents that provide a vision for the future of the country. Justification includes the observed conditions of the current parking landscape evidenced by surveys, site inventories and local knowledge. It is based on the unmet needs of special user groups. It is reinforced by a review of International Best Practices and the experience of other countries that have faced similar issues and developed effective solutions and administrative structures resulting in efficient and sustainable parking operations (**Exhibit-16**). Key to all of this is the support from stakeholders' planning and providing direction for an improved parking system.

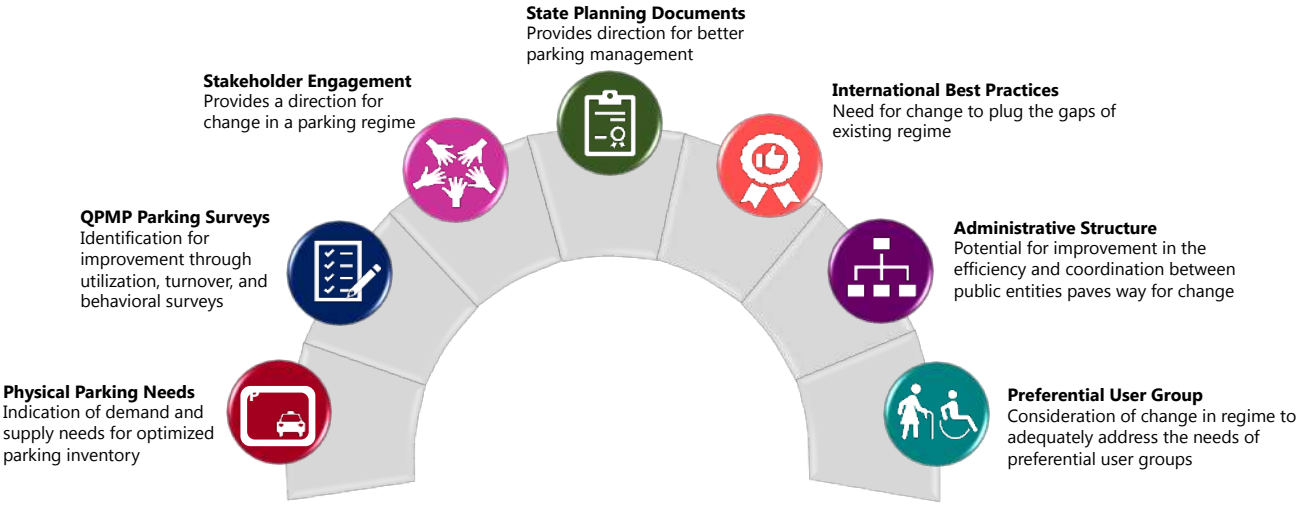

Exhibit-16 Justification for Change

3.4 Future with the QPMP and Change

The expanding public transport system in the State of Qatar will continue to encourage mode shift and reduce parking demand. The QPMP parking pricing proposal is also expected to reduce parking demand and projected future parking deficits. Under baseline conditions, a shortfall of approximately 93,000 spaces is expected in 2035, growing to 128,000 in 2050. With the increase of alternative mode share in 2019 of 6% to 23% in 2035 and 30% in 2050 as well as the application of a long-term pricing tariff, deficits are expected to decrease to 73,000 and 91,000 for 2035 and 2050 respectively (**Exhibit-17**).

Parking management strategies, when applied comprehensively to appropriate areas, are expected to lower the parking demand another 15%, greatly reducing or eliminating the need for new parking spaces, resulting in a relatively small number of new facilities recommended.

This decrease in demand also contributed by successful implementation of parking management strategies including limited duration, permit zones, enforcement etc. These parking regime tools and strategies are elaborated in **Section 5** and **Section 6**.

Scenarios	On-Street	On-Street		
		2019	2035	2050
Baseline	Parking Space Supply[1]	383,000	556,000	596,000
	Parking Demand[2]	442,000	529,000	608,000
	Net Surplus/Shortfall	-59,000	27,000	-12,000
	Sum of Shortfall Considering Access Distance	-114,000	-93,000	-128,000
With QPMP	Reduced Demand Assuming Target Mode Shift and Pricing[3,4]	-	488,000	535,000
	Net Surplus/Shortfall	-	68,000	61,000
	Sum of Shortfall Considering Access Distance	-	-73,000	-91,000

[1]All years assume inclusion of 70% of on-street undesignated spaces as supply.
[2]Assumes 3% public transport, 2% walk, and 1% bicycle.
[3]Asumes 2035: 15% public transport, 5% walk, and 3% bicycle; 2050: 20% public transport, 6% walk, 4% bicycle.
[4]Pricing assumed applied to on-street spaces only using long-term tariff.

Exhibit-17 Parking Supply, Demand and Shortfall with Target Mode Shift and Long-Term Pricing

Section 4

Policy

4. Policy

Parking policies strongly influence the way cities evolve and function. They affect land use structure, amenity of local streets, public and active transport use, levels of traffic congestion and car-dependence.

Direct parking policies and parking-related policies can be found throughout the many state planning documents and guidelines, but a single, coherent, coordinated group of policies addressing parking is needed. Policies inform the Master Plan and guide the development of the parking regime principles and parking management strategies.

Policy: A principle of broad statement of intent to support decision making, can be used as a guideline to achieve more specific objectives. It should be clear, credible and reflect the vision of citizens and policy makers. It is high-level, long-term, and not location specific.

Governance	Effective Governance
	Adaptive Institutions
	Responsible Stewardship
	Aligned Priorities
Parking Development	Integrated Land-use
	Context Sensitivity
	Balanced Needs
	Inclusive Design
	Values-Driven
Parking Management/ Operations	Informed Public
	Efficient Enforcement
	Intelligent Systems

Exhibit-18 Parking Policy Principles

4.1 Policy Introduction

While the QPMP Mission and Goals provide a policy foundation, it helps to expand and categorize them into Parking Policy Principles **(Exhibit-18)** divided among the primary aspects of a parking program. These policy principles were derived from the state planning documents (QNDF, TMPQ etc.). These aspects of parking are very different in terms of who, how, and what is needed to fulfil the QPMP mission.

Using the policy framework defined by the mission, goals, and policy principles, the Policy Development Process assures that the selected policies target the State of Qatar's parking needs at present and in the future, meet the QPMP goals, and fulfil the QPMP mission.

4.2 Policy Development Process

The parking policy context is derived from the state planning documents and followed by the foundations and parking principles. Policy focus areas are used to organize policy development around enforcement, on-street & off-street parking, new developments, public transport, land use, freight, special generators, and general parking operations. This structure results in parking principles focused on Governance, Parking Development, and Parking Operations.

Specific policy needs are identified by examining the gap between the current state of parking and a desired future state based on the policy foundation and principles.

The specific policy needs inform policy generation including the examining of current policy, incorporating best practices, and consulting stakeholders. Many policies are available to address the policy gap.

A thorough evaluation including scoring against key higher-level principles and objectives informs policy selection and refinement resulting in those policies which will be most useful and realistic for implementation.

Final policies are grouped with six leading flagship policies and fifteen supporting policies. Policy actions give direction towards strategies and implementation steps to help policies become a reality (**Exhibit-19**).

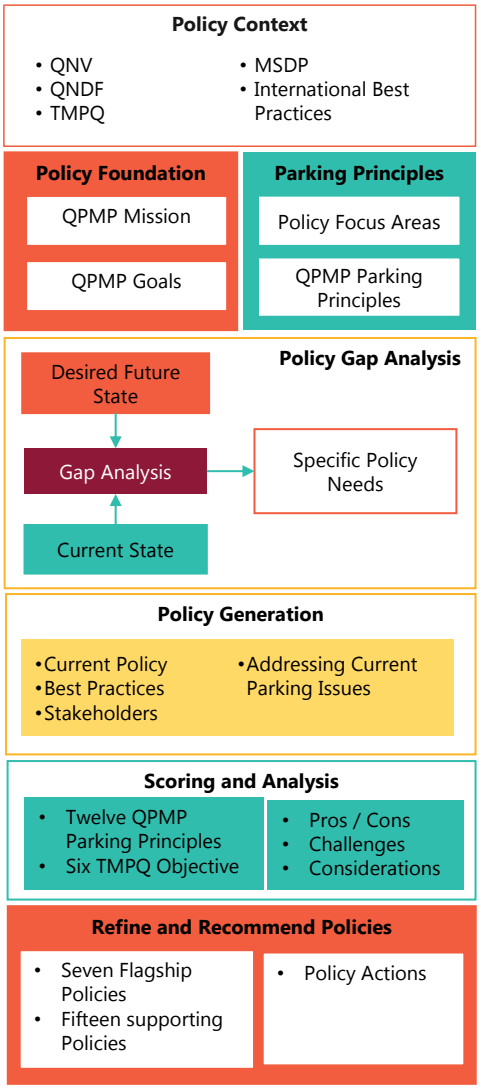

Exhibit-19 Policy Development Process

4.3 Recommended Policies

Flagship Policy	Key Issues Addressed and Considerations	
1 Governance Establish an integrated and effective governance framework for parking	• Lack of co-ordination and integration • Change Takes Time	• Legal Authority • Buy-in from other agencies • Professional capacity building
Supporting Policy		
2 Revenue Achieve a financially sustainable parking regime	• Need for resources in planning, development, and operations • Large-scale new regime	• Requires change in revenue hypothecation • Up-front funding needs
21 Data Management Empower the parking governing body to capitalize on a partner data integration and monitoring system for both the public and private sector	• Integrate parking systems with wider transport systems • Data privacy and security	• Co-operation between public and private sector operators • Need to build, operate, and maintain the data system
Flagship Policy		
8 Enforcement Enact widely accepted and equitable parking enforcement system supported by legal framework that achieves optimal compliance	• Supports pricing and zone approach • Reduces illegal parking • Technology and labor costs	• Change to civil enforcement reduces costs, allows for private facility enforcement
Supporting Policy		
9 Compliance Introduce innovative, consistent and efficient methods of parking enforcement	• Addresses inconsistent enforcement • Automated enforcement saves labor	• Better hotspot coverage • Availability of quality systems and vendors • Self enforcing system

Flagship Policy	Key Issues Addressed and Considerations	
5 Management Maximize the efficient use of parking facilities by incorporating innovative technology and introducing controlled parking zones, which may include pricing, duration of stay and permit schemes	• Unfamiliarity with controlled zones • Simplifies enforcement • Encourage turnover	• Provide for residential parking near residences • Sets a consistent and uniform zone approach • Stakeholder consultation important
Supporting Policy		
3 Operations Implement effective operations and management of parking facilities	• Lack of coordination • Underutilized spaces in deficit areas • Requires active management	• Requires parking management system development and updates
4 Demand Management Manage on-street and off-street parking demand via pricing	• Reduce parking demand • Increase turnover • Encourage Transit use • Public perception	• Requires enforcement Move long-term parking to off-street • Requires good revenue collection system
6 Technology Provide digitally integrated smart parking technology for users' convenience in adherence to government data management policy	• Informative for users • Existing disparate / inconsistent systems • Builds linkages with private facilities	• Facilitates operations coordination • Development costs • Enhances government skills capacity
7 User Convenience Improve public awareness of parking rules and implement customer service oriented and easy to understand parking regulations, terms and conditions	• Consistent application • Reduce parking regulation confusion • Increase safety for all modes	• Address illegal parking and simplify enforcement • Cooperation of private facility owners

Flagship Policy	Key Issues Addressed and Considerations	
11 Safety & Security Develop a safe and secure parking regime that complies with the health and safety regulations in order to facilitate high quality multi-modal transport system	• Parking on sidewalks and crosswalks • Safe goods unloading • Support transit use	• Improve pedestrian and bicycle safety • Cost to implement, particularly for existing facilities
Supporting Policy		
10 Accessibility Provide accessible parking to people with special needs and to cater to non-drivers	• Sufficient and consistent accessible parking • Address curb pick-up / drop-off locations	• Promotes transportation equality • Adds to rules, signage, and enforcement needs
12 Goods Distribution Ensure that developments provide safe accessibility and sufficient on-site parking, loading/unloading and staging facilities for goods vehicles to cater to the predicted demand	• New developments have sufficient truck loading • Reduce congestion due to illegal truck parking	• Enforcement implementation and cost • Opposition to adding facilities by land-owners • Opposition to paying for public loading spaces
Flagship Policy		
13 Economic Development Ensure that parking provisions consider the needs of commercial and business areas to optimize economic viability and vitality	• Efficient but available parking • Parking information used to optimize system	• Ensure requirements do not result in over supply • Consider parking minimums and maximum
Supporting Policy		
14 Land-Use Consider and protect the needs of specific and mixed land-use during the planning and implementation of the new parking regime	• Address spillover to residential areas • Land-owner and local official consultation	• Special generator needs • Significant new regulations and guidelines needed
15 Freight Ensure adequate parking provision that supports freight, logistics and supply chain activities	• Businesses with more trucks than land to store • Address truck driver rest and personal needs	• Improve safety • Shifts in demand may lower public investment benefit

Flagship Policy	Key Issues Addressed and Considerations	
17 Public Transport Support Provide parking that supports an integrated and sustainable transport system, and in turn helps to prioritize and support modal shift	• Congestion reduction • Support Metro investment • Cost of walking and biking facilities	• Support Transit Oriented Development • Public reluctance due to extreme weather
Supporting Policy		
18 Sustainable Network Optimize parking availability to encourage public transport ridership	• Station by station needs and approach • Encourages less car ownership	• Needs implementing well to avoid illegal parking • Public adoption/ usage rates
Flagship Policy		
20 Design Standards Ensure that the parking related implementation plans, design manuals, guidelines, policies, and codes of practice are monitored and kept updated to address the needs of existing, as well as new parking facilities	• Cost and expertise to update guidelines • Rapid change of technology • New Traffic Impact Study guidelines	• Supports and enforces Qatar Parking Design Manual • Better design for all modes
Supporting Policy		
16 Environment Promote environment-friendly parking solutions	• Promote mode shift • Stakeholder buy-in • Healthier lifestyles • Efficient land usage	• Reduce parking facility impact on natural environment • Cost of EV charging stations
19 New Development Ensure that the guidelines for new development are aligned with the strategic goals of the Qatar Parking Master Plan	• Prior lack of sufficient parking quantity and type • Resistance to change • Mixed authority between MME and MOTC	• Meeting new design and multi-modal access may be more expensive • Resistance to unbundling • Under-supply possibility

Section 5

The New Parking Regime


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لحاملي بطاقات ذوي
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Disabled badge
holders only

5. The New Parking Regime

The State of Qatar, and in particular Doha has parking criticality issues in many areas. These issues have become more prevelant as areas have developed and redeveloped without proper parking planning and operations. The QPMP recommends and develops a new regime to modernize parking in the country.

5.1 Context

The new parking regime employs key tools (**Exhibit-20**) backed by additional supporting tools. These tools are used throughout the world in modern urban areas. The focus is on demand management and efficient operations throughout the parking system using these tools along with standards and guidelines, rather than the existing independent, uncoordinated parking regime spread across the urban area.

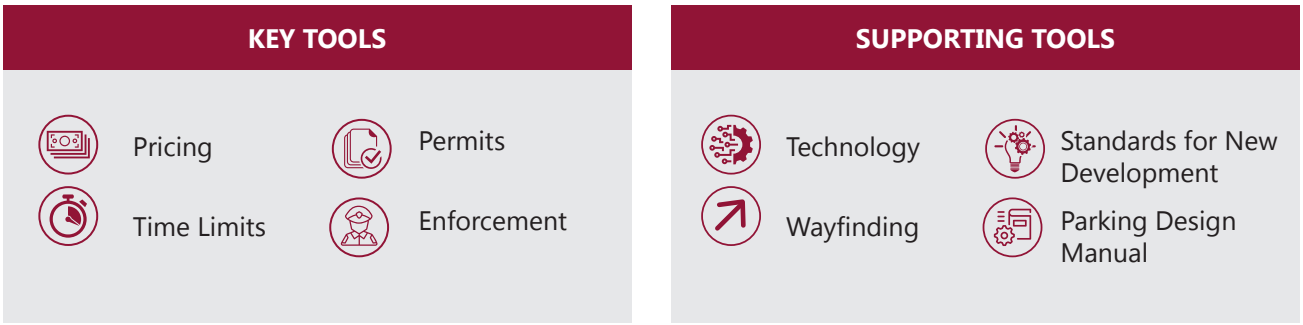


Exhibit-20 New Parking Regime - Tools

5.2 Key Tools

The new parking regime will apply several operational tools. The key tools include parking pricing or tariffs, time limits, permit schemes and enforcement.

Pricing

Parking pricing, also called parking tariffs or paid parking, refers to direct charges for using a parking space. Pricing is the most effective means of controlling parking demand and encouraging parking in appropriate areas where it will not impact neighborhoods or create congestion. The rate structure should favor short-term use in on-street areas and encourage long-term parkers to shift to off-street parking lots and garages. It is a common practice to price on-street parking so that a few spaces are available in each block. Charging for use of parking in some form is a common practice across the world and increasingly in the Middle East.

The QPMP proposes two pricing zones (**Exhibit-21**).

- **Pricing Zone 1** – Areas with large parking shortfalls and greater public transport coverage within the Capital City Centers (CCCs).
- **Pricing Zone 2** - Areas with moderate parking shortfalls, moderate public transport coverage, and outside the CCC; these may also include other MME Activity Centers, congested corridors, and/or specific land uses with high demand.

QUICK FACTS

1. Pricing is supported by the Flagship Policy (5-Management): Maximize the efficient use of parking facilities by incorporating innovative technology and introducing controlled parking zones, which may include pricing, duration of stay and permit schemes.
2. A simplified parking tariff is recommended for short-term implementation. On-street hourly tariff starts from QAR 2/ hr and Off-street from QAR 3/ hr (same as MOCI base rate).
3. A robust and non-linear parking tariff structure is recommended for long-term implementation.
4. Pricing is recommended for selected areas or road segments (corridors), within a controlled parking area, with high parking demand, limited supply, congestion, and good public transport connectivity.
5. Two-Tier pricing zone structure is recommended for all implementation phases.

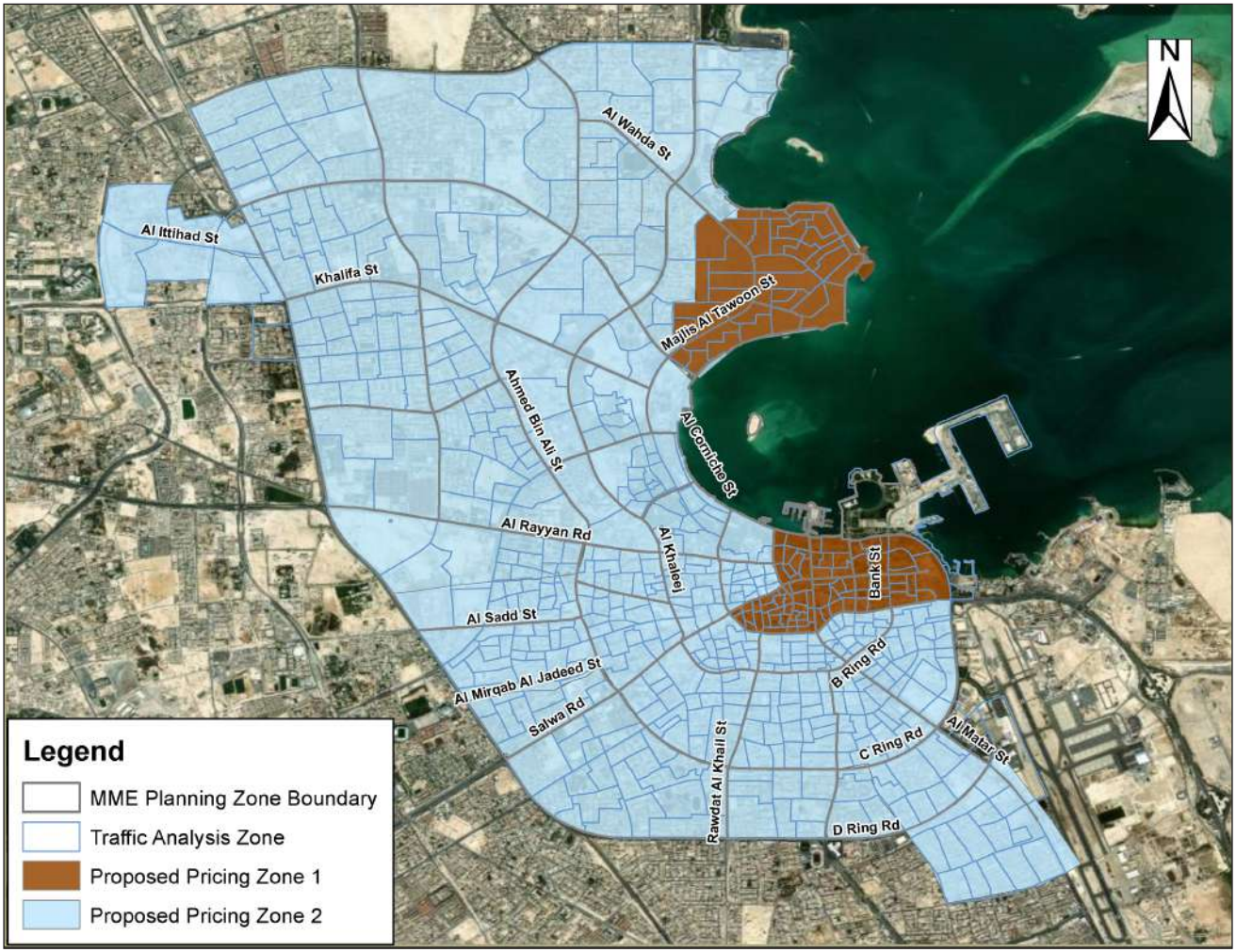


Exhibit-21 Pricing Zones

Each Pricing Zone will have a premium and a standard parking tariff. The premium tariff can be applied to highly critical areas and the standard tariff to areas with medium parking severity issues.

Parking tariffs are higher in Pricing Zone 1 given the higher parking criticality than in Pricing Zone 2. Premium and standard tariffs are also related to levels of parking criticality. The rate structure shows that on-street parking is priced higher than off-street parking to encourage turnover. To further encourage short stays on-street and long stays off-street, on-street prices per hour progress to higher levels for longer parking duration while off-street prices regress per hour as parking duration increases. (**Exhibit-22**).

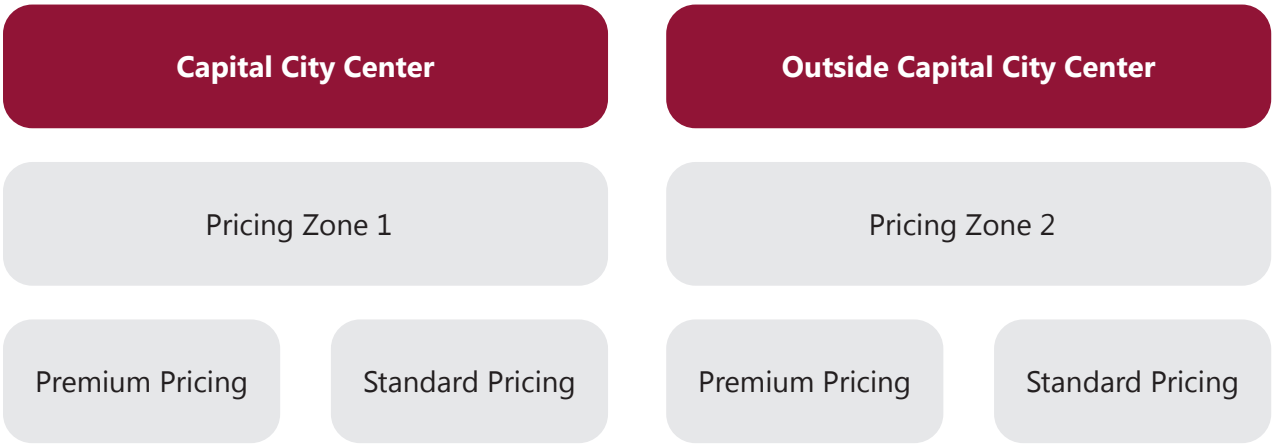


Exhibit-22 Pricing Approach

Where long-stay parking is permitted, daily pricing limits are set to align with the MOCI regulations that limit maximum daily charges to QAR 70.

Since the application of parking pricing is limited in the State of Qatar, the QPMP implementation plan proposes lower tariffs during the short-term, medium tariffs in the medium-term, and expansion to the full tariffs in the long-term (**Exhibit-23**).

Duration	On-Street				Off-Street
	Pricing Zone 1		Pricing Zone 2		Pricing Zone 1 & 2
	Premium (QAR)	Standard (QAR)	Premium (QAR)	Standard (QAR)	MOCI Tariff (QAR)
15 Mins	1	0.75	0.75	0.5	~
30 Mins	2	1.5	1.5	1	~
1 Hour	**4**	**3**	**3**	**2**	**3**
2 Hours	8	6	6	4	6
3 Hours	12	9	9	6	9
4 Hours	16	12	12	8	12
5 Hours	~	~	~	~	17
6 Hours	~	~	~	~	22

Short-term Parking Tariff Proposal

Duration	On-Street				Off-Street
	Pricing Zone 1		Pricing Zone 2		Pricing Zone 1 & 2
	Premium (QAR)	Standard (QAR)	Premium (QAR)	Standard (QAR)	MOCI Tariff (QAR)
15 Mins	~	~	~	~	~
30 Mins	3	~	3	~	~
1 Hour	**5**	**3**	**4**	**3**	**3**
2 Hours	10	7	8	6	6
3 Hours	15	11	13	10	9
4 Hours	20	16	18	14	12
5 Hours	~	~	~	~	17
6 Hours	~	~	~	~	22

Mid-term Parking Tariff Proposal

Duration	On-Street						Off -Street			
	Pricing Zone 1			Pricing Zone 2			Pricing Zone 1		Pricing Zone 2	
	Premium Progressive Peak Demand (QAR)	Premium Flat Rate Normal Demand (QAR)	Standard Progressive (QAR)	Premium Progressive Peak Demand (QAR)	Premium Flat Rate Normal Demand (QAR)	Standard Progressive (QAR)	Premium Regressive (QAR)	Standard Regressive (QAR)	Premium Regressive (QAR)	Standard Regressive (QAR)
15 Mins	~	~	~	~	~	~	~	~	~	~
30 Mins	~	~	~	~	~	~	~	~	~	~
1 Hour	**9**	**9**	**7**	**6**	**6**	**4**	**8**	**6**	**5**	**3**
2 Hours	18	18	14	12	12	8	16	12	10	6
3 Hours	28	27	22	19	18	13	23	17	14	8
4 Hours	38	36	30	26	24	18	30	22	18	10
5 Hours	~	~	~	~	~	~	36	26	21	11
6 Hours	~	~	~	~	~	~	42	30	24	12

Long-term Parking Tariff Proposal

Exhibit-23 Parking Tariff Proposals

Time limits

A time-limit based parking approach has been recommended in the QPMP. Two principal types of space utilization broadly cover major land use parking demand. One is long-duration all-day parking typically associated with commuter work trips. The other is short-duration parking associated with retail/shopping, dining, social activities, job-related business trips and personal business trips. Limited duration parking is applied to short duration trips by encouraging the use of on-street spaces for short-term parking. As shown in the hourly tariffs above, on-street parking will not be allowed more than four hours in priced areas while pricing is in effect. Furthermore, pricing hours will be developed based on surrounding land uses (**Exhibit-24**)

QUICK FACTS

1. Time limits are supported by the Flagship Policy (5 – Management)
2. Schools & Religious: 30 minutes to 1 hour
3. Services sector i.e., banks, health facilities and other retail: 1 - 2 hours
4. Parking spaces for small commercial areas within residential areas (retail activity such as small supermarket, barber shops, laundry shop etc.): 30 minutes to 2 hours

Duration	Land Use	Pricing Hours
Four hours maximum stay with pricing. Two hours maximum stay outside pricing hours in time limit spaces.	Government and Private offices	Daytime Pricing Only, 8 AM to 4 PM
	Commercial/Retail	Evening Pricing Only, 4 PM to 10 PM
	Mixed Use Commercial and Metro Stations	All Day Pricing, 8 AM to 10 PM

Exhibit-24 Time Limits for Different Uses and Pricing

Permits

The QPMP recommends a permit scheme (**Exhibit-25**), which is an effective way of managing parking demand in areas where pricing and duration of stay controls are not appropriate; for example, in residential areas where parking peaks during evenings, overnight or weekends or where parking overspill can occur from controlled and priced commercial zones. This type of scheme charges users for a permit allowing them unlimited use of parking spaces allocated to them.

The resident permit entitles permit holding residents to park their vehicle on the street within a specified area consisting of multiple streets. A detailed plan covering permit qualification, issuance, and use of Qatar Area Referencing System (QARS) has been included in the QPMP.

This scheme is recommended for the high density residential areas in the short- and medium-term and expanded to low-density areas in the long-term.

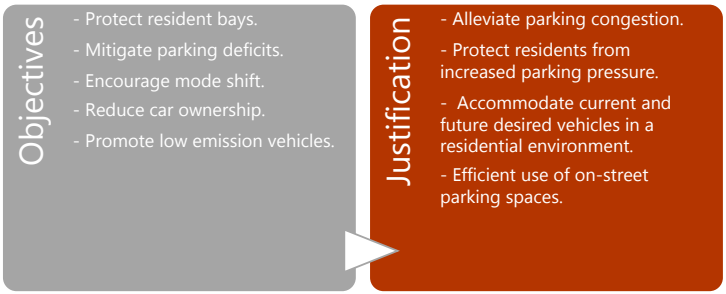


Exhibit-25 Permit Scheme – Objectives & Justification

QUICK FACTS

1. Time limits are supported by the Flagship Policy (5 – Management)

2. Recommended user types and permit fees:

   - Imam & Muezzin (Free)
   - Elderly (Free)
   - Blue Badge Holders (Free)
   - VIP (Free)
   - Health Officials (Free)
   - Resident (from QAR 1000/ year)
   - Visitor (QAR 35/ day)
   - Business Permits (QAR 1200/ year)
   - Traders Permits (QAR 1200/ year)

3. Green Permit (Carbon-dioxide emission <110g/km and/or Engine size 3000cc or below): 10% discount

4. A maximum of 4 permits for the Citizens and 2 permits for Expatriates depending on the building type, location, parking availability, etc.

5.3 Supporting Tools

Supporting tools are often used and are necessary to realize the full benefit of a modern parking regime. These tools include technology, wayfinding, parking design guidelines, and standards for new development.

Technology

Parking technology is an important component to support the future parking regime. Parking technology supports the key regime tools:

- Parking pricing facilitates variable pricing, pricing updates, and revenue collection
- Time limits notifies time of expiry

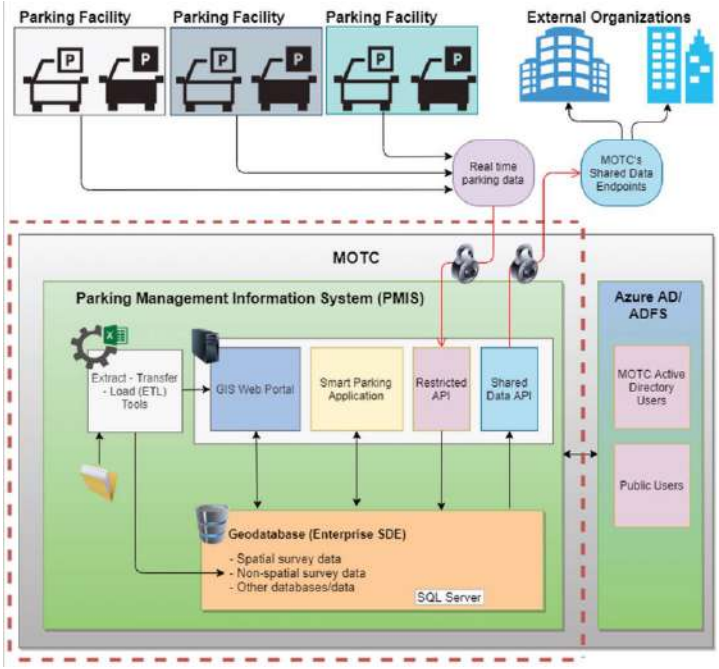


Exhibit-26 PMIS Overview

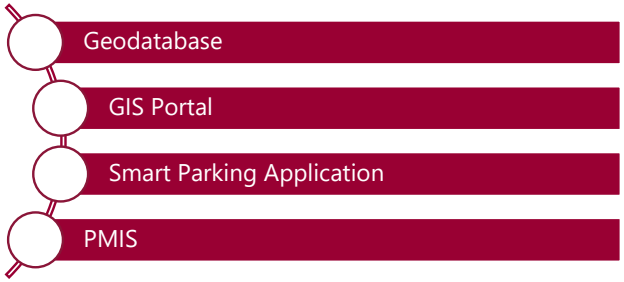
QUICK FACTS

1. Technology is supported by the Supporting Policy (6 –Technology): Provide digitally integrated smart parking technology for users' convenience in adherence to government data management policy.
2. The PMIS will include a public user interface providing information on parking locations, availability, regulations, pricing, and where applicable, reservations.
3. Smart Parking App will provide real time warnings as paid parking is about to expire.facilities and other retail 1 - 2 hours

- Permits facilitates analysis of the number of permits that should be made available, the quantity that are issued and to whom and facilitates payments and expiration date.
- Enforcement – technology increases the effectiveness of individual staff as well as helps understand problematic areas and techniques which might improve situations

The QPMP includes the development of a Parking Management Information System (PMIS) (**Exhibit-26**) with four key components. The first of these is an expandable geodatabase of parking inventory, usage, and restriction information. A GIS Portal provides access to this information for analysis in the context of specific locations, parking control zones, and parking management districts. New information including real time parking demand can be added. A Smart Parking Application allows end users to access information such as parking locations, type of available parking, space availability, pricing, and regulations. These elements together form the PMIS that can also be used for planning and reporting purposes to analyze trends and monitoring key performance indicators (KPIs) (**Exhibit-27**).

Key Components – Digital Solutions QPMP



GIS Portal

Smart Parking App

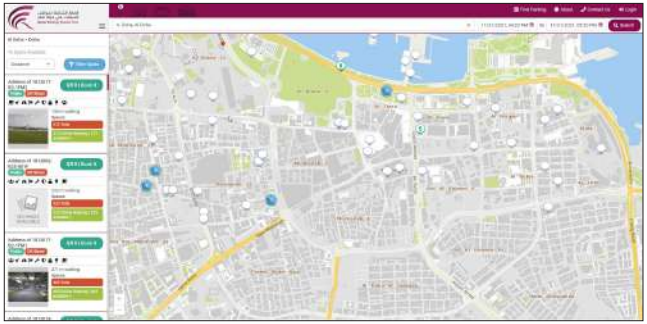


Exhibit-27 QPMP – Digital Solutions

Wayfinding

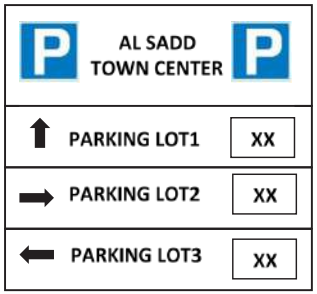
Wayfinding is what guides people through the parking system. It is a collection of names and places, maps, signage, information and elements of the public realm, such as street furniture and art. The QPMP wayfinding system is proposed to be built on universal wayfinding principles to develop information consistencies, geographical hierarchies and support creation of mental mapping and legible places for drivers and visitors. The recommended wayfinding system will improve clarity and legibility of the parking system, help to promote shared parking and alternative modes, and reduce parking search times and congestion. The wayfinding system works in conjunction with the QPDM guidelines for basic parking signage, pavement markings, and variable message signage. A set of new parking signs to support the parking regime has been introduced in the QPDM covering parking pricing, duration control, control zones etc.

Wayfinding will be introduced primarily in the Activity Centers but will also apply commercial streets, residential controlled areas, specific land uses, and special events venues (**Exhibit-28**).

Wayfinding is proposed to be integrated with the ITS parking solutions to provide space availability information and data collected that can be used to set pricing and time limits.

QUICK FACTS

1. Directional signs to guide people to off-street locations
2. Vehicular signs at key decision points along driving routes with information on number of spaces available
3. Identification signs at the entry of public parking lots with the facility name, type of parking available, hours of operation and pricing
4. Pedestrian signs or kiosks with maps illustrating the activity area with points of interest and area attractions
5. Other signs inducing advance directional signs on arterials, regulatory signs, parking tariffs and hours of operation



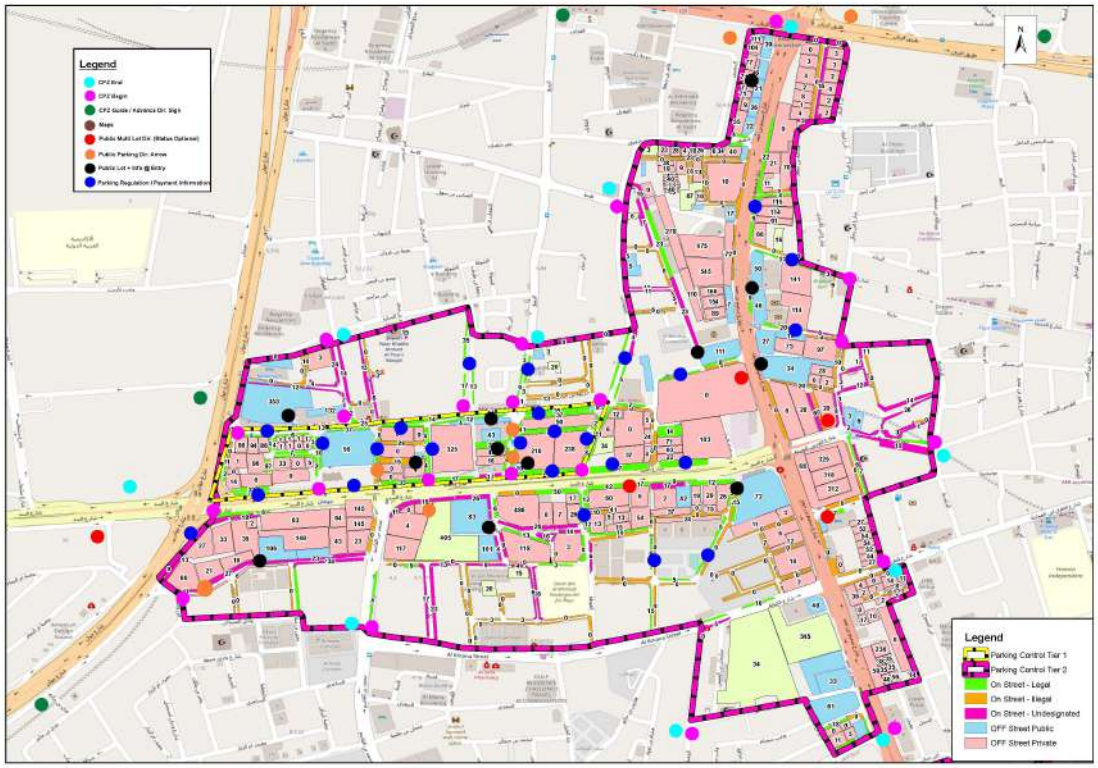


Exhibit-28 Comprehensive Parking Wayfinding Sign Plans (Al Sadd Activity Center)

Standards for New Development

A comprehensive and uniform standard for new developments is important to ensure consistency among the parking provisions in future developments. Previously, many developments throughout the State of Qatar have been built without adequate consideration for parking. Moving forward, new developments will meet the requirements of the QPDM and have parking that accounts for land use and density, proximity to other developments, vehicle types, user types and proximity to public transport. Operations, interaction, and integration with other nearby parking facilities will also be considered, making parking part of a system rather than a group of individual operations (**Exhibit-29**).

The QPMP parking quantity requirements will ensure that new developments have the required amount and type of parking while operating efficiently as part of the larger parking regime. This will reduce crowding of on-street parking and promote utilization of new parking.

A unified approach for estimating the parking supply requirements specifies a single core parking rate to be used as a basis for determining parking requirements for that land use. Variations from the core rate can be derived to arrive at rates which are suitable for Central Business District (CBD) areas, high public transport accessibility areas, and areas where density is emphasized in land use master plans.

KEY NEW DEVELOPMENT CONCEPTS

1. Parking maximum concept introduced for Capital City Center
2. Recommended a 15% reduction of parking rates around 400 m of a Metro Station to promote Public Transport usage
3. Parking with electric car chargers introduced; 10% for residential and 5% for non-residential (of total parking)
4. Unbundling of parking from leases to reduce lease prices and encourage alternative modes for the areas with high metro connectivity. For unbundling, rent for individual parking can vary between QAR 1,000 and QAR 10,000 per year depending on location, land use etc.
5. Shared parking and Payment-in-lieu of parking introduced for congested areas
6. Bicycle and motorcycle parking accommodated to encourage the use of alternative modes
7. Loading and unloading zones incorporated for freight and passenger pick-up/drop-off to reduce on-street crowding and increase safety

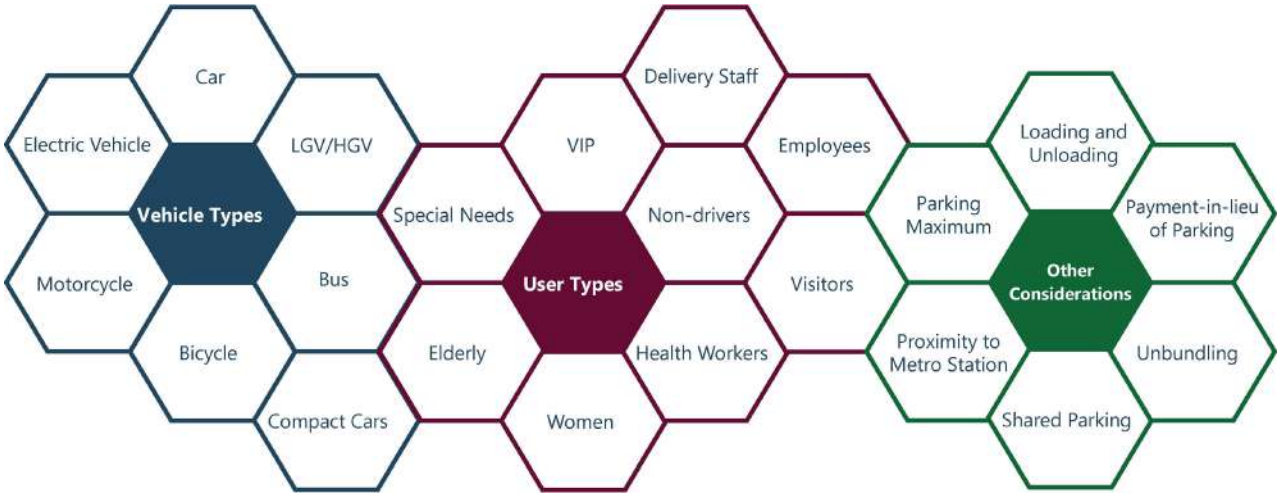


Exhibit-29 Key Considerations for Requirements for New Developments

The adoption of maximum parking standards for West Bay and Doha Downtown is recommended with immediate effect. The existing minimum standards will be considered as the new maximums in these areas. A 20% reduction will be applied to the existing minimums to set the new minimum requirements. This approach will help prevent under or over-supply of parking spaces in these areas. Monitoring KPIs over time will help in fine tuning this recommendation.

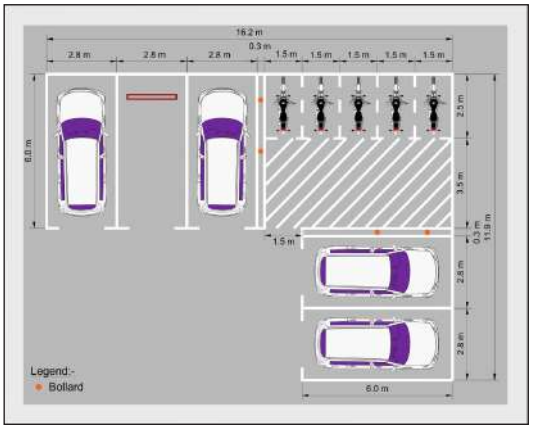
Parking Design Manual

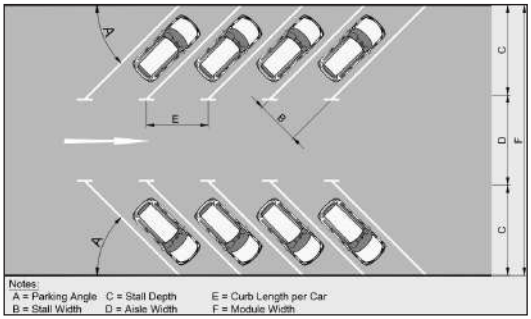
The Qatar Parking Design Manual (QPDM) developed as part of the QPMP, provides design guidelines for different types of parking including on- and off-street parking, parking for different types of vehicles and automated parking. The emphasis is on safety and development of parking spaces for different user groups. The QPDM provides the new parking regime with the following aspects:

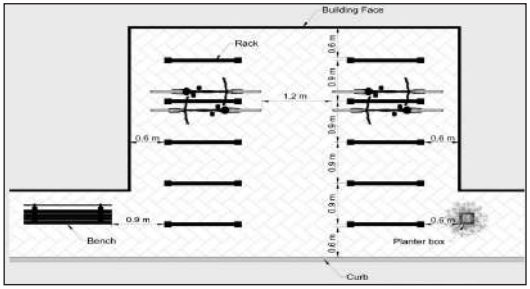
- **Uniform Design** promoting safety and predictability for parking uses.
- **Consistent markings** and signage making regulations clear and enforcement easier.
- **Diversity** by addressing preferential users and different parking needs.
- **Sustainability** in designing new parking and re-use of existing developments.
- **Operations** incorporating technology requirements to promote integration of operations, tariff collection, enforcement, and user information.
- **Safety** enhancing elements internal to the facility and external in terms of access.

QUICK FACTS

1. A robust Manual with 22 Sections
2. 80+ Reference Documents/ International Best Practice reviewed
3. Extensive Stakeholders consultation
4. Covers design standards, dimensions, multiple users/ modes (pedestrians, cycles, bicycles, bus, goods vehicle) planning guidelines, signage, markings, safety etc
5. Includes new technologies in parking (Parking Management Information System, Robotic Parking, Electric Vehicles etc.)
6. Provides specifications for parking construction materials
7. Details Parking Safety Audit (PSA) and departure of standard processes
8. Proposes application of new tools in parking design (simulation etc.)
9. Provisions is made for congested areas with smaller plot sizes and limited parking space potential
10. All-in-one: Solutions for Parking Barriers, Speed Calming, Lifts, Stairs Shopping carts, On-line Shopping Delivery & more.







5.4 Preferential Users' Support

The QPMP recognizes special need users as one of the preferential user groups and aims to make appropriate parking provisions for them in the future parking regime. The provision of preferential parking includes development of special regulations as needed, dedicated parking supply associated with specific land uses and appropriate physical design elements. These include convenient access and delivery and loading areas to accommodate special user group needs. While the disabled, health workers, metro riders, and non-drivers may need accommodation in both on-street and off-street, the elderly, parents with children, females, and VIPs should be generally off-street.

FOCUS AREAS

The diverse traveling public needs different types of parking, which the QPMP will achieve:

1. Special needs/disabled drivers and passenger and the elderly often have limited mobility and need parking spaces close to their destinations with access accommodations.
2. Parents with children and women drivers benefit from safe parking which can accommodate families.
3. Health workers need spaces nearby to reduce parking search times.
4. Public transport riders need parking at regional bus and Metro stations.
5. Non-drivers using taxis and TNCs need safe places for waiting, pick-up and drop-off.
6. Safe and convenient bicycle parking is needed to promote alternative mode use.
7. VIPs need parking accommodation close to their destination with proper security.

Section 6

Parking Strategy

6. Parking Strategy

The QPMP has identified a comprehensive list of strategies that help to manage parking and reduce parking demand which can easily be implemented by the Ministries, private developers, employers, PMD operators, and the public.

Strategies are how the policy and appropriate tools are applied spatially. Strategies have been classified according to whether they manage supply (provision) of parking or demand (use of parking) or are linked to overall travel demand management which also reduces parking demand.

6.1 Context - How Strategies Work

The parking strategies have been developed so that they are transferable and replicable across different parts of the Study Area. This has been achieved by defining a set of neighborhood typologies - transit based, non-transit based, commercial, residential, specific land uses, etc. and defining a set of strategies for each of the typologies. Each of these portray different parking challenges and require different strategies combined in different ways to address parking challenges and adverse effects of parking on other travelers, including pedestrians, public transport riders, bicyclists, and other drivers.

6.2 Types of Strategies

Four types of strategies have been identified in the QPMP that are intended to be applied based on the assessment of parking characteristics:

Supply Management

These measures work to improve either the quality or quantity of the parking supply. An example of this is the formalizing of undesignated parking spaces to increase the supply of legal spaces.

Demand Management

Strategies in this category help to control the demand for parking once vehicles reach the areas where they need to park. These strategies focus on issues, such as pricing, enforcement, parking control mechanisms, and information and technology measures which may limit or reduce demand.

Travel Demand Management

These strategies encourage mode-shift to take traffic off the roads to reduce parking demand. Strategies in this category are not directly achievable by the QPMP and will require other organizations to implement them as part of their own plans.

Parking Supply

This strategy is associated with the provision of additional parking in select locations and includes parking associated with new developments. The QPMP supply recommendations consider the current needs, likely future needs, target mode shift, impact of parking supply and demand management, and travel demand management such that investment in new off-street supply is prudent.

6.3 Spatial Context - Relationships to Action Areas and Activity Centers

Based on the parking criticality and future projects of parking issues, seven short-to medium-term Actions Areas have been defined in the QPMP. Action Areas are locations with existing parking criticality indicating the need for prioritization in implementation planning. Four of these areas are within or are concurrent with the Activity Centers. Three are based on standalone corridors (**Exhibit-30**).

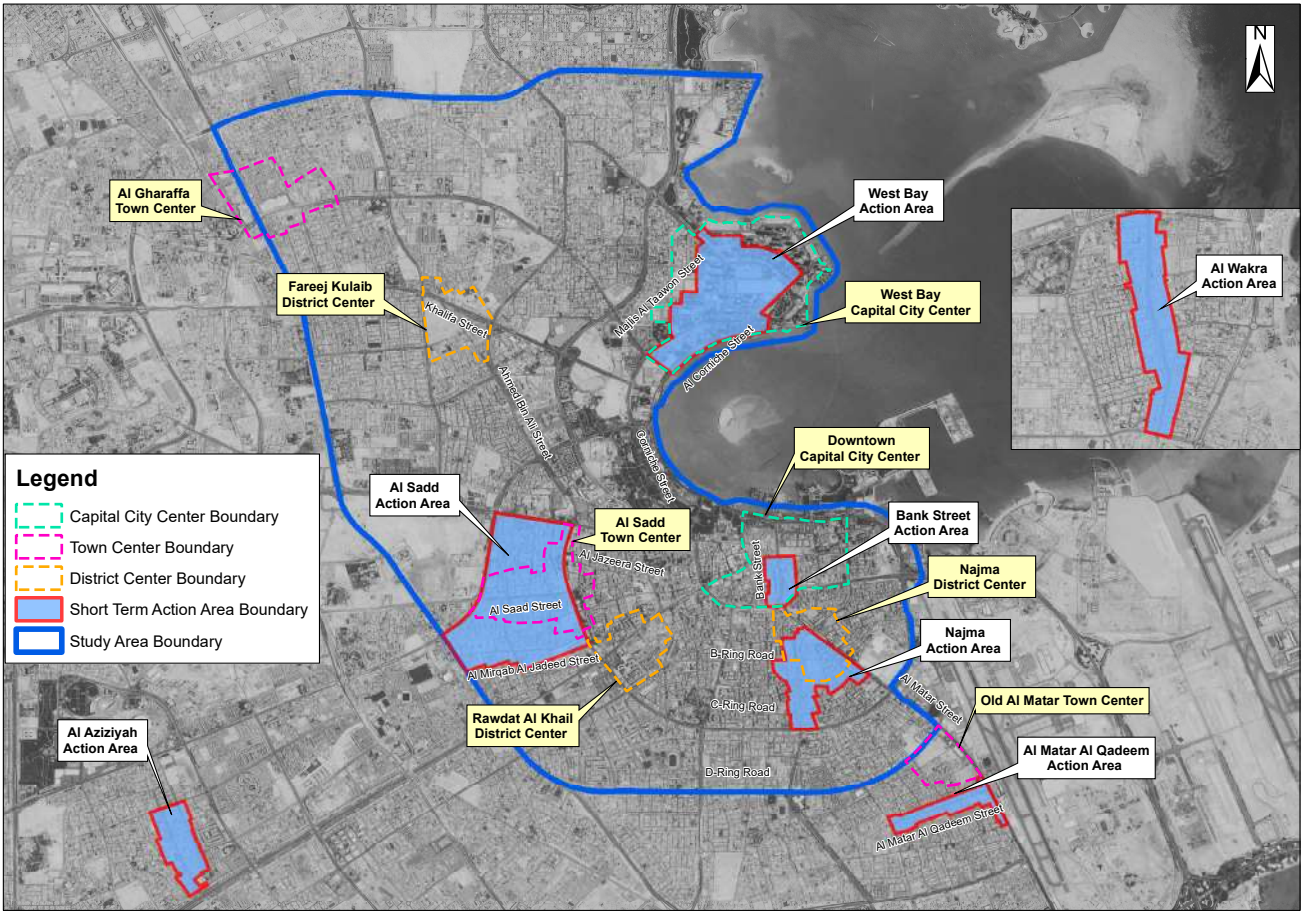


Exhibit-30 Parking Management Districts – Action Areas and Activity Centers

	Action Areas Activity Centers				Action Areas			Activity Centers			
	West Bay	Bank Street & Downtown	Al Sadd	Najma	Al Matar Al Qadeem	Wakra	Al Aziziyah	Old Al Matar	Gharaffa	Fareej Kulaib	Rawdat Al Khail
Short Term (Action Area)	✓	✓	✓	✓	✓	✓	✓	–	–	–	–
Medium Term (Expanded Area)	✓	✓	✓	✓	✓	✓	✓	*	–	*	–
Long Term (Full Area)	✓	✓	✓	✓	✓ (R)	✓ (R)	✓ (R)	✓	✓	✓	✓

* Commercial Street here to be reviewed in 2025. Survey data not available here, not part of Action Area, but may need parking management
R For review in 2035, as to whether measures need to be extended into the longer term or whether parking issues have been resolved.

Exhibit-31 Phasing of Action Areas and Activity Centers

Action Areas are defined for Al Matar Al Qadeem Street, Al Wakra and Al Aziziyah due to their parking criticality even though they are not Activity Centers. Their parking issues may not require all strategies to extend into the long-term. It is proposed that the strategies should be reviewed in 2035 and that most strategies might remain in place in the long-term. However, all Action Areas and Activity Centers should be reviewed between phases (short-, medium-, and long-term) to ascertain whether strategies need to be adjusted (**Exhibit-31**).

Four of the Action Areas are within the key Activity Centers where parking issues are critical (West Bay, Downtown, Al Sadd and Najma). In these areas, parking strategies, both location specific and area-wide, are recommended in the short-, medium-, and long-term.

QUICK FACTS

1. Parking needs will be addressed in critical Activity Centers in the short term. These areas will be studied and expanded in the medium to long term to the extent of the MME Activity Centers.

2. Not all zones will be priced, but pricing will occur along major commercial corridors and nearby areas will be regulated through time limits and permits.

There are remaining four additional Activity Centers that form an important part of the long-term urban planning strategy for the city. These are Old Al Matar, Gharaffa, Fareej Kulaib and Rawdat Al Khail. It is envisioned that continued development will lead to intensification of land use, creating demand for parking and parking management. For these Activity Centers, the strategies include long-term initiatives for managing private parking, including payment-in-lieu of parking (alternatively, parking in-lieu fees), shared parking, and unbundling of office and retail parking. Old Al Matar and Fareej Kulaib contain commercial streets, and projected land use and population increases may require parking management in the medium-term rather than the long-term.

6.4 Parking Management Districts and Zones

The future parking regime needs a strong spatial context to define the needed physical improvements. The spatial context is comprised of several components including Pricing Zones, Controlled Parking Zones, and Parking Permit Zones. The spatial context has been developed based on the land use planning context for the State of Qatar, drawing references from planning documents such as the Qatar National Master Plan (QNMP), Municipal Spatial Development Plans (MSDPs), and the Qatar National Development Framework (QNDF). These documents define land use and improvements in terms of Activity Centers and Commercial Corridors. The QPMP strategies are also defined in terms of these same spatial areas with additional detail specific to parking.

QUICK FACTS

1. Seven Action Areas and Eight Activity Centers are addressed by parking strategies.

2. These areas also form a series of templates, based on land use and parking characteristics, whose tools can be transferred to other areas of parking need as they develop over time.

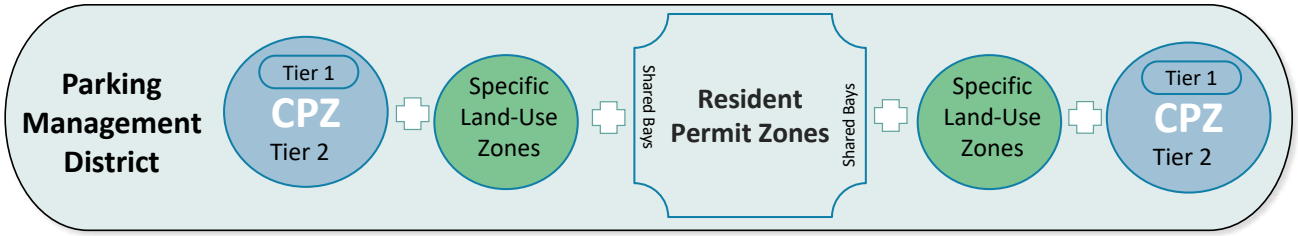


Exhibit-32 Parking Management District Structure

Parking Management Districts (PMDs) (**Exhibit-32**) generally align with the defined Activity Center boundaries and contain zones for managing parking:

- Controlled Parking Zones (CPZ) are designated in areas where parking is controlled. Tier 1 within the CPZ are areas where parking is most critical and generally is priced at a premium level. Tier 2 is generally adjacent to Tier 1 and may include standard pricing and more.

- Specific Land Use Zones (SLUZ) provide special parking controls for educational, religious, medical, and other land uses that warrant typical parking strategies. These may also be implemented standalone depending on need.

- Permit zones, and particularly Resident Permit Zones (RPZ), are generally the farthest reaches of a PMD where control from potential spillover from the other zones is needed, residential density is high, and/ or the potential for managed shared spaces exist such as when residents are away during the day allowing time-limited permit spaces for other users.

In the short- to medium-term, pricing and duration of stay controls are implemented initially within the central areas of communities where the most severe parking challenges are seen. Surrounding these are areas which will have parking duration of stay controls implemented in the short-term, in areas which are less parking critical. In the long-term, Parking Management District controlled areas will expand to the entire Activity Center in most cases (**Exhibit-33**).

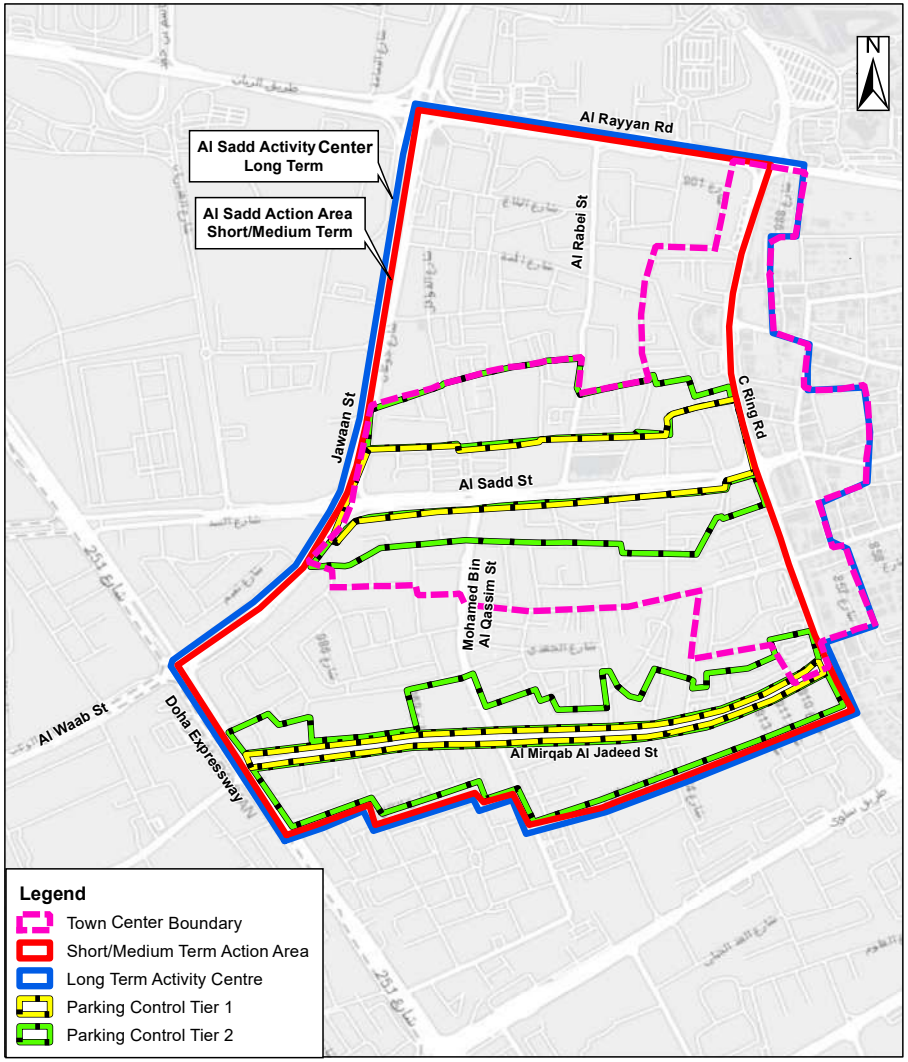


Exhibit-33 Example Parking Management District Structure (Al Sadd)

6.5 Example of Parking Management District

West Bay

The West Bay area, dominated by both government and private sector office towers, faces critical parking issues during the daytime. Despite the organized parking within respective buildings, the neighborhood suffers from a high level of illegal parking. Visitors are not allowed to park in designated office parking areas and so, tend to park illegally on on-street, in medians, and on sidewalks. This area has high parking search times during the morning hours Parking criticality indicators show high on-street illegal parking (about 55%) activities when most of the off-street parking spaces are unoccupied during the day (nearly 50% in the whole of West Bay). Overall, there is no significant shortfall in parking in West Bay, but the challenge is more about the balance of use; public on-street parking is over-occupied, whilst private off-street parking is under-occupied. With the development of concepts such as transit-oriented development, and the general shift towards greater public transport use, the general mobility trend away from car-based travel will tend to decrease parking pressure in areas close to public transport nodes.

Parking pricing and limited duration controls is proposed for West Bay Action Area in the short-term, upon consideration of various factors such as the parking criticality, good public transport connectivity, off-street parking availability, etc. Pricing will be applied in high demand areas for parking. It is proposed to apply Premium Pricing in on-street parking lots along Control Tier 1 areas and Standard Pricing in Control Tier 2 areas for short- and medium-term. MOCI pricing is proposed for public off-street parking. The office dominated streets will be charged between 8 AM and 4 PM, and the commercial area streets will be priced between 4 PM and 10 PM. Apart from this, a limited duration parking restriction is applicable in the surrounding area between 8 AM and 10 PM (as per overall controlled hours). (**Exhibit-34**).

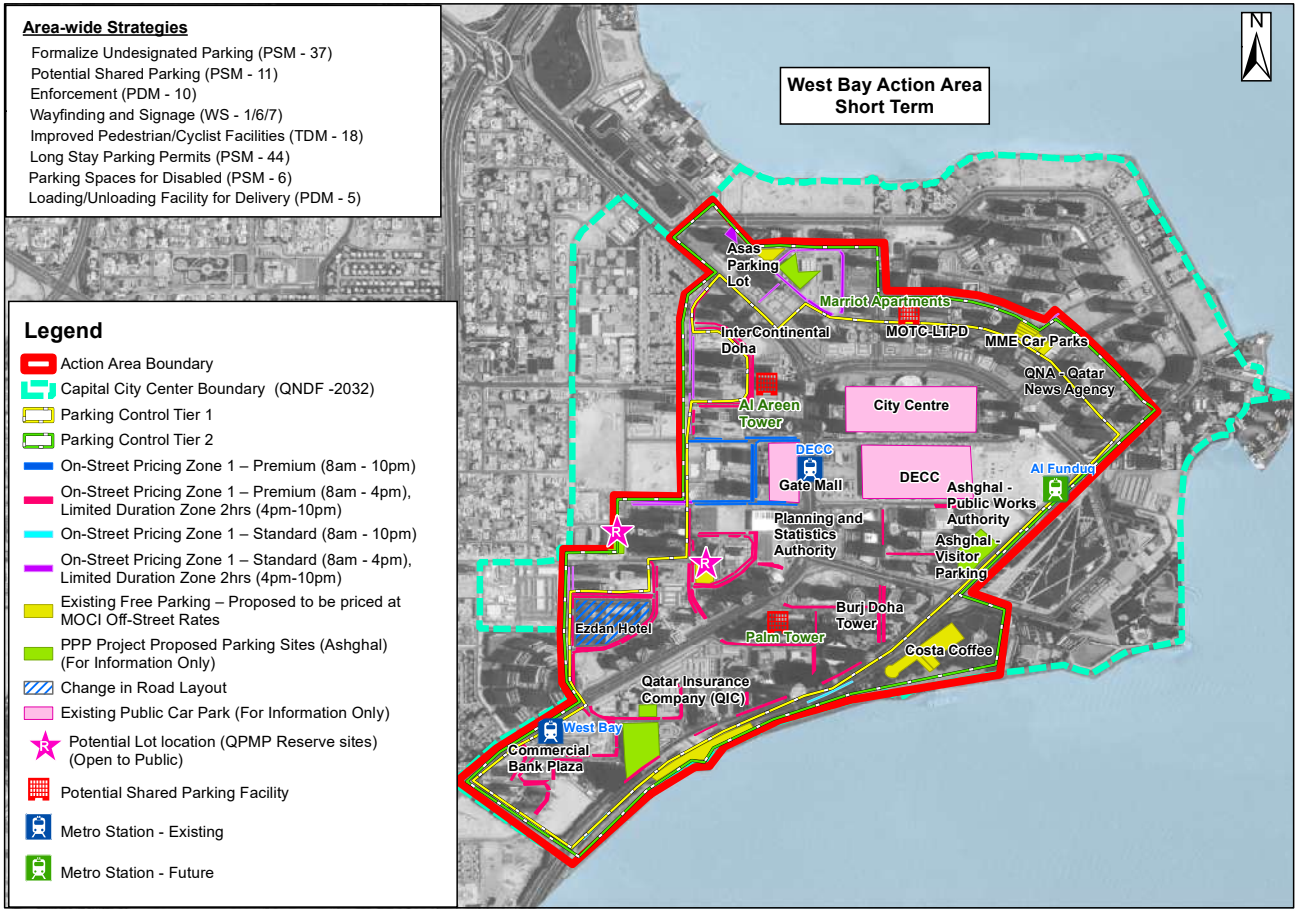


Exhibit-34 West Bay Parking Management District & Proposed Strategies in Short-Term

In the medium-term, the control tier boundary expands towards Diplomatic Street covering wider areas that will be brought into pricing and limited duration regimes. Premium Metro Zone pricing will be applied near the Metro stations. No additional supply is needed. (see **Exhibit-35**).

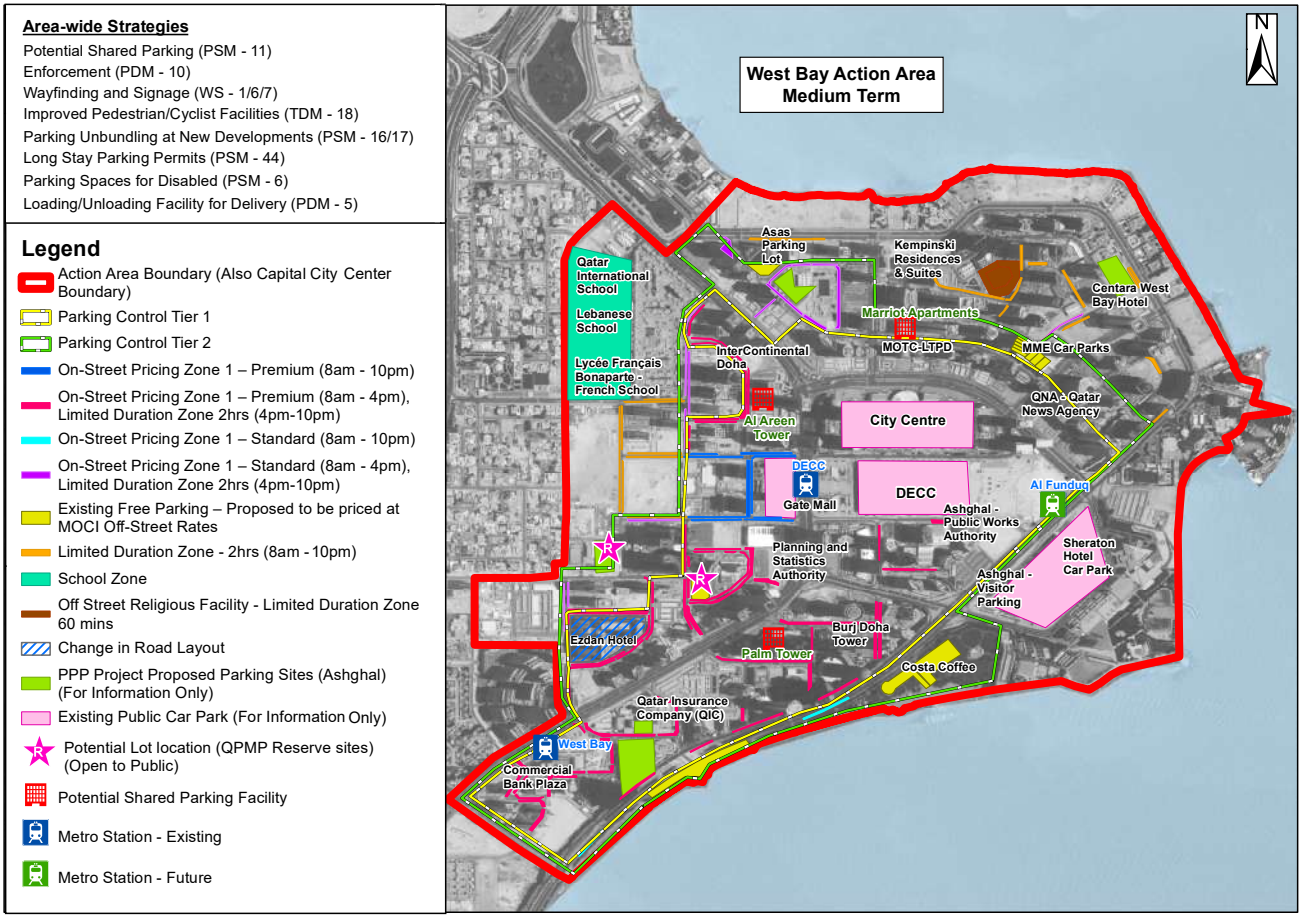


Exhibit-35 West Bay Parking Management District & Proposed Strategies in Medium-Term

The parking management strategies for this Action Area extend into the long-term to cover the full West Bay Activity Center to support the overall urban development of local centers as per the QNDF. They cover a range of techniques including parking pricing, limited duration controls, specific land use zones, etc. Other strategies, such as shared parking, parking in-lieu, or long stay permits may take more time to be integrated and be introduced within the strategy package. So, these are proposed to be implemented gradually, once pricing and limited duration controls are successfully implemented. (see **Exhibit-36**).

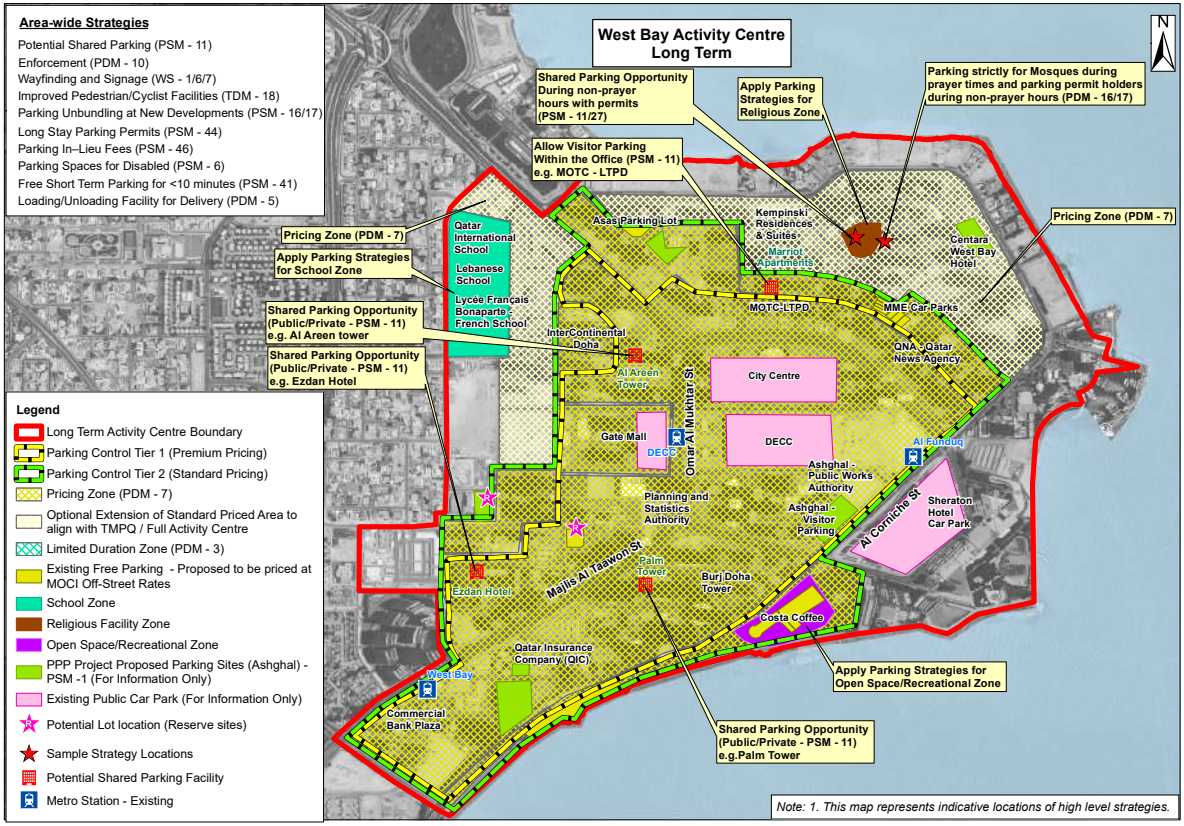


Exhibit-36 West Bay Parking Management District & Proposed Strategies in Long-Term

Al Sadd

Parking criticality indicators show that Al Sadd's main parking needs are based on the Al Mirqab, Al Jadeed Street and Al Sadd Street corridors. Existing parking demand, generated mostly by restaurant and retail land uses, was 6,300 spaces, of which 35% - 45% were met by illegal parking. The Town Center retains a traditional main street design focus, incorporating transit-oriented, high density, vertical mixed-use development, anchored by an existing and future Metro stations. Planned development will have an emphasis on Transit Oriented Development (TOD) and a mixture of land uses creating diversity, street interest and activation together with a high level of connectivity and accessibility throughout the area.

The QPMP lays out short-term approaches which include Control Tiers 1 and 2, limited duration parking, resident permit zones, and school, religious, and health zones. It includes formalizing of undesignated parking spaces, shared parking, and enforcement. However, pricing is not needed. Approximately 700 new surface lot spaces are recommended (**Exhibit-37**).

In the medium-term, pricing is added on the primary corridors and existing off-street free parking will be priced in some areas. Premium Metro Zone pricing will be applied near the Metro stations. No additional supply is needed (**Exhibit-38**).

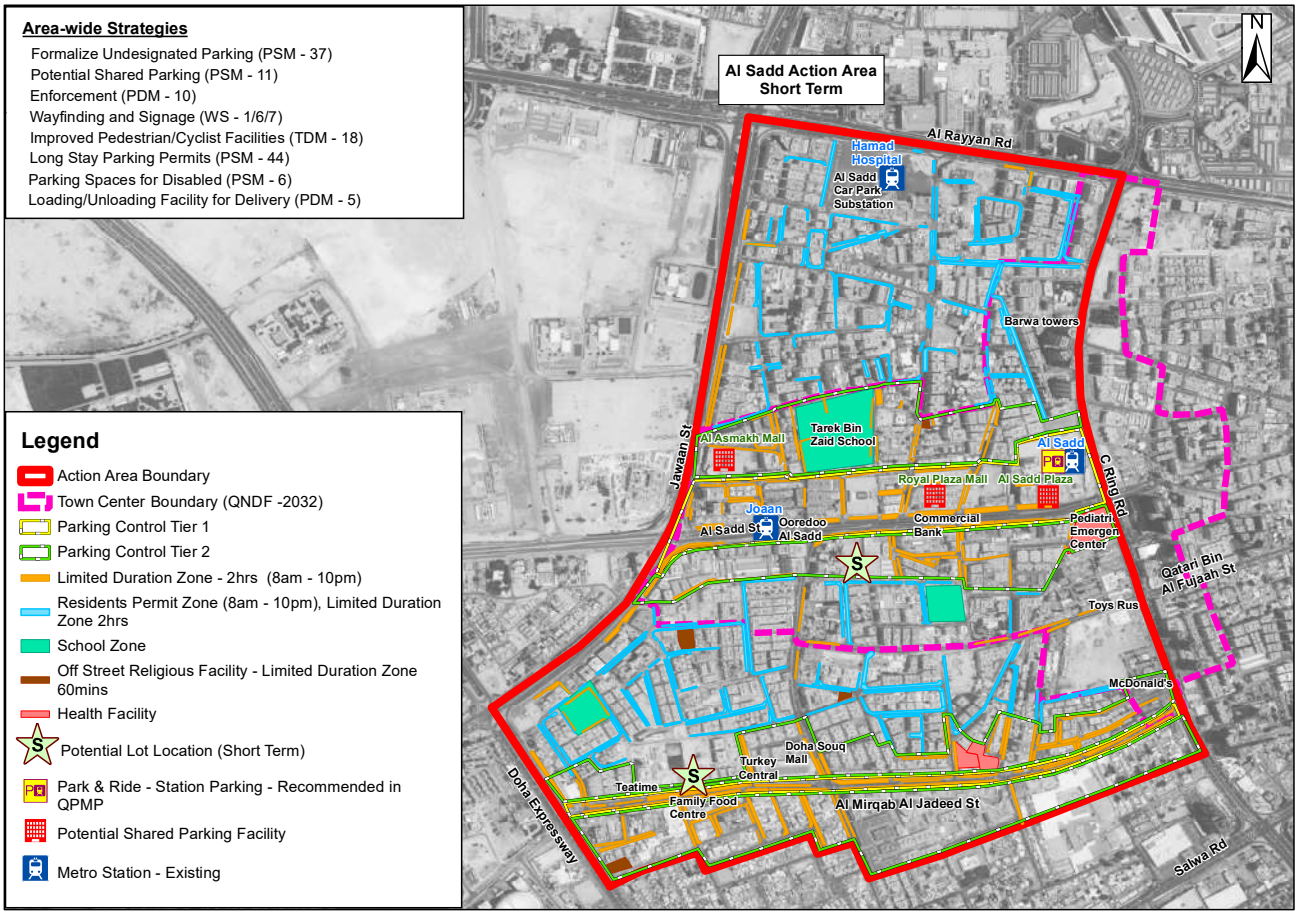


Exhibit-37 Al Sadd Parking Management District & Proposed Strategies in Short-Term

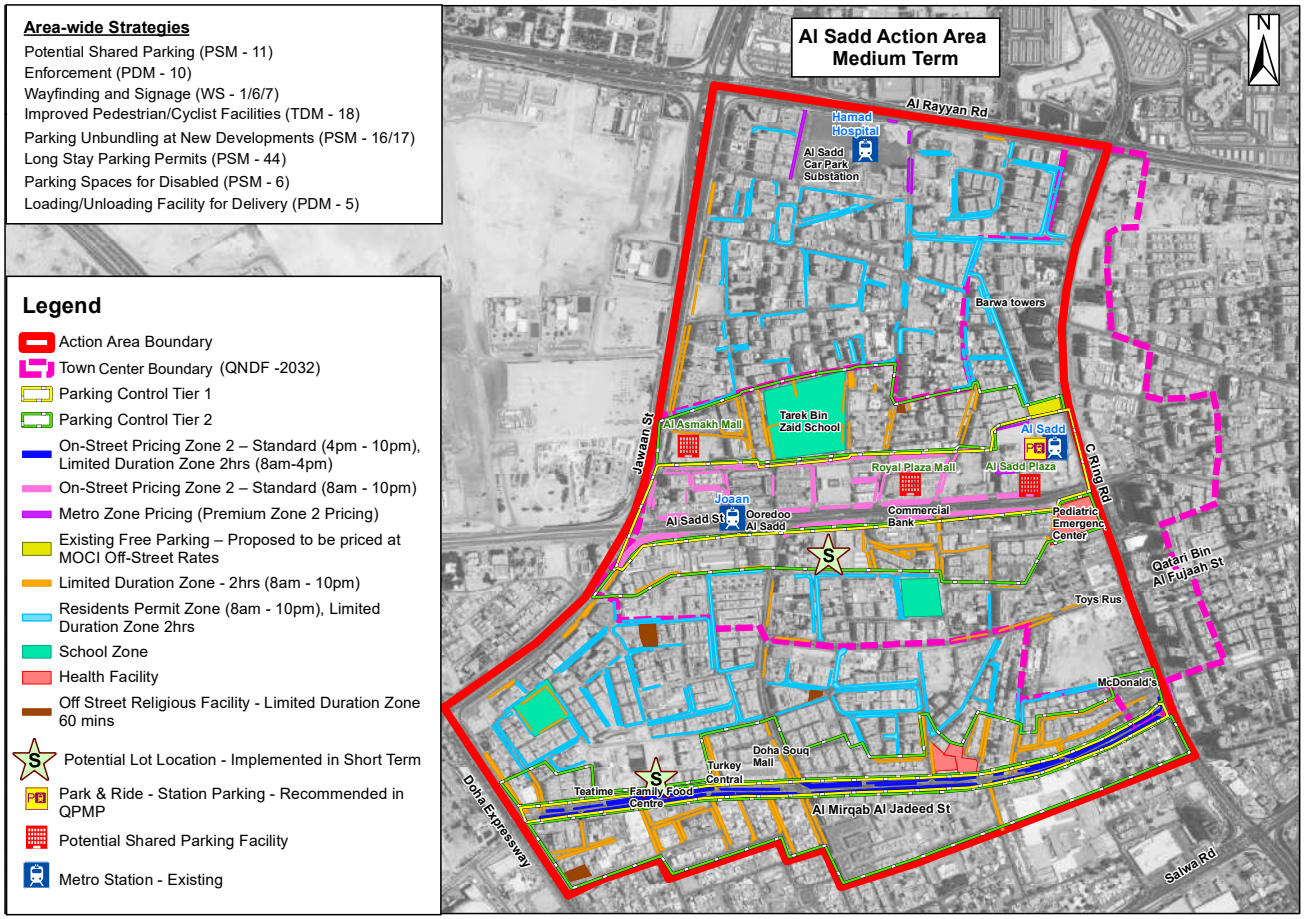


Exhibit-38 Al Sadd Parking Management District & Proposed Strategies in Medium-Term

In the long term, fully developed and priced Tier 1 and 2 zones along with limited duration controls, RPZs, and specific land use zones are implemented. Parking is unbundled at new developments and free parking is available for short duration stays (approx.10 minutes). The entire Activity Center has parking controls of one type or another. New supplementary structured parking for 600 spaces may be developed. The combination of pricing, target mode share, parking management strategies, and supplemental new supply should fulfil the long-term parking needs (**Exhibit-39**).

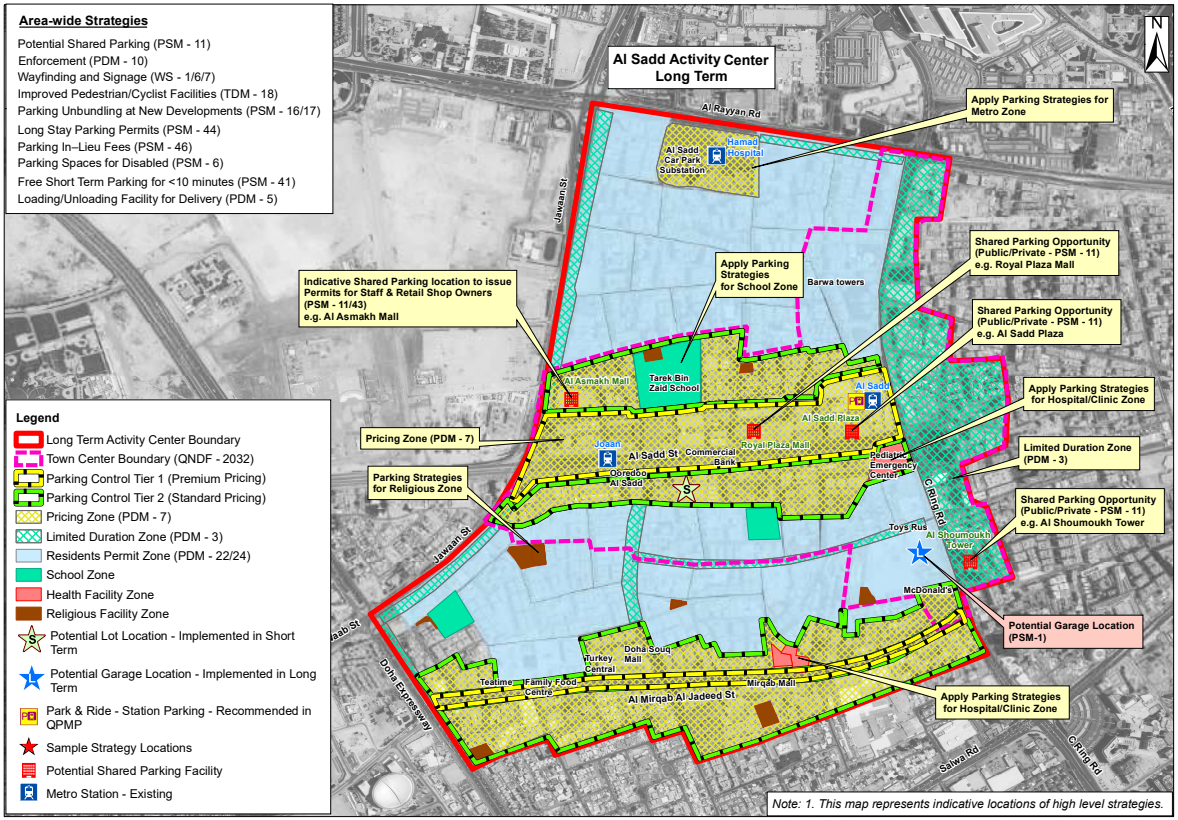


Exhibit-39 Al Sadd Parking Management District & Proposed Strategies in Long-Term

6.6 Supply Location Decision Making

QUICK FACTS

1. Pricing, limited stay, permits, and parking demand reduction measures greatly reduce parking needs and forecasted shortfalls.
2. Parking Demand is further reduced by targeted alternative mode share increasing from existing 6% to 23% in 2035 and 30% in 2050.
3. Formalizing on-street undesignated parking further contributes to parking supply.
4. Only a limited number of new parking facilities are recommended in areas where current and future adjusted demand outstrips supply by large measures.

By applying comprehensive parking management strategies, including pricing, limited duration, and permit zoning, in addition to meeting target mode shift, demand may be reduced significantly such that a relatively small amount of new supply is recommended. The process of recommending supply locations (shown in right) is complicated since it is important to understand the nature of the supply need (short or long duration parking); whether the supply will be needed over the long-term (economic justification), and if land is available to develop the supply.

Short-term new supply recommendations with illustrative locations, shown in **Exhibit-40** will address most of the deficits in the key Activity Centers. Approximately 4,500 new parking spaces across surface lots and MLCPs are recommended in the short-term, rising to nearly 9,000 new spaces in the long-term.

1. Account for Impacts of Mode Shift and Pricing
As discussed in Section 3 Future State.

2. Review Parking Surplus and Deficit for Base and Horizon Years
Additional supply considered if there is significant deficits in base and future years. Special consideration given to commercial streets.

3. Consider User Profile
Emphasize surfaced lots if the majority of parkers have short durations.

4. Understand Proposed Developments
Avoid land where redevelopment, particularly parking facilities, is already planned.

5. Consider Vacant Lot Availability
Not all shortfalls can be addressed given current land availability.

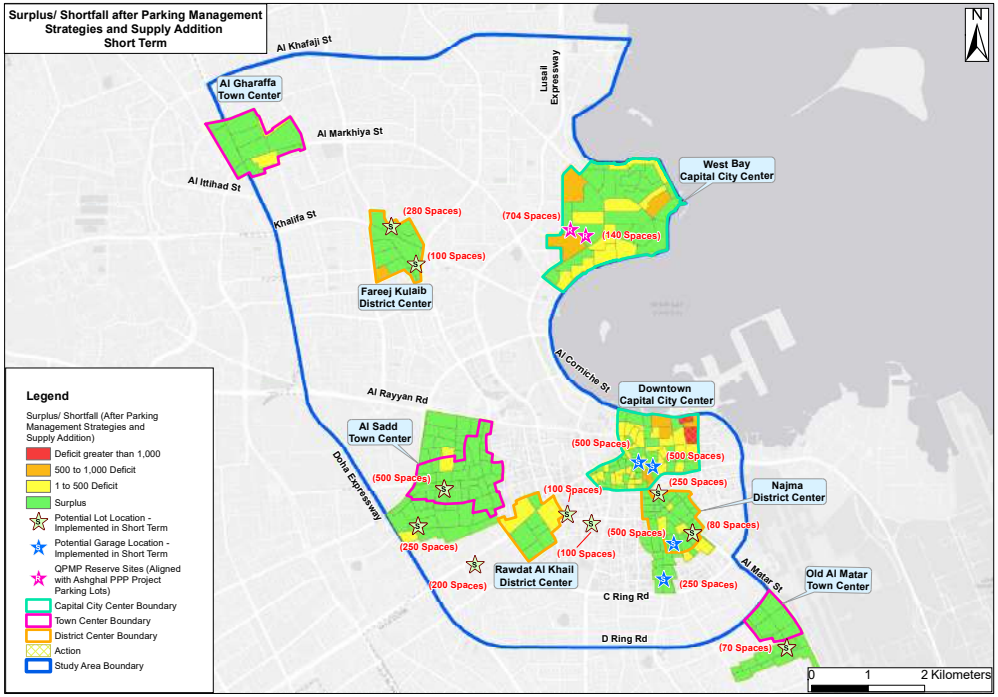
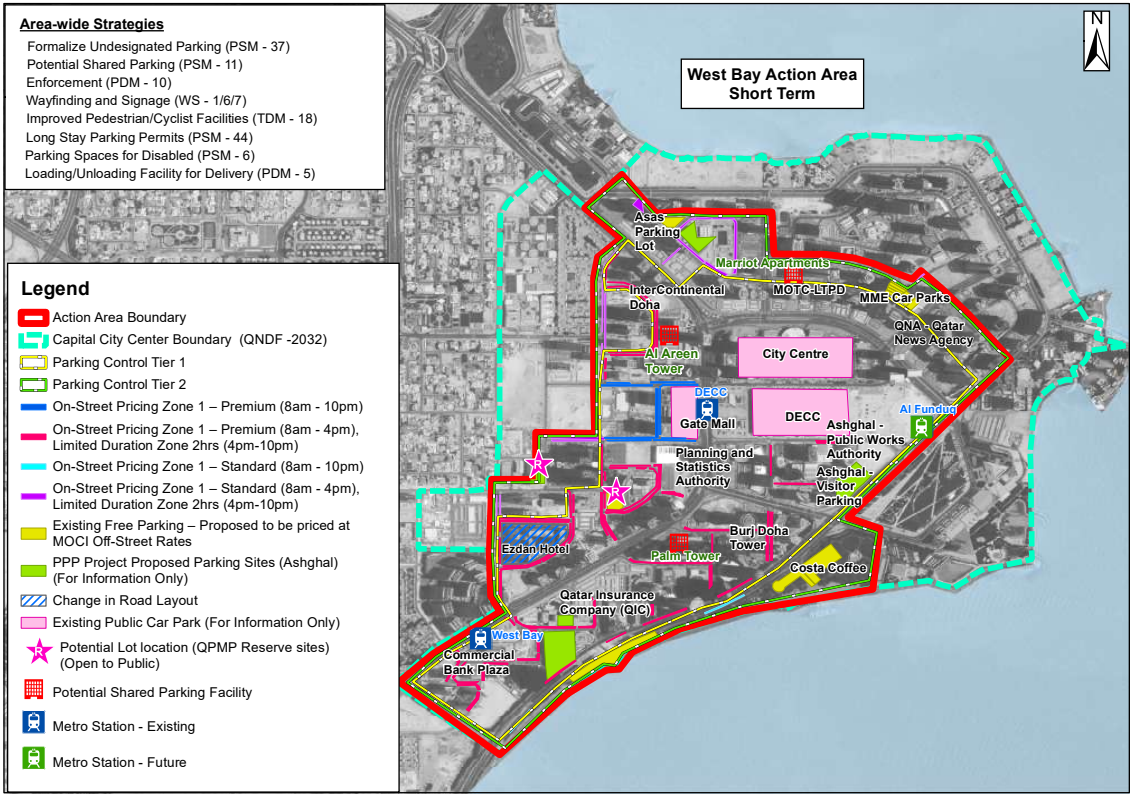


Exhibit-40 Surplus/Shortfalls & Proposed Supply Addition

- Short-term: 4 garages and 10 surface lots with a total of 3,680 spaces
- Medium-term: 4 garages and 10 surface lots with a total of ,3490 spaces
- Long-term: 5 garages and 7 surface lots with a total of 3,700 spaces

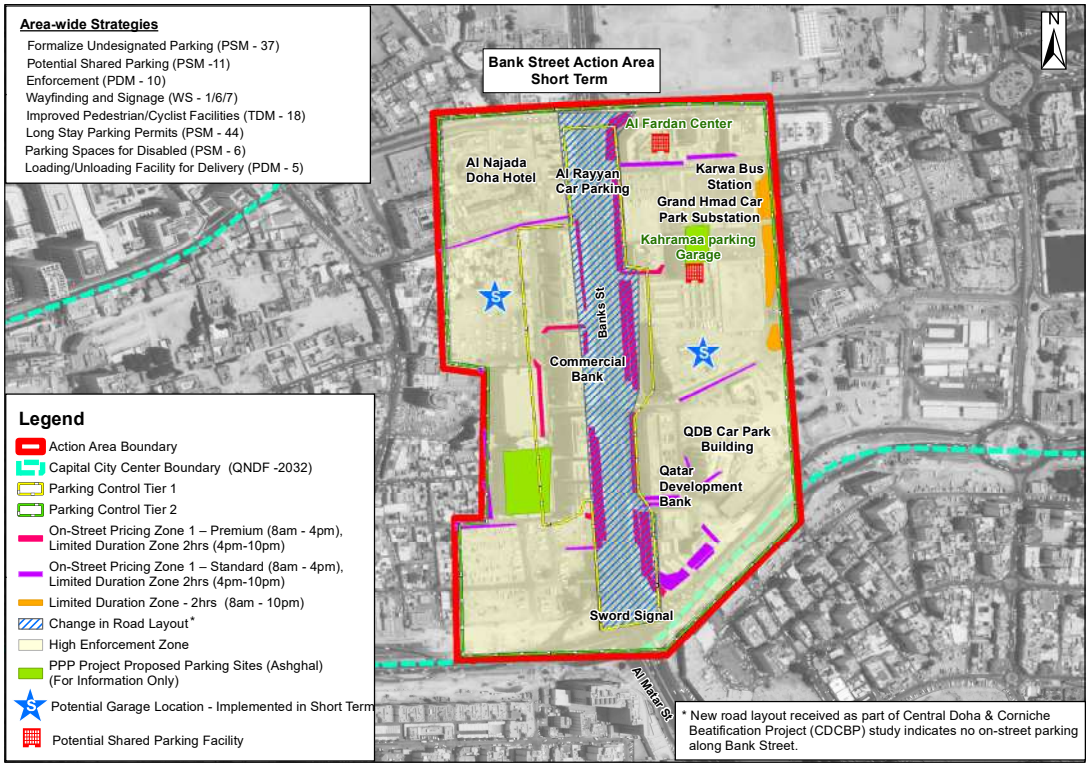
6.7 Short-Term Action Area Proposals

There is an immediate need to address parking criticality in the Action Areas (**Exhibit-41** to **Exhibit 47**). Thus the short-term proposed strategies for these areas are highlighted here to emphasize the urgency.



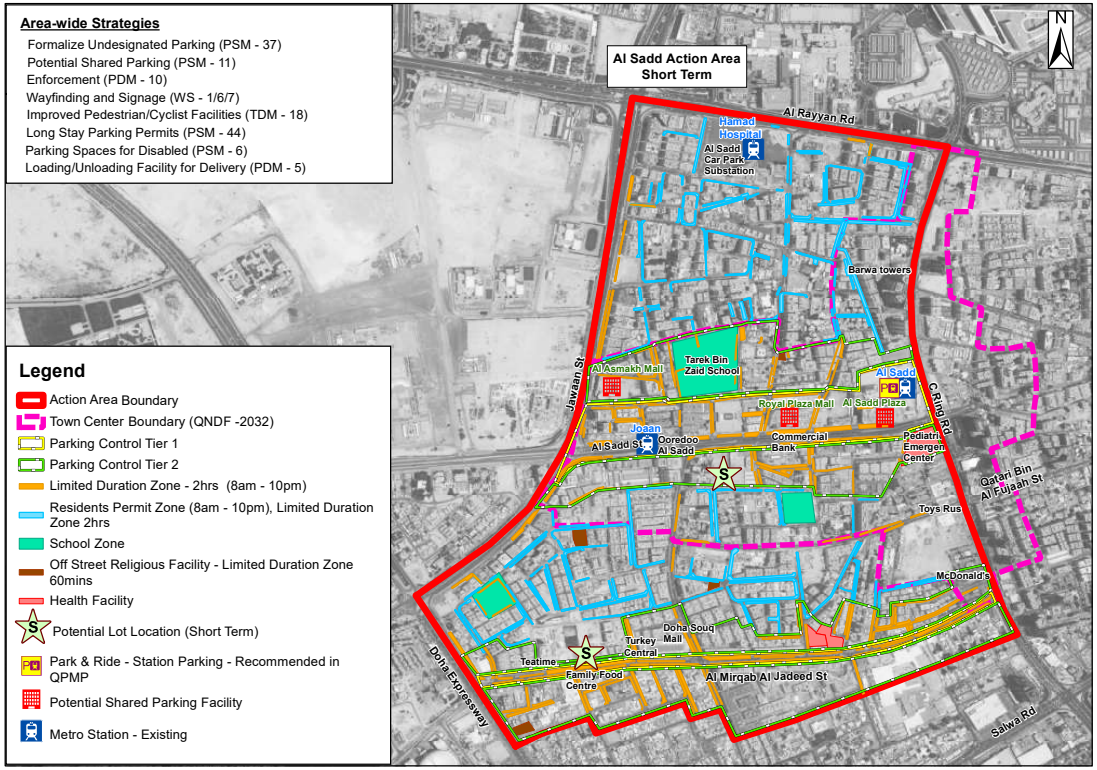
Parking Strategies: Pricing, Office Area – day time pricing only, Limited Duration, Long Stay and Shared Parking at strategic location, High Enforcement, No Resident Permit Zone

Exhibit-41 West Bay Parking Management District & Proposed Strategies



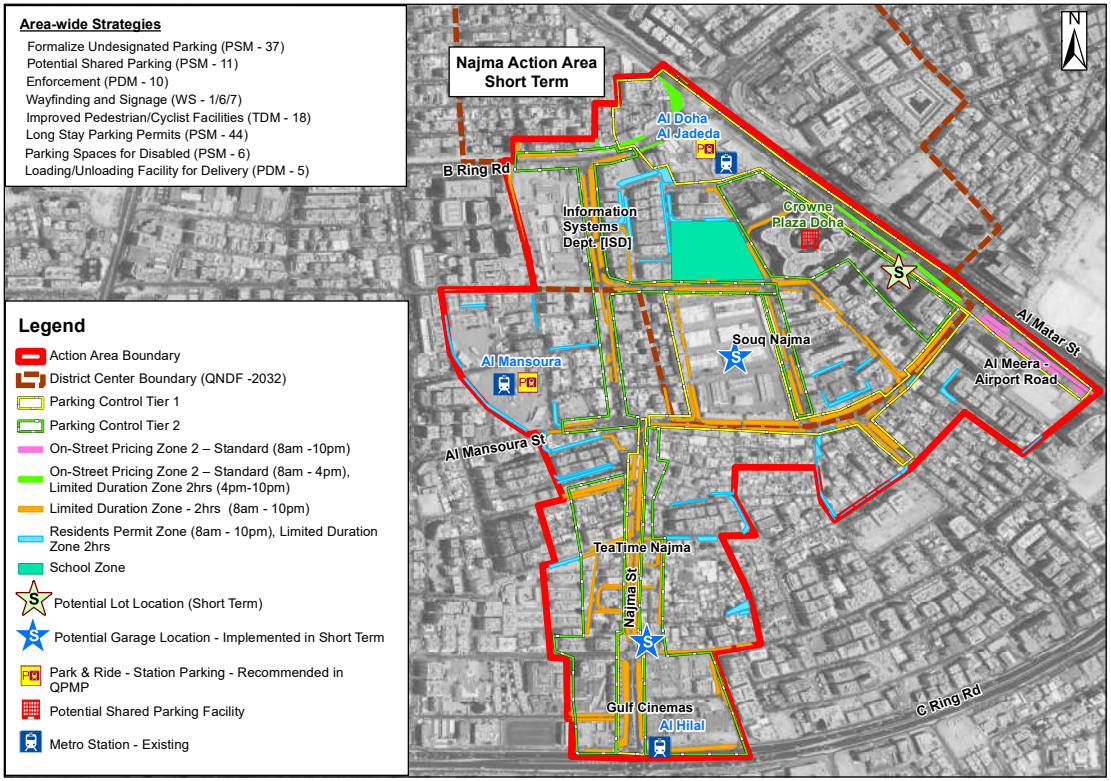
Parking Strategies: Pricing, Office Area – day time pricing, Limited Duration, Long Stay and Shared Parking at strategic location, High Enforcement, new MLCP, No Resident Permit Zone

Exhibit-42 Bank Street Parking Management District & Proposed Strategies



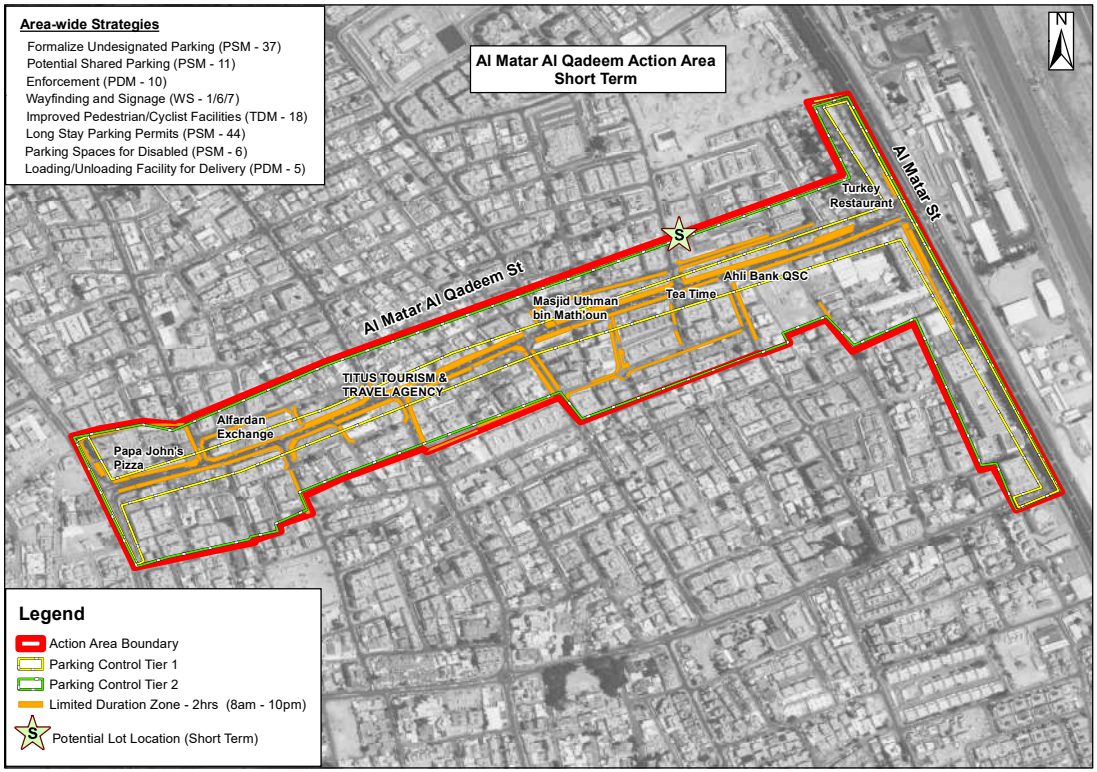
Parking Strategies: No Pricing, Limited Duration Control, Shared Parking at strategic location, High Enforcement, new surface lot parking, Resident Permit Zone

Exhibit-43 Al Sadd Parking Management District & Proposed Strategies



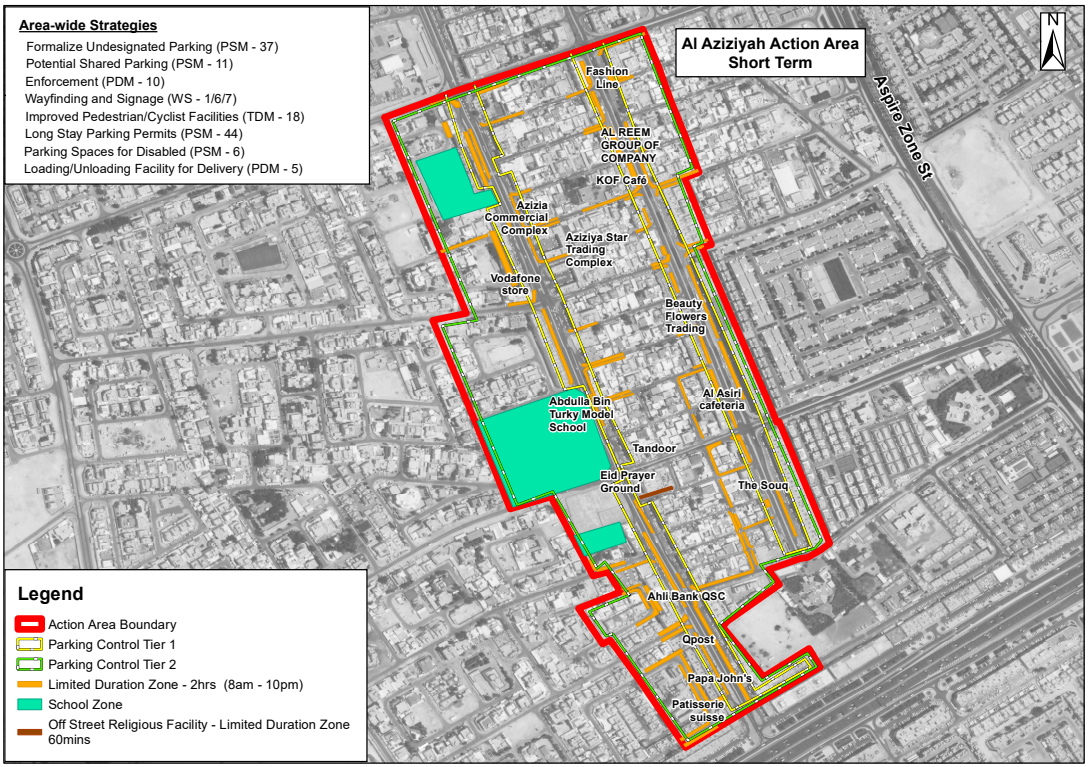
Parking Strategies: Pricing, Limited Duration Control, Shared Parking at strategic location, High Enforcement, new surface lot parking & MLCP, Resident Permit Zone

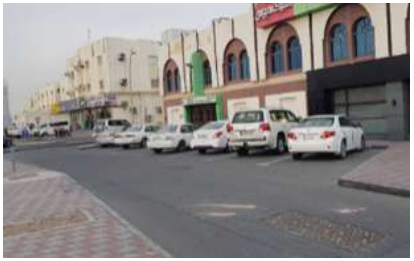
Exhibit-44 Najma Parking Management District & Proposed Strategies



Parking Strategies: No Pricing, Limited Duration Control, High Enforcement, new surface lot parking

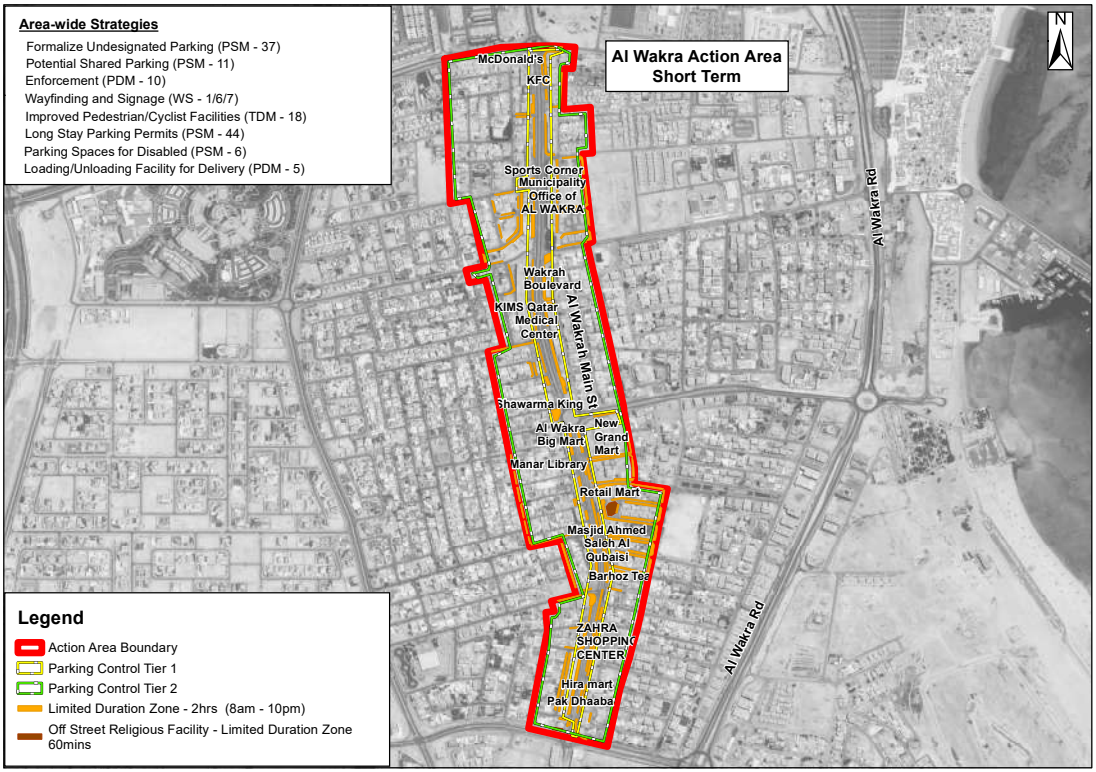
Exhibit-45 Al Matar Al Qadeem Parking Management District & Proposed Strategies





Parking Strategies: No Pricing, Limited Duration Control, High Enforcement

Exhibit-46 Al Aziziyah Parking Management District & Proposed Strategies



Parking Strategies: No Pricing, Limited Duration Control, High Enforcement

Exhibit-47 Al Wakra Parking Management District & Proposed Strategies

6.8 Park and Ride

The Park and Ride (P&R) is a parking facility dedicated for the commuters that allows commuters and other people heading to city centers to leave their vehicles and transfer to a public transport system (primarily commuter rail). QPMP evaluates current P&R facilities, evaluated the proposals made by QRAIL and made the recommendations. These recommendations envisage to be instrumental in: Increasing in public transit patronage

- Reduction in Vehicle Kilometers Travelled (VKT) and thereby less vehicle emissions
- Reduction in number of cars entering congested city network, thus reducing parking demand within the city
- Attracting non-traditional transit riders

Exhibit-48 provides information on Park and Ride facilities.

QUICK FACTS

1. The peripheral stations are considered for full P&R
2. Seven new peripheral P&Rs are recommended.
3. At inner stations, where traffic congestion is more of an issue, a more stringent parking regime can be adopted at these locations with fewer spaces to cater for essential users.
4. Six new inner station P&R are recommended.
5. QPDM has included details on designing P&R facilities.
6. Parking regime principles are developed for P&Rs.

Exhibit-48 Park and Ride Facilities

6.9 Truck Parking

Truck parking facilities are an indispensable part of the transportation system. Business establishments depend on trucks to transport their goods and therefore, need truck-parking at suitable places. The QPMP recommends that individual developments provide truck parking within its own premises. However, strategically located large truck-parking lots are required to accommodate the trucks during the idle period. This also avoids extra movement of large vehicles, which have indirect impact on road safety and environmental sustainability.

There are three existing purpose-built truck parking facilities in the State of Qatar: at Al Shamal, Wholesale Market and Mesaieed (near QEZ 3). TMPQ 2020 has proposed 10 truck parking facilities to support the future truck route network, major trip generators like economic zones, industrial city, and logistics park. These are:

- 4 located in the South-East, supporting Hamad Port, Mesaieed Industrial City, and QEZ3.
- 1 located within QEZ2 to support the forecast growth in truck movements within this area.
- 1 located in the North to support the Al Shamal logistics park.
- 1 located in the North-East to support the Al Khor logistics park.
- 1 located within Doha Industrial City to support growth of freight and logistics activity.
- 1 located close to Al Khor to enable trucks to park close to Al Khor during hours of restricted operations.
- 1 located along the Orbital Highway to enable trucks to park outside the Doha Municipal Area during hours of restricted operations.

Exhibit-49 shows the existing and planned truck parking facilities in the State of Qatar. It is recommended in the QPMP that these sites be subject to further study and validation, considering freight flows through movements, commodity flow data, and future year forecasts. The data collected as part of the Qatar Freight Master Plan (QFMP) will finalize the truck parking locations.

The existing truck parking facilities lack the use of technology and access control management and hence, requires improvement. It is recommended to provide integrated ITS, which will in turn increase awareness of the facilities by providing drivers real time information on the distance to the facilities and their capacity, such as through mobile phone applications which assist in locating the nearby facility, travel time and available amenities.

Interior Minister Decision No. (99) of 2019 defines the places in which transport vehicles (trucks), tractors, trailers and semi-trailers are permitted to park; however, the provision is not sufficient, and allocation of parking is outside the jurisdiction of MOI. Truck parking locations should be defined by MOTC and MME as per the legal mandate.

Exhibit-49 Existing and Proposed Truck Parking Facilities

Section 7

Governance and Legal

7. Governance and Legal

The existing governance structure and legal framework are not consistent with the needs of a modern parking system. Parking in the State of Qatar functions as a set of disconnected operations rather than one system under one clearly defined legal framework. The QPMP recommends an integrated governance structure with legal support to perform efficiently in a phased manner.

7.1 Governance

The legal authority in the State of Qatar is given to a public entity through legislation, Emiri decree or law to perform specific tasks by using the expertise of departments outlined in their organizational structure.

Current Structure: The current structure (**Exhibit-50**) is horizontally fragmented with legislative mandates and currently assumed Ministry roles that do not align appropriately. The established roles of the public entities in transportation planning today in the State of Qatar are:

- MOTC – The MOTC updates the transportation plans, including the development of the QPMP as per a formal mandate.
- MME – The MME assumed the management of off-street lots built over time.
- PWA – The Public Works Authority (Ashghal) managed the streets and also the on-street parking.
- MOI - When the need for enforcement was realized, this was assigned to the existing Traffic Police Department.
- MOCI - In the absence of a parking regulation authority, the Committee for Setting Maximum Price and Profits assumed this role and issued an off-street parking tariff guideline in 2016 which was superseded by new parking tariff guidelines issued by MOCI in 2018.

QUICK FACTS

1. Existing parking governance is horizontally scattered across multiple Ministries, both through mandate and practical operations.

2. A Parking Authority will be formed with vertical structure to integrate all parking aspects in the future.

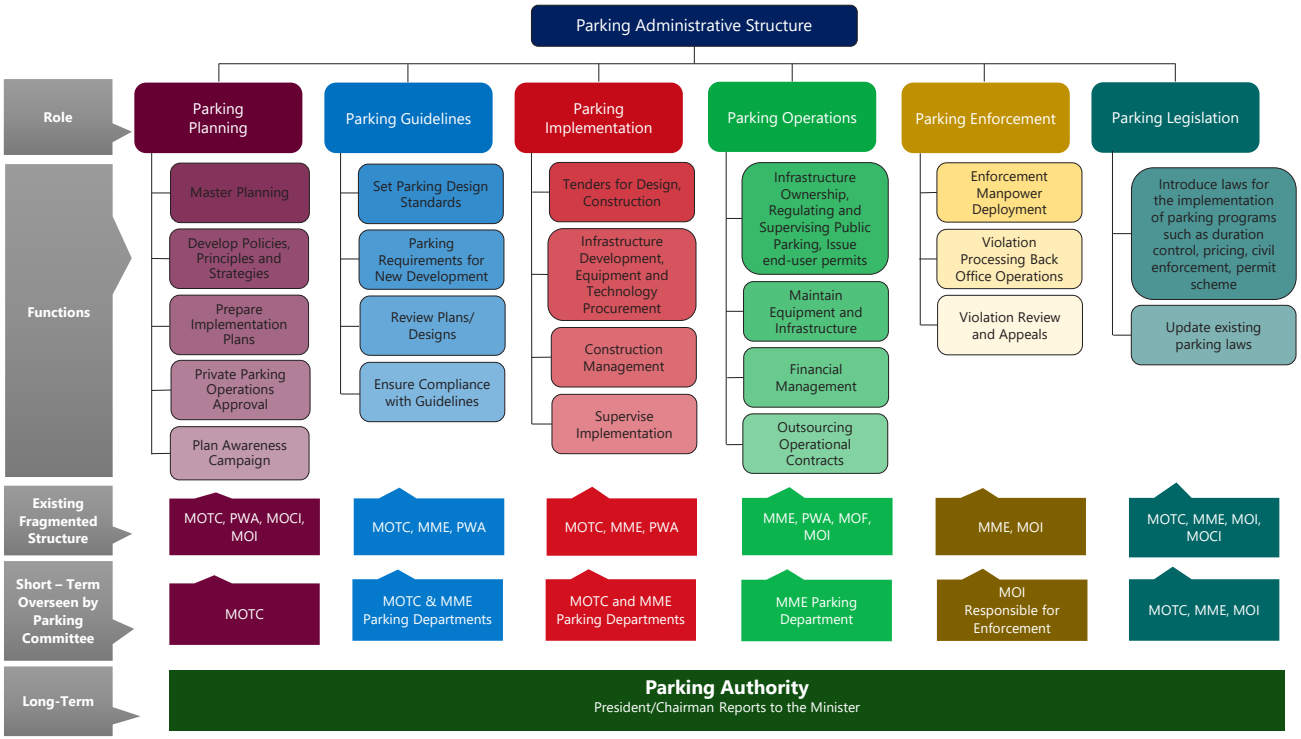


Exhibit-50 Current Parking Governance Structure

Future Structure:

The challenges that need to be braced are the aligning of mandates and practice, developing clear responsibilities, and overcoming resistance to change and develop modern parking expertise and operational capacity. The recommended future structure is a vertically oriented parking authority (**Exhibit-51**).

Exhibit-51 Proposed Parking Governance Structure

A **transitional approach** is proposed that supports the implementation of the QPMP stages while allowing time for new legislation, Ministry restructuring and hiring of parking staff.

The benefits include clarity of purpose, coordinated and modern parking system, revenue used to fund the parking system, and decriminalized enforcement that can be applied to public and private facilities; and an integrated parking management information system.

7.2 Legal

Several laws, Emiri decisions, and decrees currently govern parking in the State of Qatar. In addition to the mandates for each Ministry or agency, this legal framework conflicts with the new parking regime. Consequently, several laws will need to be repealed or replaced.

There are eight laws that need to be amended or repealed. These include the following:

- Issuances by MOI, MOCI, and MME which do not have the weight of the mandated roles for these agencies, particularly in parking planning which is mandated to MOTC.
- Updation of Law 19, the primary traffic law regarding parking to allow the new parking regime to function.
- Superseding laws from MOI regarding parking tariffs and requirements for parking at commercial, industrial, and retail land uses, as the QPMP directs MOTC to have these roles in cooperation with MME.
- Change to Law 13 regulating parking spaces.

The QPMP has identified new laws, regulations and guidelines needed for a new parking regime. Three new governance laws are needed which are mentioned below:

- Emiri decision providing mandate to MOTC for Parking Planning, Guidelines, and Implementation Role – essentially MOTC becomes the lead agency for parking.
- Short-term governance structure, as proposed by the QPMP, through Emiri Decision or Council of Ministers to create new parking departments within MOTC and MME.
- Long-term governance structure by Emiri Decision or Law establishing the long-term Parking Authority with cooperation from MOTC, MME, MOI, and MOCI.

Six sets of parking laws, regulations or guidelines are needed for a new parking regime. They are as follows:

- Official recognition of the QPMP, superseding any other document, except where the QPMP defers to or recognizes the authority of those documents - Proposed by MOTC Minister and issued by Council of Ministers.
- Endorsement of parking regime elements such as policies, tariffs, zonal structure, duration control, permit schemes, parking management districts, regulations, design, and technology tools - Proposed by MOTC in cooperation with other Ministries and issued as a decision of the MOTC Minister.
- Parking Requirements for New Developments (PRND) including minimum and maximum supply, reduced provision near Metro, bicycle parking, and electric vehicle charging - Proposed by MOTC Minister and issued by Council of Ministers.
- Legal support of the QPDM - Proposed by MOTC Minister and issued by Council of Ministers.
- Civil Parking Enforcement and Appeals process - Proposed by MME Minister and issued by Council of Ministers.
- Private Sector Code of Parking Practice for private facilities. - Proposed by MOTC Minister and issued as a decision of the MOTC Minister.
- The QPMP legal framework recommendations need to be developed in consultation with the respective stakeholders and will be implemented in a phased manner to ensure a successful parking regime.

QUICK FACTS

1. A coordinated approach is proposed to correct and improve the fragmented legal framework. Eight laws need altered or replaced and nine laws or decisions need are needed to fully enact the QPMP.
2. Three new governance laws are proposevd.
3. Six sets of laws, regulations or guidelines are proposed.

Section 8

Implementation and Monitoring

8. Implementation and Monitoring

A successful parking regime, recommended in the QPMP will take the coordinated efforts by many parties over several years. Implementation Actions are broken out by timeframe and assigned Ministries and agencies to meet the goals of the QPMP. Over time, key performance indicators (KPI) will be monitored during implementation and operations to determine if strategies are being successful, and data will be collected to adjust the QPMP implementation and future expansion. The parking regime overall has the potential of financial self-sufficiency and provides opportunities for private participation through management contracts, PPP delivery.

8.1 Actions

The QPMP implementation program is based on actions that will lead to a modern state of the art parking regime for the country. More than 200 recommendations are contained in the QPMP volumes. The recommendations clubbed under various themes through an examination of importance and relation to each other.

ACTIONS

30 Key-Themes for recommendations.

6 Parking Modes/User Groups: On-street, Off-street, Multilevel Car Park, Public Transport, Freight and Commercial, Pedestrians and Bicyclists.

3 Action Timeframes: Short-Term (till 2021), Medium-Term (2025-2035), and Long-Term (2035-2050)

3 Lead Agencies: MOTC, MME and MOI are the key players in the implementation plan either in lead or supporting roles.

8 QPMP Goals for aligning the actions

Summary Actions for QPMP Implementation:

Governance

- Amend, repeal, and/or implement laws and regulations to form the legal framework for the new parking regime supporting the governance mandate transition to parking departments and eventually a Parking Authority.
- Amend, repeal, and/or implement laws and regulations which allow the parking policies, strategies, and regime to be effectively and legally implemented.

Policy

- Formally adopt the Parking Design Manual for planning and design studies.
- Revise traffic impact study guidelines to account for new parking regime.
- Encourage shared parking at compatible land uses.
- Adopt and implement freight master plan, improve truck operator licensing standards and compliance, require truck operators to have sufficient off-street storage for the number of registered vehicles.
- Develop Travel Demand Management programs to reduce parking demand.
- Adjust distribution of parking revenue to prioritize parking operations followed by contribution to parking capital and public transport subsidy.

Regulations

- Develop tiered on-street parking plan within each Controlled Parking Zone with prioritization on Action Areas.
- Adopt and implement parking pricing, including variable and dynamic pricing in the long-term.
- Implement premium pricing in Metro station buffer zones.
- Adopt time limits.
- Develop long-stay permits in areas where on-street capacity is available and off-street capacity is not available.

- Implement residential permit scheme.
- Consider congestion charging zones in central areas to help reduce parking demand.
- Introduce free parking near mosques during Ramadan from 4 PM to 10 PM

Enforcement

- Implement MOI-based enforcement in short-term, transitioning to hybrid MOI – MME based enforcement in medium-term, and civil Parking Authority based enforcement for the long-term.
- Start developing technology platforms for civil enforcement in short term.
- High penalty for serious violations.
- Publish and implement regulations, violations, and appeals processes.
- Introduce new parking enforcement and management through technology application.

Operations

- Implement regulations and pricing in Action Areas and Controlled Parking Zones.
- Inventory, update, and install parking signage, markings, and control devices.
- Provide parking pay stations.
- Improve safety through parking safety audits of public facilities.
- Study and develop parking plans for special situations and high overflow events.
- Use real-time performance monitoring to improve operational effectiveness.
- Establish funding and delivery options including PPP and contract options.
- Establish and maintain a easily comprehensible register of policies and regulations and develop online and paper mapping of parking facilities.

New Development

- Introduce new parking standards for new developments, including unbundling.
- Allow payment-in-lieu of parking (alternatively, parking in-lieu fees) where feasible and can be proven effective.
- Consider shared parking opportunities

Supply

- Develop on-street parking conforming to the QPDM, prioritizing Controlled Parking Zones.
- Develop off-street facilities, both surface and structured, where on-street deficits exist particularly where long-term land use indicates a shortage.
- Develop preferential user spaces on-street for disabled, drop off areas and taxi ranks.
- Construct Park and Ride facilities at appropriate major transit stations.
- Formalize undesignated parking where possible.
- Develop bicycle and scooter parking in the public realm, particularly at Metro stations, major bus stops, and major commercial destinations.

Technology

- Introduce digital parking enforcement for on-street facilities in high demand areas.
- Authorize and implement an Automatic License Plate Recognition (ALPR) system to streamline enforcement.
- Define, form, and operate the Qatar ITS governing body with representation from parking governance.
- Parking management with centralized parking management center equipped with Central Parking Management System (CPMS)
- Implement an integrated multi-modal traveler and smart parking information system, web portal, and mobile application.
- Develop and implement connected vehicle program, including technology based smart parking.

8.2 Financial Assessment

A financial analysis of the proposed parking regime was conducted focusing on the Action Areas and associated central infrastructure for the short-term implementation. It shows that parking pricing and violations will generate revenue exceeding the general operations and capital costs. An initial capital investment of approximately QAR 198 million is needed to fund the short-term plan with an investment return of around QAR 212 million. The additional revenue generated is highly recommended to be used for improving public transportation.

Delivery models ranging from service delivery to design-build-operate-transfer and concession agreements were examined in terms of timescale, flexibility, price certainty, innovation, and risk transfer.

- The recommended delivery model for infrastructure development (except MLCPs) is design and build.
- The recommended delivery model for development of MLCPs is design, build, finance, and maintain (DBFM).
- The recommended delivery option for operations and maintenance (O&M) is outsourced management contract, and fixed management fee.

KEY FACTS

1. Investment ~QAR 198 million
2. Revenue ~QAR 212 million
3. Net Present Value (NPV) ~QAR 167 million
4. Internal Rate of Return (IRR) 38.97% makes NPV zero in 1.9 years
5. Total 7 Action Areas included
6. Key Actions with financial impact considered
7. Enforcement Focus (Manpower, CCTV & Patrol Vans)
8. New 4 Multilevel Car Parks
9. On-street Sensor Scheme Pilot project: Al Mirqab Street
10. Composite Delivery Model

8.3 KPI Based Monitoring

A set of Key Performance Indicators (KPIs) have been developed to track the implementation progress (**Exhibit-52**).

The KPIs are associated with the QPMP goals as well as public opinion. It is recommended that a parking system status report be prepared every six months to report the progress. Parking facilities will have their own set of reporting metrics that will focus on safety, asset condition and customer satisfaction.

Measure (QPMP Goal)	Performance Indicator
QPMP Implementation (All QPMP Goals)	• Monitor Implementation of Recommendations • Monitor the number of Action Areas / Activity Centers implemented during each horizon year. • Monitor the implementation of pricing, limited duration, permits schemes in PMDs • Monitor that QPMP implementation aligns with QPMP Goals
Occupancy (Effectively Administered)	• Parking Occupancy (public and private) • Percent of reserved spaces occupied or reserved; visitor spaces occupied • Occupancy of bicycle, motorcycle, e-charging stations, disabled spaces, TNC/ Taxi • Duration per space • Turnover per space
Payment (Financially Sustainable)	• Percent of spaces priced • Percent of revenue from on-street parking • Breakdown of payment by type (cash, cards, app/mobile based, online payment) • Parking spaces booked using smart phone applications
Safety (Safe and Accessible)	• Number of accidents caused by parking/parking maneuvers • Number of end-user accidents in parking facilities • Number of personal safety incidents in parking facilities

(exhibit continued in next page)

Measure (QPMP Goal)	Performance Indicator
Enforcement (Effectively Enforced)	• Number of illegally parked cars on-street • Number of citations issued • Number of repeat offenders • Number of towing incidents • Percentage of citations paid • Percentage of citations appealed • Number of citations issued per enforcement day/hour • Enforcement person hours per spaces
Operations (Efficiently Operated)	• Parking search time • In a deficit zone, % of deficit/new spaces constructed • % of undesignated spaces converted (striped/signed) and made available for end-user • % of off-street spaces in real time information system
Parking Provision (Integrate Transport and Land use)	• % off-street facilities unbundled • % of park-and-ride spaces occupied • % off-street commercial parking spaces are shared
Asset Management (Easily Understandable and Value-Driven)	• Condition rating of on-street facilities • Condition rating of off-street facilities
Technology Adoption (Adaptable and Technology Driven)	• Number of users using PMIS/mobile application • Percentage of parking app downtime during controlled hours • Number of off-street public facilities showing dynamic availability of spaces • Number of EV Points
Opinion	• Customer satisfaction (surveys) • Number of customer complaints

Exhibit-52 Key Performance Indicators

8.4 Implementation Program

A detailed implementation program has been recommended upon consideration of a range of decision parameters:

- Degree of physical infrastructure requirements
- Phasing and criticality in the short-term
- Dependencies on other actions/recommendations
- Delivery model
- Spatial linkages
- Lead and supporting agencies along with organizational capacity
- Monitoring requirements
- Financial implications
- Achievement of QPMP goals

Soft Measures
MOT Lead

Operations
MM Lead

Infrastructure
MM Lead

Technology
MOT Lead

Organization
MM+MOT Lead

Short-term Implementation

1. Conclude legal changes
2. Enact administrative structure
3. Develop Parking Management Districts (Action Areas)
4. Apply regulations, pricing and duration control in PMDs
5. Introduce parking permit scheme
6. Develop and operate smart parking platforms including CPMS, PMIS and parking app
7. Access control system in off-street facilities
8. Physical design including signs, lines and markings as per QPDM standard
9. New parking supply
10. Commence parking operations
11. Engage private sector for infrastructure development and operations through PPP
12. Manage Metro station parking
13. Parking management during mega events
14. Legal backing for Parking requirements for new development
15. Predominant MOI enforcement

Medium-term Implementation

1. Administrative structure stays intact
2. Expansion and integration of PMDs
3. Cater to all specific land uses
4. Medium term pricing
5. Hybrid parking enforcement
6. New parking supply in medium term
7. Parking Surveys/Data collection
8. Renew operations contract
9. Adopt Parking requirement guidelines for new developments
10. Provide dedicated parking for preferential user groups

Long-term Implementation

1. Align PMDs with QNDF Activity centers and develop new PMDs
2. Long-term parking tariff
3. Self-governed civil parking enforcement
4. New supply in long-term
5. Reduce car ownership and increase public transport use through permit scheme

Section 9

Public Outreach Program

9. Public Outreach Program

The QPMP recommends that the Public Awareness and Publicity Campaign (PA&PC) is to spread word on the key findings and actions related to the QPMP to the public and stakeholders. This is to inform and educate the public about the introduction of policies and practices and changes in the existing ones regarding parking as well as parking facility design that will be implemented in the State of Qatar hereon. The PA&PC also aims to familiarize, facilitate, and encourage the public to adopt and adhere to the policies, laws and standards introduced through the QPMP (**Exhibit-53** and **Exhibit 54**).

KEY STEPS

1. Create a smart strategy
2. Identify the key messages
3. Short and Focused campaign plan
4. Preparation of the materials
5. Make golden contacts
6. Start creating targeted press releases
7. Raise awareness and focus everything on the audience
8. Education
9. Evaluation
10. Delivery

Media	Tool
Direct Reach out	• Person-to-Person • Events and Workshops
Print Media	• Print Media • News Release • Brochures • Bus Inserts • Flyers • Outdoor Advertising • Signs/Advertisements • Posters
Radio/TV	Radio/TV
Digital	• Websites • Online Magazines
Social Media/ Social Networking	Social Media/Social Networking
Radio/TV or social media	Public Service Announcements
Print Media or Digital or social media	Quotes/Success Stories

Exhibit-53 Public Relationship Channels

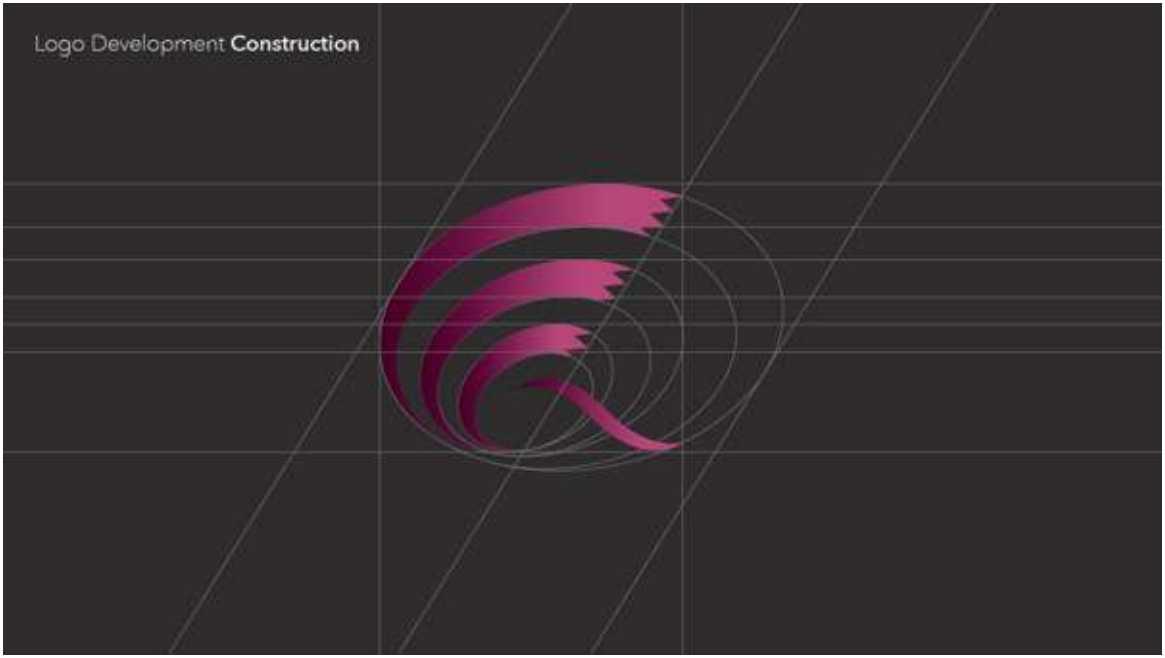


Exhibit-54 QPMP Logo and Posters

Section 10

Value for the State of Qatar and Way Forward

10. Value for the State of Qatar and Way Forward

10.1 Value for the State

Realizing the QPMP Mission moves the State of Qatar closer towards achieving the TMPQ vision. Each QPMP goal achieved has an associated benefit. An improved parking regime will benefit drivers by improving access to areas where it is difficult or unsafe to park now. It will advance new business opportunities and places to live through improved accessibility. It will make more efficient and productive land uses and promote modal shift to public transport and non-motorized travel. Parking revenues generated will be used to improve sustainable transport infrastructure and build out additional parking. After the infrastructure is built surplus revenues can be used to fund other socially beneficial programs and amenities.

The Qatar Parking Master Plan provides a sustainable framework for efficiently developing and managing parking supply and demand that leverages technological advancements and prioritizes integrated mobility and safe accessibility across all transportation modes.

QPMP goals and envisaged benefits are presented in (**Exhibit-55**)

Exhibit-55 QPMP Goals & Achievements

QPMP Goal	Benefits
1. Effectively administered	Through transition from horizontally to vertically integrated model of organizationally administering the parking regime, the effectiveness of administration will be improved. To achieve this transition, the QPMP study recommends the formation of Parking Committee in the short term, and a Parking Authority in the long term. The parking authority will have full responsibility over parking, which includes planning, setting guidelines, implementation, operation, enforcement and setting legislation. The new governance structure will ensure parking is aligned with the land use and transport planning objectives of the State of Qatar.
2. Financially sustainable	The financial analysis demonstrates that the proposed parking regime is financially sustainable, as the projected revenue raised through parking exceed the estimated costs to implement the proposed parking regime by almost three to one.
3. Efficiently operated	Operational efficiency will be improved through better optimization of the use (turnover and occupancy) of spaces. The proposed parking regime includes parking management strategies such as pricing, limited duration and permits to ensure parking is efficiently used in terms of parking occupancy, duration, and turnover. Parking management strategies are implemented based on a zonal concept, where the most stringent parking management strategies are implemented in the areas with the greatest level of parking criticality. This will ensure that parking is available for essential users and meets the requirements of the surrounding land uses.
4. Effectively enforced	Drivers will deter from parking illegally with consistent and effective enforcement. This when combined with effective parking management (people can find a space when they need it) will result in lower enforcement needs. Also, there will be a smaller ratio of vehicle impoundments due to self-enforcing nature of the system (pricing controls etc.). There is also a safety benefit of good enforcement. The KPIs which can be used to monitor this include the number of illegally parked cars and number of citations issued.

(exhibit continued in next page)

QPMP Goal	Benefits
5. Supportive of all transportation modes and integration of transport and land use	The recommendations included in the QPMP study ensure that parking is supportive of other transport modes and the State of Qatar's strategic land use and transport planning objectives. For example, the QPMP study aims to reduce parking demand in areas of high public transport accessibility through parking charges and reduced parking standards for new development. The recommended parking management strategies are tailored according to the needs of the surrounding land use to ensure parking is integrated with it. The Parking Regime will help to reduce overall transport demand and encourage choice of alternative modes. It will help to contribute to the shift to 20% mode share of transit.
6. Safe and accessible	Parking system will be safer than present moment through initiatives such as formalization of undesignated parking and enforcement of controls on illegal parking. Regime will be accessible to all through good information, wayfinding and signage, and a combination of payment mechanisms. The Design manual includes guidance to ensure safety is embedded in car park design and operation. Parking Requirement for New Development recommendations ensures sufficient parking provision is allocated for preferential users.
7. Adaptable, technology-driven	Through the adoption of the latest technology being scalable, incremental, and flexible, the regime will be adaptable so that the system can accommodate increased demand and take up. The latest technologies will help enhance the customer experience. The QPMP will take advantage of the emerging technologies such as driverless cars and electric vehicles.
8. Easily understandable and value-driven	Through the provision of high-quality wayfinding, signage and information, the locations of parking and information about costs and controls will be understood by users either before they leave home or when they arrive at the parking. The QPMP ensures that proposed parking management strategies are easily understandable for users. For example, the QPMP study proposed easy to understand pricing tariff in the short-term. Furthermore, the control hours for Parking Management Districts are consistent across all Action Areas and Activity Centers.

10.2 Way Forward

The QPMP sets the foundation stone for a comprehensive parking regime. It is envisaged that several other studies and tasks will be required to ensure the successful implementation of the QPMP including:

- Carrying out the actions recommended as per the implementation program.
- Monitoring of the QPMP implementation actions against the key performance indicators.
- Developing detailed engineering plan for the Action Areas for physical implementation.
- Updating parking demand forecasts every five years through carrying out focused parking surveys every year, land use and population update, assessing the impact of parking regime, public transport penetration etc.
- Updating the QPMP every 5 years considering demand forecast, budget availability, incorporation of technology in parking, change in vehicle technology, revenue generation, State's economic outlook, will ingness of private parties in parking construction and management, challenges in implementation, legal and governance framework, risks etc.
- Monitoring of the ongoing usage of the parking facilities especially prior to the introduction of the new implementation phases and locations where new supply is recommended:
    - Identify supply locations – Further studies would be needed to confirm land availability, acquisition cost and access.
    - Update the Cost-Benefit Financial Analysis once the actual costs of operation and revenues are known to provide additional information for PPP opportunities.
    - Further development of preferred PPP sites feasibility and viability to develop RFP and contract documentation.
- Encourage local expertise needed to develop, operate, and maintain a modern parking system:
    - Planning of expertise at MME to monitor and make changes as needed to Control Tier boundaries.

- Stakeholder liaison to ensure that the relationship-building at MME, MOI, and Ashghal is developed to assist in the efficient delivery of the parking regime components.
- Enforcement division capacity building and technology expansion.
- Design and contract expertise to develop the design of physical improvement measures – physical parking layouts and roadway access design amendments.
- Traffic signals expertise to connect parking areas to the highway and provide efficient access.
- Parking operations specialists to assist with the operational tools implementation and enforcement needs.
- Technology specialists to provide back-office support and to process parking. payments and revenue apportionment.

Several other studies and tasks will be required to ensure the successful implementation of the QPMP including:

Monitoring of the ongoing usage of the parking facilities especially prior to the introduction of the new implementation phases and locations where new supply is recommended:

- Identify supply locations – Further studies would be needed to confirm land availability, acquisition cost and access.
- Update the Cost-Benefit Financial Analysis once the actual costs of operation and revenues are known to provide additional information for PPP opportunities.
- Further development of preferred PPP sites feasibility and viability to develop RFP and contract documentation.

Develop local expertise needed to develop, operate, and maintain a modern parking system:

- Planning of expertise at MME to monitor and make changes as needed to Control Tier boundaries.
- Stakeholder liaison to ensure that the relationship-building at MME, MOI, and Ashghal is developed to assist in the efficient delivery of the parking regime components.
- Enforcement division capacity building and technology expansion.
- Design and contract expertise to develop the design of physical improvement measures – physical parking layouts and roadway access design amendments.
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The QPMP and new Parking Regime through actions can fulfil the QPMP Goals, bringing the State of Qatar's parking into the modern age as an integral part of the transportation system.