

دائرة النقل
DEPARTMENT OF TRANSPORT



Abu Dhabi Transportation Mobility Management Strategy



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Executive Summary



Introduction

The Department of Transport (DoT) – Abu Dhabi commissioned Mott MacDonald to provide consultancy services for a Transportation Mobility Management (TMM) Study. The objectives of this project included the development of an effective, deliverable Transportation Mobility Strategy for the Emirate of Abu Dhabi, up to the horizon year 2030.

This document details the overarching TMM strategy and how the DoT will take forward TMM. It outlines sectoral and geographical approaches for the DoT to implement in order to achieve its goals and embed TMM in the core of transportation in Abu Dhabi.

Aims and objectives

The main goal of the TMM strategy is the identification and realisation of more sustainable travel in line with the Surface Transport Master Plan (STMP) 2030 vision. This means delivering an efficient, safe and sustainable way of moving people around Abu Dhabi whilst achieving associated benefits and meeting the goals of environmental integrity, social equity and economic efficiency. The overall TMM goals are to:

- Encourage a change of attitude and behaviour towards greater use of sustainable modes of transport, for example, public transport, collective transport, walking, cycling and water combinations;
- Establish a framework for site specific TMM plans in Abu Dhabi;
- Improve access to public transport for all people and organisations by strengthening the conditions for sustainable modes of transport;
- Satisfy mobility needs via a more efficient and integrated use of existing and planned transport and land-use infrastructure;
- Reduce traffic growth and congestion by achieving a mode shift from private motorised vehicle trips to a more efficient and sustainable mode of transport;
- Create an efficient multimodal public transport network that will facilitate the interconnection and inter-operability of associated transport networks; and
- Increase the economic efficiency of the entire transport system.

Basis of the TMM strategy

The TMM strategy is based on a nine-month long study, as part of which the following tasks were carried out:

Task	Description
Task 1A	Project inception.
Task 1B	Data and information collection and assessment to identify initial emerging issues for TMM strategy.
Task 1C	TMM best practice review to determine appropriate measures for Abu Dhabi.
Task 2	Stakeholder engagement and analysis of travel and transport behaviour at 13 pilot organisations in the Emirate of Abu Dhabi.
Task 3A	Development of a long-list of measures building on the outputs from Task 1C.
Task 3B	Development of measures and solutions for each pilot organisation.
Task 3C	Stakeholder engagement to define appropriateness of TMM measures.
Task 3D	Assessing the impacts of a range of proposed TMM measures.
Task 4	Addressing organisational, legislative and administrative requirements and developing a social marketing and communications strategy, a programme and resourcing for the strategy.
Task 5A	Development of a geographical case study (Sustainable Travel Area) to inform the impacts of a concentrated application of TMM.
Task 5B	Development of TMM plans for a number of pilot organisations to start the process of developing TMM plans across the Emirate of Abu Dhabi and to inform the strategy.
Task 5C	Integrating TMM plans into the Transportation Impact Study (TIS) process.
Task 5D	Toolkit to assist developers and TMM authors in the development of TMM plans.

Executive Summary

Why TMM in Abu Dhabi?

The Abu Dhabi metropolitan area has experienced rapid growth in recent years. As Abu Dhabi continues to grow and develop, congestion is increasing. It affects almost everyone – whether the individual commuting to work or the way businesses operate. Tackling congestion is a top priority for the DoT and TMM offers an integrated approach to this, encompassing the majority of other DoT schemes and projects. The analysis below identifies the strengths, weaknesses, opportunities and threats of TMM.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Significantly less resource-intensive than infrastructure projects • Can deliver a lot of quick wins • Long lasting behaviour change • Eases congestion and delivers associated benefits • Transport network is in early stages of new development so can adapt and incorporate TMM elements 	<ul style="list-style-type: none"> • Limited function without supporting infrastructure • A number of measures may take a long time to deliver results • A number of short term measures require a big change in current culture and attitudes • TMM needs to be target group specific (large mix of demographics in Abu Dhabi requires a lot of resources to be spent on segmentation)
Opportunities	Threats
<ul style="list-style-type: none"> • Vision and proactive approach of the Abu Dhabi Sustainability Group • Attitude towards Corporate Social Responsibility (CSR) and environmental credentials in Abu Dhabi • Initiatives such as the Walking and Cycling Master Plan taken forward by the DoT • Estdama • Future growth and planned developments in Abu Dhabi • Existence of successful TMM measures – such as the DoT employee shuttle bus service 	<ul style="list-style-type: none"> • Dominant car culture in the Emirate of Abu Dhabi • Road safety issues • Image of walking, cycling and public transport among certain population groups • Cultural issues (i.e. national dress) • Climate not conducive to walking and cycling during the summer • Mistaken perception that TMM is only a European/North American/ Australasian concept

Incorporating TMM into new developments

'Plan Abu Dhabi 2030' forecasts 3.1 million residents in the Abu Dhabi Municipality area by 2030 and this development is expected to more than triple the area's population within the next 20-25 years. The number of new developments, redevelopments and extensions to existing sites that are currently under construction or planned will generate significant additional trips that need to be accommodated on the road and public transport network. This will put additional pressure on the road network, particularly during the AM and PM peaks when high levels of congestion occur.

The requirement that TMM plans be prepared and submitted alongside the TIS for these developments will address this issue, by reducing the number of vehicle trips generated and thus lessening the potential impact on the road network. In addition, TMM plans can contribute to wider policy objectives, such as reducing the level of pollutants in the air and encouraging healthy, active lifestyles.

Application of TMM to specific land-use categories

This element of the overarching TMM strategy is composed of a number of sub-strategies that are aimed at specific target groups. Segmentation and target group specific actions and TMM measures are crucial in achieving the desired outcomes. Each sub-strategy focuses on TMM plans for the relevant target groups as well as a number of stand-alone initiatives. The following sub-strategies are included within the overarching strategy:

- TMM workplace travel strategy;
- TMM education travel strategy;
- TMM visitor travel strategy; and
- TMM residential travel strategy.

Core TMM initiatives and benefits

TMM plans present an overarching framework within which individual TMM initiatives can be developed and implemented. In addition to driving forward the development and implementation of TMM plans, the DoT will also focus on a number of initiatives that can be implemented outside of TMM plans. These are initiatives which will receive particular support from the DoT and have the potential to bring about a change in travel patterns within an organisation without having to be supported by a full TMM plan. These initiatives offer a good opportunity to improve the travel situation at each organisation and to contribute towards the goals of TMM in Abu Dhabi as a whole. They can play a key role, especially for small and medium-sized organisations that do not have the resources for and are not required to implement a full TMM plan.

The measures that are included within this element of the strategy are as follows:

- Car sharing scheme;
- Flexible working policy;
- Smarter working;
- Information, awareness and promotion of DoT infrastructure; and
- Company buses.

Stakeholder engagement and communications

Targeting the right stakeholders from the beginning of the project is the best use of resources. It ensures that messaging and materials can be tailored as appropriate to different audiences. The priority groups have been identified through the principles of the Bass Diffusion Model as developed by Frank Bass. The model describes the process of how new products get adopted as an interaction between users and potential users. It has been described as one of the most famous empirical generalisations in marketing¹.

Building on the Bass principle, elements of the Diffusion of Innovation Model can be applied. Diffusion of Innovation highlights a community as being split into five categories. Use of this background theory has helped in identifying our main priority groups of stakeholders. The higher priority groups will exhibit the characteristics of the innovators and early adopters, as per the research by Bass.

Category	Characteristics
Innovators	TMM pilot organisations.
Early Adopters	Members of sustainability/CSR networks e.g. Abu Dhabi Sustainability Group.
Early Majority	Government organisations and major businesses.
Late Majority	Universities and schools, small and medium sized businesses.
Laggards	Individuals who are not already captured in one of the above categories.

It has become widely accepted that transport infrastructure alone is not enough to secure changes in travel behaviour. Infrastructural changes need to be complemented by strategies aimed at persuading people to change their behaviour. As a result, there has been an increase in the development of 'soft policies' which aim to change travel behaviour towards more sustainable modes, such as public transport, walking and cycling. Known more recently as **smarter travel**, these soft policies are primarily focused on reducing and managing demand for travel by eliciting a change in travel behaviour. Marketing and communications are hence a fundamental element for the success of TMM in Abu Dhabi and sustainable travel branding is a key element of successful campaigns.

¹ Uncles, Mark; Ehrenberg, Andrew & Hammond, Kathy (1995). "Patterns of Buyer Behavior: Regularities, Models, and Extensions". Marketing Science 14 (3)

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Short term actions and long term aspirations

The strategy outlines the key short term actions for the DoT to undertake by 2015 as well as the long term aspirations for the horizon year 2030. It is important to note that while all short term actions will be implemented by 2015, the majority will run beyond this date, being continually revised and updated to reflect the fact that TMM is a continuous process of development. The short term actions can be grouped under the following headings:

- Official TMM launch;
- Regulations;
- Organisation specific TMM plans;
- Sustainable Travel Areas; and
- Marketing campaigns and events.

It is essential that all actions are revised when new infrastructure is developed in Abu Dhabi as this will have a major impact on the transport alternatives to the single occupancy car. The majority of other DoT schemes are planned to be implemented by 2030 and therefore directly support the TMM strategy.

Monitoring and review

The main goal of the DoT is to reduce congestion in Abu Dhabi. The decrease in single occupancy car use across Abu Dhabi is therefore one of the key defining factors of success. This applies to the network as a whole as well as to the reduction of single occupancy car mode share at individual organisations that have implemented a TMM plan.

A further factor of success that can be measured at the organisational level is the number of commuting trips to and from an organisation in relation to the total number of staff. This serves as an overall indicator of reduced travel through the implementation of initiatives such as homeworking and/or working compressed weeks.

Finally, the recognition of the sustainable travel brand and participation in TMM in the Emirate of Abu Dhabi serve as a further factor that defines success.

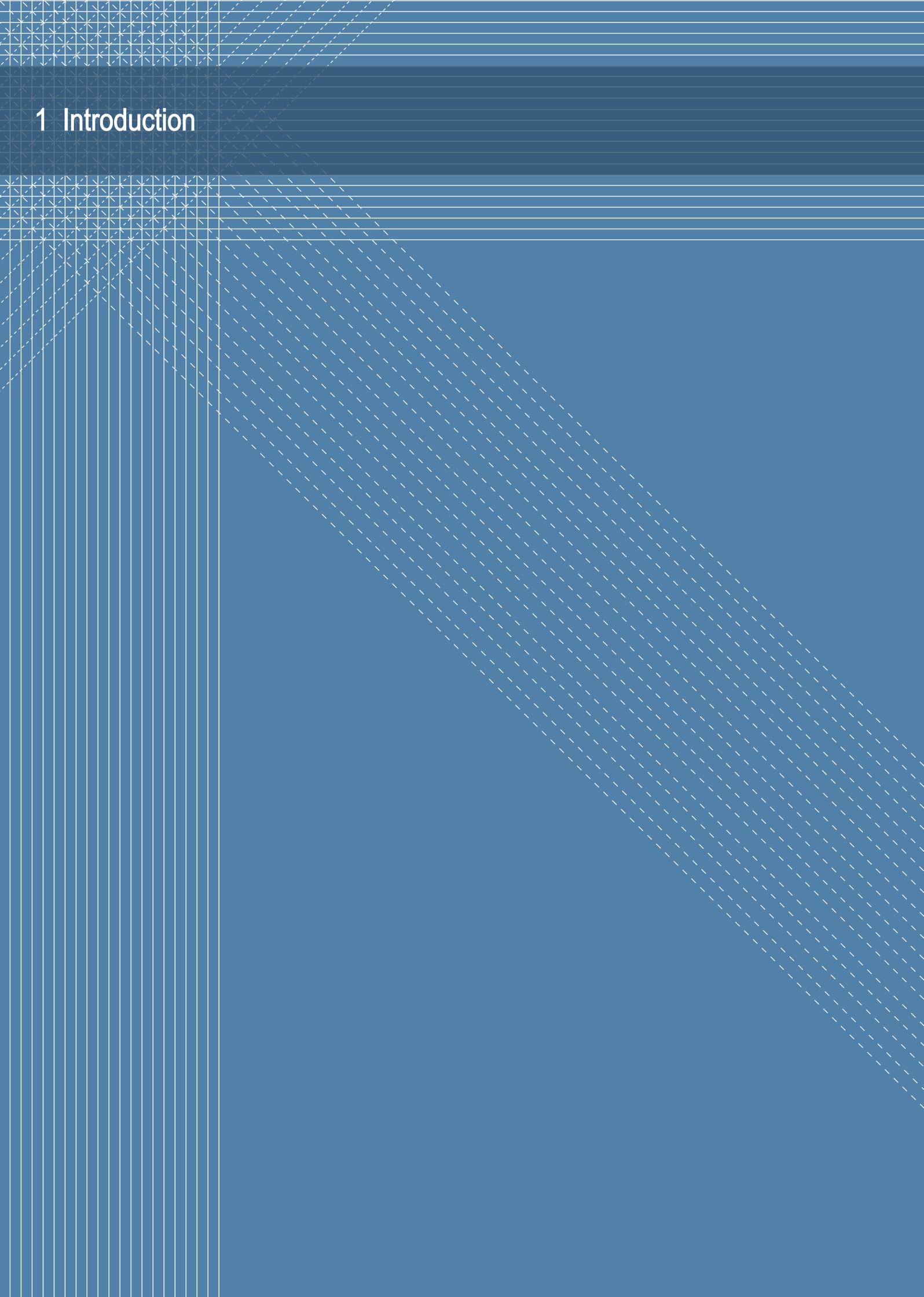
The core next steps that will be carried out by the DoT in order to collect this data are as follows:

- Review whether the thresholds and goals of the strategy are met in order to identify the success of each sub-strategy e.g. the workplace TMM strategy and whether there needs to be any change in focus or direction of the sub-strategy;
- Review the impact of individual TMM plans in order to establish whether any enforcement mechanisms need to be put in place;
- Check if individual actions are implemented and address shortcomings if necessary; and
- Check the level of resources the DoT utilised against the resources proposed in the Task 4 Report *Organisational, Legislative and Administrative Requirements Section 4 in order to achieve the strategy's objectives*.

Future outlook

This strategy offers a unique opportunity to develop TMM from its foundations and to be able to shape the future direction of the Emirate of Abu Dhabi towards a more sustainable environment. TMM not only makes a direct contribution towards reducing single occupancy car trips but also brings about associated benefits such as environmental, health, economic and social benefits – an opportunity to create a long-lasting impact on the Emirate of Abu Dhabi and the Middle East Region.

1 Introduction



1.1 Background to the project

The Department of Transport (DoT) – Abu Dhabi commissioned Mott MacDonald to provide consultancy services for a Transportation Mobility Management (TMM) Study (Contract DoT/C/IP/51/10). The objectives of this project have been set out as follows:

- Develop an effective, deliverable Transportation Mobility Strategy for Abu Dhabi up to 2030;
- Identify TMM measures that can be implemented in the short term (one to five years) and long term (five to 15 years);
- Prepare detailed capital, operations and maintenance costs;
- Produce a phased implementation plan;
- Prepare detailed TMM plans/schemes for organisations detailed in the brief;
- Identify appropriate technologies; and
- Prepare appropriate educational materials and implementation plan.

1.2 Strategy objective

The objective of this strategy is to draw conclusions from all elements of Tasks 1-5 in order to develop an overarching strategy of how the DoT can and should take TMM forward. These tasks are outlined below:

Table 1.1: TMM task summary

Task	Description
Task 1A	Project inception.
Task 1B	Data and information collection and assessment to identify initial emerging issues for TMM strategy.
Task 1C	TMM best practice review to determine appropriate measures for Abu Dhabi.
Task 2	Stakeholder engagement and analysis of travel and transport behaviour at 13 pilot organisations in the Emirate of Abu Dhabi.
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Task 5C	Integrating TMM plans into the Transportation Impact Study (TIS) process.
Task 5D	Toolkit to assist developers and TMM authors in the development of TMM plans.

The strategy outlines sectoral and geographical approaches for the DoT to implement in order to achieve the goals outlined above and embed TMM in the core of transportation in Abu Dhabi.

1 Introduction

1.3 Strategy context

The main goal of the TMM strategy is the identification and realisation of more sustainable travel in line with the Surface Transport Master Plan (STMP) 2030 vision. This means delivering an efficient, safe and sustainable way of moving people around Abu Dhabi whilst achieving associated benefits and meeting the goals of environmental integrity, social equity and economic efficiency. The overall TMM goals are to:

- Encourage a change of attitude and behaviour towards greater use of sustainable modes of transport, for example, public transport, collective transport, walking, cycling and water combinations;
- Establish a framework for site specific TMM plans in Abu Dhabi;
- Improve access to public transport for all people and organisations by strengthening the conditions for sustainable modes of transport;
- Satisfy mobility needs via a more efficient and integrated use of existing and planned transport and land-use infrastructure;
- Reduce traffic growth and congestion by achieving a mode shift from private motorised vehicle trips to a more efficient and sustainable mode of transport;
- Create an efficient multimodal public transport network that will facilitate the interconnection and inter-operability of associated transport networks; and
- Increase the economic efficiency of the entire transport system

The strategy relates closely with other Abu Dhabi government strategies, policies and visions as well as other DoT strategies and projects. Links to other government strategies are outlined in greater detail in Table 1.2 and connections to other DoT projects are shown in Table 3.1.

Policy or Strategy Document	Relevance to TMM
Plan Abu Dhabi 2030 (Urban Planning Council)	
Environmental Framework Policies	The education travel TMM strategy directly supports the environmental education programme. In addition a reduced number of cars on the roads and reduced congestion will contribute to overall air quality improvements.
Transportation Policies	TMM will be facilitated by the implementation of these policies.
Urban Design Policies	Provide vital infrastructure for TMM.
A Sustainable Approach to the Future	TMM applies a number of these principles to the development and planning process.
Plan Al Ain 2030 (Urban Planning Council)	
Environmental Policies	The education travel TMM strategy directly supports the environmental education programme (see Plan Abu Dhabi 2030).
Land Use Policies	TMM will directly benefit from dense, mixed-use, transit-orientated developments.
Transportation Policies	TMM will be facilitated by the implementation of these policies (see Plan Abu Dhabi 2030).
Public Open Space Policies	These policies will ensure that the environment is more conducive to TMM activity such as walking.
Urban Design Policies	Provide vital infrastructure for TMM (see Plan Abu Dhabi 2030).
Forthcoming Plan Al Gharbia 2030 (Urban Planning Council)	Once published, the TMM strategy can directly build on the plan's aims and goals and will be supported by its policies (see Plan Abu Dhabi 2030).
Abu Dhabi Economic Vision 2030 (Department of Economic Development)	TMM has the potential to bring about associated benefits beyond reduced traffic volume, including cost savings and other economic benefits.

Policy or Strategy Document	Relevance to TMM
Abu Dhabi Environmental Strategy 2008-2012 (Environment Agency Abu Dhabi)	Reduced levels of congestion can have an overall positive impact on air quality.
Forthcoming Environment 2030 (Environment Agency Abu Dhabi)	
Surface Transport Master Plans 2030 (Department of Transport)	TMM is most effective if alternative infrastructure and transport modes are in place. The STMPs aim to drive forward the development of sustainable transport of which TMM is a key component.
Abu Dhabi Public Health Strategy (Health Authority Abu Dhabi)	Many health problems are associated with a lack of physical activity, which can be increased through active travel modes such as walking and cycling.
Abu Dhabi Sports Council Strategy 2008-2012 (Abu Dhabi Sports Council)	TMM directly builds on the promotion of a healthy active lifestyle.

1.4 Core definitions

This section outlines a number of core definitions of TMM which will facilitate the understanding and appreciation of the strategy.

TMM – TMM, or Transportation Mobility Management, is the application of policies and strategies to reduce travel demand and encourage mode shift to more sustainable forms of transport.

TMM Plan – A TMM plan is a long-term management strategy which can be developed for specific organisations and sites (e.g. businesses, schools, museums, stations etc). It analyses access and transport provision at the site as well as travel behaviour and patterns of staff/pupils/visitors etc. to and from the site. For this, a site audit and travel surveys are carried out. On the basis of this an action plan is developed for the organisation to implement in order to reduce single-occupancy car mode share and encourage a shift towards more sustainable modes. This action plan includes a combination of transport initiatives, marketing and communications initiatives and a monitoring plan. TMM plans should be reviewed annually and updated (including new surveys) at three to five year intervals.

TMM Network – A TMM Network is a partnership between different organisations in a defined geographical area. In order to join the network the organisation has to develop a TMM plan. The network is usually led by one of the larger organisations in the area. Members meet on a regular basis in order to establish where they can work together to implement TMM measures (at a more cost-effective level) and drive TMM forward. An example of this is a car sharing scheme or a staff bus for the employees of different organisations all located in the same building.

TIS (Guidelines) – According to Resolution No.13 of 2011 by the Chairman of the Executive Council, a Transport Impact Study (TIS) is required for all new developments in Abu Dhabi. The TIS is part of the Development Planning Process and its recommendations are critical in influencing the overall design of the development. Three different levels of TIS currently exist for developments in the Emirate of Abu Dhabi, based on the number of trips that are forecast to be generated in the highest peak hour. The Guidelines set out the required scope and methodology for undertaking a TIS. They follow a multi-modal approach in that developers and their consultants must give due consideration to non-car modes, including public transport, walking and cycling. Mitigation measures are required where the Level of Service (LoS) of critical intersections is forecast to be beyond acceptable levels upon the opening year of a development, assuming full occupancy. The Guidelines state that all mitigation measures proposed must be feasible and reasonable and that simply increasing capacity may not always be possible and/or appropriate. Therefore alternative measures should be considered, such as the utilisation of other transport modes.

1 Introduction

1.5 Structure of the strategy

This strategy is comprised of the following sections:

Chapter 2 – Summary of work done to date

Chapter 3 – TMM in Abu Dhabi

Chapter 4 – Key TMM goals and targets

Chapter 5 – Geographical focus of TMM

Chapter 6 – TMM for new developments

Chapter 7 – TMM workplace travel strategy

Chapter 8 – TMM education travel strategy

Chapter 9 – TMM visitor travel strategy

Chapter 10 – TMM residential travel strategy

Chapter 11 – Core TMM initiatives and benefits

Chapter 12 – The importance of stakeholder engagement

Chapter 13 – The importance of marketing and communications

Chapter 14 – Short term actions and long term aspirations

Chapter 15 – Monitoring of the TMM strategy

Chapter 16 – Summary and next steps

2 Summary of work done to date

2 Summary of work done to date

2.1 Introduction

This section summarises the key points from Tasks 1-5. It focuses on the key issues of each task that influence the shape and direction of the TMM strategy. For detailed summaries and conclusions of each task, please refer to the individual task reports. A register of these is included in Appendix A.

2.2 Task 1

2.2.1 Task 1A: Inception

Task 1A involved the project inception and kick-off.

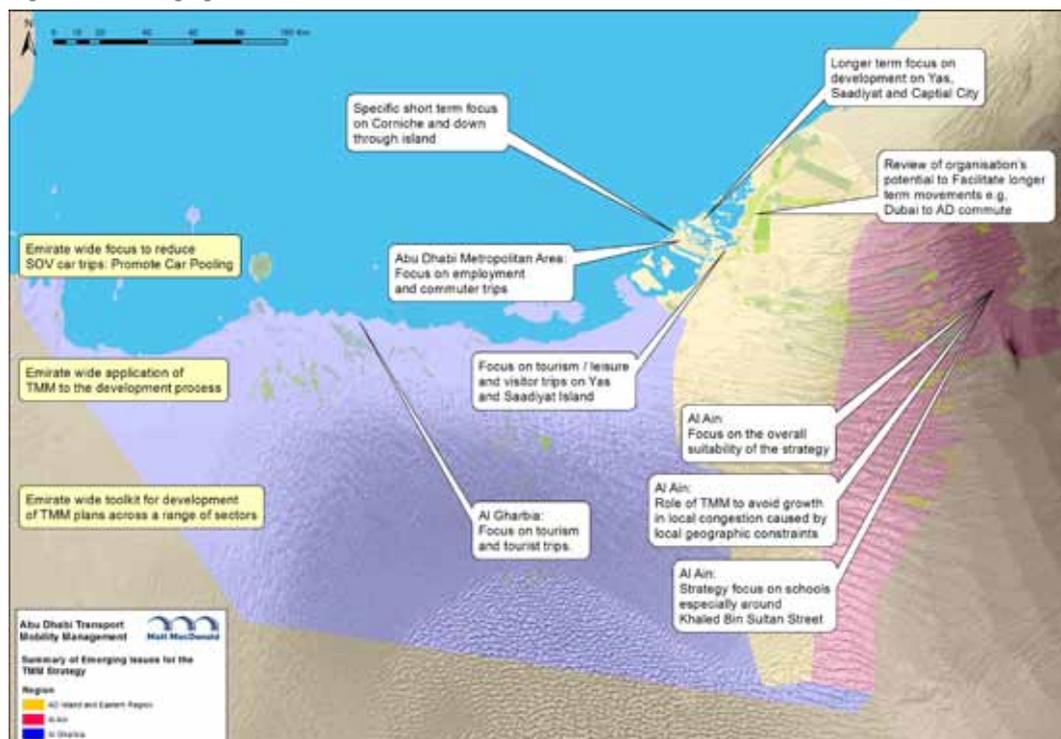
2.2.2 Task 1B: Data and information collection and assessment

The objective of the data review was to help identify initial emerging issues for the overarching TMM strategy and give an indication of the geographical focus of the strategy. Analysis of population and land-use patterns as well as data on traffic flows and transport infrastructure show that Abu Dhabi Island and the CBD should be an area of focus during the early stages of TMM.

While the TMM strategy will also be applicable to Al Ain and Al Gharbia, there are fewer location-specific congestion issues in these areas. An exception is Khaled bin Sultan Street in Al Ain. 33 schools are located next to each other along both sides of the road. In addition there are plans to develop additional schools in the area. Setting up a schools TMM network in Al Ain has emerged as a key recommendation out of the analysis undertaken. This and further emerging issues are summarised in Figure 2.1 below.

Furthermore the report provides necessary background information on the location of the pilot organisations. This helped form an understanding of the conditions for each pilot organisation, which was an important element in the development of the TMM plans.

Figure 2.1: Emerging areas of focus from Task 1B



2 Summary of work done to date

2.2.3 Task 1C: TMM best practice review

A review of international best practice in TMM was undertaken with the aim of determining appropriate TMM measures for organisations in the Emirate of Abu Dhabi. It presents a long-list of case studies, each of which was evaluated and scored in terms of its applicability to Abu Dhabi. Following agreement with DoT's TMM project technical steering committee, the five case studies with the highest scores were taken forward for detailed review. A review of the TMM measures and initiatives that already exist in Abu Dhabi is presented as a technical note in Appendix A of the Task 1C Report Review of International Best Practice. The conclusions from this task fed directly into the development of the long-list of measures and the measures selection process for the pilot organisation TMM plans.

The key lessons learned are that:

- One of the primary drivers for effective transportation mobility management is the development of a strong, comprehensive policy framework;
- The development of transport planning policy in isolation is not necessarily effective;
- Transport planning and land-use policies must be fully integrated at the national and local levels to ensure ongoing sustainable development; and
- Those places which have development control policies in place and require developers to consider mobility management at the outset of the project tend to be more successful in facilitating the use of sustainable modes of travel.

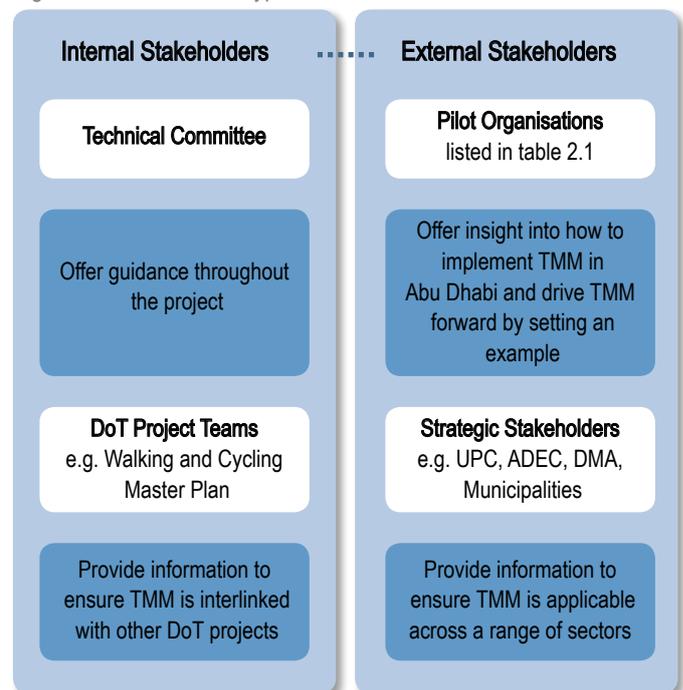
The proposed guidelines for incorporating TMM as part of the development planning process for the Emirate of Abu Dhabi are outlined in the document Requirements for securing TMM Plans through the TIS Process and Chapter 6 of this strategy.

2.3 Task 2

2.3.1 Stakeholder engagement

The types of key internal and external stakeholders and the roles that they play are outlined in Figure 2.2.

Figure 2.2: Stakeholder types and roles



Organisations were engaged in two ways: as a core group of stakeholders, which will influence policy and TMM strategy development; and as pilot organisations, for the development of individual site specific TMM plans. Organisations were chosen using a matrix developed to evaluate their suitability based on how they scored against a number of core characteristics; for example, whether they have a high profile and the likelihood that they would achieve a high impact. A mixture of public and private sector organisations were chosen that represent the key business sectors in Abu Dhabi, including economic and financial institutions, health organisations, education and environmental organisations. Continuous one-to-one engagement took place with these organisations, in the form of meetings, workshops and other forms of communication.

2 Summary of work done to date

An important element of the stakeholder engagement process was to hold a number of different stakeholder workshops. The first internal stakeholder workshop held with participants from a number of teams within the DoT was of particular importance to initiate the development of the TMM strategy. The key objectives of the workshop were to develop the overall approach to stakeholder engagement, facilitate interfaces between the TMM Project Team and other DoT workstreams and to start to identify at an early stage the potential core stakeholders and potential targets for the TMM pilots.

Figure 2.3: Internal stakeholder workshop



The key messages that came out of the workshop included the following:

- Short term 'quick win' initiatives are supported.
- Strong branding will be key in promoting advocacy and awareness.
- The most important barrier for TMM to overcome is local culture.

The first external stakeholder workshop was designed to illustrate the benefits of TMM for organisations and to secure early buy-in from stakeholders. Interactive discussion sessions were held in small groups, which covered specific aspects of overall strategy development and the pilot TMM process. The key messages that came out of this workshop included the following:

- There are practical problems associated with the use of sustainable modes of travel. These include climate, local culture, local dress and safety.
- Stakeholders called for an integrated and balanced approach to TMM that incorporated financial incentives/rewards as well as constraints.
- There is perceived to be a lack of infrastructure that is conducive to the use of sustainable modes of travel, such as cycling.

The outcomes from each of the workshops and other engagement activities have been taken into account throughout all of the tasks undertaken, as well as this final strategy. For example, all pilot TMM plans include a number of short term measures which can be achieved within one year of implementation of the plan. A logo, which will accompany all TMM communications, has been developed as part of Task 4. The importance of marketing and branding is further discussed in Chapter 13 of this strategy. Finally, the importance of cultural, climatic, social and safety aspects run through all the elements of the TMM strategy; for example, measures focus more heavily on car sharing and public transport and TMM plans only promote walking and cycling in winter and where it is safe to do so.

2 Summary of work done to date

2.3.2 Analysis of travel and transport behaviour

The analysis of travel and transport behaviour consisted of two major processes: data collection and analysis of survey results for the selected pilot organisations, which are listed in Table 2.1.

Table 2.1: TMM pilot organisations

Number	Organisation	Surveyed	Alternative approach	Type of TMM plan
1	Abu Dhabi University	Yes	N/A	Staff and students
2	Abu Dhabi Airports Company	Yes	N/A	Staff
3	Abu Dhabi National Exhibitions Centre	No (event data used instead)	Analysis of event and car park data for all events in 2010.	Visitors
4	Ambulatory Health Service (Disease Prevention Screening Centres)	Yes	N/A	Staff
5	Al Dhafra School Al Ain	Yes	N/A	Staff and pupils
6	Al Yasmina School Abu Dhabi	Yes	N/A	Staff and pupils
7	Choueifat School Al Ain	Yes	N/A	Pupils
8	Department of Transport	Yes	N/A	Staff
9	Environment Agency Abu Dhabi	Yes	N/A	Staff
10	Marina Mall	No (store interview data used instead)	Interviews held with individual shops.	No TMM plan for the mall. Part of retail approach research.
11	National Bank of Abu Dhabi	Yes	N/A	Staff
12	Standard Chartered Bank	Yes	N/A	Staff
13	Abu Dhabi National Energy Company / TAQA	Yes	N/A	Staff
14	Yas Marina Circuit	Yes	N/A	Staff

The data collection process for the pilot organisations comprised of two key elements:

- Site audits – used to identify the existing travel opportunities and constraints at a particular site/location.
- Travel surveys – used to establish existing travel patterns in relation to a particular site/organisation and to assess the potential for mode shift.

Core site audit and travel survey forms were developed for different types of organisations, including workplaces, visitor attractions and educational institutions. These were then amended to suit each individual organisation as appropriate. Travel survey forms were available in both Arabic and English and were provided in paper format and/or made available to respondents via an online web link.

2 Summary of work done to date

Figure 2.4: Survey development process

Abu Dhabi Transport Mobility Management




The Department of Transport in Abu Dhabi is developing a Transport Mobility Management Strategy to cut congestion and improve travel options for people that live, work and visit the Emirate. In order to develop the strategy, it is important to consider how people currently travel to work and we would appreciate it if you could complete this short questionnaire. Please note that all answers will be treated as confidential.

About your work

1. Which of the following best describes your job role?

<input type="checkbox"/> Management - desk based	<input type="checkbox"/> Other operational
<input type="checkbox"/> Administration - desk based	<input type="checkbox"/> Customer facing
<input type="checkbox"/> Management - operational	<input type="checkbox"/> Other
2. Are you a full time member of staff, part time, student or volunteer?

<input type="checkbox"/> Full-time	<input type="checkbox"/> Part-time	<input type="checkbox"/> Student	<input type="checkbox"/> Volunteer
------------------------------------	------------------------------------	----------------------------------	------------------------------------
3. Do you work shifts?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------	-----------------------------
4. How many days a week do you work?

<input type="checkbox"/> 1	<input type="checkbox"/> 3	<input type="checkbox"/> 5	<input type="checkbox"/> 7
<input type="checkbox"/> 2	<input type="checkbox"/> 4	<input type="checkbox"/> 6	
5. What time did you arrive at work today?

<input type="checkbox"/> Before 07:00	<input type="checkbox"/> 07:30 - 07:44	<input type="checkbox"/> 08:15 - 08:29	<input type="checkbox"/> After 09:00
<input type="checkbox"/> 07:00 - 07:14	<input type="checkbox"/> 07:45 - 07:59	<input type="checkbox"/> 08:30 - 08:44	
<input type="checkbox"/> 07:15 - 07:29	<input type="checkbox"/> 08:00 - 08:14	<input type="checkbox"/> 08:45 - 09:00	

Analysis of survey results was reported in the Task 2 report as well as in the individual organisations' TMM plans. Survey response rates were generally good across the workplace organisations and slightly lower for the schools. From the surveys undertaken, the average mode split between sustainable and unsustainable travel for educational organisations was found to be 31% sustainable and 69% unsustainable. The average mode split for the workplaces was found to be 25% sustainable and 75% unsustainable. In the context of TMM, all modes are located on a spectrum of sustainability with single occupancy car use being the least sustainable and walking and cycling being the most sustainable. Other modes such as car sharing and public transport lie in-between the above modes on the spectrum.

A number of conclusions were drawn from the overall survey development process:

- It is vital to engage stakeholders from the very start of the project and to maintain constant dialogue throughout the overall process.
- Online surveys are quicker to administer and the quality of data is higher.
- The questions contained in the survey forms were found to provide adequate data upon which to draw conclusions.
- Organisations should make as few changes as possible to the core survey form (as long as the survey is appropriate to the organisation; wording of questions has little impact on the quality of the data).
- Some aspects of the survey need to be more clearly defined. For example, how is the term 'business travel' defined?

These lessons learned have been integrated into the TMM Toolkit presented in Task 5D.

2 Summary of work done to date

2.4 Task 3

2.4.1 Task 3A: Long-list of measures

This report sets out how the long-list of measures for the TMM strategy was identified. This sub-task builds on the TMM best practice review undertaken in Task 1C. It develops the specific initiatives that could be applied as part of the individual pilot TMM plans as well as the over-arching initiatives that the DoT could take forward through its future TMM programme.

The list was developed following an extensive desk-based study, as well as using professional experience. Once all of the measures were listed they were split into four categories as follows:

- Measures which the DoT could implement;
- Measures which other government organisations could implement;
- Measures which organisations/companies could implement with help from the DoT/other government organisations; and
- Measures which organisations/companies could implement themselves.

The initial long-list was then prioritised and sifted. Each measure was scored based on the following criteria:

- Impact;
- Approximate cost;
- Acceptability/transferability to the Emirate of Abu Dhabi;
- Major barriers to implementation;
- Timescale – long or short term; and
- Infrastructure requirements.

An 'R' rating system has been developed for each measure. Each measure has been scored depending on the criteria set out in Table 2.2.

Table 2.2: R-rating for TMM measures

'R' Rating	Score
Reduce travel	4
Re mode travel	3
Re time travel (to avoid peak congestion)	2
Re route travel (to avoid congestion hot spots)	1
Total possible score	10

The long-list of measures includes a wide range of soft and hard measures on a range of scales; Emirate wide, municipality and local area specific. The list has been refined and prioritised using a detailed methodology to ensure that only the most relevant measures are being taken forward.

This list was used as part of the TMM project for the following core elements:

- To develop a 'checklist' for measures applicable to pilot organisations' TMM plans;
- To set out the resourcing requirements for the TMM project for the DoT; and
- To develop this strategy (see Chapter 11).

2.4.2 Task 3B: Measures and solutions for each pilot organisation

A checklist was designed, in order to identify a range of potential measures that could be implemented by each pilot organisation as part of their individual TMM plans. This checklist was the starting point for an investigation into the potential range of measures. Further detailed discussion with each pilot organisation followed in order to ensure that measures are able to be implemented.

2 Summary of work done to date

The checklist sets out a range of possible measures for each issue/problem identified at every site/organisation through the site audit and survey process. Separate checklists were developed for both schools and workplaces as the type of problems faced vary significantly between such sites; therefore the potential measures to address the problems also vary significantly. The potential measures arising from the checklist were used to develop individual TMM plans for each organisation.

All of the TMM measures will require some level of ongoing DoT/Municipality input. It is likely that if support stops then the organisations will not continue with the measure (at least in the early stage of TMM in Abu Dhabi). Additionally, it is important that where possible the TMM measures – for example the car sharing database – are established at an early stage, so that they can be used immediately by organisations, ensuring that the TMM plans do not lose momentum. TMM pilot organisations will need support, particularly in the early days of implementation, to ensure that they build confidence in managing their own TMM activity. This strategy sets out the TMM approach to workplaces, schools, residential units and visitor attractions and shows how the DoT should take these forward in order to support organisations in developing and implementing a TMM plan.

2.4.3 Task 3C: Stakeholder engagement – defining TMM measures

Stakeholder engagement was undertaken at this stage to inform the development of possible TMM measures that form part of this strategy. Specifically, this stakeholder engagement is fundamental to the success of the TMM project in the following ways:

- To help shape the overarching TMM strategy and ensure that it is workable across a range of organisations;
- To support the pilot organisation TMM plans to better inform how measures could be delivered across Abu Dhabi; and
- To help define the key messages that may be used to promote the concept of sustainable travel choice to organisations and individuals alike.

Two external and two internal stakeholder engagement workshops were held. The workshops confirmed that stakeholder engagement is crucial to the success of this programme. TMM is about working with organisations and people to fully understand how and why people travel in the way that they do, then identifying where and how this can be changed.

Some of the key lessons learnt from this element of stakeholder engagement are:

- TMM will play a crucial role in enhancing other DoT initiatives and TMM is a key link between initiatives and end users. This strategy will therefore ensure that its approaches link to and do not conflict with current and planned DoT projects;
- TMM and land-use planning are intrinsically bound together. Hence the TIS guidance will play an important part in the development of the TMM strategy;
- The municipalities will be important – not only in developing their own staff and visitor TMM plans but also in facilitating the roll out of TMM in their own districts;
- Many of the short term initiatives are similar across the pilots. Therefore the DoT should focus on these elements in the short term (see Chapter 11); and
- The pilots benefit from sharing their early experiences of TMM. This helps to show the importance of communications (see Chapter 13).

2.4.4 Task 3D: Impact assessments

The objectives of this task were to assess the impacts of a range of the suggested TMM measures. There were two different approaches to this:

- Assessment of impacts through modelling using the Abu Dhabi STEAM model (The Strategic Transportation Evaluation and Assessment Model for the Emirate of Abu Dhabi); and
- Assessment of wider impacts through high level calculations and other relevant techniques.

The goal was to assess the possible vehicular trip reduction, mode shift and other associated benefits – such as reduced emissions – that can be achieved through the application of TMM measures.

The modelling of sustainable travel programmes for workplaces and for schools gives an indication of the potential impacts of TMM in Abu Dhabi. These sustainable travel programmes incorporate a package of measures ranging from the provision of company shuttle buses to marketing and awareness raising campaigns. Modelling these has the benefit of being able to examine the impacts of the whole package, including measures which cannot effectively be modelled on their own.

2 Summary of work done to date

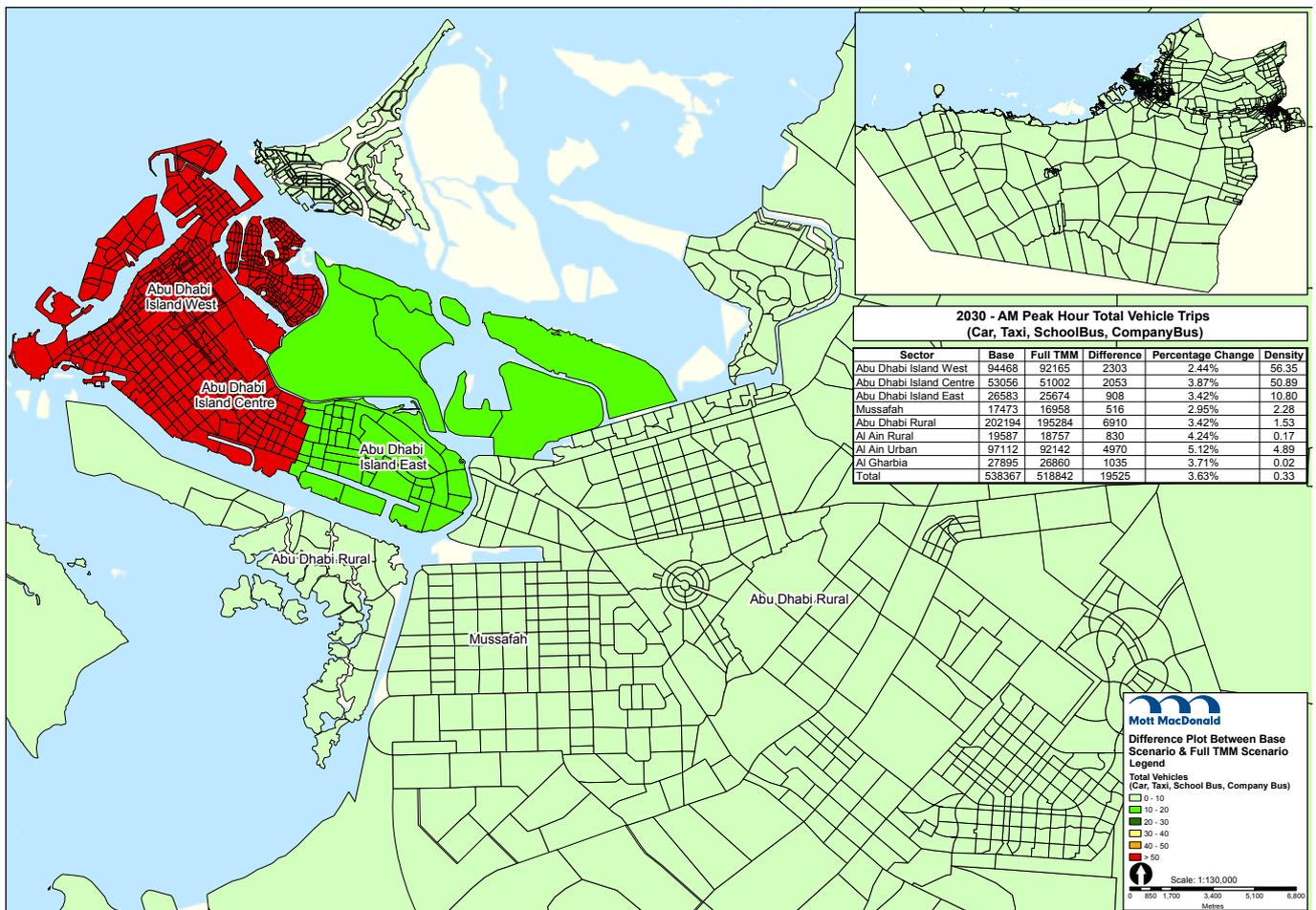
The measures assessed as part of the wider impact assessment outside of the model are as follows:

- Compressed working;
- Car sharing;
- Car clubs;
- Company buses; and
- Smarter working.

TMM measures have the potential to bring about traffic reduction across Abu Dhabi and address congestion in some of the worst affected areas. This can be summarised as follows:

At the sector level, the Emirate wide TMM programme will have the greatest impact in terms of reducing the number of trips per km² by 2030 on Abu Dhabi Island West (reduction of vehicles per km² by 56.35) and Abu Dhabi Island Centre (reduction of vehicles per km² by 50.89), followed by Abu Dhabi Island East (reduction of vehicles per km² by 10.8). It therefore makes a direct contribution to reducing congestion in the worst affected areas on Abu Dhabi Island.

Figure 2.5: Difference in vehicular density by sector



2 Summary of work done to date

At the zonal level, reductions in origin and destination vehicular traffic are relatively evenly spread across the Emirate, with pockets of higher reductions. Average reductions in both origin and destination vehicular traffic are between one and 100 vehicles per zone during the AM peak. TMM can build on this by focusing on areas of new development in Abu Dhabi.

At the road network level, by 2030 a reduction in link volume across the majority of Abu Dhabi is shown. Traffic volume on around 21,000 links will be reduced by up to 20% by 2030 and the number of links with Level of Service (LoS) F (breakdown in vehicular flow) and LoS E (junctions that are operating at capacity) will be reduced by 10% and 5% respectively. This shows how TMM can be especially beneficial in relieving current congestion problems on Abu Dhabi Island.

Some key results of the wider impacts include:

- Compressed working has the potential to reduce trips per fortnight by over 0.5 million by 2030;
- Car sharing has the potential to reduce daily CO₂ emissions by over 100,000kg by 2030;
- Car clubs have the potential to reduce daily car vehicle kilometres by over 100,000 by 2030;
- Company buses have the potential to reduce daily CO₂ emissions by over 300,000 by 2030; and
- Smarter working has the potential to reduce daily trips by over 40,000 by 2030.

The modelling confirmed that some of the greatest impact can be achieved on Abu Dhabi Island compared to the rest of the Emirate. This helps to define the focus of this strategy.

2.5 Task 4

2.5.1 Organisational, legislative and administrative requirements

The purpose of the Task 4 report was to set out the following:

- The social marketing and communications strategy;
- The resourcing and structure for the DoT TMM team;
- The initial programme for TMM;
- How TMM enhances the existing policies and legislation; and

- The identification of any major barriers to the implementation of TMM.

This task builds on Task 1B, which reviewed the existing data and policies in Abu Dhabi and Task 3A, which set out the long-list of measures upon which the resourcing is based.

2.5.2 Social marketing and communications strategy

A targeted approach has been developed for the Social Marketing and Communications Strategy. It ensures that messaging and materials can be tailored as appropriate to different audiences. The target audiences have been identified in terms of the priority groups. Priority groups 1A are those where the DoT should focus most time and resources initially, followed by 1B, 2 and 3 respectively. There are a key set of activities which should be undertaken in the first two years as part of the Social Marketing and Communications Strategy. These activities are targeted at the top priority groups (for example employers/employees or schools). A logo and a series of templates have been produced in order to aid the social marketing and communications strategy. Chapter 13 of this strategy builds on all of these outputs and highlights the importance of marketing and communications for the success of TMM in Abu Dhabi.

2.5.3 Programme

A timetable of proposed DoT transport infrastructure projects and TMM activities until 2030 was compiled. The timetable provides details of the phasing of both short (2011-2015) and long-term (2015-2030) transport projects to illustrate where and when TMM activities can complement and support wider DoT projects and vice-versa. This directly informs the short-term action plan outlined in Chapter 14 of this strategy.

2.5.4 Resourcing

This task identified that six full time DoT staff are required to implement the full TMM programme. Activities have also been developed that will require a further three full time roles for implementation. This could either be through the use of consultancy staff, who would provide support to the DoT, or an expansion of the core DoT team. It also gives some flexibility to the DoT programming in that if some aspects of the programme do not move forward, DoT TMM team resources can be switched to the areas that would otherwise potentially have been out-sourced.

2 Summary of work done to date

The six full time DoT posts comprise:

- TMM Section Head;
- TMM Specialist;
- Lead TMM Officer;
- Lead TMM Engineer;
- TMM Officer
- TMM Engineer
- Assistant Projects Coordinator.

The extent of this strategy is based on the resourcing identified in this task.

2.5.5 Policy and regulations

This section sets out the core legislation and policy issues, including identification of all major constraints that should be addressed to facilitate taking the TMM project forward. This section also highlights how TMM complements and enhances existing DoT policies and objectives.

Furthermore, there are currently conditions that hinder the development of TMM. These result from a lack of, and occasionally counter-productive regulations, policies and legislation. Task 4 outlines a number of proposals on how to better facilitate cycling, car sharing, and public and school bus use, as well as flexible working. Furthermore, proposals to make the development of TMM plans mandatory for certain organisations are under consideration. In order to facilitate TMM to the highest degree and achieve the desired reduction of congestion and associated benefits, the proposed policy, legislative and regulatory changes are urged. Some of these can be addressed with relative ease. Others will require greater legislative changes, such as those proposed to improve conditions for cyclists.

2.6 Task 5

2.6.1 Task 5A: geographical area case study (Markaziyah Sustainable Travel Area)

The objectives of this case study were to develop a proposal for the DoT to set up a pilot for the implementation of TMM measures in a defined geographical area. This will assist in informing how a concentrated application of TMM in a particular location can achieve the desired benefits, such as relieving pressure on the local road network and congestion hotspots, engendering a sense of ownership of the scheme amongst the local community and hence a strong commitment to TMM, and a more cost-efficient delivery of schemes.

2 Summary of work done to date

Figure 2.6: Location of the Markaziyah Sustainable Travel Area



The Task 5A report outlines an approach to stakeholder engagement to obtain maximum benefit from a number of TMM measures including:

- Workplace TMM approach (TMM network and TMM plans for organisations ranging from small to large);
- School TMM approach (TMM network and TMM plans);
- Residential/personalised TMM approach;
- Visitor TMM approach;
- Car sharing and car clubs;
- Walking and cycling initiative; and
- Bus lanes promotion.

2 Summary of work done to date

Traffic modelling was undertaken for the case study area using the Abu Dhabi STEAM model. This identified a potential reduction in traffic in the study area as a result of introducing TMM measures:

- At the study area level, a TMM programme consisting of workplace and school TMM plans will have a considerable impact in the area in terms of a reduction in the number of trips by 2015;
- At the zonal level, the percentage reduction in vehicular trips is relatively evenly spread across the study area, with some zones having higher reductions as a result of high employment in these areas;
- At the road network level, by 2015 there will be a small reduction in link volume across the major links in the study area. This will provide some level of relief to current congested areas within the Markaziyah Sustainable Travel Area; and
- At the intersection level, by 2015 there will be positive impact on junctions in the study area due to workplace and school TMM plans. A reduction in vehicular delay and an improved level of service will help relieve congestion problems in the study area.

The key lessons learnt show that the implementation of this case study and further similar programmes offer a structured approach for the DoT to concentrate on TMM where it will bring the greatest benefits. The geographical area approach of the overarching TMM strategy is outlined in Chapter 5 of this strategy.

2.6.2 Task 5B: TMM plans

This task involved developing TMM plans for the pilot organisations as outlined in Table 2.1 above. Each plan contains a number of targets, alongside an action plan with appropriate TMM measures to achieve these targets. An additional section sets out how the plan should be monitored over the coming three to five years and when a revised plan should be produced.

The process of developing the TMM plans for the pilot organisations has offered a number of invaluable insights into how TMM plans can and should be implemented in Abu Dhabi, including:

- Developing the TMM plans helps to set realistic aims and objectives for the overall strategy to 2015 and 2030 (Chapter 4) by understanding travel patterns and the commitment of organisations to reduce single-occupancy car trips;
- Informing the workplace (Chapter 7), education (Chapter 8) and visitor (Chapter 9) TMM strategies; and
- Helping to identify core initiatives that organisations are willing to sign up to and hence should receive particular support from the DoT (Chapter 11).

2.6.3 Task 5C: TMM as part of the development planning process (part of TIS guidelines)

The DoT plans to introduce a new requirement for developments in Abu Dhabi as part of the development application process. The submission of TMM plans forms an addition to the current TIS process. Depending on the number of trips that are forecast to be generated by the development in the highest peak hour, one of three different levels of TMM plan will be required: a TMM statement; a full TMM plan; or a framework TMM plan. Developers and/or consultants must prepare the relevant type of TIS and the appropriate TMM plan in an iterative process and then submit both documents to DoT for review and approval.

The purpose of the TMM guidelines for new developments is therefore to:

- Establish an Emirate-wide and municipality level policy framework within which the requirement for the preparation of TMM plans for new developments will sit;
- Outline how the requirement for TMM plans will be integrated into the existing policy framework, in particular, the TIS process;
- Define the eligible types of development for which a TMM plan must be prepared and submitted;
- Define the thresholds that determine the type of TMM plan required;
- Set out the required content of each type of TMM plan;

2 Summary of work done to date

- Define the overall process for the preparation, submission and approval of TMM plans;
- Define the process through which DoT will assess each TMM plan and the key evaluation criteria that will be used;
- Outline the overall responsibilities of the developer, site occupier and DoT;
- Establish the framework within which TMM plans will be monitored and enforced; and
- Define the incentives that exist to encourage achievement of targets and the penalties that DoT can impose for non-compliance or where targets are not met.

The toolkit forms a useful guide for those TMM plan practitioners who are developing TMM plans. The best practice guidance on measures, objectives and targets and the case study examples provided in the toolkit will be of particular use, as well as the template residential, workplace, school and visitor TMM plans.

These guidelines are principally aimed at:

- Developers and their consultants, in their role in preparing TMM plans;
- The DoT, in its role in securing TMM plans for eligible developments, reviewing and assessing the quality of TMM plans submitted and undertaking ongoing monitoring activities; and
- Emirate and municipality level policymakers.

Details on all of the requirements can be found in the Task 5C report. This strategy summarises the approach and what this means for TMM in Abu Dhabi in Chapter 6.

2.6.4 Task 5D: TMM toolkit

This toolkit has primarily been developed to assist TMM plan authors and practitioners in the development of TMM plans for existing sites/organisations as follows:

- Schools and other educational institutions;
- Workplaces;
- Residential developments; and
- Visitor attractions.

3 TMM in Abu Dhabi

3 TMM in Abu Dhabi

3.1 Reasons for TMM in Abu Dhabi

As Abu Dhabi continues to grow and develop, congestion is increasing. It affects almost everyone – be it the individual commuting to work or the ways in which entire businesses operate.

Figure 3.1: Tackling congestion in Abu Dhabi



Tackling congestion is one of the main priorities for the DoT and TMM offers an integrated approach to this, encompassing the majority of other DoT schemes and projects.

'Plan Abu Dhabi 2030' outlined a strong vision for sustainability in the development of the whole Emirate. A holistic approach to sustainability is what drives Estidama, a sustainable vision for governance and community development. TMM will directly support this by outlining requirements for developments to have a TMM plan in order to achieve planning permission as well as potentially earning Estidama credits from TMM plans.

Furthermore, TMM can help address accessibility issues, especially in those parts of the Emirate that are currently heavily reliant on the private car. TMM and the development of sustainable transport infrastructure go hand in hand. Schemes such as car sharing or demand responsive transport offer quick-win solutions by providing improved access and more sustainable solutions to the single occupancy car.

In addition to reducing congestion, TMM has the ability to realise wider benefits, most notably reduced CO₂ emissions, economic savings and improved health.

3.2 Strengths, weaknesses, opportunities and threats (SWOT) analysis

The present situation in Abu Dhabi presents unique opportunities for TMM. On the other hand there a number of threats. A SWOT analysis for TMM in the Emirate of Abu Dhabi has been carried out. Strengths and weaknesses are internal to TMM in Abu Dhabi and relate to the present situation. Opportunities and threats are external and relate to changes in the wider environment.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Significantly less resource-intensive than infrastructure projects • Can deliver a lot of quick wins • Long lasting behaviour change • Eases congestion and delivers associated benefits • Transport network is in early stages of new development so can adapt and incorporate TMM elements 	<ul style="list-style-type: none"> • Limited function without supporting infrastructure • A number of measures may take a long time to deliver results • A number of short term measures require a big change in current culture and attitudes • TMM needs to be target group specific (large mix of demographics in Abu Dhabi requires a lot of resources to be spent on segmentation)
Opportunities	Threats
<ul style="list-style-type: none"> • Vision and proactive approach of the Abu Dhabi Sustainability Group • Attitude towards CSR and environmental credentials in Abu Dhabi • Initiatives such as the Walking and Cycling Master Plan taken forward by the DoT • Estdama • Future growth and planned developments in Abu Dhabi • Existence of successful TMM measures – such as the DoT employee shuttle bus service 	<ul style="list-style-type: none"> • Dominant car culture in the Emirate of Abu Dhabi • Road safety issues • Image of walking, cycling and public transport among certain population groups • Cultural issues (i.e. national dress) • Climate not conducive to walking and cycling during the summer • Mistaken perception that TMM is only a European/North American/ Australasian concept

The way in which the weaknesses and threats of highest priority are addressed within this strategy is as follows:

- **Limited function without supporting infrastructure** – there is a need to ensure, in the first instance, that TMM focuses on geographical areas where alternative transport infrastructure is already in place; for example the Central Business District (CBD). The application of TMM in line with further developments as per STMP 2030 is essential to turn this weakness into an opportunity. In addition, at the beginning of the strategy, TMM will focus on flexible and smarter working initiatives which can reduce and retime travel without the need for new transport infrastructure.
- **A number of short term measures require a big change in current culture and attitudes** – By winning the support from key organisations in Abu Dhabi which have the ability to influence policy and people, this weakness can slowly be overcome.
- **Climate not conducive to walking and cycling during the summer** – This is a major barrier in the mind of many individuals. European countries experience similar problems in the winter when the weather can be extremely cold, snowy and icy, yet measures have been successfully implemented in these areas to overcome this problem. By specifically tailoring TMM initiatives to fit the seasons e.g. walking and cycling in winter, people in Abu Dhabi can slowly be introduced to greater use of these modes.
- **Road safety issues** – These need to be addressed through a combination of education and enforcement. This includes road safety training and campaigns as well as more stringent enforcement of standards and offences. The Task 4 Report Organisational, Legislative and Administrative Requirements Section 5 proposes a number of policy and regulation changes to improve road safety for pedestrians and cyclists which are in line with the proposals made by the Abu Dhabi Walking and Cycling Master Plan.

3 TMM in Abu Dhabi

3.3 Overlap with other DoT initiatives

One of the opportunities outlined above is the overlap between TMM and other DoT initiatives. TMM has the ability to reinforce and support the projects outlined in Table 3.1.

While the infrastructure is a good basis for modal shift, a cycle lane alone will not turn a regular car driver into a cyclist. There is therefore a need for TMM in order to achieve the target modal split. Equally, information provision will not be sufficient to bring about behaviour change. Habit is the single most important factor to address through information and marketing campaigns, as it is the biggest barrier to behaviour change. The aim of TMM is to turn negative habits (such as automatically choosing the car as the preferred mode of transport) into positive habits (such as always considering sustainable modes first).

Table 3.1: Overlap between TMM and other DoT initiatives

Initiative	Description	Contribution of TMM
Abu Dhabi Bus Master Plan	This provides information on current and estimated future bus usage as well as bus routes for the Emirate.	Buses are a key alternative mode promoted in TMM. In particular, faster and more reliable bus travel on dedicated bus lanes presents a significant opportunity.
Bus Office Operational Readiness Plan	This plan outlines the current situation of bus transport operations in the Emirate of Abu Dhabi and plans to prepare the DoT Bus Office for the anticipated growth and demand for bus services and the challenges ahead.	
Exclusive Bus Lanes Project	This project proposes a number of dedicated bus lanes on Abu Dhabi Island (Hamdan St and Sheikh Zayed the First Street).	
Abu Dhabi Walking and Cycling Master Plan	This proposes a number of walking and cycling demonstration areas in downtown Abu Dhabi, which will improve infrastructure for walking and cycling in the heart of Abu Dhabi City. It also plans further initiatives to encourage these modes in areas outside Abu Dhabi Island.	There is a strong interface between this and the TMM strategy as walking and cycling are key elements of TMM. TMM will help raise the profile of walking and cycling, educate people about the benefits and safe usage of the facilities.
Abu Dhabi Demand Responsive Transport (DRT) Study	This study is based on extensive analysis of different population characteristics. On this basis it makes recommendations as to where DRT is feasible and should be implemented.	DRT is a viable TMM alternative, especially in suburban and more rural areas that do not have the same level of alternative public transport provision as Abu Dhabi and Al Ain cities. This ensures that TMM can be applied to the whole of the Abu Dhabi Emirate and not just its major centres.
School Travel Planning and Bus Specification Study	This study explores the perceptions and views of parents, students and school staff on the current school bus provisions in the Emirate of Abu Dhabi. Surveys, focus groups and site visits formed part of the data collection for this study. It highlights the main barriers to taking up school bus services.	TMM directly helps to promote the use of school buses by requiring schools to develop TMM plans and education, promotion and training initiatives.
Light Rapid Transit (LRT) Feasibility Study & Metro Feasibility Study	The two studies are looking at the feasibility and fare structure of these modes.	Like bus transport, LRT and metro are alternatives to the car which will be promoted through the TMM strategy and organisation specific TMM plans.

3 TMM in Abu Dhabi

Initiative	Description	Contribution of TMM
Freight Master Plan	Master Plan for freight movement across the Emirate of Abu Dhabi.	While the TMM strategy does not directly address freight, moving it off the roads can have a significant impact on improving conditions for pedestrians, cyclists and public transport users. In time, organisations implementing a TMM plan for staff can extend this to their suppliers.
Road User Charging Study	Road user charging is proposed for a number of areas in Abu Dhabi Island.	The areas of coverage and the charging structure will have an impact in terms of encouraging people to use alternative modes of transport and improving conditions by freeing road capacity.

4 Key TMM goals and targets

4 Key TMM goals and targets

4.1 Overall goals of the strategy

The overall goals of the TMM strategy for Abu Dhabi are:

- To encourage a change of attitude and behaviour towards greater use of sustainable modes of transport; for example, public transport, collective transport, walking, cycling and water combinations.
- To improve access to public transport for all people and organisations by strengthening the conditions for sustainable modes of transport.
- To satisfy mobility needs via a more efficient and integrated use of existing and planned transport and land-use infrastructure.
- To reduce traffic growth and congestion by achieving a mode shift from private motorised vehicle trips to a more efficient and sustainable mode of transport.
- To create an efficient multimodal public transport network that will facilitate the interconnection and inter-operability of associated transport networks.
- To increase the economic efficiency of the entire transport system.
- To establish a framework for site specific TMM plans in Abu Dhabi.

In addition to these overarching goals there are a number of key targets that the strategy aims to achieve in a set timeframe. These can be split into aim-type and action-type targets. Aim-type targets relate to thresholds for TMM plan implementation. Action-type targets relate to the implementation of specific stand-alone initiatives.

4.2 Targets during 2012/2015

There are three main action-type targets which the DoT will implement by 2015 in order to launch the TMM strategy. These targets will be supported by a number of actions that are outlined in Chapters 11 and 14.

Table 4.1: Targets during 2012-2015

Initiative	Target
Action-type targets	
Car sharing	By 2015 a fully operational car sharing scheme will be in place in Abu Dhabi.
Flexible working	By 2015 a flexible working policy will be in place that will allow individuals to apply to work flexibly in terms of times and/or location.
Markaziyah Sustainable Travel Area	By 2014 the Markaziyah Sustainable Travel Area will be implemented as the first of a number of geographically concentrated Sustainable Travel Areas.
Company buses	By 2015 the DoT will draw up a detailed programme of how to roll out staff shuttle buses including policy, standards and giving support to organisations that are planning to implement such a service.

4 Key TMM goals and targets

4.3 Targets from 2015-2020

The DoT seeks to achieve the targets listed in Table 4.2 between 2015 and 2020.

Table 4.2: Targets to 2020

Initiative	Target
Action-type targets	
Workplace TMM plans	Public sector By 2020 15% of public sector organisations with above 500 employees at any one site will be required to have a TMM plan.
	Private sector By 2020 10% of private sector companies with above 500 employees at any one site will be required to have a TMM plan.
Education TMM plans	Schools By 2020 15% of public and private schools with above 500 pupils at any one site will be required to have a TMM plan.
	Universities By 2020 30% of public and private universities will be required to have a TMM plan.
Visitor TMM plans	By 2015 visitor TMM plans have to be developed if the number of visitors at any one site on any given day during the year exceeds 2,000 visitors per day.
Action-type targets	
Sustainable Travel Areas	By 2015 two further Sustainable Travel Areas will be implemented in Abu Dhabi City. The Al Ain Schools network will also be implemented by 2015.

4.4 Targets to 2025

There are a number of intermediate targets to 2025 which are listed in Table 4.3.

Table 4.3: Targets to 2025

Initiative	Target
Aim-type targets	
Workplace TMM plans	By 2025 50% of private sector companies with above 500 employees at any one site will be required to have a TMM plan.
Education TMM plans	Schools By 2025 50% of public and private schools will be required to have a TMM plan.
	Universities By 2025 50% of public and private universities will be required to have a TMM plan.

4 Key TMM goals and targets

4.5 Targets to 2030

Finally, the DoT seeks to achieve the following targets by 2030.

Table 4.4: Targets to 2030

Initiative	Target
Aim-type targets	
Workplace TMM plans	<p>Public sector</p> <p>By 2030 all public sector organisations with above 100 employees at any one site will be required to have a TMM plan. Those with less than 100 employees will be required to have a TMM statement.</p> <p>Private sector</p> <p>By 2030 all private sector companies with above 500 employees at any one site will be required to have a TMM plan.</p>
	<p>Schools</p> <p>By 2030 all public and private schools will be required to have a TMM plan.</p> <p>Universities</p> <p>By 2030 all public and private universities will be required to have a TMM plan.</p>
Action-type targets	
Sustainable Travel Areas	By 2030 three further Sustainable Travel Areas will be implemented in Abu Dhabi, which will bring the total number of Sustainable Travel Areas to seven.

4.6 Beyond 2030

Finally, it is important to note that while the vision of this strategy has been developed to 2030, this is not the end of the development of TMM in Abu Dhabi. As is highlighted throughout this strategy, TMM is a continuous process of development requiring the revision and updating of goals and targets in line with previous achievements and the most recent developments.

5 Geographical focus of TMM



5 Geographical focus of TMM

5.1 The importance of a geographical focus

The TMM strategy has a number of geographical and sectoral focus points. This chapter explains the geographical focus and how this will help to take TMM forward.

The immediate focus of the TMM strategy will be the Abu Dhabi CBD and Abu Dhabi Island. The reasons for this include:

- This area currently experiences some of the worst congestion in the Emirate;
 - There is a dense mix of residential and commercial land-uses which both generate and attract a significant number of trips throughout the day;
 - There is the largest number of alternative modes available in the Emirate; and
 - Modelling the impacts of workplace and school TMM programmes across the Emirate shows that:
 - At the sector level the highest density reductions by 2030 occur on Abu Dhabi Island West and Abu Dhabi Island Central at 56.35 and 50.89 fewer vehicles per km² respectively; and
 - At the road network level there will be, especially on Abu Dhabi Island, an improved junction LoS.
- Ability to bring about greatest change – where it will make the biggest difference;
 - Relieving pressure on the local road network and congestion hotspots; and
 - Engendering a sense of ownership of the scheme amongst the local community and hence a strong commitment to TMM.

The Markaziyah Sustainable Travel Area is the first Sustainable Travel Area in the Emirate of Abu Dhabi. Its implementation will commence in 2013. It is located in the CBD which, as outlined above, will be the immediate focus of the TMM strategy. The Markaziyah Sustainable Travel Area was chosen from a long-list of eight areas. Table 5.1 sets out recommendations for further Sustainable Travel Areas in order of priority.

As other areas in Abu Dhabi develop there will be a rippling effect from the CBD in the concentrated application of TMM.

5.2 Sustainable Travel Areas

The application of TMM through geographical Sustainable Travel Areas – such as the Markaziyah Sustainable Travel Area developed in Task 5A (see Task 5A Report *Application of Transport Mobility Management in a geographical case study*) – has a number of benefits and it is therefore recommended. The main benefits are:

- The focused use of the DoT's TMM team;
- Pooling of resources between the organisations in the Sustainable Travel Area;
- Structured approach to implementation across the Emirate of Abu Dhabi;
- Ability to focus on areas where particular challenges are experienced;

5 Geographical focus of TMM

Table 5.1: Recommendations for future Sustainable Travel Areas

Area	Reasoning
Abu Dhabi	
Abu Dhabi Airport Campus Area	<ul style="list-style-type: none"> • Clearly defined area • A lot of trips taking place between the different locations on the site which opens up opportunities for TMM • In the long term visitors can benefit from measures implemented for staff • Includes one of the TMM pilot sites: ADAC
Al Mamoura Area	<ul style="list-style-type: none"> • High density of employees (especially public sector) • Small geographical area has the benefit of making it easier to pool resources and implement joint measures • Proximity to the CBD • Interested stakeholders • A number of bus routes operate along Murour Street • Includes two TMM pilot organisations: Environment Agency and DoT Aviation Office
Tourist Club Area	<ul style="list-style-type: none"> • The area includes a combination of residential and employment sites as well as a number of hotels • The CBD experiences particular congestion problems, especially at peak times • Focus for the implementation of the Walking and Cycling Master Plan • According to the Bus Master Plan, it is an area of principal demand in central Abu Dhabi • The area is well served by a number of bus routes (5, 6, 7, 8, 9, 11, 44, 52, 54, and 56) • Includes one of the TMM pilot sites: TAQA
Al Bateen Area	<ul style="list-style-type: none"> • The area includes a combination of residential and employment sites • Central Abu Dhabi experiences particular congestion problems, especially at peak times • The area is one of primary focus for the Walking and Cycling Master Plan • The area includes a cluster of schools in the north of Al Bateen • The area includes one of the TMM pilot sites: DoT Head Office
Yas Island	<ul style="list-style-type: none"> • Clearly defined area • A lot of planned future development on the island constituting a mix of tourism, retail and other employers • A lot of scope for travel between the locations on the island e.g. tourists travel from hotels to the Yas Marina Circuit, to Ferrari World etc • Includes one of the TMM pilot sites: Yas Marina Circuit

5 Geographical focus of TMM

Area	Reasoning
Sheikh Khalifa Park (2-4-54)	<ul style="list-style-type: none"> • Area is well defined • Relatively large number of employees in the area • Organisations are concentrated in a relatively small geographical area which has the benefit of making it easier to pool resources and implement joint measures • Experiences access problems as it is not well served by public transport • Includes one of the TMM pilot sites: AHS Head Office
Al Ain	
Khaled Bin Sultan Street (Schools Road)	<ul style="list-style-type: none"> • Area can be relatively easily defined • Area experiences severe congestion during school start and finish times • Relieving congestion in the area is a priority for Al Ain Municipality, which is implementing a number of infrastructure improvement measures in the area • Includes two TMM pilot sites: Al Dhafra and Choueifat schools

The above list is not exhaustive and is flexible. As Abu Dhabi develops and changes, the areas of priority may shift and the roll-out of the Sustainable Travel Areas will need to reflect that.

5.2.1 Potential benefits

Implementing TMM through Sustainable Travel Areas is advantageous because greater benefits can be achieved through an integrated package of measures that complement and support each other. Local policies supported by a package of measures bring about a greater mode shift than individual measures alone. Research has found that during the peak, local policy packages have the potential of changing 21% to 25% of car trips to more sustainable forms of transport in large urban areas, compared to only 9% as a result of individual measures.²

5.3 Supporting specific infrastructure

A further geographical area focus of the TMM strategy relates to supporting infrastructure. The use of sustainable modes should be promoted to those people living, working or studying near new or improved facilities e.g. along bus routes. This ensures a focused application of TMM to the right target groups.

The priority for the TMM strategy is to promote the use of those DoT projects that are currently being developed, such as bus lanes, walking measures and cycling loops etc. (see Table 3.1).

The programme for further promotion should be set in line with the development and implementation of new DoT schemes e.g. LRT, metro etc.

² Cairns S et al (2004) 'Smarter Choices – Changing the Way We Travel' Report for the UK Department for Transport

5 Geographical focus of TMM

5.4 Different areas of focus across the Emirate

As Abu Dhabi, Al Ain and Al Gharbia all have very different transport situations; the thematic focus of the TMM strategy will be different for each municipality. Emerging issues have already been shown on the map in Figure 2.1. However, for all three municipalities, the respective STMPs (Al Gharbia STMP forthcoming) aim to drive forward the development of sustainable transport, of which TMM is a key component.

5.4.1 Abu Dhabi

Congestion in Abu Dhabi is an issue, particularly during the peak period and particularly on Abu Dhabi Island. In Abu Dhabi the focus will therefore be on commuter, education and visitor trips.

Figure 5.1: Attractions on Yas Island



In addition, there are various visitor destinations in the area, such as Yas Island, ADNEC, ADACH, and numerous hotels. TMM will also address these. Furthermore, Yas Island is a focus of the strategy in the medium term as the area is forecast to grow as a tourism and residential location but at the moment has only limited connectivity.

5.4.2 Al Ain

In Al Ain the focus is on school trips, particularly around Khaled bin Sultan Street (Schools Road) where 33 schools are located in the same area. In Al Ain the focus will therefore be on education trips.

Figure 5.2: Car park congestion outside schools on Khaled bin Sultan Street

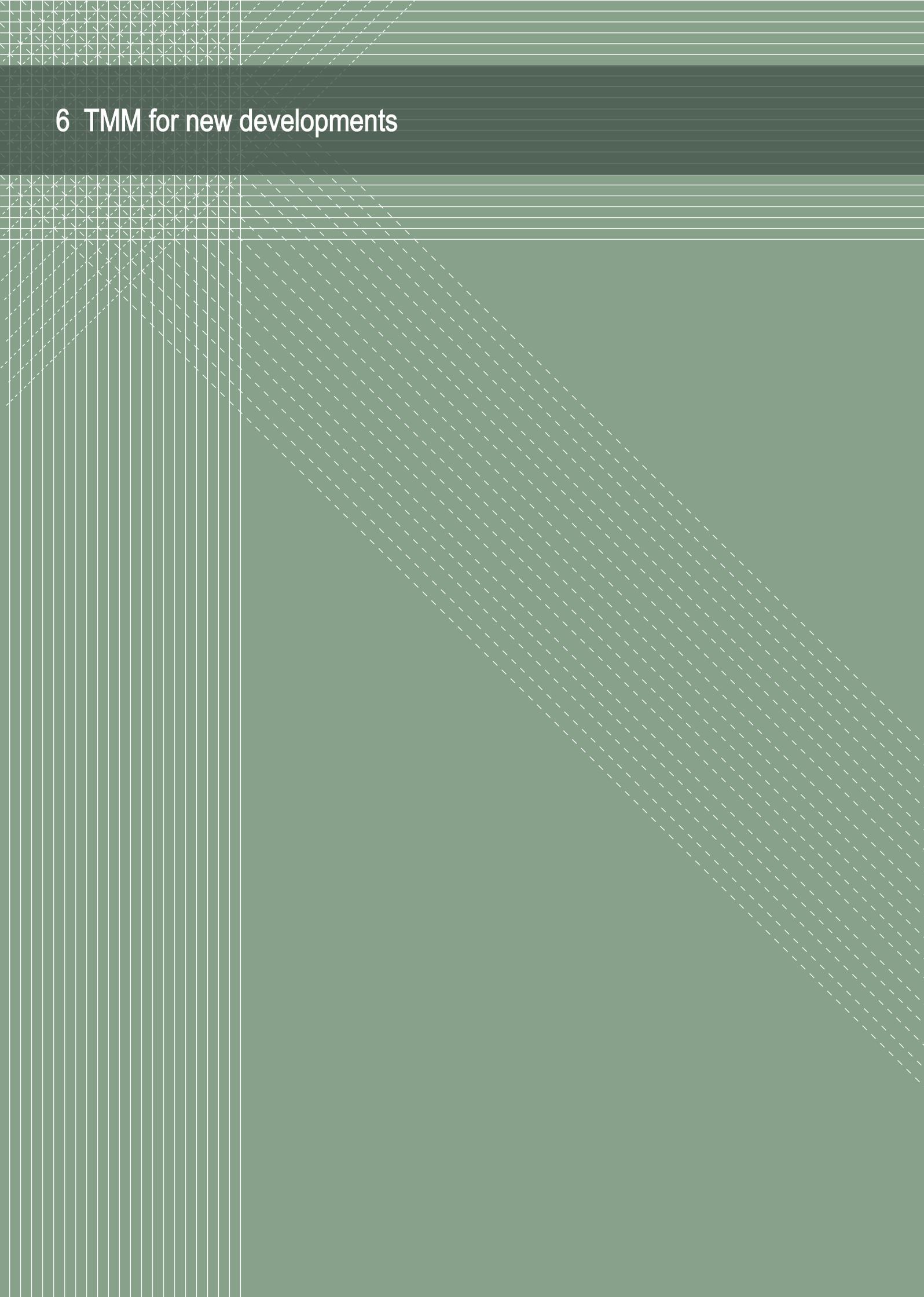


Severe congestion and car parking shortages are experienced during school start and finish times. TMM offers considerable potential to address this situation by promoting alternative forms of transport and encouraging schools to work together.

5.4.3 Al Gharbia

Due to far lower population densities in Al Gharbia there are fewer congestion problems in comparison with Abu Dhabi Island. Future plans for the Al Gharbia region are to promote tourism to a number of key destinations along the coast. Many overseas tourists arrive by aeroplane rather than by car and TMM offers an alternative to car rental for visitors. In addition, the promotion of alternatives to the single occupancy car such as car sharing or DRT can improve access for those in remote areas who do not own or cannot drive a car.

6 TMM for new developments



6 TMM for new developments

6.1 The situation in Abu Dhabi

'Plan Abu Dhabi 2030' forecasts 3.1 million residents in the Abu Dhabi Municipality by 2030. This forecast shows that the area's population will more than triple within the next 20-25 years.

Figure 6.1: Traffic impacts of new developments



The number of new developments, redevelopments and extensions to existing sites that are currently under construction or that are planned will generate significant additional trips that need to be accommodated on the road and public transport network. This will put additional pressure on the already congested road network, particularly during the AM and PM peaks, when the highest levels of congestion occur.

The requirement that TMM plans be prepared and submitted alongside the TIS for these developments will help address this issue, by reducing the number of vehicle trips generated and thus lessening the potential impact on the road network. In addition, introducing TMM plans at the earliest stage of a development will assist with the implementation of TMM once the building is occupied. TMM plans can also contribute to wider policy objectives, such as reducing the level of pollutants in the air and encouraging healthy, active lifestyles. The following sections in this chapter outline the requirements for preparing and submitting TMM plans as part of the development process and the benefits that such a requirement brings.

6.2 The role of TMM for new developments and redevelopments

6.2.1 Policy framework

Emirate wide and municipality level policy is explicit in its support for the development of a sustainable transport system that provides appropriate travel alternatives to the private car across the Emirate of Abu Dhabi. In addition, the theme of Transit Oriented Development links together land-use and planning policies to facilitate the location of new developments in areas that are already accessible by sustainable modes. Mixed-use developments which provide on-site amenities and services are encouraged, as these can reduce the overall need to travel. These elements offer a robust framework within which to develop the requirement for development-based TMM plans, as these are an important tool for both the land-use and transport planning systems, within which sustainable transport objectives can be delivered.

A TIS is already a key part of all development planning applications in the Emirate of Abu Dhabi and the requirement for the submission of a TMM plan for each qualifying development essentially forms an addition to the current TIS process. Depending on the number of trips that are forecast to be generated by the development in the highest peak hour, location of the development and type of land-use, one of three different levels of TMM plan will be required; a TMM statement, a full TMM plan or a framework TMM plan.

The developer and/or its consultants must prepare both the relevant type of TIS and the appropriate TMM plan in an iterative process and then submit both documents to DoT for review and approval. The preparation of a TMM plan will complement the TIS in that it will set out targets for minimising the traffic impacts of that site over a defined period of time and it will also introduce specific measures and initiatives that will facilitate travel by sustainable modes.

6 TMM for new developments

The Pearl Rating System (PRS) for Estidama is the Emirate of Abu Dhabi's sustainable development programme for the built environment. The PRS provides guidelines and detailed key performance indicators, known as credits, for rating a project's potential performance in relation to the four pillars of Estidama: environmental, economic, cultural and social, as well as a number of PRS categories. Within each category, there are both required and optional credits and points are awarded for each optional credit achieved. In order to achieve one pearl rating, all required credits must be met. Higher pearl rating levels require compliance with all required credits along with a minimum number of optional credits.

The elements within Estidama that bear relation to TMM plans are as follows:

- LC-1 Transit Supportive Practices;
- LC-8 Travel Plan;
- LB0-6 Public Transport; and
- LB0-9 Travel Plan.

Currently, the preparation of a TMM plan for a new development gains the developer an additional credit point. Following implementation of the requirement for TMM plans to be submitted alongside the TIS for new developments, it is proposed that this will become a required item under Estidama.

6.2.2 Abu Dhabi context

6.2.2.1 Population growth

Population growth is predicted for all three municipalities. The STMP for each municipality (Al Gharbia STMP forthcoming) identifies how to cater for this growth.

Abu Dhabi metropolitan area

The majority of the population of the Emirate of Abu Dhabi is concentrated in the Abu Dhabi metropolitan area, which is in parts highly developed. The Abu Dhabi metropolitan area can broadly be divided into three regions: the island, the mainland and the north coast. The population is heavily concentrated on the island, especially on the 'north side' (along the Corniche) and along a corridor running down the island's central core from the Corniche towards the mainland. Congestion and other adverse impacts are hence most concentrated in this area and it is in this area that the highest number of trips are generated, which can be targeted for a shift towards more sustainable modes.

6 TMM for new developments

Figure 6.2: Population distribution in the Abu Dhabi metropolitan area (2005)



In the future, approximately equal population numbers are predicted to live on Abu Dhabi Island and the mainland areas. As Abu Dhabi Island is much smaller in surface area than the mainland, population density on the island will inevitably be higher. The overall areas of residential focus will be similar in 2030 compared to the present, with a number of additional developments coming forward, such as Saadiyat Island.

Al Ain

In Al Ain, the Central District is the only part with a high population density. Al Ain's population is projected to more than double by 2030 and, in addition to the Central District, it is expected that the majority of Al Ain's population will live in areas such as Al Maqam, Asharej and Al Muwajji. A second north-south axis of higher densities comprises of Hili, Al Jimi, Al Mutarehd and Sanaiya. The planned Gateway-Corridor focuses growth and density along an east-west axis running towards the Central District, as well as on a number of pockets on the city's edge.

6 TMM for new developments

Al Gharbia

Al Gharbia is characterised by a large geographic spread and low population density and the current total population of the region is just over 120,000. There are seven major population centres in Al Gharbia; Madinat Zayed, Mirfa, Ghayathi, Liwa, Ruwais, Sila'a, and Delma Island. Population density is spread across these seven areas, with the highest concentrations in Madinat Zayed and Ruwais. Figures on population growth are not available at present for this region.

Due to the amount of development currently taking place in the Emirate of Abu Dhabi and the existing varied population distribution, the requirement for the submission of a TMM plan for new developments has been based on a threshold, rather than the geographical area in which the development is located. The relatively uniform distribution of population in Al Ain also illustrates the fact that TMM plans need less of a geographical and more of a conceptual focus.

6.2.2.2 Population characteristics

Abu Dhabi has a highly varied population, which must be taken into account when preparing TMM plans, both as part of the development planning process and for existing sites. Population estimates for the Emirate of Abu Dhabi in mid-2009 show that 22% of the population are nationals. The remaining 78% that are classified as non-national comprise of other Arabs, western expatriates and Asian expatriates.

Each of these groups has very different characteristics in terms of travel behaviour, which need to be taken into account during the development of any TMM plan. TMM plans must contain measures that are appropriate and applicable to each cultural group that will use that particular site; for example, employees of an organisation or visitors to an attraction.

6.3 Requirements for TMM plans as part of the development planning process

6.3.1 Introduction

The full guidelines that set out the requirements for development related TMM plans are contained in the document, *Requirement for securing TMM Plans through the TIS Process*. This document forms part of a wider TMM Plan Toolkit, which primarily assists TMM plan authors and practitioners in the development of TMM plans for existing sites, but which is also relevant to those who are developing TMM plans for new developments. The remainder of this section provides an overview of the benefits of TMM for new developments, the TMM guidelines and the *TMM Plan Toolkit*.

6.3.2 The benefits of TMM plans in the development planning process

One of the key elements of TMM is the integration of transportation and land-use planning. The integration of sustainable travel options into the planning process can deliver TMM plans and sustainable travel measures and initiatives that are effective, convenient and have longevity. The benefits of sustainable travel are far reaching and extend beyond achieving reductions in carbon dioxide emissions and climatic impacts. Indeed, a comprehensive and robust TMM strategy can deliver wider social and economic goals, including tackling rising congestion levels and improving overall quality of life.

The preparation, implementation and ongoing enforcement of TMM plans for new developments and redevelopments can bring benefits for a number of groups, as summarised in Table 6.1.

6 TMM for new developments

Benefits	Developer	Occupier	Site Users	Local Residents	Local Authority	Abu Dhabi Society
Social						
Wider range of travel choices		✓	✓	✓		✓
Improved site access / access to key services	✓	✓	✓	✓		✓
Reduced traffic congestion	✓	✓	✓	✓	✓	✓
Opportunities for active travel / improved public health		✓	✓	✓	✓	✓
Contribution towards local policy objectives					✓	✓
Economic						
Reduced demand for parking spaces; thus size of building footprint can be increased	✓	✓	✓	✓	✓	
Decreased time lost due to business travel / improved efficiency		✓	✓	✓	✓	✓
Reduced need for physical infrastructure provision e.g. highways					✓	✓
Environmental						
Local environmental improvements e.g. reductions in pollution levels		✓	✓	✓	✓	✓
Corporate Social Responsibility / contribution towards meeting an organisation's environmental objectives	✓	✓	✓		✓	✓

6.3.3 Process and requirements for securing TMM plans as part of the development process

This section provides a summary of:

- The types of development for which a TMM plan is required;
- The thresholds that determine the type of TMM plan required; and
- The process through which developers and the relevant public authorities can engage effectively during the preparation stage to ensure that a compliant TMM plan is submitted.

The DoT is the public agency responsible for the assessment and approval of all TMM plans submitted as part of the planning process.

A TMM plan must be prepared and submitted alongside the TIS for the following types of development in the Emirate of Abu Dhabi:

- All new major developments, apart from Individual Emirati houses and individual residential villas, which are exempt;
- Extensions to/redevelopments of existing sites, with the exception of individual Emirati houses and individual residential villas, which are exempt; and
- Those developments which have already had a TIS approved by DoT but have not yet commenced/completed construction, provided that construction will complete after 31 December 2014. In these cases, a TMM plan should be produced retrospectively to align with the approved TIS.

The requirements for TMM plans that are prepared for extensions to existing sites are the same as those for new developments and redevelopments. However, it should be noted that the TMM plan must cover the site as a whole, and not just the extension. This means that the type of TMM plan required will be based on the number of trips that the completed site is forecast to generate as a whole.

6 TMM for new developments

Depending on the number of trips forecast to be generated by the development during the highest peak hour, one of three types of TMM plan will be required, as shown in Table 6.2.

Table 6.2: Development scale thresholds for TMM plans

Definition	Trip Generation (Highest Peak Hour)	Type of TMM Plan Required
Small Development	No more than 99 trips	TMM statement
Medium Development	100-2,500 trips	Full TMM plan
Large Development (single land-use/occupant)	More than 2,500 trips	Full TMM plan
Large Development * (mixed land-use/multiple occupants)	More than 2,500 trips	Framework TMM plan supported by individual TMM plans/Statements (dependant on trip generation) for each land-use/occupant

* Where a large development is proposed that comprises either a mixture of land-uses and/or multiple occupants, a framework TMM plan is required. A framework TMM plan is a full TMM plan that is prepared for the site as a whole (which can comprise of one building or several buildings with multiple occupants) and which sets overall objectives, targets and measures for the entire site. It will be managed by the Site Manager, Building Manager or similar person. The framework TMM plan will set the parameters for individual buildings/occupants to prepare and implement their own full TMM plan or TMM statement (depending on the number of trips forecast to be generated). Each individual full TMM plan or TMM statement must be consistent with the wider objectives and targets of the framework TMM plan and should be managed by a designated TMM Plan Coordinator within each building/organisation.

6.3.4 TMM planning process

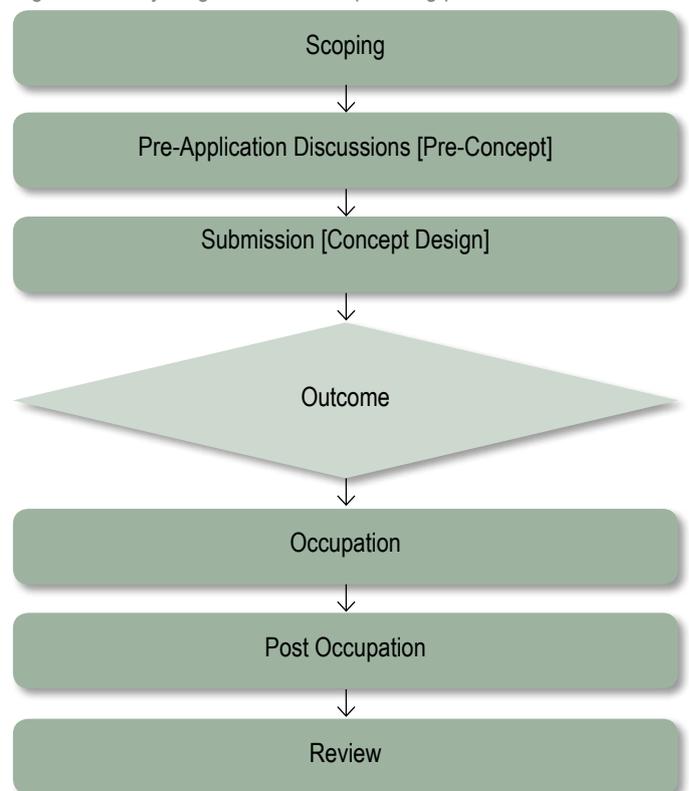
The key stages in the TMM planning process are set out in Figure 6.3 and Table 6.3 overleaf. The key stages in the TMM review process are shown in Figure 6.4 overleaf. The TMM plan must be submitted alongside the TIS/Transportation Master Plan (TMP) that is prepared for a particular development for DoT review and approval.

The type of TIS and TMM plan required for a particular development should be discussed and agreed with the DoT at the TIS Application Stage. The developer and/or the developer's consultant should

then prepare and submit both the TIS and the TMM plan to DoT for review prior to submission of the final planning application to the Urban Planning Council (UPC). The DoT will then undertake the necessary consultation with relevant authorities to agree the key elements of the TMM plan before the final approval. Following this, the final TIS and TMM plan should be prepared and submitted to DoT for approval.

The TMM plan should be fully implemented within six months of first occupation or at 25% occupation, whichever is sooner. Following this, the developer will then pass the responsibility for managing the plan and undertaking the ongoing monitoring activities to a designated TMM Plan Coordinator or an appropriate occupant, depending on the development's size. That person will then continue to engage with the DoT to ensure the plan's continuing relevance and effectiveness.

Figure 6.3: Key stages in the TMM planning process

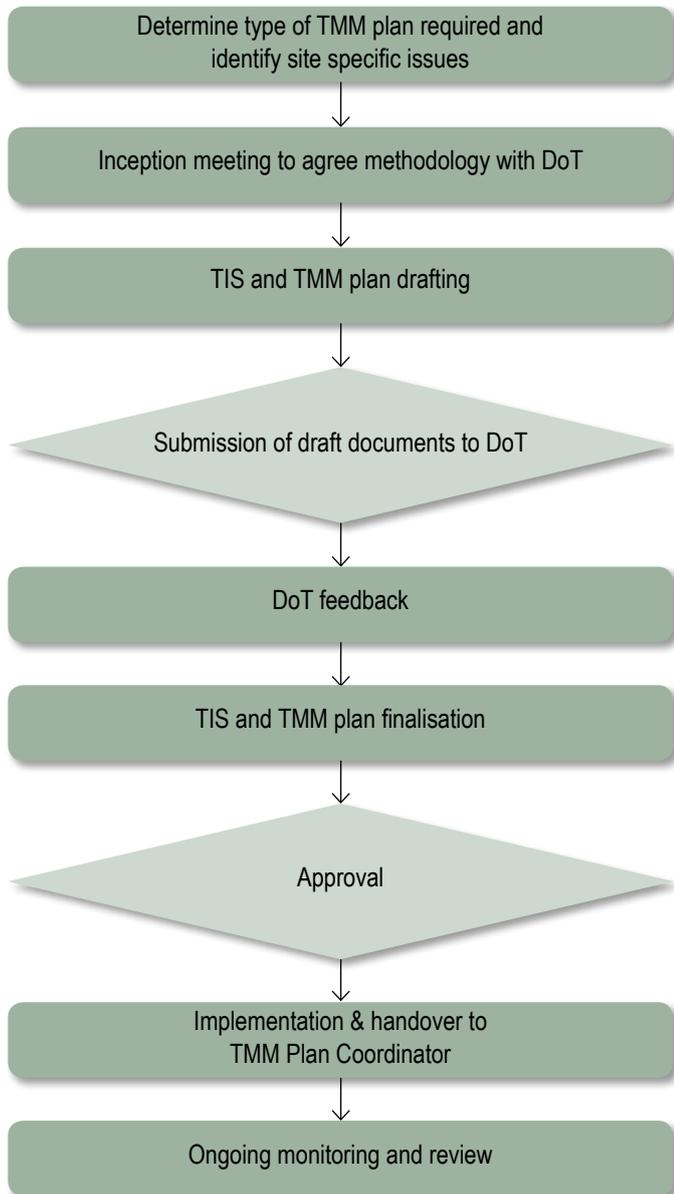


6 TMM for new developments

Table 6.3: Key stages and responsibilities in the TMM planning process

Stage	Activity
Scoping	<p>Developer and the DoT discuss and agree the type of TMM plan required, based on the specified thresholds.</p> <p>Developer and the DoT discuss and agree the key site specific issues that must be considered as part of the TMM plan and the outcomes sought.</p> <p>Developer and DoT discuss and agree the way in which the TMM plan will be integrated with the TIS prepared for the development/site.</p>
Pre-Application Discussions [Pre-Concept Stage]	<p>Developer/developer's consultant develops the methodology and after agreement from DoT begins to draft the TIS and TMM plan and undertakes necessary consultation with all stakeholders.</p> <p>Developer/developer's consultant jointly submits draft TIS and TMM plan to DoT for initial review.</p> <p>DoT provides the developer/developer's consultant with feedback on the draft documents.</p>
Submission [Concept Design Stage]	<p>Final TIS and TMM plan are jointly submitted to DoT at the final planning application stage.</p> <p>DoT carries out final assessment of the TIS and TMM plan to determine compliance with requirements.</p> <p>DoT and the developer/developer's consultant agree any final amendments to the TIS and TMM plan and supporting documentation.</p>
Outcome	<p>DoT informs the developer/developer's consultant of the outcome of the review of the TIS and TMM plan.</p> <p>Based on the outcome of the TIS and TMM plan the UPC informs the developer of the outcome of the development planning application.</p> <p>Following TMM plan approval, the DoT will enter the relevant details onto a centralised database to facilitate ongoing monitoring.</p> <p>Developer or appointed representative collects necessary baseline information and begins implementation of measures.</p>
Occupation	<p>Developer or appointed representative ensures full implementation of TMM plan, including appointment of a TMM Plan Coordinator.</p> <p>DoT and developer or appointed representative agrees handover responsibilities to the TMM Plan Coordinator.</p>
Post (initial) occupation	<p>Occupier/TMM Plan Coordinator undertakes necessary data collection, monitors progress against targets and submits the necessary information to the approving body, in line with agreed timescales.</p> <p>DoT ensures ongoing measures continue to be delivered.</p> <p>If targets are met, occupier/TMM Plan Coordinator continues to monitor.</p> <p>If targets are not met, occupier/TMM Plan Coordinator and DoT to discuss and agree the necessary amendments to the plan.</p>
Review	<p>Incentives to be provided to encourage meeting targets e.g. financial contribution towards implementing measures and/or penalties to be imposed where targets are not met.</p>

Figure 6.4: TMM development and review process



6 TMM for new developments

6.3.5 TMM plan design and content

The overarching objective of any TMM plan is to encourage a shift in the travel behaviour of site occupiers and users towards the use of more sustainable modes. The TMM plan should be set out in a single, integrated document that adequately addresses the unique characteristics of each site/organisation. One of three types of TMM plan is required as part of the development process; the required content of which will differ. Developers must adhere to the requirements for the relevant type of plan in order to gain DoT approval. These are set out in Table 6.4.

Table 6.4: Requirements for each type of TMM plan

Activity	TMM Statement	Full TMM Plan	Framework TMM Plan
Baseline Information	<p>Identification of main mode of travel to & from the site.</p> <p>Identification of the key travel opportunities and constraints.</p>	<p>Site assessment – identification of the key travel opportunities and constraints.</p> <p>Establish level & nature of travel – either through travel surveys or through trip generation/mode split forecasts.</p> <p>Baseline travel surveys to be carried out following occupation.</p>	<p>Site-wide assessment – identification of the key travel opportunities and constraints.</p> <p>Travel surveys/trip generation & mode split forecasts to be undertaken at the organisational/building level and then amalgamated to derive the overall mode split for the site as a whole.</p>
Objectives and Targets	<p>Identification of between two and four high level objectives.</p>	<p>Identification of site specific objectives that align with wider policy in Abu Dhabi.</p> <p>Identification of both aim-type and action-type targets.</p>	<p>Identification of the overall strategic objectives developed for the site that each constituent's full TMM plan/Statement should support.</p>
Measures	<p>Identification of the key measures that will be implemented and the actions that will be taken, within specified timescales.</p>	<p>Identification of both soft and hard measures that will facilitate and encourage sustainable travel to and from the site.</p>	<p>Definition of the actions that need to be undertaken across the entire site.</p> <p>Other measures to be defined at the site/organisation level.</p>
Management	<p>Identification of the person responsible for the management of the plan and their responsibilities in terms of ongoing monitoring and reporting to DoT.</p>	<p>Name and contact details of designated TMM Plan Coordinator and identification of the specific tasks that they will carry out.</p> <p>Action Plan that sets out each action that will be undertaken to implement, manage and monitor the plan.</p> <p>Information on how the plan will be funded going forward.</p>	<p>Identification of the constituent organisations/buildings that occupy the site and thus fall under the remit of the framework plan.</p> <p>Identification of which organisations/buildings are preparing full TMM plans and which are preparing TMM statements.</p> <p>Identification of the relevant contacts at each organisation/building.</p> <p>Action Plan that sets out each action that will be undertaken to implement, manage and monitor the plan.</p> <p>Information on how the plan will be funded going forward.</p>
Monitoring	<p>Identification of which actions/measures have been implemented and the status of others against the timescales set, at six months and one year following implementation and annually thereafter.</p> <p>Progress towards meeting the overarching objectives set, at six months and one year following implementation of the plan and annually thereafter.</p>	<p>Monitoring surveys to be undertaken at 50% and 75% occupancy or at one and two years following site occupation. After this, snapshot monitoring surveys which capture the main mode of travel used to access the site should be undertaken annually.</p> <p>Annual identification of whether the actions and measures have been implemented within the specified period.</p>	<p>Monitoring surveys to be undertaken at 50% and 75% occupancy or at one and two years following site occupation. After this, snapshot monitoring surveys which capture the main mode of travel used to access the site should be undertaken annually.</p> <p>Annual identification of whether the actions and measures have been implemented within the specified period.</p> <p>Constituent TMM plans to be monitored as per the requirements of TMM statements and full TMM plans.</p>

6 TMM for new developments

Further guidance in developing each of these elements is provided in the TMM Plan Toolkit. The toolkit contains best practice guidance in the following:

- The collection of baseline data, including an analysis of different types of survey approaches;
- How to set site specific objectives and targets, including a list of indicative aim-type and action-type targets that are appropriate for each type of site; for example, workplace, residential, school/educational institution and visitor attraction;
- How to develop an appropriate package of measures, including examples of the various types of hard and soft measures that can be implemented in a variety of settings and step-by-step guides in the development of selected individual measures;
- How to market a TMM plan effectively to all target groups, including examples of marketing material; and
- Further information on how to manage and monitor a TMM plan, in order that it remains effective.

The toolkit also contains template workplace, residential, school/educational institution and visitor TMM plans and template survey/site assessment forms that can be used by TMM plan practitioners as a basis to develop their own TMM plan.

6.3.6 TMM plan assessment

It is the responsibility of the DoT to assess each TMM plan submitted, to ensure that it is robust and fit for purpose. Approval will not be granted where the TMM plan contains unrealistic or inappropriate targets and measures, or where it does not contain all of the required key elements for that type of plan. The TMM plan must also demonstrate that any negative impacts of the forecast development traffic can be mitigated.

The TMM plan will be assessed in terms of the following:

- Its comprehensiveness in terms of the inclusion of all required key elements for that type of TMM plan;
- Its appropriateness in terms of the site location and existing access;
- The appropriateness and potential effectiveness of its targets and measures; and
- Its cohesiveness with the TIS in terms of effectively mitigating against negative impacts of traffic generated and maximising sustainable travel.

Further information on the evaluation criteria that the DoT will use in its assessment of incoming TMM plans prepared as part of the development process is contained in Section 6 of the Task 5C Report, *Requirements for Securing TMM Plans through the TIS Process*.

6.3.7 Monitoring, incentivisation and enforcement

All development-related TMM plans in Abu Dhabi will be subject to a continual monitoring process, in order to ensure their effectiveness over the short, medium and long term. A robust monitoring regime ensures that not only each individual TMM plan is effective, but also that each plan contributes to wider environmental, social and economic objectives across Abu Dhabi Emirate. The monitoring regimes required for each type of TMM plan are set out in Table 6.4 above.

Key monitoring activities will be carried out by the TMM Plan Coordinator and the results reported to DoT for entry into an online database and comparison against the targets set. Monitoring is essential in ensuring that the TMM plan remains fit for purpose and that progress is being made to achieve the targets contained therein. The information collected by DoT will also be used to inform annual monitoring reports and to determine the overall effect of TMM plans at an Emirate-wide level.

The DoT may wish to provide the developer with specific incentives to encourage the preparation and implementation of effective TMM plans. The DoT may also impose a number of enforcement actions, where the targets contained within the TMM plan are not met or if specific actions are not carried out within the designated timescale. However, the preferred option is always for discussions to take place regarding how the TMM plan can be amended to better meet its targets and actions. The incentives and enforcement actions that DoT may impose are summarised in Table 6.5.

6 TMM for new developments

Table 6.5: Incentives and enforcement mechanisms

Mechanisms	Detail
Incentives	Provision of consultancy support/advice at the TMM plan development stage.
	Provision of 'quick win' funding to achieve early implementation of certain measures.
	Provision of funding to implement further measures once the initial targets have been met.
	Provision of free equipment and/or promotional material to support particular measures.
	Provision of support for TMM plan event days; for example, free bicycle repair services, presentations by DoT representatives.
	Provision of a DoT representative to provide personalised travel planning services.
	Annual TMM plan awards.
Enforcement	Specified payments to DoT in order that it can implement measures that were agreed but not implemented.
	Specified payments to DoT to meet the costs of it taking action to achieve agreed targets. This can include the costs associated with introducing new measures that were not identified as part of the original TMM plan.
	Implementation by the developer of specified works to remedy the failure to achieve agreed measures/targets or to implement the measures/targets agreed.
	A restriction on the construction and/or occupation of the development in the event that the TMM plan fails to achieve agreed targets or implement the measures/targets agreed.
	Permitting those developers/organisations that exceed their targets to 'sell' credits they accrue to those who are not able to meet their targets.

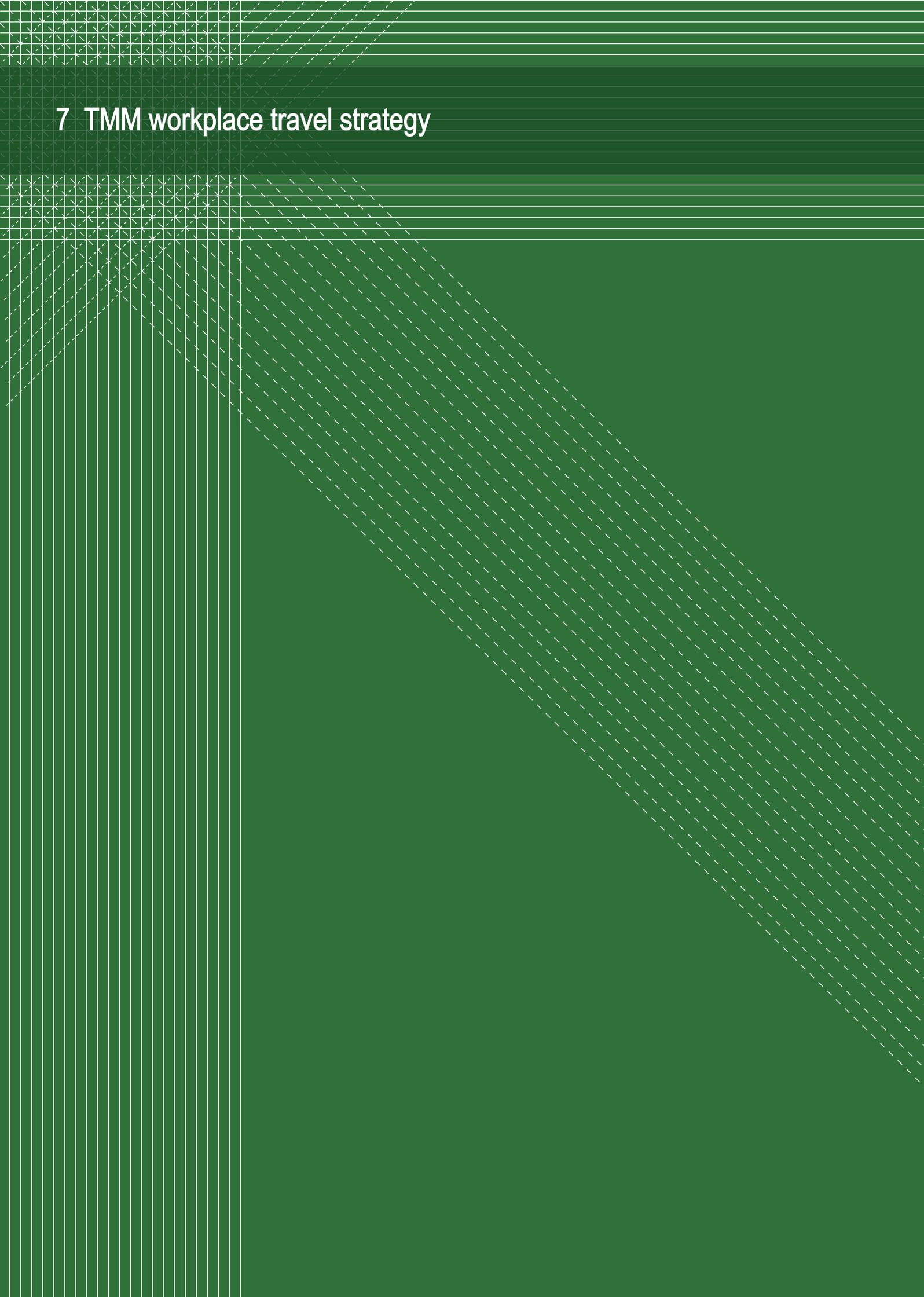
6.4 Summary

The main outcomes of the requirement for the submission of development-related TMM plans and the DoT's role in its implementation and ongoing monitoring are summarised in Table 6.6.

Table 6.6: Main outcomes of the TMM plan process and the DoT's role in its implementation and ongoing monitoring

Element	Outcome	DoT role
TMM plans for developments	TMM plans prepared and submitted for the following qualifying developments in Abu Dhabi Emirate: <ul style="list-style-type: none"> All new developments. Extensions to, and redevelopments of, existing sites. Those developments which have already had a TIS approved by DoT but have not yet commenced/completed construction, provided that construction will complete after 31 December 2014. 	To inform developers of what is expected of them and to agree the type and scope of the TMM plan required. To review draft TMM plans and advise on any changes that are necessary prior to final submission. To assess all incoming development-related TMM plans and either give approval or advise developers on where changes need to be made to produce a compliant TMM plan.
Exclusions	Exclusions apply for individual Emirati houses and individual residential villas.	N/A
Geographical influence	TMM plan initiatives will depend on the availability of alternative modes.	N/A
Monitoring and support	Monitoring and support will be part of each individual TMM plan.	To develop and maintain a central database which collates all relevant TMM (monitoring) information. To provide ongoing support to developers in preparing and submitting TMM plans and in gaining DoT approval. To impose penalties/ enforcement mechanisms where targets are not met or actions are not carried out within the specified timescales.

7 TMM workplace travel strategy



7 TMM workplace travel strategy

7.1 The existing situation in the Emirate of Abu Dhabi

The growth of employment in the Emirate of Abu Dhabi, especially on Abu Dhabi Island, is putting pressure on the road network. Commuter travel, particularly during the AM peak, is making a substantial contribution to congestion in Abu Dhabi City. The TMM workplace travel strategy addresses these specific issues by focusing in the short term on the areas worst affected by congestion from commuter trips (see Chapter 5). The sections in this Chapter (7) outline how this will be achieved.

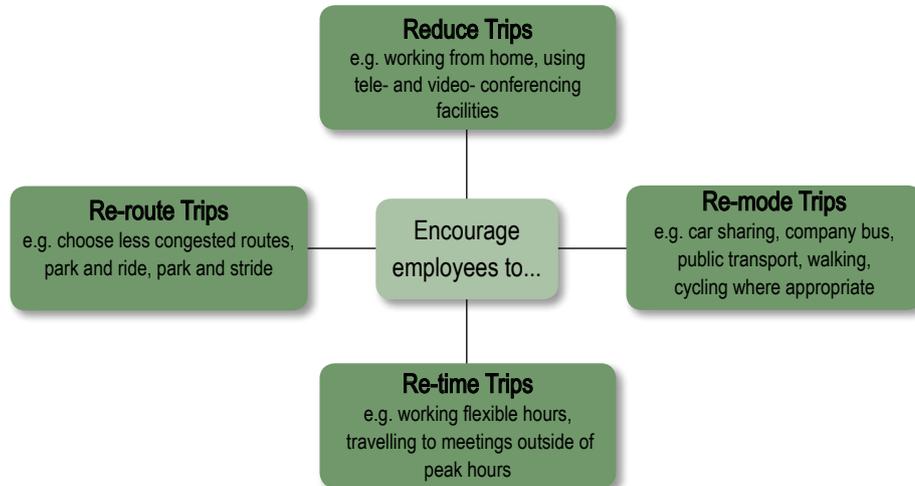
7.2 The role of TMM at the workplace

TMM in the workplace consists of three major categories of initiatives:

- Workplace TMM plans;
- Employer TMM networks; and
- Individual workplace travel initiatives that can be taken forward outside of TMM plans (e.g. car sharing).

The role of TMM in the workplace is to encourage a shift away from using the single-occupancy car for commuting to work and for business trips. TMM promotes the use of alternative, more sustainable modes of travel. This is done through an integrated package of initiatives tailored specifically to each workplace to encourage employees to reduce, re-time, re-route and re-mode trips, as shown in Figure 7.1.

Figure 7.1: Promoting behaviour change



TMM at the workplace is one of the main areas of focus for the TMM strategy. By promoting the use of more sustainable modes to individuals through their employers, a larger number of people can be reached than by addressing people individually and greater resource efficiency is achieved.

Implementing initiatives in the workplace has a further advantage. Individuals and businesses can collaborate to achieve the best impacts. This can include a car sharing scheme or pool cars shared by a number of organisations. Furthermore a healthy element of competition among staff or different organisations (such as TMM awards) is found to be a good driver for the successful implementation of TMM.

7.3 Workplace travel strategy

7.3.1 TMM plans for large organisations

7.3.1.1 TMM plans for developments

As a requirement of incorporating TMM plans for new developments into the DoT TIS Guidelines *Requirements for securing TMM Plans through the TIS Process*, certain types of new developments and re-developments will be required to develop a TMM plan in order to receive planning permission. For further detail on this process refer to the Task 5C Report *Requirements for securing TMM Plans through the TIS Process* and Chapter 6 of this strategy.

In addition, TMM plans will need to be developed for existing organisations where the number of employees at any one site exceeds the thresholds outlined in Table 7.1.

Table 7.1: Thresholds for TMM plan requirements for public and private sector organisations

Organisation	Thresholds
Public sector employers	<ul style="list-style-type: none"> • By 2020 15% of public sector organisations with above 500 employees at any one site will be required to have a TMM plan. • By 2030 all public sector organisations with above 100 employees at any one site will be required to have a TMM plan. • Those with less than 100 employees will be required to have a TMM statement.
Private sector employers	<ul style="list-style-type: none"> • By 2020 10% of private sector companies with above 500 employees at any one site will be required to have a TMM plan. • By 2025 50% of private sector companies with above 500 employees at any one site will be required to have a TMM plan. • By 2030 all private sector companies with above 500 employees at any one site will be required to have a TMM plan.

The thresholds for the public sector are deliberately more ambitious than those for the private sector. This is because enforcement amongst public sector organisations can be achieved more easily and it is the ambition of the DoT for the public sector to set the example for the Emirate of Abu Dhabi.

The DoT will be responsible for developing and maintaining a database of public and private sector organisations that fall within these thresholds. It is the responsibility of the DoT TMM Team to inform and liaise with organisations that are required to develop a TMM plan.

7.3.1.2 Voluntary TMM plans

There are a number of avenues through which voluntary TMM plans should be promoted and encouraged. It is important that this is done in a structured and focused way, choosing those organisations where TMM will bring about substantial benefits for the organisations themselves as well as for the Emirate of Abu Dhabi. However, if individual organisations who are not on the initial target list come forward and wish to develop a TMM plan, then these should not be neglected and should be supported in the same way as targeted organisations.

The first avenue is to target employers through the roll-out of Sustainable Travel Areas, as outlined in Section 5.2 of this strategy. This ensures that the majority of large employers in those areas most in need of improved access or reduced congestion are targeted.

7 TMM workplace travel strategy

The second avenue is through stakeholder engagement. The first focus point of this should be the Abu Dhabi Sustainability Group (ADSG).

Figure 7.2: Abu Dhabi Sustainability Group website

Source: <http://www.adsg.ae>

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Abu Dhabi Sustainability Group

A partnership initiative to champion sustainability in Abu Dhabi

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Latest News

06/07/2011
The Abu Dhabi Department of Economic Development (ADED) iss its Sustainability Report for the year 2010 which showed a remark. improvement in both the environmental & social impact index, wi emphasis laid on the department's endeavour to keep the operati costs of different services in balance.

Abu Dhabi Sustainability Group membership increases by 73% as organisations in the UAE Capital increasingly prioritise sustainability

29/06/2011
The Abu Dhabi Sustainability Group (ADSG) marked its third anniversary today with an announcement that a number of other

Upcoming Events

ADSG Training Workshop: Introduction to Social Compliance

10/11/2010
The ADSG invites its members to gain knowledge of the issues in labour compliance and best practice solutions. The workshop is targeted to senior management from human resources, supply chain and procurement compliance, quality and production departments. It will be imparted by WIRE -Workplace Internal Regulatory Establishment, local representative of Social Accountability International (Time: 9:00-14:00, Venue: ADICOE Training Center, Abu Dhabi) [Program]

The ADSG has 26 members, three of which have taken part in the TMM project as pilot organisations. Members are likely to be more aware of environmental and sustainability challenges and opportunities in Abu Dhabi. They are therefore more likely to see the benefits of developing a TMM plan and should have an interest in taking part in the programme. Being members of the ADSG, they are likely to be seen as leaders in their respective fields and have the potential to set an example for other organisations who wish to follow in their footsteps.

7.3.2 TMM for small and medium sized organisations

The voluntary TMM plan approach for small and medium sized organisations will vary slightly from that outlined for large organisations above.

Organisations with fewer than 100 employees should be encouraged to develop a TMM statement. A TMM statement is not as extensive as a TMM plan yet still contains the key elements: baseline information, objectives, core measures and actions and management and monitoring. For further detail on the development of TMM statements refer to the Task 5D Report TMM Plan Toolkit. Whilst this has been created for new developments, it is also applicable for existing developments that wish to develop a TMM statement.

Organisations employing more than 100 employees will be encouraged to develop a full TMM plan where appropriate.

In some cases, the development of TMM statements or plans may not be appropriate for a small or medium sized organisation. Instead, greater benefits may be achieved by focusing on a number of specific TMM initiatives outside the context of a TMM plan. This could include signing up to and promoting the use of a car sharing scheme, the installation of tele- and video-conferencing facilities or the implementation

7 TMM workplace travel strategy

of a flexible working policy, for example. Chapter 11 outlines the main initiatives to be taken forward by the DoT in greater detail. It is important, however, that if an organisation chooses not to develop a TMM statement or plan but instead to implement one or two selected initiatives that meet the organisation's overall objectives, that they are monitored at regular intervals in order to determine their success.

7.3.3 Exclusions

There are exclusions to the thresholds and guidelines outlined above. Where the operational nature of a business is largely based on shift work and company buses (e.g. construction labourers, hotel service staff etc.), the requirements for a TMM plan will vary slightly from the above.

Research into retail employee travel patterns has been carried out at Marina Mall in Abu Dhabi. The results are largely transferable to other malls. Stakeholder interviews revealed that a significant number of employees at retail outlets in shopping malls are currently using sustainable modes of transport, such as workplace bus services or the public bus. Employers provide either a free company bus service from company accommodation or provide an allowance for travel costs. However, staff in managerial positions are more likely to drive as they receive a company car. A number of retailers considered that cycling to work could be a feasible method of transport for their staff; however there are currently no parking or shower facilities available at Marina Mall. There were concerns however that if facilities were provided, the mall management company would charge retailers for the installation and maintenance of showers and cycle parking.

The thresholds for the above mentioned sectors will not be based on the total number of employees, as large proportions of them already travel by relatively sustainable modes. Instead the organisation will be required to identify how many employees have travel provided for them through company buses and whether or not the use of these is mandatory. The number of employees who have mandatory company transport provided for them is subtracted from the total number of employees. The difference can then be assessed against the thresholds outlined above.

Some particular measures that these types of organisations and the DoT may wish to consider in order to facilitate TMM include:

- Ensuring bus services cover routes of greatest demand and services coincide with shift start and end times;
- Providing express shuttle buses to major residential clusters in order to reduce journey time; and
- Providing facilities to encourage walking and cycling where staff live close their place of work.

7.3.4 Geographical influence

Location will influence the shape of the TMM plan. Where an organisation is located in close proximity to sustainable transport infrastructure there will be an emphasis in the plan on promoting this.

Figure 7.3: Promoting public transport in Abu Dhabi



Businesses located along well-served bus routes have a better chance of promoting public transport use successfully than those located a long distance from bus stops. Similarly, walking and cycling will mostly be encouraged at organisations located within the Walking and Cycling Master Plan demonstration project areas, or where other appropriate infrastructure exists.

The location of employees' homes also makes a difference to the shape of the TMM plan. If a large number of employees live only a short distance from the office, walking and cycling may be feasible means of transport to and from work. In addition, where employees live in clusters, there are particular opportunities for car sharing or shared buses. The initiatives outlined in the individual organisations' TMM plans will therefore heavily depend on this.

7 TMM workplace travel strategy

Finally, TMM plans for organisations in less densely populated areas, such as Al Gharbia, where there are fewer alternatives to single occupancy car use, will rely more heavily on reducing travel through (for example) compressed working weeks, working from home and the use of smarter working facilities such as tele- and video-conferencing.

7.3.5 TMM workplace networks

The main objectives of TMM workplace networks are to secure buy-in from local organisations and therefore gain local momentum in promoting the TMM concept. TMM workplace networks may also help in encouraging voluntary uptake of TMM plans without the need for significant levels of funding or coordination.

TMM workplace networks are therefore an important part of this TMM strategy. The individual networks will initially be set up, managed and facilitated by the DoT TMM team and will act as an umbrella group for organisations delivering TMM plans. The networks will develop over-arching TMM strategies, which the individual TMM plans must complement and support. The networks will also identify initiatives that can be utilised by a number of organisations e.g. pool cars for company travel, shared company buses etc. Once an individual network is sufficiently established, responsibility for managing and facilitating the network can be transferred to its members. One potential mechanism is to establish a TMM network working group with representatives from the key stakeholders in the area. This working group regularly appoints a new chair in order to rotate responsibilities.

The most appropriate avenue through which to actively encourage TMM workplace networks is to make them an integral part of the Sustainable Travel Areas developed as part of this strategy (see Section 5.2). This ensures that networks are developed on a step-by-step basis in areas where there are clusters of businesses that can cooperate to develop TMM initiatives and plans. For further detail on the steps involved in setting up a TMM workplace network see Section 4.2.1 of the Task 5A Report *Application of Transport Mobility Management in a geographical case study*.

7.3.6 Monitoring and support

Monitoring the outcomes for those organisations that have developed a TMM plan will be relatively straight forward. A monitoring plan is an essential element of every TMM plan. Unless

there are organisation specific requirements, a snapshot survey of basic travel patterns including mode share of travel to work and on business trips should be carried out on a yearly basis from the date of implementation of the TMM plan. Following each snapshot survey a short monitoring report should be submitted to the DoT. This is outlined in further detail in the *TMM Plan Toolkit*.

Depending on the continued applicability of the plan a full travel survey and TMM plan review should be carried out every three to five years. The full review can be carried out earlier if required, for example, if the organisation is relocating or has experienced significant growth or downsizing, which will make the existing TMM plan less valid.

The level of DoT support required by each organisation is also outlined in the organisation's TMM plan. The action plan within the TMM plan document details the level of external support required for the implementation of each initiative.

Organisations that do not implement a full TMM plan but instead take forward individual initiatives can monitor these separately. The core initiatives outside of TMM plans that this strategy focuses on are as follows:

- Car sharing;
- Flexible working policies;
- Smarter working practices;
- Promotion of DoT infrastructure; and
- Information provision.

Details of each initiative and how each one will be taken forward is outlined in Chapter 11 of this strategy. Their monitoring can take a number of forms and some examples are listed below. Where relevant, this information should be reported to the DoT who will keep a record of the reports.

Car sharing

DoT – Monitor membership numbers of the database and successful matches. The latter are a more accurate indicator for the success of the scheme.

Organisations – Monitor car sharing mode share through a short survey.

7 TMM workplace travel strategy

Flexible working

DoT – Monitor how many organisations have developed and adopted flexible working practices and to what extent.

Organisations – Monitor on a yearly basis how many people make use of flexible working practices.

Smarter working

DoT – Number of organisations that are implementing policies related to smarter working practices.

Organisations – Monitor usage of the video and teleconferencing facilities through a booking system. Carry out usage surveys to estimate the number and distance of trips replaced.

Promotion of DoT infrastructure

DoT – Number of organisations provided with specific material to promote (new) DoT infrastructure. Record user levels and/or numbers.

Organisations – Carry out a yearly mode share survey.

Information provision

Organisations – Monitor web site traffic, downloads and numbers taking part in competitions if these are part of information provision.

In order to encourage organisations to measure the outcomes of these individual initiatives, the DoT should provide incentives for monitoring by recognising organisations' success, using them as case studies of good practice and presenting an award to the top organisations each year.

7.3.7 Summary

A number of workplace TMM initiatives have already been referred to above. Table 7.2 highlights a long-list of potential workplace initiatives that organisations may wish to consider. Further details on their development and examples of successful implementation are outlined in the Task 3A Report *Long-List of Measures*.

Table 7.2: Potential TMM workplace initiatives

TMM initiatives
1 – Flexible working/working practices
Encourage uptake of smarter working practices to cut business travel
Encourage and facilitate the uptake of flexible working practices through the development of policies and guidance on flexible working
2 – TMM planning
TMM plan network
Personalised TMM planning for new employees
TMM campaigns to support CSR/wider environmental aims
3 – Awareness
Use of official DoT TMM branding (including logo and templates)
TMM competitions for employees

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TMM initiatives
Promote environmental aspects (e.g. carbon reduction) of TMM
Promote health aspects of TMM
Ongoing information provision – regular calendar of TMM events, notice board, newsletters etc.
Organise a sustainability week with activities, information and competitions
Organise TMM working group/forum for staff to give feedback
4 – Funding for sustainable schemes
Sustainable transport fund – provide a small fund for employees to develop TMM initiatives to be rolled out across the organisation
Penalties for not achieving sustainable targets
5 – Car
Promotion of DoT car sharing scheme
Offer guaranteed ride home
Trip reduction competition
Rewards for selling your car - such as reduced ticket prices on public transport or cycling equipment
Promote car clubs
Increase/implementation of parking charges
Use of new car technologies
Park and stride
6 – Public transport
Public transport day
Private shuttle bus services
7 – Walking and cycling
Cycle training schemes
Provision of electric bikes
Provision of lockers/showers/changing facilities for walkers/cyclists
Install cycling racks
Cycle buddies
Cycle/walk to work week during winter

7 TMM workplace travel strategy

The main outcomes of the TMM workplace strategy and the DoT's role in its implementation are outlined in Table 7.3.

Table 7.3: Main outcomes of the TMM workplace strategy and the DoT's role in its implementation

Element	Outcome	DoT role
TMM plans	<ul style="list-style-type: none"> By 2020 15% of public sector organisations with above 500 employees at any one site will be required to have a TMM plan. By 2030 all public sector organisations with above 100 employees at any one site will be required to have a TMM plan. Those with less than 100 employees will be required to have a TMM statement. By 2020 10% of private sector companies with above 500 employees at any one site will be required to have a TMM plan. By 2025 50% of private sector companies with above 500 employees at any one site will be required to have a TMM plan. By 2030 all private sector companies with above 500 employees at any one site will be required to have a TMM plan. 	Develop and maintain a database of organisations that are required to develop a TMM plan. Inform organisations about what is expected of them and monitor and enforce TMM plan development and implementation.
TMM for small and medium sized organisations	Encourage TMM plans and the implementation of stand-alone measures among organisations not covered by the thresholds. Two main avenues: Sustainable Travel Areas and sustainability networks (e.g. AD SG).	
Exclusions	Exclusions will apply where a significant number of employees have transport provided (e.g. construction work, service industry).	N/A
Geographical influence	TMM plan initiatives will depend on the availability of alternative modes.	N/A
TMM workplace networks	TMM workplace networks should be encouraged as part of the Sustainable Travel Areas in order to achieve benefits at lower cost and encourage a sense of ownership and pride in TMM.	Support the initial set-up and facilitation of the network until this is transferred to one of the network members.
Monitoring and support	Monitoring and support will be part of each individual TMM plan.	Develop and maintain a central database collating all relevant TMM (monitoring) information.

8 TMM education travel strategy

8.1 The existing situation in the Emirate of Abu Dhabi

Local congestion hotspots are a particular problem at school drop-off and pick-up times. Where car parking outside schools is limited, there are specific problems with double parking and stopping on the road to drop-off or pick-up children. This can often lead to congestion on the immediate road network surrounding the school.

The area where the biggest problems are experienced is Khaled bin Sultan Street in Al Ain. This is informally termed 'Schools Road' because 33 schools are located adjacent to each other along the road. In addition there are plans for further schools to be developed. This will therefore be one of the immediate focus points of this strategy as outlined in Section 5.4.2.

8.2 The role of TMM at schools and universities

TMM in schools and universities consists of two major categories of initiatives:

- School and university TMM plans for students and staff; and
- School TMM networks.

The role of TMM at schools is to encourage a shift away from parents and drivers dropping children off by car and to encourage staff to reduce single occupancy car journeys. TMM promotes the use of school buses, car sharing and walking and cycling where appropriate. This is done through an integrated package of initiatives tailored specifically to each school.

The role of TMM at universities is to encourage students and staff to reduce single-occupancy car journeys and instead use more sustainable modes. Staff at universities will be dealt with in the same way as staff at other businesses and therefore also fall under the TMM workplace strategy, as outlined in Chapter 7.

Together with TMM at the workplace, TMM in schools and universities is one of the main areas of focus for the TMM strategy. The reason for this is that education trips make up a substantial number of total car trips in Abu Dhabi during peak times. Furthermore, the habits and behaviour of children are less fixed than those of adults. Achieving behavioural change whilst children are young has the benefit that they are likely to carry this into their adult life.

8.3 Education travel strategy

The aspects of the education travel strategy that refer to schools directly build upon the School Travel Planning and Bus Specification recommendations published by the DoT in 2010. This lists the specifications for school buses relating to safety, maximum journey times and other aspects to offer the safest and most efficient school bus transport.

8.3.1 TMM plan requirements for educational establishments

All new developments and extensions of schools and universities in the Emirate will be covered by the TIS guidelines *Requirements for securing TMM Plans through the TIS Process* as outlined in Chapter 6.

For existing schools and universities there will be a number of thresholds as outlined in Table 8.1. Unlike workplaces, all schools in the Emirate will be required to develop a TMM plan by 2020. In order to achieve this, schools will receive significant support from the DoT and other organisations.

There are a total of 22 universities in Abu Dhabi. This is a relatively small number compared to the number of schools and it is realistic that all public and private universities will be able to develop a TMM plan by 2020. There are over 180 private and 269 public schools in the Emirate of Abu Dhabi.

8 TMM education travel strategy

Table 8.1: Thresholds for TMM plan requirements for schools and universities

Organisation	Thresholds
Schools	<ul style="list-style-type: none">• By 2020 15% of public and private schools with above 500 pupils at any one site will be required to have a TMM plan.• By 2025 50% of public and private schools will be required to have a TMM plan.• By 2030 all public and private schools will be required to have a TMM plan.
Universities	<ul style="list-style-type: none">• By 2020 30% of public and private universities will be required to have a TMM plan.• By 2025 50% of public and private universities will be required to have a TMM plan.• By 2030 all public and private universities will be required to have a TMM plan.

8.3.2 Geographical influence

Location will influence the shape of the TMM plans. Where a school or university is located in close proximity to sustainable transport infrastructure, there will be an emphasis in the plan promoting this. There are already some schools adjacent to residential developments where walking and cycling are safe options for children. Where it is not safe at present, TMM plans will focus on other modes such as school buses and car sharing.

The location of students' homes also makes a difference to the shape of the TMM plan. Where students live in clusters, there are particular opportunities for car sharing. The initiatives outlined in the individual organisations' TMM plans will therefore be dependent upon this.

8.3.3 TMM school networks

As outlined in Section 8.1, where schools are located in close proximity to each other, there may be particular parking and congestion problems during drop-off times in the morning and pick-up times in the afternoon. Schools can however also benefit from these clusters. Through the development of TMM networks, schools can share resources and thereby substantially reduce the number of single occupancy car trips made to and from the schools. The main initiative of these networks will be shared school bus services. The benefit of these is that through a shared service, the school can increase the number of pick-up points in different areas. By using the full bus capacity, the buses can be operated more cost efficiently.

8.3.4 Monitoring and support

Monitoring the outcomes for the schools and universities that have developed a TMM plan will be relatively straightforward. A monitoring plan is an essential element of every TMM plan. Unless there are organisation specific requirements, a snapshot survey of basic travel patterns, including mode share of travel to school or university, should be carried out on a yearly basis from the date of implementation of the TMM plan. Following each snapshot survey a short monitoring report should be submitted to the DoT. This is outlined in further detail in the TMM Plan Toolkit.

Depending on the continued applicability of the plan, a full travel survey and TMM plan review should be carried out every three to five years. The full review can be carried out earlier if required.

The level of support from the DoT and other organisations required by each school is also outlined in the TMM plan. The action plan within the TMM plan document details this for the implementation of each initiative.

8.3.5 Summary

Table 8.2 shows a list of TMM initiatives suitable for schools and/or universities. After each initiative the target group at which the measure is aimed is indicated in brackets. Further details on initiative development and examples of successful implementation are outlined in the Task 3A Report *Long List of Measures*.

8 TMM education travel strategy

Table 8.2: Potential TMM school and university initiatives

Measure
1 – Flexible working / working practices
Encourage uptake of smarter working practices to reduce business travel (university staff)
Encourage and facilitate the uptake of flexible working practices through the development of guidance on flexible working (university staff)
Staggered school opening times (school students)
2 – TMM planning
School TMM networks (school students)
Personalised travel planning for new employees (school and university staff)
3 – Awareness
Make use of the TMM logo and templates provided by the DoT (school students/parents and staff, university students and staff)
TMM awards/competitions (school students and staff, university students and staff)
Promote environmental aspects of TMM (school staff, university staff and students)
Promote health aspects of TMM (school staff, university staff and students)
Ongoing information provision – regular calendar of TMM events, notice board, newsletters etc. (school students/parents and staff, university students and staff)
Organise a sustainability week with activities, information and competitions (school students and staff, university students and staff)
Organise TMM working group/forum for staff to give feedback (school and university staff)
Providing education on mobility management to children (school students)
4 – Funding for sustainable schemes
Sustainable transport fund – provide a small fund for staff and students to develop TMM initiatives to be rolled out across the organisation (school and university staff)
Where applicable, penalise if not achieving sustainable targets (school staff, university students and staff)
5 – Car
Promotion of DoT car sharing scheme (school students/parents and staff, university students and staff)
Offer guaranteed ride home (school and university staff)
Trip reduction competition (school staff, university students and staff)
Liaise with DoT and Abu Dhabi Police to lower speed limits in school areas (school students)
Rewards for selling your car - such as reduced ticket prices on public transport or cycling equipment (school and university staff)
Promote car clubs (school students/parents and university staff)
Increase/implementation of parking charges (school and university staff)
Use of new car technologies (school and university staff)
Park and stride (school students/parents and staff, university students and staff)
6 – Public transport
Public transport day (school students/parents and staff, university students and staff)

8 TMM education travel strategy

Measure
Private shuttle bus services (school and university staff)
(Shared) school bus services (school students)
7 – Walking and cycling
Cycle training schemes (school students and staff, university students and staff)
Provision of electric bikes (school and university staff)
Provision of lockers/showers/changing facilities for walkers/cyclists (school students and staff, university students and staff)
Install cycling racks (school students and staff, university students and staff)
Cycle buddies (school students and staff, university students and staff)
Cycle/walk to school/university/work week during winter (school students and staff, university students and staff)
Walking bus programmes (school students/parents)

A summary of the main outcomes of the strategy is shown in Table 8.3.

Table 8.3: Main outcomes of the TMM education strategy and the DoT's role in its implementation

Element	Outcome	DoT role
TMM plans	<p>New developments and extensions from 2015 onwards are covered by the TIS guidance.</p> <p>By 2020 15% of public and private schools with above 500 pupils at any one site will be required to have a TMM plan.</p> <p>By 2025 50% of public and private schools with above 500 pupils at any one site will be required to have a TMM plan.</p> <p>By 2030 all public and private schools will be required to have a TMM plan.</p> <p>By 2020 30% of public and private universities will be required to have a TMM plan.</p> <p>By 2020 50% of public and private universities will be required to have a TMM plan.</p> <p>By 2030 all public and private universities will be required to have a TMM plan.</p>	<p>Offer a dedicated resource to each school that is developing and implementing a TMM plan. Further support may come from the municipalities and ADEC.</p> <p>While schools will be able to manage the TMM plan they will require assistance with its development (survey process, developing initiatives and writing the plan) as well as with its implementation (especially school buses).</p>
Geographical influence	TMM plan initiatives will depend on the availability of alternative modes.	N/A
School TMM networks	Where schools are located in close proximity to each other TMM networks should be developed.	Coordinate and facilitate the TMM network.
Monitoring and support	Monitoring and support will be part of each individual TMM plan.	Develop and maintain a central database collating all relevant TMM (monitoring) information. Assist schools with follow-up surveys.

9 TMM visitor travel strategy

9 TMM visitor travel strategy

9.1 The existing situation in the Emirate of Abu Dhabi

Abu Dhabi is becoming an increasingly popular destination for visitors from elsewhere in the Gulf Region, as well as worldwide. These visitors include tourists who stay over prolonged periods as well as day-visitors who come to see specific attractions or go to events e.g. at ADNEC or Yas Marina Circuit.

9.2 The role of TMM for visitors

It is important to inform visitors of their travel options before they arrive in Abu Dhabi and make sustainable methods of transport available as soon as they arrive. The role of TMM for visitor travel has a greater emphasis on improving accessibility for those who arrive in Abu Dhabi without a car and on offering them sustainable alternatives. This can considerably improve visitors' experiences and project a positive image of Abu Dhabi amongst members of the international community.

There are two main elements of TMM for visitors:

- Tourist travel to and from hotels; and
- Visitor travel to and from leisure attractions.

9.3 Visitor travel strategy

9.3.1 TMM plan requirements

All new developments and extensions of leisure attractions/visitor sites are covered by the TIS guidelines Requirements for securing *TMM Plans through the TIS Process* (see Chapter 6).

The thresholds shown in Table 9.1 apply to existing leisure attractions/visitor sites. Guidance on the development of visitor TMM plans is given in the *TMM Plan Toolkit*. One of the major avenues through which to take these visitor TMM plans forward is the development of Sustainable Travel Areas (see Section 5.2).

Table 9.1: Thresholds for TMM plan requirements for visitor sites

Organisation	Thresholds
Hotels	<ul style="list-style-type: none">• Staff TMM plans fall under the workplace thresholds.• Hotels should be actively encouraged to develop visitor TMM plans as well.
Visitor attractions/venues	<ul style="list-style-type: none">• Staff TMM plans fall under the workplace thresholds.• By 2020 visitor TMM plans have to be developed if the number of visitors at any one site on any one given day during the year exceeds 2,000 visitors.

9.3.2 Tourist travel to and from hotels

Tourist travel from the airport and elsewhere to hotels in Abu Dhabi should be made as simple as possible. Infrastructure that is already in place as well as new transport infrastructure should be promoted as it is developed. It is imperative that information about alternative modes is easily accessible to visitors. The main recommended channels for this are through information on hotels' websites, as well as through the Abu Dhabi Airports Company (ADAC) and Etihad Airways, as the Emirate's flagship carrier.

9.3.3 Visitor travel to and from leisure attractions

9.3.3.1 Event based travel

Events such as concerts, sporting events or exhibitions can often present a particular transport challenge. Large numbers of visitors travel to and from a venue/location at similar times. This can not only cause access problems to the event but the potential traffic and congestion also has a wider impact on other trips on the surrounding road network. The aim of TMM is to reduce the number of single occupancy car trips to and from an event.

Aside from developing TMM plans, event venues should implement a number of simple measures that can contribute towards a reduction in single occupancy car trips. Such measures include:

- Information on alternative and more sustainable modes provided:
 - With the ticket purchase; and
 - On the venue's website and/or in newsletters.
- Car park management strategy including parking charges.
- Provision of shuttle buses to and from major collection points (e.g. hotels, malls etc.) and/or park and ride facilities.

9.3.3.2 Non-event based travel

Visitor flows are less concentrated for non-event based travel. Typical visitor destinations include museums, cultural sites and shopping malls.

Whilst in general, visitor flows are spread more widely across the day compared to event-based travel, research carried out at the Marina Mall found that the shopping mall closing time tends to generate congestion, particularly on Thursdays, Fridays and Saturdays. Furthermore, the demand for taxis and bus services is high during this time period as both customers and staff wish to leave the mall.

Rather than developing individual TMM plans for very small visitor attractions, an overarching visitor TMM plan for a defined area (e.g. a Sustainable Travel Area) can be developed. The DoT should take the following steps to develop this plan:

- Set up a visitor TMM plan partnership with key stakeholders in the area.
- Identify a visitor TMM plan champion who will coordinate and lead on the plan and its activities.

- Carry out an audit of the existing situation.
- Confirm with input from the stakeholders what goals are to be achieved.
- Develop and implement an action plan on the basis of these goals. Actions could include:
 - Developing a brochure and website listing attractions in the area and promoting sustainable transport options to reach these.
 - Providing information at attractions and malls about alternative modes of transport.
 - Implementing a shuttle bus service between malls and major residential areas and hotels at peak (shopping) times.
 - Changes to parking arrangements in favour of car sharing.

Ultimately the ownership of the plan will be transferred from the DoT to the participating organisations.

9.3.4 Geographical influence

As has been outlined in Sections 7.3.4 and 8.3.2, location will influence the shape of the TMM plans and measures implemented at visitor sites. Where a venue is located in close proximity to sustainable transport infrastructure, there will be an emphasis on promoting this.

In Al Gharbia, the TMM strategy will focus on visitor travel more generally. Plans are to develop a number of tourist centres to attract visitors to the region.

9.3.5 Monitoring and support

Monitoring the outcomes for the visitor sites that have developed a TMM plan will be relatively straightforward. A monitoring plan is an essential element of every TMM plan. In order to obtain a representative sample it is important to survey visitors throughout the year and at different events. This should be done through a pop-up survey consisting of no more than three to four questions. When making an online ticket purchase for an event, visitors will be asked to complete the survey. In addition, it should be displayed on the venues' website and in their newsletters. Year-on-year comparisons will show changes in main mode of travel to visitor sites. This is outlined in further detail in the *TMM Plan Toolkit*.

9 TMM visitor travel strategy

Depending on the continued applicability of the plan a full TMM plan review should be carried out every three to five years. The full review can be carried out earlier if required.

9.3.6 Summary

Table 9.2 shows a list of TMM initiatives suitable for visitors. Further details on their development and examples of successful implementation are outlined in the Task 3A Report *Long-List of Measures*.

Table 9.2: Potential TMM visitor initiatives

Measure
1 – TMM planning
TMM networks for small visitor attraction sites
2 – Awareness
Make use of the TMM logo and templates provided by the DoT
TMM awards
Promote environmental aspects of TMM
Promote health aspects of TMM
Ongoing information provision
Organise a sustainability week with activities, information and competitions
3 – Car
Promotion of DoT car sharing scheme
Promote car clubs
Increase/implementation of parking charges
Park and ride, park and stride
4 – Public transport
Public transport day
Shuttle bus services
5 – Walking and cycling
Install cycling racks

A summary of the main outcomes of the strategy is shown in Table 9.3.

9 TMM visitor travel strategy

Table 9.3: Main outcomes of the TMM visitor strategy and the DoT's role in its implementation

Element	Outcome	DoT role
TMM plans	<ul style="list-style-type: none"> • Staff TMM plans fall under the workplace thresholds. Hotels should be actively encouraged to develop visitor TMM plans as well. • Staff TMM plans fall under the workplace thresholds. • Visitor TMM plans have to be developed if the number of visitors at any one site on any given day during the year exceeds 2,000 visitors per day. 	<p>Develop and maintain a database of organisations that are required to develop a TMM plan. Inform organisations about what is expected of them and monitor and enforce TMM plan development and implementation.</p> <p>Encourage others to develop voluntary TMM plans or implement individual initiatives.</p>
Tourist travel to and from hotels	Information provision about alternative modes on hotels' websites, through ADAC and Etihad Airways.	
Visitor travel to and from leisure attractions	Distinction between event and non-event based travel. Implementation of initiatives to reduce single occupancy car trips to and from events. Development of overarching TMM frameworks/networks for small visitor sites.	
Geographical influence	Initiatives will depend on the availability of alternative modes. In AI Gharbia TMM will focus on tourist trips.	N/A
Monitoring and support	Monitoring and support will be part of each individual TMM plan.	Develop and maintain a central database collating all relevant TMM (monitoring) information.

10 TMM residential travel strategy



10.1 The existing situation in the Emirate of Abu Dhabi

Abu Dhabi is characterised by a mix of residential developments. These include Emirati style villas and apartment blocks. Both types are found right across Abu Dhabi with tall apartment blocks being more prevalent in central locations such as on Abu Dhabi Island, especially in the CBD. Residential sites generate a large number of daily trips – including commuter, education and leisure trips.

10.2 The role of TMM at residential sites

The Abu Dhabi Urban Planning Council's plans for the future include a greater number of mixed-use developments across Abu Dhabi in order to reduce the need to travel. Until these plans are realised, the aim of the TMM residential travel strategy is to shift those trips made by individuals from single occupancy car use to more sustainable modes.

10.3 Residential travel strategy

10.3.1 TMM plans

Certain types of new residential developments will be required to develop a TMM plan as part of the TIS process in order to obtain planning permission. Individual Emirati houses and individual villas are exempt from this. Further details on the development on TMM plans for residential developments are outlined in the document *Requirements for securing TMM Plans through the TIS Process*.

Whilst there are clear requirements for TMM plans for new developments, there are two main avenues through which to approach the development of voluntary TMM plans for existing residential areas:

- Block approach; and
- Community approach.

10.3.1.1 Block approach

The block approach involves targeting individual apartment blocks and developing TMM plans for these. The process would need to be led by the building management. There are a number of approaches that can be adopted to survey residents. These should be discussed and confirmed with the DoT. The most basic approach is to carry out vehicle counts outside the building and in the building car park. Alternatively, a survey approach can be adopted. This can be in the form of roadside or household surveys. Overall the approach for

household surveys is similar to that for workplace and other types of TMM plans. Each occupant of the block is provided with a travel survey form. Contrary to other TMM plans, it is easiest to deliver a paper copy of the survey to each resident and have a facility at reception where completed surveys can be returned.

On the basis of the survey results and a site audit, the TMM plan for the building is developed and implemented. It is the responsibility of the building management to implement the initiatives and monitor the outputs. They will receive support from the DoT for both of these activities

Where there is not enough scope for a building to develop a full TMM plan, the DoT should actively encourage the implementation of individual initiatives such as information provision, promotion of car sharing and car clubs.

10.3.1.2 Community approach

It is not cost-effective to develop TMM plans for individual villas. Instead a TMM plan should be developed for a community of villas or smaller houses located in a defined area or compound. The approach for such a community will be the same as described for a block or building.

10.3.2 Geographical influence

As has been outlined for the workplace, school and visitor travel strategies above, location will influence the shape of the TMM plans and measures implemented at residential sites. Where a block or a community is well-served by sustainable transport, there will be an emphasis on promoting this.

In addition, the socio-demographic structure of communities will vary geographically. Certain areas are dominated by Emirati housing whereas others see a greater number of foreign nationals. Some TMM measures are more appropriate for certain population groups than others. Barriers to switching from the single occupancy car to sustainable modes also differ between population groups.

10.3.3 Monitoring and support

Monitoring the outcomes for those sites that have developed a TMM plan will be relatively straightforward. A monitoring plan is an essential element of every TMM plan. The type of monitoring to be

10 TMM residential travel strategy

carried out should be discussed by representatives from the individual site with the DoT and will depend on the original method of baseline data collection. Unless there are site specific requirements, this should be carried out on a yearly basis from the date of implementation of the TMM plan. Following each monitoring activity a short monitoring report should be submitted to the DoT. The intervals at which a full revision of the plan is carried out should be decided with the DoT and can be amended within the lifetime of the plan, if it is identified that the plan is struggling to meet its targets.

Depending on the continued applicability of the plan, a full travel survey and TMM plan review should be carried out every three years. The full review can be carried out earlier if required; for example where a quick turnover of occupants causes changes in long term travel patterns.

The level of DoT support required by each site is also outlined in the TMM plan. The action plan within the TMM plan document details the level of external support required for the implementation of each initiative.

10.3.4 Summary

Table 10.1 shows a list of TMM initiatives suitable for residential sites. Further details on their development and examples of successful implementation are outlined in the Task 3A Report *Long-List of Measures*.

Table 10.1: Potential TMM residential initiatives

TMM initiatives	
1 – Flexible working/working practices	
	Facilitate homeworking through the provision of high-speed internet facilities for all residents
2 – TMM planning	
	TMM plan networks among buildings and communities
	Personalised TMM planning for new residents
3 – Awareness	
	Use of official DoT TMM branding (including logo and templates)
	Promote environmental aspects (e.g. carbon reduction) of TMM
	Promote health aspects of TMM
	Ongoing information provision – regular calendar of TMM events, notice board, newsletters etc.
	Organise a sustainability week with activities, information and competitions
4 – Funding for sustainable schemes	
	Sustainable transport fund – provide a small fund for residents to develop TMM initiatives to be rolled out across the site
5 – Car	
	Promotion of DoT car sharing scheme
	Liaise with DoT to lower speed limits where applicable
	Promote car clubs
	Increase/implementation of parking charges
6 – Public transport	
	Public transport day
7 – Walking and cycling	
	Cycle training schemes
	Install cycling racks
	Cycle buddies

A summary of the main outcomes of the strategy is shown in Table 10.2.

10 TMM residential travel strategy

Table 10.2: Main outcomes of the TMM residential strategy and the DoT's role in its implementation

Element	Outcome	DoT role
TMM plans	Building/block or community approach more cost- and time-efficient than individual apartments/houses. TMM plan process similar to other types of TMM plans. No requirements for TMM plans for existing buildings.	Encourage the development of TMM plans or implementation individual initiatives. Provide assistance to those developing and implementing plans.
Geographical influence	Initiatives will depend on the availability of alternative modes. In Al Gharbia TMM will focus on tourist trips.	N/A
Monitoring and support	Monitoring and support will be part of each individual TMM plan.	Develop and maintain a central database collating all relevant TMM (monitoring) information.

11 Core TMM initiatives and benefits

11 Core TMM initiatives and benefits

11.1 Introduction

In addition to driving forward the development and implementation of TMM plans, the DoT will focus on a number of initiatives that can be implemented outside of TMM plans. These are initiatives that will receive particular support from the DoT and which have the potential to bring about a change in travel patterns at an organisation without having to be supported by a full TMM plan. This is particularly the case for small and medium-sized organisations that do not have the resources and are not required to implement a full TMM plan. These initiatives offer a good opportunity to improve the travel situation at each organisation and to contribute towards the goals of TMM in the Emirate of Abu Dhabi.

11.2 Car sharing

Throughout the stakeholder engagement process, car sharing has emerged as one of the most popular TMM measures to be taken forward as part of this strategy. Car sharing is also widely accepted as one of the potential TMM 'quick wins'.

Car sharing, also known as car pooling, liftsharing, and ridesharing, is when two or more people share a car and travel together. It allows people to benefit from the convenience of the car, whilst reducing travel costs (e.g. petrol and parking) and alleviating the associated problems of congestion and pollution. Car sharing can also help to:

- Alleviate car parking problems;
- Provide employees and employers with more sustainable travel choices;
- Reduce the carbon footprint associated with commuting and business travel;
- Reduce the need and cost of private car ownership; and
- Reduce accessibility barriers for people living in isolated or rural areas.

11.2.1 The role of the DoT

11.2.1.1 Policy

There is some uncertainty as to whether car sharing – understood as using a car and providing other people with a ride in exchange for payment (for example, as a contribution towards petrol costs), is currently allowed in Abu Dhabi. There is a question as to whether

accepting a financial contribution from a car sharing partner (such as a colleague) contravenes legislation, as only licensed taxi drivers are allowed to accept monetary payment. However, the current situation in Abu Dhabi – embodied by long distance commutes and the hot and humid climate – means that car sharing is often the only alternative to single occupancy car use for many individuals.

However, car sharing is fundamentally different from using a taxi service. It is distinguished from a taxi service as well as other forms of public transport by the fact that it is a collaborative approach based on an agreement between individuals and restricted to certain times and journey purposes e.g. three colleagues sharing a ride to work. It therefore falls outside of the definition of a taxi service as stated in Law 19 for the Year 2006 Regarding Taxi Transport Regulation in the Emirate of Abu Dhabi.

The DoT therefore proposes that the law regarding car sharing and the exchange of payment in Abu Dhabi should be clearly defined and communicated to the public in order to allow car sharing (and the exchange of monetary contributions) between different members of the public.

Table 11.1: Proposed changes to legislation on car sharing

Current situation	Proposed change
Car sharing which involves payment is considered to be illegal.	<p>Short term</p> <p>Individuals will be allowed to share a car without direct payment but car passengers will be allowed to pay for petrol directly and/or employers will be allowed to pay a reward to those taking passengers in their car. This would be facilitated through a permit system similar to that in Dubai.</p> <p>Long term</p> <p>Those registered through the official Abu Dhabi car sharing scheme will be allowed to accept (but not demand) payment from car passengers.</p> <p><i>This legislation should be made applicable throughout the UAE in order to allow car sharing between the Emirates e.g. commute from Dubai to Abu Dhabi. Or at least similar arrangements be approved in both Abu Dhabi and Dubai.</i></p>

11 Core TMM initiatives and benefits

11.2.1.2 Car sharing tool

The DoT is developing an open access car sharing tool that is available to both participating organisations and the wider public. This approach allows any member of the public to register and search online for other car sharers across Abu Dhabi as well as within specific organisations, such as their place of work. Individuals can set up their profile either with full or limited visibility. Full visibility means that anyone accessing the car sharing site can see their profile and contact them as a potential car sharing partner. Limited visibility allows the individual to put a number of restrictions in place as to who can search for and see their profile i.e. only female users, only users at the same workplace etc. The DoT is responsible for managing, monitoring, and maintaining the car sharing tool. The car sharing tool will be integrated with the wider Abu Dhabi Journey Planner (DARB) that has been launched by the DoT in 2011.

11.2.2 The role of the stakeholders and participants

In order to promote and encourage car sharing and the uptake and use of the tool, it is recommended that organisations (businesses, schools, etc.) introduce supporting measures and incentives, such as a guaranteed ride home if the car share fails, reserved priority car parking for car sharers, and car sharing awareness-raising events and promotions. Further information on these supporting measures will be given to each organisation through their own TMM action plan.

Figure 11.1: Priority car parking for car sharers



International best practice shows that reserved priority car parking has proven a successful incentive to encourage car sharing.

'Personal space' and 'sharing with strangers' are often cited as the biggest barriers to car sharing. Organisations participating in the scheme should consider organising a car sharing themed event where those interested in car sharing can meet and make arrangements suitable to them.

11.2.3 Key benefits

Key benefits include:

- **Reduced car trips** – Best practice guidance shows that where organisations introduce a workplace TMM plan (that promotes car sharing), there is an average 3% increase in the number of staff who car share. ³ Based on this it has been estimated that if 60% of workplaces in Abu Dhabi are covered by a TMM plan, the number of daily car trips would be reduced by over 16,500 trips (see Task 3D Report Impacts Assessment Section 4).
- **Environmental benefits** – Liftshare ⁴ (an online car sharing tool) estimates that if a return journey between Ibn Battuta and the CBD (Tourist Club Area) is made five times a week and shared with one other person CO2 emissions are cut by 5.4 tonnes per year (based on large vehicle size >2 litres). This is equivalent to offsetting by planting 238 trees.

Based on the trip reductions calculated in Section 4 of the Task 3D report Impacts Assessment, CO2 emissions in Abu Dhabi can be reduced by almost 70,000 kg per day.

In addition to this there are a number of associated benefits as listed by Cairns et al (2004):⁵

- **Improved access to work, improved flexibility of travel options and reduced social exclusion** – Car sharing can offer a particularly cost-efficient way of improving mobility in and access to more rural communities.
- **Financial savings for the organisation** – Buckinghamshire Council in the UK has made equivalent savings of around 150,000 AED per year through the reduction in car parking spaces needed due to car sharing.

³ Cairns S et al (2004) 'Smarter Choices – Changing the Way We Travel' Report for the UK Department for Transport

⁴ See: https://www.liftshare.com/content/savings_calculator.asp?skin=277

⁵ Cairns S et al (2004) 'Smarter Choices – Changing the Way We Travel' Report for the UK Department for Transport

11 Core TMM initiatives and benefits

- **Financial savings for the individual** – Liftshare estimates that if a return journey between Ibn Battuta and the CBD (Tourist Club Area) is made five times a week and shared with one other person the individual saves around 6,000 AED annually (based on large vehicle size >2 litres).
- **Improved work-life balance** – Car sharing requires individuals to leave work more or less at a planned time which is assumed to result in an improved work-life balance.

Timescales: Implementation of fully operational car sharing scheme by 2015 as part of the wider Abu Dhabi DoT Journey Planner (DARB).

11.3 Flexible working

Flexible working is another key component of TMM. There are three main components of flexible working:

- Homeworking;
- Compressed working weeks; and
- Flexitime.

By allowing employees to adjust their working hours outside of the core hours, their journey is re-timed, congestion during the AM and PM peaks is relieved, and pressure is taken off the network. Flexible working locations, such as working from home, reduce the need to travel in the first place and thereby reduce the number of trips on the network. There are also direct benefits to the individuals; for example Emirati women who have family duties can combine both work and family life. In many countries there are laws on flexible working. While flexible working in terms of time and location can deliver (peak) traffic reductions, it is worth noting that part-time working does not have the same effect. While journeys of part-time staff may be made outside peak hours, staffing one position with two members of staff will tend to increase the number of commuting trips per position.

11.3.1 The role of the DoT

The DoT proposes the introduction of a policy that will require both public and private sector organisations to consider the potential of flexible working. These policy proposals are summarised in Table 11.2.

In addition the DoT will support individual organisations with the implementation of flexible working as required.

Table 11.2: Proposed introduction to legislation on flexible working

Current situation	Proposed change
No legislation regarding flexible working hours and locations	<p>Flexible working hours</p> <p>All public sector organisations will be required to formally adopt a pro-active policy on flexible working hours, allowing individuals to work flexibly by up to two hours around core business hours.</p> <p>All private sector organisations should also adopt a proactive policy regarding flexible working hours which allows individuals to apply to work flexibly as long as this does not hinder the organisation's operations. Organisations will be required to review applications made by individual employees.</p> <p>Flexible location and compressed working weeks</p> <p>All public and private sector organisations should also adopt a policy regarding compressed working and working from home which allows individuals to apply to work compressed weeks or working from home as long as this does not hinder the organisations operations. Organisations will be required to review applications made by individual employees for flexible working hours and flexible locations.</p> <p>Application criteria</p> <p>The applicant must fulfil the following criteria:</p> <ul style="list-style-type: none"> • Have worked for the organisation/company for at least six months continuously at the date that the application is made • Not have been refused permission to work flexibly under the right during the past 12 months by the same employer <p>The organisation/company will be required to review the application with the applicant in person within 30 days of the application being made. The employee will have a right of appeal against any refusal of their application. The applicant should receive a letter notifying them of a review date within this 30 day period. During the review the applicant, the applicant's manager and a HR representative need to be present. Reasons for the application as well as practicalities will be discussed before a decision is made. The applicant has to be informed of the decision within ten working days of the review date.</p>

11 Core TMM initiatives and benefits

11.3.2 The role of stakeholders and participants

It is the responsibility of the organisations implementing flexible working to comply with the relevant policies and guidelines. Where individuals need to be provided with equipment to facilitate homeworking (e.g. computer, telephone) it is the organisation’s responsibility to do so.

In addition, organisations may wish to implement flexible working policies specific to them. Example wording is shown in Table 11.3.

Table 11.3: Organisation specific flexible working policies

Policy	Definition	Example Wording
Homeworking	Employees are permitted to carry out their role and duties at home, either on a part-time or ad hoc basis or on a full-time basis as stipulated in their contract of employment.	<p>'XX organisation is willing to consider the following types of homeworking, depending on the circumstances of the employee’s role and operational requirements:</p> <p>Occasional homeworking – applies to employees who, with the approval of their manager, work at home on an occasional and ad hoc basis, even though their contract of employment requires them to be based at xx.</p> <p>Regular homeworking – applies to employees who have a regular pattern of working at home agreed with their manager (e.g. once a week or once a month), even though their contract of employment requires them to be based at xx.</p> <p>Designated homeworking – applies to employees who work from home (their office is based in their home) even though they may work elsewhere for part of their working hours. Becoming a designated homeworker involves a change in the contract of employment to reflect the new work location.'</p>
Compressed working weeks	A formal or informal policy which enables employees to work full-time in fewer than five days per week.	<p>'Employees are required to work the equivalent of 40 hours per week. Employees may, depending on the nature of their role and with the prior written approval of their manager, work to one of the following patterns:</p> <ol style="list-style-type: none"> 1. Four 10 hour days per week; 2. Three 12 hour days per week; or 3. 80 hours over nine days, taking the 10th day off as leave.'
Flexitime	Flexitime enables employees to agree the start and end timings of their working day with their employer. This enables arrivals and departures from site to be staggered, thus reducing congestion and parking pressures. Employees may also be able to carry over any excess or shortfall in the amount of hours they are required to work e.g. one to two days per month.	<p>'Standard core hours are between 10am and 4pm and all employees are required to be at work during these timings. However, employees may, with the prior written approval of their manager, vary their start and end timings to suit personal circumstances, depending on the nature of their role. [Employees must still work a total of eight hours each day.]'</p> <p><i>NB the hours stated should be adapted to the individual organisation as appropriate. The core hours between 10am and 4pm are used as an illustrative example only and may vary from organisation to organisation.</i></p>

11 Core TMM initiatives and benefits

11.3.3 Key benefits

There are a number of key benefits associated with these measures:

- **Reduced car trips** – If 35% of employees in Abu Dhabi worked compressed weeks, trips per fortnight could be reduced by over 540,000 (refer to Section 4 of the Task 3D Report *Impacts Assessment*).

'A detailed travel diary study of 40 participants in the State of California Telecommuting Pilot Project found that on average, telecommuters made 27% fewer trips in total on days when they worked at home [...] they travelled 77% fewer miles by car (down from 44.8 miles to 10.2 miles) on teleworking days, compared to their behaviour before they began telecommuting'.⁶

IBM introduced a 'Smart' project scheme mixing home-based working and shared office touchdown points. This resulted in a 13% reduction in travel time, a 36% increase in time spent with customers and a total space-saving of 30%.⁷

- **Environmental benefits** – The car trip reduction scenario outlined above has the potential to bring about a reduction of over two million kg of CO₂ per fortnight (see Section 4 of the Task 3D Report *Impacts Assessment*).

In addition to this there are a number of associated benefits as listed by Cairns et al (2004).⁸ In particular, British Telecom (BT) in the UK has reported a number of positive impacts in the following areas:

- Improved performance (81% of staff reported improved performance including higher productivity, better quality of work, higher total output and more creative work);
- Lower levels of absenteeism (homeworking staff take 25-30% fewer sick days than office-based staff);
- Higher staff retention rates, and higher rates of return to work after maternity leave (93-96% of employees return to work following maternity leave);
- Employees who would not be able to do office-based work are able to continue in employment (this affected around 10% of employees);
- A positive effect on quality of life and a better balance between working life and personal life (90.3% reported that homeworking had a positive impact on their work-life balance);

- Individual financial savings (55.9% reported personal savings); and
- Lower office costs (BT made a floor-space saving of over 1 billion AED per year).

Timescales: Development and implementation of flexible working policy by 2015 that allows individuals to apply to work flexibly in terms of time and/or location.

11.4 Smarter working

The aim of smarter working is to reduce the number of trips made during the course of business, such as travel to meetings. Physical trips are replaced by video and teleconferences. Many organisations already have the facilities for video and teleconferencing in place but often they are under-used by employees. Where the facilities are in place they can achieve significant trip reductions and thus realise substantial cost savings for the organisation.

11.4.1 The role of the DoT

The DoT will actively promote the benefits of smarter working (including reduced travel cost, less time spent travelling to meetings etc.) through stakeholder engagement and sharing best practice. In addition, the DoT will assist with the implementation of this measure where required (for example, through the development of a smarter working policy framework for the public and private sectors).

11.4.2 The role of stakeholders and participants

It is the participating organisations' responsibility to install the video and teleconferencing facilities for their staff to use. In addition it is recommended that the organisation develops an internal smarter working policy (with support from the DoT) that prioritises the use of video and teleconferencing facilities over travel by unsustainable modes.

A survey of an organisation's contractors and consultants will help establish those meetings that can be replaced through smarter working techniques.

⁶ Study undertaken by Koenig et al. 1996. See: Cairns S et al (2004) 'Smarter Choices – Changing the Way We Travel' Report for the UK Department for Transport

⁷ *ibid*

⁸ *ibid*

11 Core TMM initiatives and benefits

Research has shown that even where such facilities already exist, they are often under-used. The two biggest barriers to effective smarter working practices are that employees do not know how to use the facilities and the perception that such facilities are for use by senior management only. In order to overcome both of these barriers, organisations should actively promote the use of video and teleconferencing equipment and organise demonstration sessions designed to instruct staff in how to use the equipment.

11.4.3 Key benefits

Best practice research found that videoconferencing gives a 1.2% reduction in traffic from 2002 to 2015.⁹

Arise Virtual Solutions Inc is the leading homeshoring organisation. It has leading processes, technology and security tested across 45 clients with over 20,000 home agents in the USA, Canada and the UK. Arise is currently working with 15 Fortune 150 organisations including Apple, Disney and AT&T. Its clients benefit from:

- **Increased Revenue Growth** – for the world’s number one portable technology provider Arise delivered a revenue increase of 35%;
- **Cost Savings** – for a major UK retailer, Arise delivered 30% savings and greatly increased flexibility;
- **Performance** – for a top US telecommunications company, Arise has achieved a number one ranking in resolving customer enquiries in one call when compared to other vendors;
- **Flexibility** – when a top telecommunications client released a popular new product, Arise increased its capacity by 43% for a period of 90 days; and
- **CO2 Reduction** – Arise was able to assist a UK firm in saving approximately 1,612kg of CO2 per employee by removing the need for them to commute.¹⁰

David Cartwright, Group Chief Executive, EMEA commented, *‘The virtualisation of work and scalable robust technology are the key enablers of homeshoring. This has huge implications for enabling different groups of people to work that couldn’t previously and has substantial environmental benefits by eliminating journeys to and from work’*.¹¹

Timescales: To produce smarter working guidance to support organisations across the Emirate of Abu Dhabi: 2015.

11.5 Information, awareness and promotion of DoT infrastructure

The provision of information and awareness-raising are essential to the success of any TMM programme. Without knowledge about alternatives to the single occupancy car as a mode of transport, people will not shift to more sustainable modes. The Task 4 report *Social Marketing and Communications Strategy* sets out in greater detail how information and awareness-raising campaigns should be implemented.

11.5.1 The role of the DoT

The DoT will produce information material about all relevant aspects of TMM and sustainable modes of transport. This is an ongoing process and materials will be regularly updated and new materials developed as further transport infrastructure (e.g. light rail) comes online. These materials will be made available in print and/or online format to all in Abu Dhabi. Examples of such information include the following:

- Information on bus routes and timetables;
- Information on new public transport infrastructure;
- Guide to car sharing;
- Guide to flexible working; and
- Guide to smarter working.

Organisations such as schools or employers that want to pass this information on to their staff and promote sustainable modes can make use of a number of TMM templates, which can be obtained from the DoT. An example of a template for a letterhead is shown in Figure 11.2.

⁹ Cairns S et al (2004) ‘Smarter Choices – Changing the Way We Travel’ Report for the UK Department for Transport

¹⁰ Data from Arise internal research

¹¹ Arise internal communications material

11 Core TMM initiatives and benefits

Figure 11.2: Letterhead Template



In addition, the DoT has developed a unique TMM logo which can be used on all TMM communications and branding. This will help give TMM an identity in the Emirate of Abu Dhabi.

11.5.2 The role of stakeholders and participants

The role of stakeholders and participants is relatively simple. The DoT is providing the core information, templates and branding. However, it is the organisation's responsibility to identify the subjects on which to inform their employees, students, visitors, residents and other groups and subsequently to prepare and circulate organisation-specific materials.

11.5.3 Key benefits

The key benefits of marketing and information provision, which have been drawn from a wide range of locations, include the following:

- Stagecoach Scotland ran a marketing campaign to encourage increased bus use on a poor performing low frequency bus route. Passenger growth was 56% over the first two years, and on course to be 63% over three years. There was evidence of modal shift from car to bus;¹²
- In Nottingham, UK passenger journeys are increasing at about 1.8%, or 1.3 million journeys, per year through public transport information and branding¹³; and
- Evidence from Sustrans' TravelSmart programme shows that just by giving people information on their local walking, cycling and bus routes car use can be reduced by as much as 14% across an entire area.¹⁴

¹² Cairns S et al (2004) 'Smarter Choices – Changing the Way We Travel' Report for the UK Department for Transport

¹³ ibid

¹⁴ Sustrans (2009) The Comber Greenway. A vision for sustainable travel within East Belfast

11 Core TMM initiatives and benefits

Figure 11.3: Smarter Travel Sutton awareness campaign



In Sutton, London, awareness of local activities promoting travel behaviour change has risen significantly, from 15% to 25% as a result of the Smarter Travel Sutton project. A 2007 Ipsos Mori survey also found that Smarter Travel Sutton was the council's most recognised service, with 29% of residents recalling the project.¹⁵

Timescales: First revision of information and guidance materials including information on bus routes and timetables, information on new public transport infrastructure, guide to car sharing, guide to flexible working, guide to smarter working in 2015.

¹⁵ Smarter Travel Sutton (2008) First Annual Report

11.6 Company buses

The DoT has already made very positive progress in providing staff buses for staff commuting between a number of locations and the DoT offices. The travel survey found that current company bus mode share is 14.8%.

Company buses also present a step in-between fully private transport such as the car and wholly public transport such as public bus services. Individuals who are used to driving their car may be more easily persuaded to switch to a company bus compared to a public bus.

11.6.1 The role of the DoT

The role of the DoT will be to assist organisations with the implementation of company bus schemes. This assistance may come in form of technical advice and/or funding. Technical advice can be delivered in several different forms:

- Assessment of demand;
- Development of routes;
- Infrastructure changes to pick-up and drop-off points;
- Development of Park & Ride sites; and
- Procurement of buses.

The DoT will produce a guidance note on the establishment of company bus services that can be used as an initial starting point by organisations in the Emirate of Abu Dhabi who wish to set up staff bus services.

11.6.2 The role of stakeholders and participants

Organisations wishing to implement a company bus service are responsible for the development of a business case to support the set up of the service. All aspects regarding development and running of the service should be discussed with the DoT and responsibilities will be allocated on a case-by-case basis.

Shortly before the service becomes operational it is the organisation's responsibility to promote the service among staff and set up a scheme for booking seats on the service.

11 Core TMM initiatives and benefits

11.6.3 Key benefits

Companies worldwide have achieved substantial mode shift through the implementation of company buses – one further example is SIVECO in Bucharest, Romania. The shuttle bus service was implemented in 2008 and promoted as a new transport mode (with information on its three routes, including schedule, rules, departure times and collection points) and its connection to public transport services. Six months following its implementation, mode share for the company bus had already risen to 29%. This, combined with other initiatives such as flexible working hours, restricted car parking and mileage policies achieves a reduction in CO2 emissions of 28 tons per year.¹⁶

The impacts assessment carried out in Task 3D Impact Assessment has shown that if 35% of employees in Abu Dhabi work for an organisation that provides a company bus this could bring about:

- A reduction in 80,723 trips by 2030; and
- A reduction in 317,854 kg of CO2 by 2030.

Timescales: First revision of the company staff bus services guidance materials in 2015.

11.7 TMM awards

Awards are a popular means to raise awareness among the community and to encourage a sense of pride in involvement in TMM. In Dubai, the Roads and Transport Authority (RTA) has successfully established the Dubai Award for Sustainable Transport which is awarded under the patronage of HH Sheikh Hamdan Bin Mohammed Bin Rashid Al Maktoum on an annual basis.

11.7.1 The role of the DoT

The DoT will play an instrumental role in the development and administration of the award, which can broadly be broken down into the following steps:

- Define remit and patronage of the award in liaison with the Abu Dhabi Executive Council;

- Define entry categories and award criteria for each category, for example:
 - Public sector organisations;
 - Private sector businesses;
 - Non-profit sector organisations;
 - Schools; and
 - Visitor attractions.
- Set up an award judging panel;
- Decide on prizes to be awarded to the winners;
- Offer opportunities for organisations to sponsor individual awards;
- Develop promotional material and advertise the awards;
- Collect and assess applications; and
- Give awards during a ceremony for all shortlisted entries.

11.7.2 The role of stakeholders and participants

The role of stakeholders and participants is two-fold. Firstly, organisations may wish to consider sponsoring one of the award categories as a form of promotion of their business in relation to TMM. Secondly, organisations need to prepare their award application without external support from the DoT.

11.7.3 Key benefits

The Dubai Award for Sustainable Transport has raised awareness of mobility management and surrounding issues in Dubai. Awareness is the first step in developing a willingness and sense of ownership among the community in Abu Dhabi to develop sustainable transport solutions and change the way we travel.

Timescales: Present winners of the first TMM awards by 2015.

¹⁶ EPOMM Case Studies SIVECO's workplace travel plan, Bucharest (Romania) http://www.epomm.eu/study_sheet.phtml?sprache=en&study_id=2818

11 Core TMM initiatives and benefits

11.8 Summary of benefits

This chapter outlined some of the main benefits of TMM measures, including traffic reduction and wider environmental, social and economic benefits. TMM achieves the most significant outcomes when a number of complimentary measures are implemented simultaneously, such as, for example, the introduction of a car sharing scheme and a car sharing information campaign.

Implementing measures in the form of integrated packages does however make it more difficult to attribute changes in travel behaviour to any particular initiative. The modelling exercise carried out as part of Task *3D Impact Assessment* identified the following reductions as a result of integrated packages of school and workplace programmes:

- At the sector level, the Emirate wide TMM programme will have the largest impact on Abu Dhabi Island West (west of Al Bateen Street/11th Street) in terms of reducing the number of trips per km² by 2030, a reduction of 56.35 vehicles per km² with vehicle percentage reduction of 2.44%. Abu Dhabi Island Centre (east of Al Bateen Street/11th Street and west of 27th Street) will have a reduction of 50.89 vehicles per km² and percentage reduction in vehicles of 3.87%, followed by Abu Dhabi Island East (east of 27th Street) reduction of 10.8 vehicles per km² and a vehicle percentage reduction of 3.42%. It therefore makes a contribution to reducing traffic in the worst affected areas of Abu Dhabi Island.
- At the zonal level, reductions in origin and destination vehicular traffic are relatively evenly spread across the Emirate, with a few pockets of slightly higher reductions. Average reductions in both origin and destination vehicular traffic are between 1 and 100 vehicles per zone during the AM peak. TMM needs to be geographically focused to achieve higher traffic reductions on areas of new development in Abu Dhabi.

- At the road network level, by 2030 we will see a reduction in link volume across the majority of Abu Dhabi City based on analysis of major links. Traffic volume of around 6,000 links will be reduced by up to 5%, around 2,000 links will be reduced by up to 5% to 10% and around 1,000 links will be reduced by up to 10% to 20% by 2030. The number of LoS F (breakdown in vehicular flow) and LoS E (operation at capacity) links will be reduced by 8% and 10% respectively. This illustrates how TMM can help relieving current congestion problems on Abu Dhabi Island.

The above results are based on 50% of employees in the Emirate of Abu Dhabi being covered by a workplace TMM plan and 75% of pupils being covered by a school TMM plan by 2030.

12 The importance of stakeholder engagement



12 The importance of stakeholder engagement

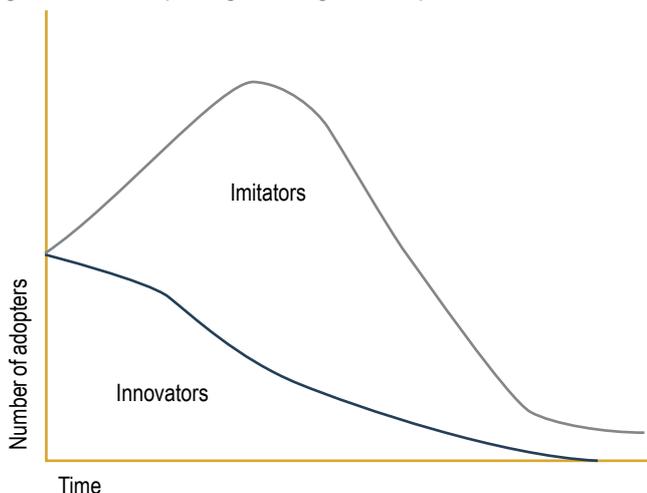
12.1 Introduction

It is important to include stakeholders throughout the development and implementation of TMM in Abu Dhabi. This chapter sets out the principles of stakeholder engagement. It summarises the main actions of the DoT in terms of stakeholder engagement.

12.2 Approach to defining key stakeholders

Targeting the right stakeholders from the beginning of the project is the best use of resources. It ensures that messaging and materials can be tailored as appropriate to different audiences. The priority groups have been identified through the principles of the Bass Diffusion Model as developed by Frank Bass. The model describes the process of how new products are adopted as a function of the interaction between users and potential users. It has been described as one of the most famous empirical generalisations in marketing.

Figure 12.1: Principle of generating new adopters



This is supported by Diffusion of Innovations – a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures.

In the Bass Diffusion Model, Bass outlines how new products (or processes) get adopted first by a set of ‘innovators’. Over time a second larger group then starts to adopt the behaviour of these innovators. This second group are known as ‘imitators’.

It is these ‘innovators’ who are key targets of TMM; at first this will help create the momentum to encourage the ‘imitators’ to get on board. The number of new adopters tails off over time in Bass’ model. To counteract this, a programme has to be constantly changing and updating to maintain interest. This links back to a definition of TMM used in the process of stakeholder engagement where it was emphasised that TMM is fundamentally a process of ‘constant development’.

Building on the Bass principle, elements of the Diffusion of Innovation Model can be applied. Diffusion of Innovation highlights a community as being split into five categories:

Table 12.1: Diffusion of innovation in the community

Category	Characteristics
Innovators	Venturesome, educated, multiple info sources
Early Adopters	Social leaders, popular, educated
Early Majority	Deliberate, many informal social contacts
Late Majority	Sceptical, traditional, lower socio-economic status
Laggards	Neighbours and friends are main info sources, fear of debt

Using this background theory has helped in identifying the main priority groups of stakeholders. The higher priority groups will exhibit the characteristics of the innovators and early adopters, as per the research by Bass and Rogers. The different priority groups and high-level DoT actions are outlined in Table 12.2.

12 The importance of stakeholder engagement

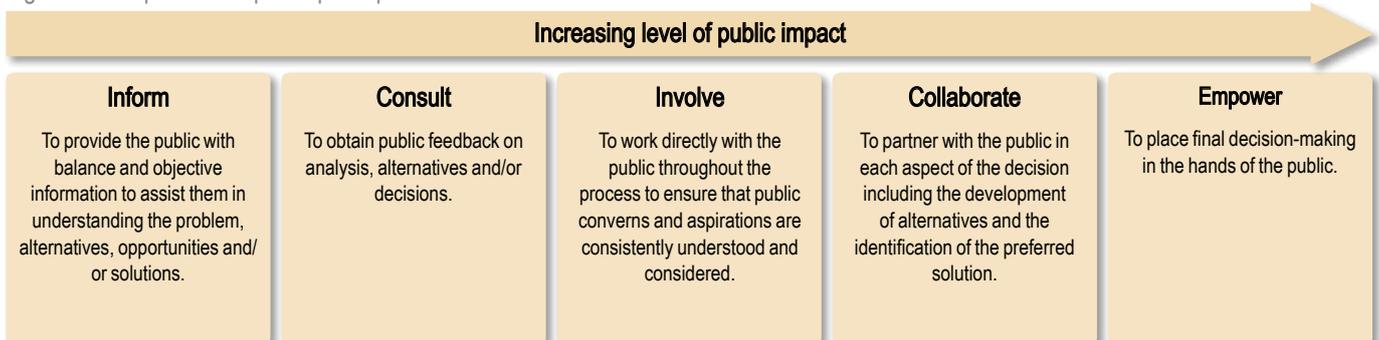
Table 12.2: Priority groups for stakeholder engagement

Category	Stakeholders	DoT role
Innovators	TMM project pilot organisations.	Assist with the implementation of TMM plans as identified in each plan. Provide ongoing support to implement core initiatives e.g. car sharing scheme. Remain in regular contact regarding yearly follow-up monitoring.
Early Adopters	Members of sustainability/CSR networks e.g. Abu Dhabi Sustainability Group.	Disseminate the benefits of TMM through the relevant networks. Contact network members individually in order to explore opportunities for developing TMM plans. Assist with the development and implementation of TMM plans.
Early Majority	Government organisations and major businesses.	Reach out to employers via communications and advertising. Organise workshops for interested employers. Follow-up with attendees and individual employers in order to explore opportunities for developing TMM plans. Assist with the development and implementation of TMM plans.
Late Majority	Universities and schools (need a lot more support from the DoT for the implementation of TMM plans), small and medium-sized businesses.	Inform universities and schools of the requirement for them to develop TMM plans by 2020. Offer dedicated resources to assist with the development and implementation of these plans. Reach out to small and medium-sized businesses through the development of Sustainable Travel Areas. Assist with the implementation of individual measures outside of TMM plans.
Laggards	Individuals who are not already captured in one of the above categories.	It is less resource-efficient to engage with individuals outside of groups, forums or other formal channels. Organise community events/workshops where individuals can inform themselves about TMM and contribute towards its further development.

12.3 Overall co-ordination of stakeholder engagement

Before any engagement commences the DoT will establish to what level different stakeholders are to be engaged. The International Association for Public Participation has designed a 'Spectrum of Public Participation' which helps illustrate the necessary level of stakeholder engagement depending on the task at hand and overall goals.

Figure 12.2: Spectrum of public participation



Source: International Association for Public Participation

The level of engagement as well as other key factors will be recorded in a stakeholder engagement plan in order to ensure a systematic approach to engagement.

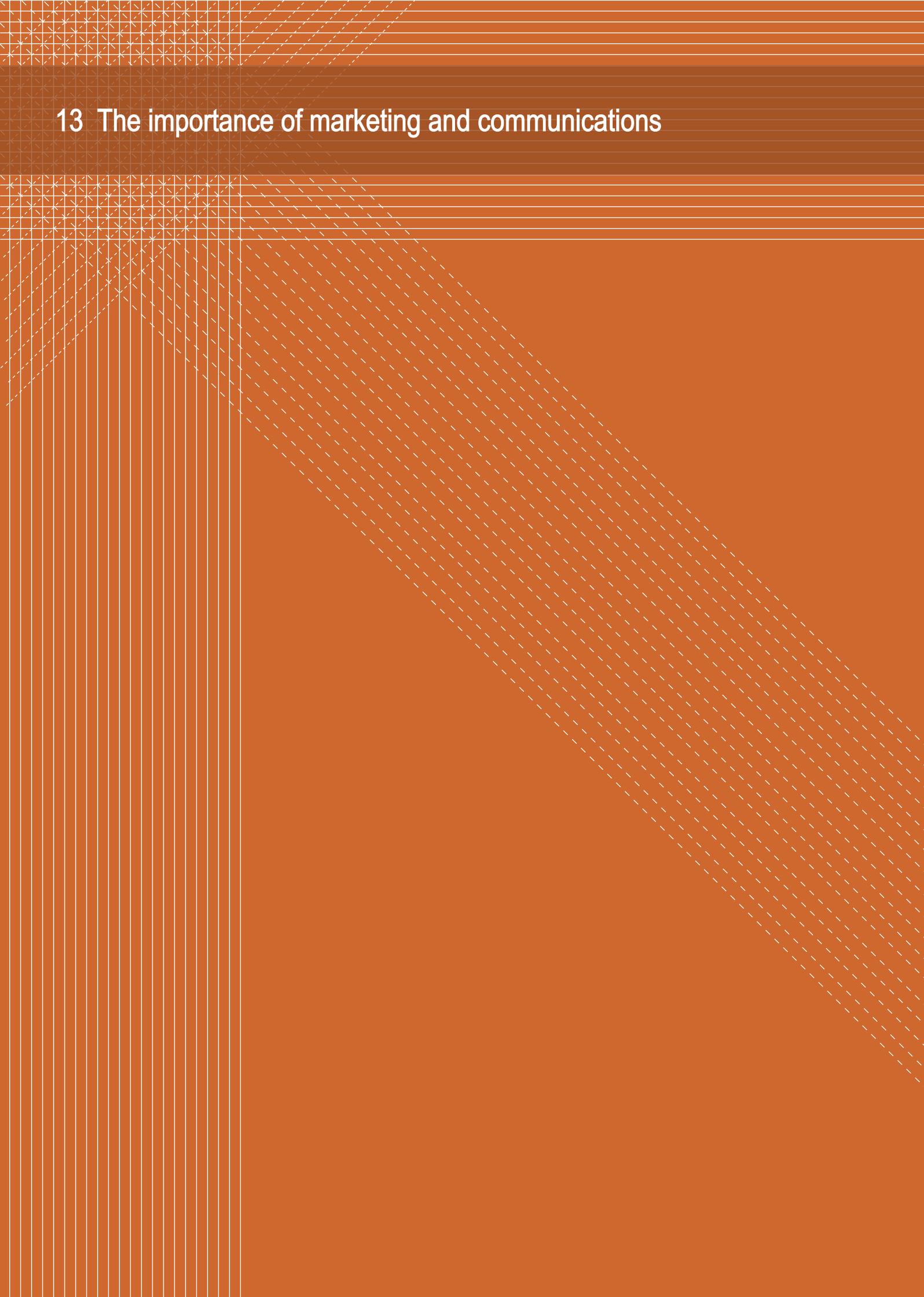
12 The importance of stakeholder engagement

12.4 Stakeholder engagement activities

In order to engage with the priority groups identified above, there are a number of key activities that are important for the continuation of TMM in the Emirate of Abu Dhabi. It is of utmost importance that the DoT informs and involves stakeholders at regular intervals in order to sustain their commitment to TMM. The main activities through which such continuous engagement can be achieved are:

- Engagement as part of the development of Sustainable Travel Areas including facilitating TMM workplace and/or school networks (these may be part of the Sustainable Travel Areas);
- Developing and awarding the first Abu Dhabi TMM Awards;
- Regular contact and support for pilot organisations;
- Presenting at relevant forums and groups e.g. Abu Dhabi Sustainability Group; and
- Road shows at workplaces, schools and universities.

13 The importance of marketing and communications



13 The importance of marketing and communications

13.1 Introduction

It is widely accepted that transport infrastructure alone is not enough to secure changes in travel behaviour. Infrastructural changes need to be complemented by strategies aimed at persuading people to change their behaviour. As a result, there has been an increase in the development of 'soft policies' which aim to change travel behaviour towards more sustainable modes, such as public transport, walking and cycling. Known more recently as smarter travel, these soft policies are primarily focused on reducing and managing demand for travel by eliciting a change in travel behaviour. Marketing and communications are therefore fundamental to the success of TMM in Abu Dhabi.

In some areas, marketing and communications are closely linked to stakeholder engagement. Some of the techniques described in this chapter can be used during the individual steps of stakeholder engagement outlined in Chapter 12. The overall goals of marketing and communications as part of this strategy are to:

- Raise awareness and understanding of the Abu Dhabi TMM project;
- Promote positive attitudes to alternative sustainable modes of transport;
- Educate the people in Abu Dhabi about the importance of reducing congestion;
- Discourage unnecessary single occupancy vehicle car trips; and
- Provide support to organisations developing TMM plans and encourage the uptake of TMM from more organisations.

13.2 Communications and engagement

Communications and engagement are about how to consult, communicate and engage with different groups. The key short-term actions for the DoT are listed in Table 12.2 in the previous chapter.

The TMM strategy will also apply the concept of 'nudge' as adopted by Thaler and Sunstein in 2005. The principle of nudge is that preferences can be influenced by small changes to systems, process or the environment, without restricting individual choice. It is hence important to communicate with and engage people in a way that asks them to make small changes to their habits – taking one step at a time. It would be difficult to convert the behaviour of someone who drives their car to work five days a week to cycling to work five days a week. Instead, small step changes would be to change behaviour from single occupancy car use to car sharing or using a company bus. Once people have accepted some form of shared transport, the next step could be to encourage behaviour change from, say, car sharing to mass public transport such as the bus etc.

13.3 Social marketing and branding

Marketing is carried out through an overarching branding and awareness campaign, without any specific targeting. The aim of this is to raise the overall level of awareness of TMM in Abu Dhabi and to establish the Abu Dhabi TMM brand.

Social marketing is the systematic application of marketing by targeting specific audiences. The social marketing and communications strategy needs to increase awareness and to educate and inform the priority groups. It is important to promote the aim of the DoT to ensure that messages are targeted and tailored to the correct audiences in line with mode and location. The Task 4 *Social Marketing and Communications Strategy* lists the approaches for the different target groups in greater detail.

The DoT has already developed a logo and a number of templates for flyers, posters, letterheads etc. that form the basis of all marketing campaigns carried out as part of the TMM strategy.

13 The importance of marketing and communications

The key marketing actions in the short term are shown in Table 13.1. Details on each of these are outlined in the Task 4 *Social Marketing and Communications Strategy*.

Table 13.1: Key marketing activities and events

Event/Activity
Finalise the brand
Develop the TMM website
Official TMM launch
Development of specific material for schools (with ADEC)
TMM smarter working campaign
TMM flexible working campaign
Specific campaign at employers around park and ride sites
TMM focused campaign linking to walking and cycling demonstration activities
First UAE (pan-Gulf) TMM forum
Roll-out of programme of cycling training
Administer programme of cycle support tools at workplaces and schools
TMM focused campaign linking to bus transport in CBD
Walk to work week/Walk once a week
Launch of car share database
National car share week
Commuter challenge
Business road shows (potentially building on some of the other themed campaigns)
School road shows
Schools poster competition
Abu Dhabi TMM awards
Green miles competition

14 Short term actions and long term aspirations

14 Short term actions and long term aspirations

14.1 Introduction

This chapter outlines the programme of proposed TMM activities until 2030. These are tightly interlinked with proposed core DoT transport infrastructure projects to 2030. The programme provides details of the phasing of both short term (2011-2015) and long term (2015-2030) transport projects to illustrate where and when TMM activities can complement and support wider DoT projects and vice-versa. The DoT programme will, therefore, help serve to inform and support the future activities of the TMM project over the next twenty years.

14.2 Short term actions

The DoT will take forward a number of key actions by 2015. These are the initiatives that deliver quick-wins and fall into the following categories:

- Official TMM launch;
- Policies and regulations;
- TMM plans;
- Sustainable Travel Areas (including Al Ain Schools Network); and
- Marketing and events, including the TMM Awards.

It is important to note that while these are all short-term activities that will be implemented before 2015, the majority will be applicable beyond this date.

14.2.1 Official TMM launch

The DoT is planning to officially launch TMM in 2013. Experience from similar integrated TMM programmes such as Smarter Travel Sutton has shown that it is important that the programme is developed to a certain extent prior to its official launch – some measures have been implemented and all marketing and promotional material is ready. Only if this is the case, can people be won over and involved in a variety of aspects of TMM straight from the launch date. If materials and initiatives are not ready there is a danger that any initial enthusiasm generated through the launch is lost because no further activities are taking place. Gaining commitment to TMM a second time round will be more difficult because of the initial negative experiences generated.

Communicating and engaging with the community of Abu Dhabi is essential for the successful launch which can comprise a combination of the following elements::

- Post campaigns on buses and at bus stops;
- Advertising in local media (radio, newspaper, TV, online);
- TMM website;
- Competitions;
- Business road show;
- School road show;
- University road show; and
- Launch event day for the public.

Timescales: Official TMM launch in 2013.

14.2.2 Regulations

Section 5 of the Task 4 Report Organisational, Legislative and Administrative Requirements outlines in detail a number of policy and regulation changes that are required in order to facilitate the implementation of TMM. The changes required cover the following areas (in addition, see changes proposed by the Abu Dhabi Walking and Cycling Master Plan):¹⁷

- Cycling:
 - Protection of cyclists as vulnerable road users;
 - Implementation of road markings and road infrastructure;
 - Introduction of driver liability; and
 - Implementation of infrastructure for developments.
- Car sharing:
 - Legalisation of monetary contributions.
- Flexible working:
 - Introduction of a flexible working policy.

¹⁷ Department of Transport (2011) Abu Dhabi Walking and Cycling Master Plan

14 Short term actions and long term aspirations

- Public bus transport:
 - Relax rules on drinking water on public buses.
- School bus transport:
 - Implementation of proposals made by the DoT regarding bus specifications.
- TMM plans for new developments as part of the TIS process:
 - Make requirements for TMM plans as part of the TIS process.
- Estidama Pearl Rating:
 - Make TMM plans a required component of the Pearl Rating System.
- TMM plans for existing developments:
 - Make thresholds for developing TMM plans.

For details of each proposal, refer to Section 5 of the Task 4 Report *Organisational, Legislative and Administrative Requirements*.

These regulation changes need to be addressed prior to the official TMM launch in 2013 or prior to launch of relevant initiatives in order to ensure that there are no major barriers to taking TMM forward.

Timescales: Ongoing implementation of changes to policies and regulations in order to facilitate TMM

14.2.3 TMM plans

The development of TMM plans is the core of this strategy. It is therefore important that the DoT focuses a significant proportion of its resources on the development and implementation of TMM plans. The main actions that need to be taken forward in the short term are:

- Supporting pilot organisations that have developed a TMM plan;
- Developing the car sharing database (car sharing is a major component of most TMM plans);
- Developing the TMM plan monitoring database;
- Assisting organisations in the development and implementation of TMM plans and stand-alone initiatives; and
- Ensuring that requirements for TMM plans for new developments and existing sites are met.

Timescales: Support pilot organisations (Ongoing).

Car sharing database (2015).

TMM plan monitoring database (2015).

Assist the development and implementation of TMM plans for further existing organisations (from 2012 onwards).

Ensure that requirements for TMM plans as part of the TIS planning process are met (from 2015 onwards).

14.2.4 Sustainable Travel Areas

The development of Sustainable Travel Areas is one of the key avenues for encouraging the development of voluntary TMM plans (see Section 7.3.1.2) and TMM plan networks. It also has a number of benefits in its own right (see Section 5.2). Sustainable Travel Areas are therefore an area of particular focus for the DoT in the short (and long) term. The key actions that the DoT will take forward in the short term are:

- Implementing the Markaziyah Sustainable Travel Area;
- Continuing support of the Markaziyah Sustainable Travel Area;
- Developing and implementing two further Sustainable Travel Areas in Abu Dhabi City (see Table 5.1); and
- Development and implementation of the Al Ain Schools Network.

Timescales: Implementation of the Markaziyah Sustainable Travel Area (2013-2015).

Ongoing support of the Markaziyah Sustainable Travel Area (2013 onwards).

Development and implementation of further Sustainable Travel Areas (2013 onwards).

14 Short term actions and long term aspirations

14.2.5 Marketing and events

Chapter 13 of this strategy explains the importance of marketing and communications alongside other initiatives as well as TMM measures in their own right. The DoT will therefore roll-out a marketing programme right from the start. The main actions that the DoT will take forward are:

- Developing a TMM website (this will be the focal point for all TMM initiatives);
- Launching the TMM programme (see Section 14.2.1);
- Launching the TMM Awards (see Section 11.7);
- Delivering an annual programme of campaigns and events (see Table 13.1); and
- Monitoring campaigns and events to determine appropriateness and success.

Detailed steps on individual activities and timescales are included in the marketing programme in the Task 4 Report *Social Marketing and Communications Strategy*.

Timescales: Develop a TMM website (by 2015).

Launch of the TMM programme (by 2015).

Launch of TMM Awards (present winners with the first awards by 2015).

Annual programme of campaigns and events (Ongoing).

Monitoring of campaigns and events (Ongoing).

14.3 Long term aspirations

The vast majority of the short term actions will be ongoing beyond 2015. The key actions that the DoT will take forward between 2015 and 2030 are:

- TMM plans:
 - Assisting organisations in the development and implementation and offer ongoing support;
 - Delivering ongoing TMM plan monitoring programme; and
 - Developing and updating localised best practice guidance.
- Sustainable Travel Areas:
 - Rolling out and delivering ongoing support of further Sustainable Travel Areas.
- Marketing and events:
 - Delivering an annual programme of campaigns and events (see Table 13.1); and
 - Monitoring campaigns and events to determine appropriateness and success.

14 Short term actions and long term aspirations

14.4 Taking new infrastructure into account

In addition to the above it will be necessary to revisit the short term actions and long term aspirations as and when new infrastructure is developed. The key elements to revisit when new infrastructure is developed are:

- TMM plans;
- Sustainable Travel Areas; and
- Marketing and events.

Table 14.1 lists the major DoT schemes to be developed and that will have an impact on the TMM actions. The timescales shown in Table 14.1 are indicative only.

Table 14.1: Impact of DoT schemes on TMM

DoT scheme	Timescale	Impact on TMM
Bus lanes (Hamdan Street, Zayed 1st Street, Zayed 2nd Street, Bainunah Street)	2012 - 2015	TMM activities at organisations and schools and Sustainable Travel Areas near the bus lanes/BRT route should be revised to include the promotion of bus lanes. The opening of the bus lanes should also be accompanied by a communications campaign.
Bus lanes (Airport Road, Muroor Road)	2012 - 2015	
Bus rapid transit (BRT)	Q4 2017	
School travel planning – shared services and U-pass pilots (integrated concessionary ticketing system)	2012 - 2015	Schools' TMM plans should be revised in order to include the use of the U-pass or shared services where appropriate.
Real-time Passenger Information and Journey Planner	2013-2015	Upon launching these initiatives, their promotion should be included in new (revisions of) TMM plans. Lack of information is often one of the main barriers to the uptake of sustainable transport – something that is directly addressed by these DoT schemes.
Bus Passenger Information System	2015	
DRT pilot schemes	2013-2015	As DRT pilot schemes are launched, a communications campaign targeting the local population in the pilot area should be implemented. Sustainable Travel Areas and TMM plans of organisations included in the pilot scheme should be revised to take this new sustainable mode into account.
Walking and cycling demonstration areas	2013-2015	As walking and cycling demonstration areas are launched, a communications campaign targeting those living, working and studying along the demonstration loop should be implemented. Sustainable Travel Areas and TMM plans of organisations along the loop should be revised to take this new sustainable mode into account.
Ferry route and station	2015	As the ferry station and services are opened, a communications campaign targeting those living, working and studying near the stations should be implemented. Sustainable Travel Areas and TMM plans of organisations near the stations should be revised to take this new sustainable mode into account.

14 Short term actions and long term aspirations

DoT scheme	Timescale	Impact on TMM
Section of LRT/Metro from Abu Dhabi International Airport via Capital City and on to Saadiyat via Suwa and Reem	2020-2030	TMM activities at organisations and schools and in Sustainable Travel Areas near the metro/tram/LRT lines should be revised to include their promotion. The opening of the bus lanes should also be accompanied by a communications campaign.
Tram/LRT systems Line 1 Marina Mall to Al Reem Island Line 2 Depot to Saadiyat Island	2018-2030	
High speed rail	2030	The opening of high speed rail will affect commuter flow between Dubai and Abu Dhabi and should be accompanied by a widespread communications campaign. In particular, organisations with significant numbers of employees commuting from Dubai should make the promotion of high speed rail a core element of the TMM plan and consider the provision of shuttle buses between the rail station and their office location.
Transport infrastructure improvements in Al Ain CBD	2015-2030	The initial focus of the TMM strategy in Al Ain is on trips to and from school. As further infrastructure is developed, the focus will be widened to place a greater emphasis on travel to and from work also.
Al Ain shuttle bus system	2030	
Al Ain tram system	2030	
High occupancy vehicle (HOV) lanes	Not yet planned	Once the bus lanes, BRT and LRT corridors are fixed it will be worth considering the potential of HOV lanes in Abu Dhabi. It has been discussed with the DoT and other stakeholders that HOV lanes have the potential to support car sharing in the long to medium term. The promotion of HOV lanes and of car sharing will, as part of TMM plans or stand alone, make a substantial contribution to the schemes' success.

15 Monitoring of the TMM strategy

15.1 What defines success

The main goal of the DoT is to reduce congestion in Abu Dhabi. The decrease in single occupancy car use across Abu Dhabi is therefore one of the key defining factors of success. This applies to the network as a whole as well as to the reduction of single occupancy car mode share at individual organisations that have implemented a TMM plan.

A further factor of success that can be measured at the organisational level is the number of commuting trips to and from an organisation in relation to the total number of staff. This serves as an indicator of overall reduced travel through initiatives such as homeworking and working compressed weeks.

Finally, the recognition of the sustainable travel brand and participation in TMM in Abu Dhabi serve as a further factor that defines success of TMM in the Emirate of Abu Dhabi.

15.2 Data collection

Detailed and accurate data forms the basis from which to measure success over time. This helps to steer the future development and application of TMM and justifies investment in this area. For this reason establishing a solid framework of baseline data is of great importance.

There are two major avenues for TMM data collection in Abu Dhabi – through organisations and through the DoT itself.

Organisations that have developed a TMM plan will be required to carry out follow-up monitoring at yearly intervals. This helps the organisation to identify whether they are meeting their TMM plan targets. The data collected in these monitoring exercises is also fed into a central DoT database. This enables the DoT to analyse the impacts more widely from organisations across the Emirate. The data collected by organisations should cover all major aspects of travel to and from work/school/university and travel during the course of business e.g. travel to meetings.

In addition to data collected by the organisations, the DoT will collect a certain amount of central data. The central data collected by the DoT includes:

- Overall reduction of trips, density, vehicle kilometres and other indicators that can be obtained from the Abu Dhabi STEAM model including associated high level estimates of reductions in vehicle emissions;

- Members and successful matches of the car sharing scheme; and
- Attitudinal and brand recognition surveys.

The data collected by both the organisations and the DoT will be maintained and monitored together in a central data storage tool. The DoT is developing a purpose built tool for this. iTRACE is an example of such a tool that has been developed and is used by Transport for London in the UK.

Figure 15.1: iTRACE travel plan management software



Source: itrace.org.uk

iTRACE is an innovation in Travel Plan Management Software. It provides a centralised software suite designed to monitor and report on the performance of Workplace and School Travel Plans, offering quicker, easier Travel Planning, Assessment, Auditing and Forecasting. Local Authorities can now share Travel Plan data.

iTRACE delivers:

- Sophisticated mapping & database technology;
- Fast & simple access to information including adding and editing details;
- Geo-location of organisations on a map;
- Easy attachment of documents & related data to sites;
- Predefined reports;
- Analysis of individual Travel Plans against targets, planning conditions and obligations;
- Workplace access to Site Audit & Staff Survey tool;
- Online Site Audits;
- Online or paper based staff surveys;
- A standard methodology; and
- Draft Travel Plan Reports automatically.

15 Monitoring of the TMM strategy

15.3 Reviewing and updating the strategy

The strategy needs to be reviewed at regular intervals and updated if necessary in order to reflect the latest developments in the Emirate of Abu Dhabi.

If and when new major background policy documents are either published or revised it is advisable to review the TMM strategy in light of any policy changes. This will help establish whether the strategy is still applicable or will need to change focus or direction. Some of the major policy documents to consider are Plan Abu Dhabi 2030¹⁸, Plan Al Ain 2030¹⁹, Plan Al Gharbia 2030²⁰ as well as each region's Surface Transport Master Plan and any changes to planning policy.

Furthermore it is sensible to review the strategy to see if amendments need to be made in light of other relevant strategies that are published or revised and have direct relevance to TMM. Examples of such strategies are the Abu Dhabi Walking and Cycling Master Plan and Environment 2030²¹.

In addition to reviewing the strategy in light of other publications, a major review should take place every five years. The aim of this is to establish whether the actions contained within the strategy have been implemented. This can be assessed through evidence of meeting the TMM plan thresholds and addressing the overarching aims and objectives.

If thresholds and objectives have not been met, it will be necessary to investigate in more detail why this has been the case. Possible causes may be a lack of resources or indeed that, due to changing background circumstances, the strategy cannot be met in the way originally envisaged and hence needs to be revised accordingly. The nature of TMM means that there are a lot of external factors that may impact the ability to achieve the goals within the strategy either positively or negatively. While best possible predictions of changing

circumstance, for example, population growth, infrastructure development, economic climate and such have been made, there is no certainty as to the accuracy of these predictions. Hence reviewing the strategy is essential in order to ensure its long-term applicability.

15.4 Core next steps

The five-year review outlined above will be based on research of external influences as well as ongoing annual data collection. The core next steps that will be carried out by the DoT in order to collect this data are as follows:

- Review whether thresholds and goals of sub-strategies are met in order to identify the success of each sub-strategy; for example the workplace travel TMM strategy and whether there needs to be any change in focus or direction of the sub-strategy;
- Review the impact of individual TMM plans in order to establish whether any enforcement mechanisms need to be established;
- Collection of central data;
- Check if individual actions are implemented and address shortcomings if necessary; and
- Check the level of resources the DoT utilised against the resources proposed in Section 4 of the Task 4 Report Organisational, Legislative and Administrative Requirements, in order to achieve the strategy's objectives.

The above is outlined in greater details in Table 15.1. The importance of collecting the relevant data is indicated by the number of ticks with three ticks (✓✓✓) being most important and one tick (✓) being least important.

¹⁸ Abu Dhabi Urban Planning Council – Plan Abu Dhabi 2030

¹⁹ Abu Dhabi Urban Planning Council – Plan Al Ain 2030

²⁰ Under development by Abu Dhabi Urban Planning Council

²¹ Under development by Environment Agency Abu Dhabi

15 Monitoring of the TMM strategy

Table 15.1: Monitoring actions

Action	Details	Timescale	Importance
Review of TMM plan thresholds			
Workplace	15% of public sector organisations with above 500 employees at any one site have a TMM plan.	2020	✓✓✓
	10% of private sector companies with above 500 employees at any one site have a TMM plan.	2020	✓✓✓
	50% of private sector companies with above 500 employees at any one site have a TMM plan.	2025	✓✓✓
	All public sector organisations with above 100 employees at any one site have a TMM plan.	2030	✓✓✓
	Those public sector organisations with less than 100 employees have a TMM statement.	2030	✓✓✓
	All private sector companies with above 500 employees at any one site have a TMM plan.	2030	✓✓✓
Education	15% of public and private schools above 500 pupils at any one site will have a TMM plan.	2020	✓✓✓
	30% of public and private universities have a TMM plan.	2020	✓✓✓
	50% of public and private schools have a TMM plan.	2025	✓✓✓
	50% of public and private universities will be required to have a TMM plan.	2025	✓✓✓
	All public and private schools have a TMM plan.	2030	✓✓✓
	All public and private universities have a TMM plan.	2030	✓✓✓
Visitors	All visitor sites where the number of visitors at any one site on any given day during the year exceeds 2,000 visitors per day have a TMM plan.	2020	✓✓✓
Review impact of individual TMM plans			
	Review TMM plan monitoring reports submitted to the DoT by each organisation. Assess reports against targets. Main indicator is mode split for travel to work/school and where appropriate business travel.	Annually	✓✓
Collection of central data			
STEAM model data	Emirate-wide reduction of trips, traffic density, vehicle kilometres and other indicators that can be obtained from the Abu Dhabi STEAM model.	2015 and 2030	✓✓
	Associated high level estimates of reductions in vehicle emissions.	2015 and 2030	✓✓
	Reduction of trips, traffic density, vehicle kilometres and other indicators that can be obtained from the Abu Dhabi STEAM model for all Sustainable Travel Areas.	One year after implementation of each Sustainable Travel Area	✓✓
	Associated high level estimates of reductions in vehicle emissions.	One year after implementation of each Sustainable Travel Area	✓✓
Car sharing	Members and successful matches of the car sharing scheme.	Annually	✓
Sustainable Travel Brand	Attitudinal and brand recognition surveys.	Every two years starting in 2015	✓

15 Monitoring of the TMM strategy

Action	Details	Timescale	Importance
Implementation of individual actions			
Individual measures	Check if individual actions highlighted in Chapters 11 and 14 are implemented and address shortcomings if necessary.	Ongoing	✓✓
Level of resources			
Resources	Check the level of resources the DoT utilised against the resources proposed in the Task 4 Report Organisational, Legislative and Administrative Requirements Section 4 in order to achieve the strategy's objectives.	Annually	✓✓

16 Summary and next steps

16 Summary and next steps

16.1 Introduction

This TMM strategy outlines how the DoT will take forward TMM in Abu Dhabi until 2030. The core elements of the strategy are:

- Sustainable Travel Areas;
- TMM plans for new developments and extensions;
- Workplace travel TMM strategy;
- Education travel TMM strategy;
- Visitor travel TMM strategy;
- Residential travel TMM strategy; and
- A number of key stand-alone initiatives.

All of the above elements will be underpinned by a continuous programme of stakeholder engagement and marketing and communications. All elements of the strategy will be reviewed at five year intervals in order to ensure their appropriateness to the changing background situation in Abu Dhabi. The key next steps for each element are listed in the following sections.

16.2 Sustainable Travel Areas

Task 5A *Application of Transport Mobility Management in a geographical case study* has shown the benefits of implementing concentrated programmes of TMM initiatives in a defined geographical area. The areas shown in Table 16.1 will ensure a focused and systematic geographical application of TMM in the short term.

Table 16.1: Proposed Sustainable Travel Areas

Area
Abu Dhabi
Abu Dhabi Airport Campus
Al Mamoura
Tourist Club Area
Al Bateen
Yas Island
Sheikh Khalifa Park (2-4-54)
Al Ain
Khaled Bin Sultan Street (Schools Road)

16.3 TMM for new developments and extensions

This strategy proposes the integration of TMM plans into the TIS process, as international best practice shows that cities and countries that have development control policies in place and which require developers to consider mobility management at the outset of the project tend to be more successful in facilitating the use of sustainable modes of travel.

The key next steps are outlined in Table 16.2.

Table 16.2: TMM plans as part of the TIS process

Element	DoT role
TMM plans	<p>To inform developers of what is expected of them and to agree the type and scope of the TMM plan required.</p> <p>To review draft TMM plans and advise on any changes that are necessary prior to final submission.</p> <p>To assess all incoming development-related TMM plans and either give approval or advise developers on where changes need to be made to produce a compliant TMM plan.</p>
Monitoring and support	<p>To develop and maintain a central database which collates all relevant TMM (monitoring) information.</p> <p>To provide ongoing support to developers in preparing and submitting TMM plans and in gaining DoT approval.</p> <p>To impose penalties/ enforcement mechanisms where targets are not met or actions are not carried out within the specified timescales.</p>

16.4 Workplace travel TMM strategy

Through the application of TMM at workplaces, a shift away from using the single-occupancy car on commuter and business trips can be achieved in Abu Dhabi, as TMM promotes the use of more sustainable modes of travel instead. This is done through an integrated package of initiatives tailored specifically to each workplace to encourage employees to reduce, re-mode, re-time and re-route trips. Where possible these should be developed through a TMM plan which provides a structured framework for the implementation of each initiative. However, stand alone initiatives may present a suitable alternative, especially for small and medium sized businesses. Organisations do not need a fully developed TMM plan to integrate TMM into their daily processes as even small initiatives can play their part in reducing congestion in Abu Dhabi.

16 Summary and next steps

The key next steps are shown in Table 16.3.

Table 16.3: Next steps for the workplace TMM strategy

Element	DoT role
TMM plans for organisations and businesses	Develop and maintain a database of organisations/businesses that are required to develop a TMM plan. Inform organisations about what is expected of them and monitor and enforce TMM plan development and implementation.
TMM for small and medium sized organisations	Encourage organisations to develop TMM plans and implement individual measures. Offer support to organisations where required.
TMM workplace networks	Support the initial set-up and facilitation of the network until this is transferred to one of the network members.
Monitoring and support	Develop and maintain a central database collating all relevant TMM (monitoring) information.

16.5 Education travel TMM strategy

In addition to commuter trips, education trips make up a considerable number of overall trips during the AM peak. The role of TMM within schools is to encourage a shift away from parents and drivers dropping-off children by car and to encourage staff to reduce single-occupancy car journeys. TMM promotes the use of school buses, car sharing and walking and cycling where appropriate. This is done through an integrated package of initiatives tailored specifically to each school. Children changing their behaviour while at school are likely to carry these patterns into later life and continue the use of sustainable modes of transport – hence TMM at schools can be of particular benefit in terms of achieving long-lasting results.

The role of TMM at universities is to encourage students and staff to reduce single-occupancy car journeys and instead use more sustainable modes. Staff at universities will be dealt with as workplace staff and therefore also fall under the TMM workplace strategy, as outlined in Chapter 7.

The key next steps are shown in Table 16.4.

Table 16.4: Next steps for the education TMM strategy

Element	DoT role
TMM plans for schools and universities	Offer a dedicated resource to each school that is developing and implementing a TMM plan. Further support may come from the municipalities and ADEC. While schools will be able to manage the TMM plan, they will require assistance with its development (survey process, developing initiatives and writing the plan) as well as with its implementation (especially school buses),
School TMM networks	Coordinate and facilitate the TMM network,
Monitoring and support	Develop and maintain a central database collating all relevant TMM (monitoring) information. Assist schools with follow-up surveys,

16.6 Visitor travel TMM strategy

The visitor travel TMM strategy is as much about reducing congestion from tourist and visitor trips as it is about improving accessibility throughout the Emirate of Abu Dhabi for visitors and tourists. Offering easy to understand, comfortable, clean and cheap alternatives to car travel can remarkably improve the visitor's experience and project a positive image of Abu Dhabi internationally.

There are two main elements of TMM for visitors:

- Tourist travel to and from hotels; and
- Visitor travel to and from leisure attractions.

The key next steps for both of these strands are shown in Table 16.5.

16 Summary and next steps

Table 16.5: Next steps for the visitor TMM strategy

Element	DoT role
TMM plans for visitor and leisure sites and attractions	Develop and maintain a database of organisations that are required to develop a TMM plan. Inform organisations about what is expected of them and monitor and enforce TMM plan development and implementation.
Tourist travel to and from hotels	
Visitor travel to and from leisure attractions	Encourage others to develop TMM plans or implement individual initiatives.
Monitoring and support	Develop and maintain a central database collating all relevant TMM (monitoring) information.

16.7 Residential travel TMM strategy

Residential TMM plans are an important tool for delivering accessible communities. Future residents are likely to be attracted by sites that offer a wide range of transport options and an environment that is safe and conducive to pedestrian activity. In addition, residential TMM plans can make an important contribution towards achieving wider societal aims and objectives in Abu Dhabi, such as improved public health and reductions in traffic congestion and pollution. The aim of the TMM residential travel strategy is to shift those trips made by individuals to and from their residence from single occupancy car use to more sustainable modes.

The key next steps for both of these strands are shown in Table 16.6.

Table 16.6: Next steps for the residential TMM strategy

Element	DoT role
TMM plans for residential buildings	Encourage the development of TMM plans or implement individual initiatives. Provide assistance to those developing and implementing plans.
Monitoring and support	Develop and maintain a central database collating all relevant TMM (monitoring) information.

16.8 Stand-alone initiatives

In addition to driving forward the development and implementation of TMM plans, the DoT will focus on a number of initiatives that can be implemented outside of TMM plans. These are initiatives which will receive particular support from the DoT and which have the potential to bring about a change in travel patterns at an organisation without having to be supported by a full TMM plan. This is particularly so for small and medium-sized organisations that do not have the resources and are not required to implement a full TMM plan. These initiatives offer a good opportunity to improve the travel situation at each organisation and to contribute towards the goals of TMM in Abu Dhabi as a whole.

These initiatives are:

- Car sharing;
- Flexible working;
- Smarter working;
- Information, awareness and promotion of DoT infrastructure;
- Company buses; and
- TMM awards.

16.9 Stakeholder engagement and marketing and communications

The implementation of all of the above actions has to be accompanied by a continuous programme of stakeholder engagement and marketing and communications. These are the elements that tie the initiatives together.

The main activities through which such continuous engagement can be achieved are:

- Engagement as part of the development of Sustainable Travel Areas, including facilitating TMM workplace and/or school networks (these may be part of the Sustainable Travel Areas);
- Developing and awarding the first Abu Dhabi TMM Awards;
- Regular contact and support for pilot organisations;

- Presenting at relevant forums and groups e.g. Abu Dhabi Sustainability Group; and
- Road shows at workplaces, schools and universities.

The main elements of the marketing and communications programme that the DoT will take forward are:

- Development of a TMM website;
- Launch of the TMM programme;
- Launch of the TMM Awards;
- Annual programme of campaigns and events; and
- Monitoring of campaigns and events to determine appropriateness and success.

16.10 Monitoring and review

The strategy should be reviewed every five years. This review will be based on research of external influences as well as ongoing annual data collection. The core next steps that will be carried out by the DoT in order to collect this data are as follows:

- Review whether thresholds and goals of sub-strategies are met in order to identify the success of each sub-strategy e.g. the workplace TMM strategy and whether there needs to be any change in focus or direction of the sub-strategy;
- Review the impact of individual TMM plans in order to establish whether any enforcement mechanisms need to be put in place;
- Collection of central data;
- Check if individual actions are implemented and address shortcomings if necessary; and
- Check the level of resources the DoT utilised against the resources proposed in Section 4 of the Task 4 Report *Organisational, Legislative and Administrative Requirements*, in order to achieve the strategy's objectives.

Glossary of terms

Table 17.1: Glossary of Terms

ADAC	Abu Dhabi Airports Company
ADACH	Abu Dhabi Authority for Culture and Heritage
ADEC	Abu Dhabi Education Council
ADNEC	Abu Dhabi National Exhibitions Company/Centre
ADSG	Abu Dhabi Sustainability Group
BRT	Bus Rapid Transit
BT	British Telecom
CBD	Central Business District
CSR	Corporate Social Responsibility
DMA	Department of Municipal Affairs
DoT	Department of Transport
DRT	Demand Responsive Transport
HOV	High Occupancy Vehicle
HR	Human Resources
LoS	Level of Service
LRT	Light Rapid Transit
PRS	Pearl Rating System
RTA	Road Transport Authority
STMP	Surface Transport Master Plan
SWOT	Strengths, Weaknesses, Opportunities, Threats
TIS	Transport Impact Study
TMM	Transport Mobility Management
TMP	Transport Master Plan
UPC	Urban Planning Council

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PR & Communication	
Bus Office	
TIS & STMP	
Road User Charging	
Public Transport	
Walking and Cycling	
Policy & Regulations	
Aviation	
Freight	
Maritime	
Pilot organisations	
Abu Dhabi University	
Abu Dhabi Airports Company	
Abu Dhabi National Exhibitions Centre	
Ambulatory Health Service (Disease Prevention Screening Centres)	
Al Dhafra School Al Ain	
Al Yasmina School Abu Dhabi	
Choueifat School Al Ain	
Environment Agency Abu Dhabi	
Marina Mall	
National Bank of Abu Dhabi	
Standard Chartered Bank	
Abu Dhabi National Energy Company / TAQA	
Yas Marina Circuit	

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Other external stakeholders
Abu Dhabi Authority for Culture and Heritage
Abu Dhabi Chamber of Commerce and Industry
Abu Dhabi Council for Economic Development
Abu Dhabi Education Council
Abu Dhabi Municipality
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Abu Dhabi Tourism Authority
Abu Dhabi Urban Planning Council
Al Ain Municipality
ALDAR
Al Gharbia Municipality
Department of Municipal Affairs
Emirates Transport
Etihad Airways
Health Authority Abu Dhabi
Masdar – Abu Dhabi Future Energy Company
TransAD

Appendices

Appendices

Appendix A. Register of task reports

Task	Date	Report title
1B	March 2011	Abu Dhabi Transportation Mobility Management – Task 1B: Baseline Information and Inception Report
1C	March 2011	Consultancy Services for a Mobility Management Study – Task 1C: Review of International Best Practice
2	June 2011	Consultancy Services for a Mobility Management Study – Task 2: Analysis of Travel and Transport Practices and Behaviours
2	July 2011	Abu Dhabi Transport Mobility Management (TMM) – Task 2 (Analysis of travel and transport practices and behaviours) Addendum
3A	June 2011	Abu Dhabi Transportation Mobility Management (TMM) – Task 3: Long-List of Measures
3B	June 2011	Transport Mobility Management – Task 3B Report
3C	June 2011	Abu Dhabi Transportation Mobility Management (TMM) – Stakeholder Engagement: Defining TMM Measures
3D	August 2011	Abu Dhabi Transportation Mobility Management (TMM) – Task 3D: Impacts Assessment
4	July 2011	Abu Dhabi Transportation Mobility Management (TMM) – Task 4: Organisational, Legislative and Administrative Requirements
4	July 2011	Abu Dhabi Transportation Mobility Management (TMM) – Social Marketing and Communications Strategy (Task 4) <i>Appendix to Abu Dhabi Transportation Mobility Management (TMM) – Task 4: Organisational, Legislative and Administrative Requirements</i>
5A	October 2011	Abu Dhabi Transportation Mobility Management – Task 5A: Application of Transport Mobility Management in a geographical case study
5B	October 2011	Abu Dhabi University – Transport Mobility Management Plan
5B	October 2011	Abu Dhabi Airports Company (ADAC) – Workplace Transport Mobility Management Plan
5B	October 2011	Abu Dhabi National Exhibitions Centre – Visitor Transport Mobility Management (TMM) Plan
5B	October 2011	Ambulatory Healthcare Services – Workplace Transport Mobility Management Plan
5B	September 2011	Al Dhafra School, Al Ain – School Transport Mobility Management Plan
5B	October 2011	Al Yasmina School Abu Dhabi – School Transport Mobility Management (TMM) Plan
5B	October 2011	The International School of Choueifat, Al Ain – School Transport Mobility Management Plan
5B	October 2011	Environment Agency Abu Dhabi – Workplace Transport Mobility Management (TMM) Plan
5B	October 2011	National Bank of Abu Dhabi – Workplace Transport Mobility Management Plan
5B	October 2011	Standard Chartered – Transport Mobility Management (TMM) Plan
5B	October 2011	Abu Dhabi National Energy Company (TAQA) – Workplace Transport Mobility Management (TMM) Plan
5B	October 2011	Yas Marina Circuit – Abu Dhabi Motors Management Workplace Transport Mobility Management (TMM) Plan
5B	October 2011	Department of Transport – Workplace Transport Mobility Management Plan
5C	October 2011	Abu Dhabi Transportation Mobility Management – Task 5C: Requirements for securing TMM Plans through the TIS Process <i>Appendix to Abu Dhabi Transportation Mobility Management – Task 5D TMM Plan Toolkit</i>
5D	October 2011	Abu Dhabi Transportation Mobility Management – Task 5D TMM Plan Toolkit

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