

# COMPANY PROFILE

2022



**EXTENDING THE FRONTIERS  
TOWARDS SMARTER TRANSPORTATION**



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## TRAFQUEST'S AREAS OF EXPERTISE

TrafQuest is a UAE-based transportation and traffic technology company with expertise spanning a wide range of areas, providing innovative solutions and applying advanced technologies to meet the safety and mobility needs of a modern surface transportation system. We provide professional consultancy services for both public and private sectors in the fast emerging MENA region for all aspects of transport planning & management, intelligent transportation systems, traffic engineering and research. Our expert staff has an extensive set of qualifications and vast experience in the fields of traffic operations, transportation planning, intelligent transportation systems (ITS), ITS Systems deployment and design, transportation safety, access management, mapping and GIS.

TrafQuest is committed to the pursuit of a balance between excellence and practicality, which has been the hallmark of our professional consultancy services. TrafQuest has been combining innovative thinking and cross cutting technologies to improve the mobility, safety and quality of life in urban areas.

TrafQuest employs highly qualified staff and uses proven project management techniques to ensure that all deliverables to the clients and government authorities are performed according to the highest industry standards and are compliant with requirements and specifications. Below are highlights of TrafQuest areas of expertise and staff members' accomplishments in select areas.



## TRANSPORTATION MASTER PLANS (TMP)

A Transportation Master Plan aims to plan and develop an efficient and well-integrated transport system for larger developments with multiple plots. Transportation Master Plans require a context-sensitive approach that takes into consideration not only the vehicular traffic, but also the communities and lands through which roads pass. It seeks to balance the need to move people efficiently and safely with other desirable design goals including environmental sustainability and the creation of vital public spaces.

### TRAFQUEST SERVICES COVER:

- Evaluating land use options
- Defining the primary roadway network and right of way
- Performing the transportation modeling using VISUM
- Identifying and assessing public transport routes
- Assessing and integrating the different modes of transportation
- Developing parking, accessibility and circulation plans

## URBAN PLANNING

Land developments and transportation networks influence one another. Therefore, the regulatory framework in UAE and Middle East emphasizes on the integration of land use planning and transport solutions. TrafQuest offers comprehensive services in master planning and urban detailed planning including assisting in authority approvals. Our multi-disciplinary team provides the knowledge and expertise to deliver coordinated and holistic transport, infrastructure and urban planning solutions that include:

- Master planning
- Plot development guidelines
- Feasibility studies
- Infrastructure planning and block cost estimates

## OTHER SERVICES

TrafQuest specializes in projects that build upon the broad-based technical and research skills in a wide range of fields, including transportation engineering, traffic and road safety, transportation planning and policy, and simulation and modeling. In addition, TrafQuest personnel have extensive experience in key areas, including:

- Safety strategies and strategic plans
- Technical outreach and consensus-building
- Training and workforce development



## TRAFFIC IMPACT STUDIES

### CORE SERVICES

Traffic impact studies provide an important tool for assessing the transport-related impacts of new and redeveloped projects. They are crucial to maintaining an efficient transportation system through forecasting the travel demand, identifying potential problems and develop proactive and efficient solutions. As one of the most prominent consultants in the UAE, our team has both the proficiency and the caliber to carry out traffic impact studies for many of the most renowned projects in the UAE (see Section B for a sample selection). Our comprehensive knowledge and experience with the local authorities' procedures enables us to provide fast and reliable services. Our capabilities include:

- Estimating trip generation and travel demand
- performing the traffic analysis using the most advanced software and tools
- Identifying transport-related problems
- Ensuring adequate, safe and efficient access and parking circulation
- Proposing sound and feasible mitigation

TrafQuest personnel has extensive expertise in the major industry tools used in conducting traffic impact studies including:

- VISSIM and VISUM
- Synchro and SimTraffic
- SIDRA
- Highway Capacity Software (HCS)

**TRAFQUEST IS PRE-QUALIFIED BY THE DUBAI ROADS AND TRANSPORT AUTHORITY (RTA) AND THE ABU DHABI DEPARTMENT OF MUNICIPALITYS AND TRANSPORT (DMT) AS WELL AS ALL NORTHERN EMIRATES TO CONDUCT TRAFFIC IMPACT STUDIES AND**

### ACCESS MANAGEMENT

In addition to authoring the Abu Dhabi Access Management Policy and Procedures, TrafQuest was also the author of the Dubai's Access Management Manual.

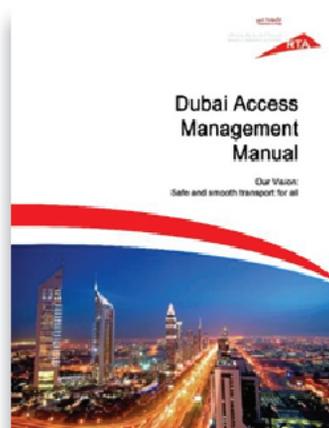
Both manuals are used by all traffic and transportation consultants in their design and evaluation of different access strategies to better serve the motoring public in Dubai and Abu Dhabi. The manual includes illustrations and sketches and examples of best practices to help in the design and evaluation process.

TrafQuest members provided on-site support to the US Department of Transportation in supporting the Transportation research Board (TRB) committee on Access Management. These support activities lead to the development of conference proceedings and eventually the TRB Access Management Manual.

TrafQuest members developed and were selected to deliver the NHI course on highway capacity and quality of flow throughout the United States. The highway capacity course deals with the topics of access management, freeway management, operations and arterial management from an operations and planning standpoint.

TrafQuest staff members conducted studies on the impact of access management on the crash characteristics of various treatments and has evaluated advanced methods for determining the impact of ramp metering strategies on freeway section performance and on alternate route performance.

**TRAFQUEST IS THE AUTHOR OF THE DUBAI'S ACCESS MANAGEMENT MANUAL AND THE ABU DHABI'S ACCESS MANAGEMENT POLICY AND PROCEDURES**



## TRAFFIC ENGINEERING SERVICES

TrafQuest staff has extensive experience in providing a variety of Traffic Engineering Services for public and private clients in the GCC region. This includes many research initiatives as well as feasibility studies concerning different transport challenges facing our clients. It also includes many design initiatives of the infrastructure necessary for safe and efficient traffic flow such as road geometry, sidewalks and crosswalks, segregated cycle facilities, shared lane marking, traffic signs, road surface markings and traffic signals. Furthermore, TrafQuest is one of the first traffic engineering consultancy firms in Dubai to offer full Public Transport Integration and Connectivity Studies. Finally, TrafQuest offers a variety of traffic engineering services as described here in more details.

### TRANSPORT INTEGRATION STUDIES

TrafQuest's expertise and caliber have made it one of the pioneers across Dubai to not only conduct the transport integration studies for some of the most prominent projects, but also help in developing the blueprints for such studies in the incipient stages. Transport integration studies aim at achieving better connectivity among the different modes of transport (metro, bus, marine, taxi, etc.) while promoting the use of efficient and clean modes. This is done through conducting comprehensive surveys for the existing and future conditions, identifying the access and mobility issues experienced by pedestrians, cyclists and other road users, and proposing workable solutions and measures to enhance the inter-modal accessibility and connectivity based on the guidelines introduced in the Dubai Transport Integration Manual (DTIM). At the end of the transport integration study, a Transport Integration and Connectivity Plan (TICP) is created, which combines the integration improvements into a comprehensive plan detailing how the project connects with the pedestrian and cyclist network, which leads ultimately to the public transport nodes and key generators in the area.

### GIS DESIGN & IMPLEMENTATION

TrafQuest's expertise and caliber have made it one of the pioneers across Dubai to not only conduct the transport integration studies for some of the most prominent projects, but also help in developing the blueprints for such studies in the incipient stages. Transport integration studies aim at achieving better connectivity among the different modes of transport (metro, bus, marine, taxi, etc.) while promoting the use of efficient and clean modes. This is done through conducting comprehensive surveys for the existing and future conditions, identifying the access and mobility issues experienced by pedestrians, cyclists and other road users, and proposing workable solutions and measures to enhance the inter-modal accessibility and connectivity based on the guidelines introduced in the Dubai Transport Integration Manual (DTIM). At the end of the transport integration study, a Transport Integration and Connectivity Plan (TICP) is created, which combines the integration improvements into a comprehensive plan detailing how the project connects with the pedestrian and cyclist network, which leads ultimately to the public transport nodes and key generators in the area.

TrafQuest excels at providing innovative solutions for spatial data processing and GIS design. We have been involved in dozens of projects, each requiring a new, flexible approach and design. Careful attention is paid to needs assessment, project specifications and data, hardware and software requirements.

An initial cost-benefit analysis is often crucial for assessing database design, life cycle costs, staffing requirements and maintenance costs. The process includes developing a detailed project plan, design of the data structure and the production, integration and test of the resulting spatial data.

Availability and distribution of the final data and the internal GIS architecture are meticulously planned. Custom software utilities are often developed to bridge data conversion gaps, reduce barriers and speed data transformation.



## TRANSPORTATION SAFETY STUDIES

A significant challenge facing transportation communities around the world is getting people where they need to go safely. All around the globe, countries and governments have made safety one of their top priorities. With vehicle ownership and highway miles on the rise every year, the chance of a highway crash is a tremendous concern.

TrafQuest personnel has expertise in the key safety areas listed below:

- Crash prevention
- Speed management
- Roadway visibility
- Work zone safety and mobility
- Pedestrian safety
- Intersection Safety and safe roundabouts

Sheikh Zayed Street and Tunnel, Abu Dhabi



## ARTERIAL MANAGEMENT

TrafQuest's broad expertise in arterial management has been gained through planning, design, studies of various systems, and research. TrafQuest staff has an understanding of signal control, numerous signal control tools, and their direct application.

TrafQuest staff has an understanding of signal control, numerous signal control tools, and their direct application. TrafQuest staff members have designed actuated and semi-actuated signal system performance for regions with explosive growth in business and population over the past few years similar to the growth level in Dubai. The designs considered signal timing plans, high payoff geometric changes, and incorporation of transit signal priority and emergency vehicle preemption. The projects included both simulation (using CORSIM, VISSIM, and INTEGRATION) and field analysis.

## FREEWAY MANAGEMENT

Freeway management cuts across several technical areas. It includes such diverse subject areas as traffic flow theory, communications technology, video technology, information dissemination, systems integration, control room architecture, configuration management, communications standards, and ITS architecture. TrafQuest staff has expertise in all of these areas. Our members have led the development and pilot presentation of a 3-day course for the National Highway Institute (NHI) on freeway management and traffic operations. This course provides the participants with a general appreciation and understanding of the key policies, institutional and technical issues, challenges and barriers, and other issues to consider in the planning, design, implementation, management, operation, evaluation, and marketing of freeway facilities. Upon completion of this course, participants will be able to identify the basic concepts and techniques with freeway management and traffic operations, and describe how these concepts and techniques apply throughout the life cycle of freeway facilities.

## PLANNING AND DESIGN

Our engineers and technicians conduct surveys of existing geometric layouts and equipment, prepare base plans and design proposed hardware including detection and interconnect. TrafQuest develops conductor/equipment schedules, signal phasing diagrams, project notes, equipment installation specifications and cost estimates.

TrafQuest has expertise in:

- Conducting MUTCD signal warrant analysis
- Preparing signal operations and phasing plans
- Preparing signal pole layout and design plans
- Specifying and recommending signal equipment
- Preparing plans for signal wiring, conduit and junction boxes
- Analyzing and documenting geometric and pedestrian considerations in signal design

## EVENTSMANAGEMENT

TrafQuest develops management solutions to achieve better utilization of existing spaces, reducing the need for new construction. Our experienced personnel have evaluated and recommended the use of a variety of parking strategies, including changeable message signs, residential parking permits, park-and-ride facilities, shared parking concepts, access improvements, traffic signal operations, police deployment, peripheral shuttle-linked parking operations, high speed entry/exit control systems, carpooling, transit, time restrictions and variable pricing.

## PARKING STUDIES & WAY FINDING

TrafQuest parking studies determine the parking needs of major developments, commercial/business centers and university/medical campuses. TrafQuest performs demand and utilization surveys, projects future parking space needs, identifies potential parking facility sites and recommends parking management programs.

## INTELLIGENT TRANSPORTATION SYSTEMS

Over recent years, ITS has played an increasingly important part in increasing the efficiency of road networks and transportation services. With its growing maturity, ITS is approaching the next stage in its development where it will be influenced by:

- Greater integration between systems and modes
- Open and common standards as well as a shared framework
- Service Oriented Architecture
- Increased customer services
- Real-time information sharing
- Demonstrable value for money

TrafQuest not only recognizes these industry trends but also embraces the next evolution of ITS and believes in its transformative power. Our Team has extensive experience in conducting ITS feasibility studies, ITS master plans, ITS Architecture, ITS preliminary and detailed design as well as ITS implementation operations, and maintenance.

## ITS PLANNING

TrafQuest has worked on several ITS planning projects that included the development and maintenance of regional ITS architecture for the Emirate of Abu Dhabi. Furthermore, TrafQuest has a long experience in developing coherent ITS master plans as well as ITS feasibility studies and evaluations. TrafQuest's staff is experienced in effectively dealing with rural, regional and urban areas ITS Planning.

TrafQuest's experience in Planning and Design includes a wide range of ITS projects and systems such as studies of region-wide Advanced Transportation Management Systems (ATMS), Advanced Traveler Information Systems (ATIS) deployments, ITS operations during special events, smart corridors, Roadway-Weather Information Systems (RWIS), Rural System Applications and Commercial-Vehicle Operational (CVO).

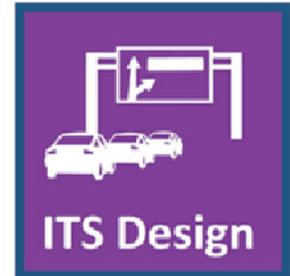


## **ITS DESIGN**

TrafQuest provides innovative solutions using cutting edge ITS technologies that offers a complete and cost-effective solution to the ever increasing transportation needs of local and regional agencies. This includes ITS field elements, Transportation Management Centers, Communication networks and traffic management systems. TrafQuest has a proven track record in understanding client's needs, requirements and constraints and then tailoring the design to meet them.

## **ELECTRONIC TOLL COLLECTION**

Our Electronic Toll Collection (ETC) has provided solutions that address our customer's business critical mobility problems. Our commitment for the future is based on ensuring that our customers have the solutions they need to intelligently manage their changing operating environment. TrafQuest has played a key role in the design and deployment of the Dubai Tolling System (SALIK) in addition to leading the design effort for the upcoming Abu Dhabi Road User Charing System.



## **ITS OPERATIONS AND MANAGEMENT**

Effective operation and management (O&M) helps to maximize motorist safety and convenience and are critical for optimizing the ITS investment. A well-designed operations plan is essential for determining staffing levels, operational practice and system requirements. A solid system management and maintenance program is required to ensure that the system is always operational for the benefit of the motorist.

TrafQuest is a pioneer in ITS operations and management. Continuous analysis of operations and management is one of the unique components of TrafQuest's design and implementation processes, ensuring that the client gets a premiere system designed to meet their particular operational requirements. WE also provide continuing support to operate, maintain and manage ITS systems. We offer some of the region's most experienced experts in ITS operations and management offering services that include system development, O&M requirements analysis, life-cycle costing, operations planning, benchmarking, system operations, system administration, system management and maintenance, operations training , contract services, system testing, system diagnosis and troubleshooting, scheduled maintenance services and asset management system development.

## **ITS SYSTEMS ENGINEERING AND ARCHITECTURE**

Many international ITS deployments have often been limited by a lack of an integrated and holistic vision. Traditionally, the implementation of ITS projects has been more tactical, focused on a single transport mode using stand-alone proprietary systems. The first step to avoid such a mistake is to develop a regional ITS framework or architecture in order to insure that all decisions related to ITS investments are made in gradual, realistic and coherent manner. The next step is make sure that the ITS architectural framework is aligned with the institutional strategy and operational model to achieve a greater degree of system, data and service integration.



TrafQuest was awarded the contract by the Abu Dhabi Department of Transport to develop a comprehensive ITS Architecture and ITS strategy & Implementation Plan for the Emirate of Abu Dhabi. This will pave the way for the development of an Integrated, Coordinated, Multi-Agency and Multi-Modal World Class Intelligent Transportation System in support of the fulfillment of Abu Dhabi 2030 plan.

In addition to ITS Master Plans and ITS Architecture, TrafQuest offers a full range of ITS services from research, planning and feasibility studies to extensive system deployments and continuing operation and maintenance. This also includes conducting needs assessment studies, developing concept of operations, requirement definition and architecture design.

## **ITS SERVICES**

- ITS Planning
- ITS Design
- ITS Systems Engineering and Architecture
- ITS Operations and Management
- Detection Systems
- Traveler Information Systems
- Integrated Transportation Payment Systems
- Transportation Management Centers Services (TMC)
- Road User Charging

## **ROADWAY DESIGN & SUPERVISION**

TrafQuest boasts a highly talented, proficient and accomplished road design team that has enabled the successful delivery of numerous projects. Our road design services provide sound, feasible and sustainable works that incorporate cutting-edge solutions to overcome the challenges and complexities of the road projects, while collaborating with the other specialties. The range of experiences and skills possessed by our staff has been demonstrated in some of the most prominent projects not only in the United Arab Emirates, but also in other ECG and Arab countries.

## **SERVICES**

Our services include:

- Design of rural and urban roads and highways
- Design of at-grade intersections
- Design of grade separations and interchanges
- Design of development access points and driveways
- Design of traffic control devices
- Preparation of tender drawings and documents
- Road feasibility studies
- Horizontal and vertical design of road
- Intersection design (urban & rural priority junctions, signalized junctions and roundabouts)
- Grade Separated intersections (flyovers, underpasses) and interchanges (SPUI, Diamond, cloverleaf, dumbbell and trumpet type)
- Design of various road types including freeways, highways, urban & rural arterials, secondary, collector and internal roads with diverse terrain conditions
- Study and design of parking areas
- Pavement structure design using AASHTO guide
- Rough grading for land development of large areas
- Production and review of drawings and technical documents from concept to construction stage
- Scheduling and budgeting of design activities and business development
- Mentoring and supervision of engineering and technical support staff
- Development of technical specifications, cost estimates and tender documents
- Preparation of technical & financial proposals and final bid packages
- Management of design and build projects

## ENGINEERING MANUALS (TECHNICAL WRITING)

One of the major challenges facing transportation agencies is establishing the guidelines, specifications, and standards necessary to the establishment of an advanced transportation network. With the advancement of Intelligent Transportation System technologies and the technological breakthroughs in advanced communications, the need for unified standards is greater than ever before. Furthermore, with the region's rapid infrastructure development, the establishment of uniform and standardized highway manuals, guidelines and procedures will help transportation agencies in:

- Enhancing the management, planning, design, construction, maintenance and operation of transportation projects & networks
- Ensuring safe and uniform operational and structural capacity throughout the Transportation network
- To conform to sustainability and environmental best practices

### TRAFQUEST'S METHODS

The preparation of a top-quality engineering manual requires a unique blend of skills. The absence of any one of these elements can lead to failure, poor quality, client dissatisfaction, wasted project resources and schedule overruns. Those skills include:

- Technical expertise
- Writing skills
- Experience with electronic format applications
- Appreciation of the needs of the manual user
- Project implementation logistics
- Production capacity



## PREVIOUS EXPERIENCE

### INTRODUCTION

Our long experience in efficiently conducting traffic impact and parking studies in addition to having helped write much of the standards, guidelines and specifications in relation to transportation projects in the Emirates of Abu Dhabi, Dubai and Sharjah; TrafQuest has a unique advantage in providing our clients with professional transportation and traffic engineering services.

TrafQuest is committed to the pursuit of a balance between excellence and practicality, which has been the hallmark of our professional consultancy services. TrafQuest has been combining innovative thinking and cross cutting technologies to improve the mobility, safety and quality of life in urban areas.

### PREVIOUS EXPERIENCE

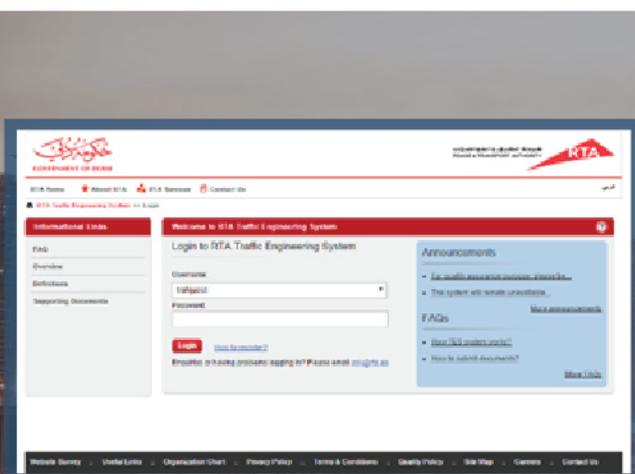
The following pages include selected accomplishments and recent key projects that TrafQuest has performed in the UAE and Qatar.

## SAMPLE INTELLIGENT TRANSPORTATION SYSTEMS PROJECTS

### RTA'S TRAFFIC ENGINEERING SYSTEM (TES)

TrafQuest was contracted by Dubai Road and Transport Authority (RTA) to design, build, operate and maintain a platform to provide next generation of Traffic Engineering services for internal and external stakeholders at RTA. The main objectives of the system are:

- Automates the process of submitting, storing and processing Traffic Impact Studies
- Improves financial health by reducing operational cost & Increasing cost recovery
- Integrations with DeD, DSG and RMS and other internal and external systems
- Embedded location intelligence (GIS)
- Provides RTA the flexibility to :
  - Add new business processes & enhance existing processes as per evolving requirements
- Enhanced reporting
- Enhanced Security
- Enhanced data archiving
- Provides modern and improved User Experience for consultants and Reviewers



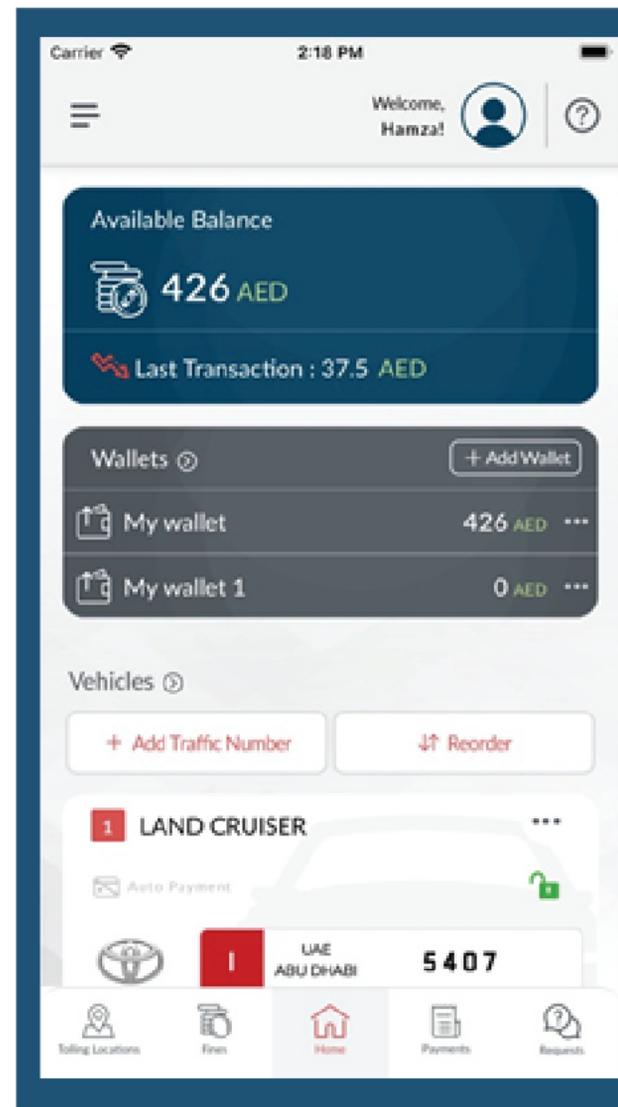
In order to meet these objectives successfully, TrafQuest was contracted based on the following solution:

- An Enterprise level portal that
  - Allows stakeholders to interact with RTA during the course of TIS submission & approval
  - Allows RTA staff to process TIS reports in a structured and methodical manner
- An Enterprise data model that
  - Captures spatial and related Traffic impact information at the level of study area, affected parcels as well as contribution to road sections and intersections
  - Allows analysis of previous, current and future projects in a consistent manner
- Automation workflows that
  - Streamline the processes
  - Yet provide flexibility to alter the workflows as business processes evolve
- An Enterprise level document content repository
  - That supports document versioning and free-form text search
  - And follows norms of managing enterprise level content
- A technology stack that
  - Aligns with RTA's Corporate and Enterprise Architecture choices and
  - Leverages existing investments and know how
- An implementation team that
  - Is well versed with RTA's technologies and operating environment,
  - Familiar with the process as well as internal and external stakeholders, and has delivered successfully in the past.

## ABU DHABI INTEGRATED TRANSPORTATION PAYMENT SYSTEM (ITPS)

The desire to better integrate transport services within the Abu Dhabi Emirate is driving the integration of all services related to public and private transport payments under a unified **Integrated Transportation Payment System (IPS)**. The Multi-Modal Intelligent Payment Solution shall be an integrated, open and flexible architecture, interoperable electronic fare payment and business intelligence that can be utilized by all modes of transportation at all times in real-time and off-line.

The Integrated Payment System will provide payment services for both offline payments taken in busses, trains or marine and online payment services taken from parking, tolling, etc. The system will manage a customer database and customer financial transactions from all modes of transportation. The system has multiple interfaces, a customer web interface that will allow internal and external customers to manage their accounts information, top-up their accounts and view usage. It will also have a system-to-system interface through a standardized software interface that will facilitate the integration between the IPS and other standalone system such as bus, metro, parking, marine and taxi.



In addition, the IPS will maintain a system configuration interface (business rule engine) to allow authorized users to change business rules and process flow using a graphical user interface to minimize software modifications for such changes.



## ABU DHABI ROAD USER CHARGING (RUC) SYSTEM

TrafQuest just finalized the design efforts and tender documents for a complete and advanced video-based tolling solution for the city of Abu Dhabi. The tolling system is based on virtual zones that will be operational at specific times of day when traffic congestion is at its peak. The owners of the RUC system will have the ability to dynamically change the tolling hours and rates to best mitigate traffic congestion. In other words, the primary goal for the Abu Dhabi RUC system is to provide a means of assessing toll fees for vehicles crossing predefined cordons or entering/leaving predefined sectors or zones on Abu Dhabi Island in order to reduce congestion during specific times of the day or in targeted locations. In addition, it is expected that the system will result in additional benefits to include:



- Decreased reliance on Single Occupancy Vehicles (SOV's)
- Improved travel time reliability
- Increased and sustainable speeds
- Improvements in infrastructure
- Improved safety
- Improved environmental conditions (e.g., reduction in greenhouse gases, fuel consumption, etc.)
- Improvements in business/economic growth or sustainability



The RUC System is divided into the following 5 functional areas:

- User Interface;
- SOA Common Systems Services;
- Database;
- System Configuration; and
- External Interfaces.

### Abu Dhabi Toll Gates System

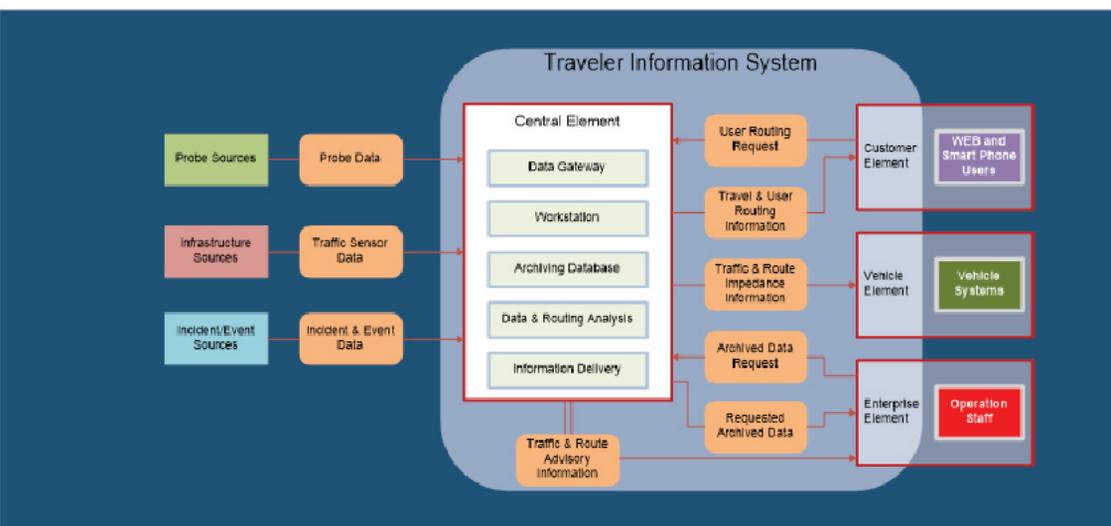


## ABU DHABI INTEGRATED TRAVELER INFORMATION AND NAVIGATION SYSTEM SERVICES

TrafQuest, was involved in the design, implementation, operation and maintenance of the first integrated travel information and navigation services (i-TINS) system in the Middle East.

TrafQuest was an integral part of an international team focusing on delivering a landmark traveler information system, along with establishing guidelines and standards for accuracy and reliability of travel status and real-time routing options for both private users and DoT operations staff.

This project involves traffic engineering, traveler information applications, central system software, traffic modeling, performance management, GIS, telematics and in-vehicle systems, system implementation, and hands-on operations.



## ABU DHABI ITS ARCHITECTURE, ITS STRATEGY & ITS IMPLEMENTATION ACTION PLAN, UAE (DOT)

TrafQuest was awarded the contract by the Abu Dhabi Department of Transport to develop a comprehensive ITS Architecture and ITS strategy & Implementation Plan for the Emirate of Abu Dhabi. This work will pave the way for the development of an Integrated, Coordinated, Multi-Agency and Multi-Modal World Class Intelligent Transportation System in support of the fulfillment of Abu Dhabi 2030 plan. TrafQuest's work on this project puts it in a unique position; allowing TrafQuest to a better understanding of the local Gulf environment and the needs that are specific to Gulf region.

Iteris, as a sub to TrafQuest, conducted a series of stakeholder workshops and outreach efforts which formed the basis for the architecture development, formulation of project elements and development of a recommended institutional framework. These stakeholders represented the major transportation and law enforcement entities in the Emirate, including DoT, Abu Dhabi Municipality, Al Ain Municipality, Abu Dhabi and Al Ain Police departments, along with other key entities.

The initial programs to be implemented in Abu Dhabi include the development of Active Traffic Management on key corridors, with an upcoming element being congestion pricing for urban zones within Abu Dhabi and multi-modal information systems in conjunction with expansion of their bus transit and new heavy-rail transit lines now under development.

The plan has established a direction for the orderly planning, funding and deployment of ITS by identifying a clearly defined set of prioritized projects to be implemented in a logically phased manner. To the greatest extent possible, recommendations will be multi-modal and multi-jurisdictional in nature and leave the possibility for agencies and transport systems to leverage short-term projects for the deployment of long-term strategies.



## DUBAI TOLL SYSTEM (SALIK)

Salik, meaning open or clear, is Dubai’s road toll collection system. First launched in July 2007, Salik is a free flow tolling system that operates without toll booths, barriers or gates, allowing traffic to move freely through tolling points at highway speeds.

The heart of the system is the Salik tag which is attached to the vehicle windshield and utilizes the latest Radio Frequency Identification (RFID) technology to positively identify the vehicle as it passes through a Salik tolling point. Each time a vehicle passes a Salik tolling point, the toll charge is deducted from the customers prepaid Salik toll account.



TrafQuest was contracted to provide expertise in the areas of traffic engineering and civil design on the Dubai Toll System (DTS) that was launched by the Dubai Roads and Transport Authority (RTA) in July of 2007. TrafQuest duties included:

- Conducting the traffic analyses studies as requested by the RTA as they relate to the DTS
- Applying for and obtaining all the necessary No Objection Certificates (NOC) from all the relevant authorities to install the tolling equipment on selected Dubai roadways
- Attending progress meetings with the RTA and serve as the primary contact with the Authority
- Coordinating the project activities with the DTS Dubai-based subcontractors Parsons, Electro Industries and Waagner Biro Gulf, and other suppliers and subcontractors as directed
- Assisting in the installation of the toll equipment and help in the coordination of all installation efforts



# TRANSPORTATION MASTER PLANS (TMP)

TrafQuest strives to provide an integrated approach and one-stop solution to the planning challenges faced by developers. We work closely with government authorities, developers and local communities to plan, design and enable projects that add value for all stakeholders.

## SAMPLE PROJECTS

### JEBEL ALI DEVELOPMENT

TrafQuest was commissioned by DMF Engineering to undertake the traffic impact and parking study for Jebel Ali Development for Al Wasl. The site is located on plot no. 591-6625 on Sheikh Zayed Road near Jebel Ali Village. The development is designed as a mixed-use development that will include a regional shopping mall, residential, offices and recreational facilities. The phase I is scheduled for completion in 2018, while the full project build up is scheduled in 2024. It is estimated to generate more than 15,000 vehicular trips during the peak hour. Mitigation measures for the surrounding roads and major junctions were proposed as part of this study.



### MOHAMMAD BIN RASHID CITY – DISTRICT ONE

An above 4 km<sup>2</sup> freehold community of 1500 villas of various style and type located less than 3 km away from Burj Khalifa. It's set among parks and crystal lagoons in the heart of Dubai. The trip generation estimation of this project is about 7,000 peak hour trips.



### MOHAMMAD BIN RASHID CITY – DISTRICT SEVEN

District 7 is located at Al Qouz 2, Dubai and covers a land area of 2.1 km<sup>2</sup>. It is designed as a mix-use residential development with accompanied retail and community facilities and is poised to become one of Dubai's most prominent developments. The project is estimated to generate more than 16,000 vehicular trips during the peak hour.



## INTERNATIONAL MEDIA PRODUCTION ZONE (IMPZ) – DUBAI, UAE

TrafQuest was assigned by Stantec International Inc. to carry out the traffic impact and parking study for the International Media Production Zone (IMPZ). The development is located on plot no. 685-102 at Nad Al Shibba and covers a land area of 3,935,764 m<sup>2</sup>. It is designed to offer a clustered and interconnecting work environment for media production companies and residential developments in the heart of commercial Dubai. The project is estimated to generate more than 26,000 vehicular trips during the peak hour.

## DEIRA WATERFRONT (PHASE 1) – DUBAI, UAE

TrafQuest was assigned by Stantec International Inc. to carry out the traffic impact and parking study for the International Media Production Zone (IMPZ). The development is located on plot no. 685-102 at Nad Al Shibba and covers a land area of 3,935,764 m<sup>2</sup>. It is designed to offer a clustered and interconnecting work environment for media production companies and residential developments in the heart of commercial Dubai. The project is estimated to generate more than 26,000 vehicular trips during the peak hour.

TrafQuest was commissioned to carry out the traffic impact and parking study for Deira Waterfront – Phase 1. Deira Waterfront is a mixed use development that will extend on plots 1110114, 1120937 and 1130870 at Deira, Dubai. Located in the oldest part of Dubai, the site for the proposed Deira Waterfront development is rich in culture and history, which is reflected in Dewan's design for the area's regeneration. The project is positioned on an irregularly shaped land parcel approximately one kilometer in length directly adjacent to the Dubai Creek, immediately south of the proposed Palm Deira master planned development. The development is expected to generate above 9,000 vehicular trips during the peak hour. The anticipated year of opening of Deira Waterfront is in 2018.



## GOLF CITY

olf City is located along Emirates Road, within the fast-developing locality South-East Dubai. The proposed development is a low-density residential community featuring high-end developments overlooking the golf course. It is estimated to generate more than 5,000 vehicular trips during the peak hour.



## MEYDAN HORIZON & EASTERN EXTENSION

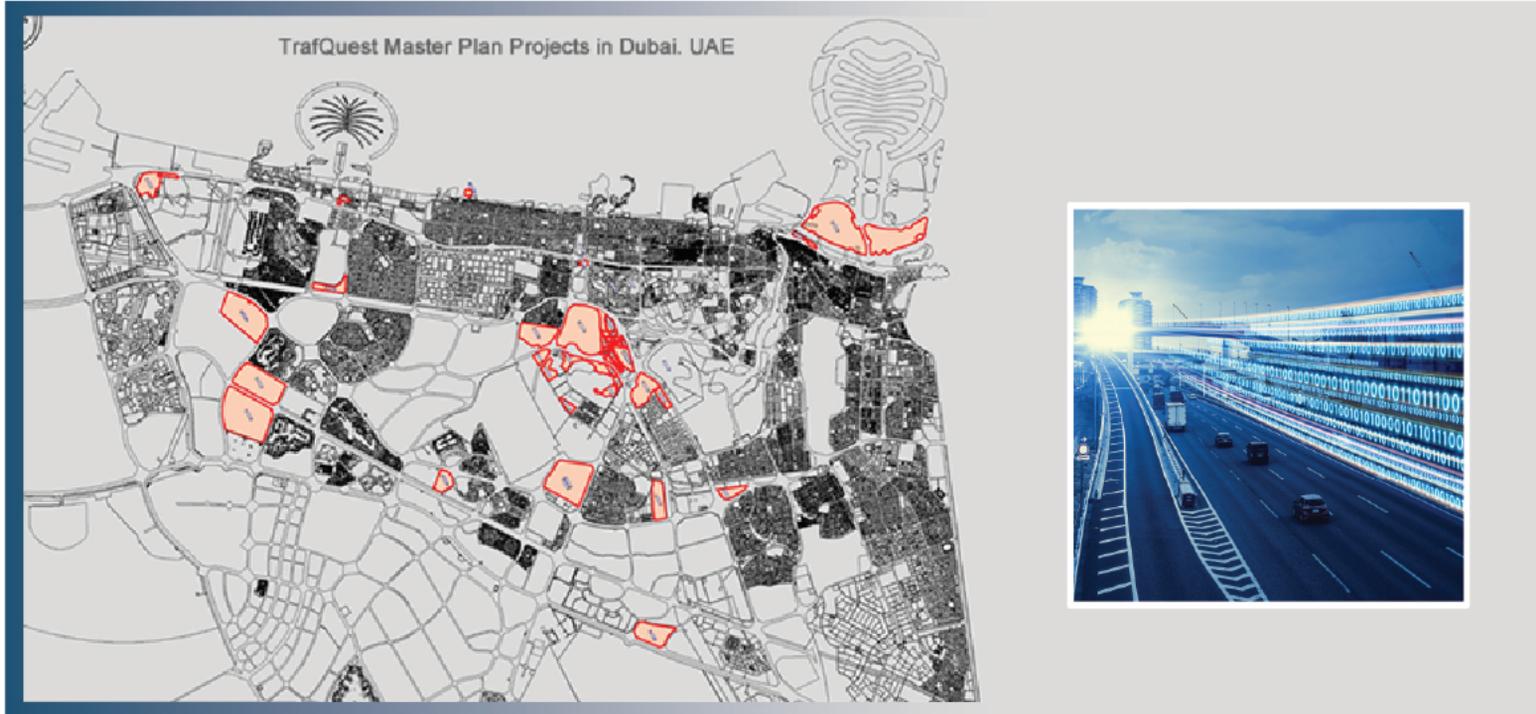
The project site is located in Meydan, east side of Al Khail Road and Southside of Dubai Al-Ain Highway. The development is mixed use development a mixed use community that consists of villas, a shopping center, offices, retail shops and recreation facilities. Meydan Horizon and Eastern Extension is a highly secured gated community and it is expected to generate about 38,000 vehicular trips during the peak hour.



## AL WASL JEBEL ALI DEVELOPMENT

A mixed use development on Sheikh Zayed Road that will feature residential, office and recreational facilities including a regional shopping mall. The full project build up is scheduled in 2024. It is estimated to generate more than 16,000 vehicular trips during the peak hour.

## SAMPLE TMP PROJECTS/CLIENTS IN DUBAI, UAE



## TRAFFIC IMPACT STUDIES

A Traffic Impact Study (TIS) is a study that assesses the effects that the traffic associated with a particular development will have on the transportation network. This is accomplished through analyzing the anticipated roadway conditions with and without an applicant's development. It also involves the determination and the evaluation of the required mitigation measures and the calculation of fair-share financial contributions.

TrafQuest has conducted numerous TIS's for small, medium and large size private and government developments in Dubai, Abu Dhabi, Qatar and the USA. Trip generations for previously conducted traffic impact studies in Dubai ranged from 200 vehicles per hour to 30,000 vehicles per hour. Trip generations for previously conducted traffic impact studies outside the UAE reached 80,000 vehicles per hour.

Table 0-1 shows some of the TIS projects completed (or currently undergoing) by TrafQuest. All of these studies required the application of TIS principles such as road hierarchy, trip generation, trip distribution, parking supply and demand, transportation planning model runs, existing and future conditions analysis, mitigation measures, analysis of mitigation measures and cost sharing calculations. A brief description of each of these projects is also included.

**Table 0-1: List of Sample TIS Projects**

Project Name	Generated Trips	Status
Me'aisem City Center Extension	4,050	Completed
D4	12,000	In Progress
Grand Hills	13,360	Completed
Meydan Heights 2	11,788	Completed
Skyline Development	9,208	Completed
Sobha Hart Land	8,644	Completed
Meydan District 1	6,798	Completed
F1 Formula Theme Park	1,252	Completed
One Zabeel Plaza	2,359	Completed
Meydan Diamond Business Park	7,069	Completed
Al Thanyah 2nd Mixed Use Development	6,228	In Progress
Nadd Al Hamar Village	4,245	Completed

The following pages provide a brief description of the above projects in addition to other projects not included in the above table.



## SAMPLE PROJECTS

### ME'AISEM CITY CENTER EXTENSION (DETAILED ROAD DESIGN AND TRAFFIC IMPACT STUDY)



TrafQuest was appointed by Majid Al Futtaim Group to carry out engineering consultancy services for the proposed Me'aisem City Center Extension (MCCE). The work will include review, update and amend wherever required the existing road network as well as the approved International Media Production Zone Master Plan to evolve integrated facilities and infrastructure layout providing an efficient land use, optimal utilities network, efficient internal circulation of vehicles and parking arrangement and layouts with high consideration to safety. The scope also includes revisiting and evaluating the existing facilities to propose smooth integration with the expanded roads network without interruption to the existing one. All this will be accomplished in parallel with comprehensive traffic impact analysis to ensure the proper authority approvals.

### D4 (ROAD DESIGN AND TRAFFIC IMPACT STUDY)

TrafQuest was assigned by Majid Al Futtaim Group (MAF) to carry out the traffic impact and parking study for D4. The project site is located on plot no. 646-5243, next to Global Village on Sheikh Mohammed Bin Zayed Road. The proposed development is a mixed-use masterplan that will include a regional shopping mall, residential, offices and recreational facilities. The phase I is scheduled for completion in 2022, while the full project build up is scheduled in 2028. It is estimated to generate more than 12,000 vehicular trips during the peak hour.



## GRAND HILLS – DUBAI, UAE

TrafQuest was assigned by GIGICO to carry out the traffic impact and parking study for the Grand Hills Community. The development is located on plots no. 812-2155 & 812-2156 near the Academic City at Dubai. Grand Hills will provide a fully serviced, mixed-use community supported by a comprehensive range of facilities and services in keeping with the development objectives of the project and the requirements of the target market.. It is estimated to generate more than 13,000 vehicular trips during the peak hour.



## MEYDAN HEIGHTS II – DUBAI, UAE

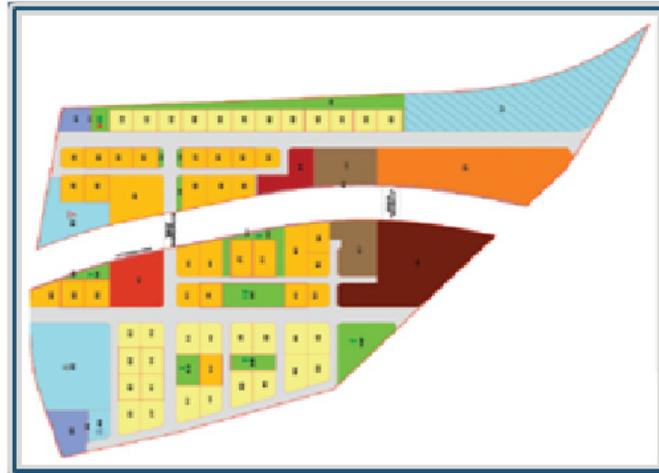
TrafQuest was commissioned by AE7 to undertake the traffic impact and parking study for Meydan Heights II for Meydan. The project is located on plot no. 645-8185 at the intersection of Al Ain Road (E 66) and Sheikh Mohammad Bin Zayed Road (E 311). The total site area is approximately 3,000,000 m2 that is divided into two phases. The first phase is scheduled for completion in 2015, while the full project build up is scheduled in 2020.

The development is a fully serviced, mixed-use community and is estimated to generate more than 11,000 vehicular trips during the peak hour.



## SKYLINE – DUBAI, UAE

TrafQuest was commissioned by Buset Contracting and General Transport to carry out the traffic impact and parking study for the Skyline Development at Meydan Area. The Skyline Development is a mixed use development situated along Al Khail Road (E44), approximately 16km from the Dubai International Airport. The Development has a strong focus on residential, hospitality, and leisure land uses long with other allied land uses such as retail, office and community facilities. The peak hour generated trips of this projected is estimated to exceed 9,000 trips.



## MEYDAN BUSINESS PARK – DUBAI, UAE

TrafQuest was assigned by Meydan Group to carry out the traffic impact and parking study for Meydan Business Park. The project is located at Nadd Al Shiba First alongside Meydan Road. It is envisioned to be one of the prime destinations to live and work in Dubai. It consists of residential buildings, office buildings and other commercial and community facilities. The trip generation of this project is estimated above 7,000 peak hour trips.



## **SOBHA HARTLAND – DUBAI, UAE**

TrafQuest was commissioned to undertake the traffic impact and parking study for SOBHA hartland development. Sobha Hartland is a mixed-use freehold development, located in a prime location in Mohammed Bin Rashid Al Maktoum City, 3 km away from Burj Khalifa. The development is designed as a complete community and features lifestyle amenities



such as freehold villas, mid & high rise apartments, hotels, offices, two international- curriculum schools, a clubhouse, mosques and retail centers. The development is eight million sq. ft of which forty per cent is dedicated to green living, featuring sprawling cycling and walking tracks, ideal for families and community living. It is estimated to generate about 9,000 peak hour vehicular trips.

## **MEYDAN BUSINESS PARK – DUBAI, UAE**

TrafQuest was commissioned to carry out the traffic impact and parking study (TIS) for the Mixed Use Development located on plot no. 384-0109 at Al Thanyah Second. The project is located on Al Khail Road. It is also bound by Hessa Street, Al Asayel Street and Al Khamila Street. It consists of apartment buildings accompanied by other community and shopping facilities. It is estimated to generate above 6,000 peak hour vehicular trips.



## **MEYDAN BUSINESS PARK – DUBAI, UAE**

TrafQuest was commissioned to carry out the traffic impact and parking study for Nadd Al Hamar Village. The development is located at the east part of Dubai near the Dubai International Airport and along Mohammad Bin Zayed Road (E311). It is a community that consists mainly of residential plots along with other commercial facilities. Nadd Al Hamar is estimated to generate over 4,000 peak hour trips.



## **PORTO ISLAND – DUBAI, UAE**

TrafQuest was assigned to undertake the traffic impact and parking study for Dubai Porto Island. The project is a mixed use development built on a man-made peninsula off the coast of Dubai at Um Suqaim Second. It consists of residential, commercial, recreational and hospitality land uses. The estimated number of generated trips for this project is approximately 1,500 peak hour trips.



## ENTISAR TOWER – DUBAI, UAE

TrafQuest was assigned to undertake the traffic impact and parking study for Entisar Tower. Entisar Tower is a mixed use development that is located on a prime parcel adjacent to the Radisson Royal hotel along Sheikh Zayed Road at Trade Center Community. The tower consists of 471 residential apartments and 492 serviced apartments along with other allied commercial and recreational land uses. It is estimated to generate about 800 trips in the peak hour.



## SPRINGS VILLAGE COMMUNITY CENTER – DUBAI, UAE

TrafQuest was assigned to carry out the traffic impact and parking study for Springs Village Community Center. It is a shopping center located at Al Thanyah Forth, Dubai that comprises a total gross leasable area of above 20,000 m<sup>2</sup>. Springs Village Community Center is estimated to generate about 800 vehicular trips in the peak hour.



## MOTOR CITY – DUBAI, UAE

TrafQuest was assigned as the traffic consultant for the prestigious Motor City development in Dubai Land. Motor City encompasses a wide range of developments including the Dubai Autodrome; Business Park; Uptown: Green community and the Formula 1 Theme Park.

The F1 Theme Park at Motor City in Dubai is a new and creative park offering unmatched access to state-of-the-art fun and entertainment facilities for all ages. The park offers simulator rides, thrilling live demonstrations, interactive museum, retail outlets, restaurants, memorabilia stores and more. In addition to the attractions, the Theme Park is a home to a 242 room hotel.



## HABTOOR PALACE HOTEL – DUBAI, UAE

TrafQuest was commissioned by Al Habtoor Group to carry out comprehensive traffic impact and parking study for “Al Habtoor Palace Hotel” building. The new building will consist of two office towers and one hotel tower with two shared basements, a shared ground floor and three levels of shared podiums. Tower 1 has 26 floors while Tower 2 has 31 floors. The hotel tower has 10 typical floors and one exclusive mechanical floor.



## MEYDAN HEIGHTS, UAE (MEYDAN CITY CORPORATION)

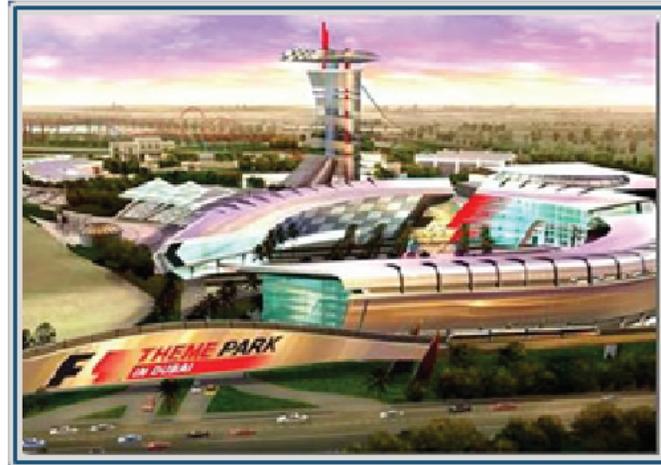
TrafQuest was commissioned by Meydan City Corporation to carry out the traffic impact and parking study for Meydan Heights. The land use of the development is predominantly residential with allied facilities including retail, clubhouse and community center. The development is divided into two main residential and commercial blocks. The residential block of Meydan Heights consists of 528 residential G +1 villa units while the commercial block will consist of G+5 commercial building and G+1 community center building.



## F1 THEME PARK – DUBAI, UAE

The F1 Theme Park at Motor City in Dubai is a new and creative park offering unmatched access to state-of-the-art fun and entertainment facilities for all ages. The park offers simulator rides, thrilling live demonstrations, interactive museum, retail outlets, restaurants, memorabilia stores and more. In addition to the attractions, the Theme Park is a home to a 242 room hotel

TrafQuest was retained by the Roads and Transport Authority to conduct the Traffic Impact Study for F1 Theme Park to determine its appropriate parking requirements.



## AL RAHA GARDENS TOWN CENTER – ABU DHABI, UAE

TrafQuest was assigned to carry out the transportation circulation and parking study for the proposed Al Raha Gardens villas located at Al Raha Beach City, Abu Dhabi. The proposed project site is located within the Al Raha Gardens development in Abu Dhabi Island.

The Raha Gardens is primary residential development that consists of 136 villas along with associated buildings including a community center and mosque. Al Raha Gardens is a highly secured gated community.



## TAKREER REFINERY – ABU DHABI, UAE

TrafQuest was commissioned to carry out the transportation impact and parking study for the proposed Takreer - Ruwais Refinery Extension project located in City of Ruwais; Western region; Abu Dhabi; UAE. The proposed project site for the development is located in Ruwais Oil field in Western region of Abu Dhabi close to Abu Dhabi - Qatar border.



## **AL MAFRAQ HOSPITAL – ABU DHABI, UAE**

TrafQuest was assigned as the traffic consultant for Al Mafraq Hospital Traffic Impact Study. The hospital currently consists of 499 beds and its capacity will increase to 690 beds by the year 2023. It is expected that the outpatient volume of will be approximately 1,095 visits per day by the year 2023. The hospital will also be equipped with the latest state of the art equipment and facilities. Diagnostics labs, pharmacies, large food court, retail and waiting areas are planned to facilitate the patients and visitors.



## **BLOOM GARDENS – ABU DHABI, UAE**

The proposed development of Bloom Gardens is a residential development with associated retail and recreational facilities and a primary school. The proposed development of Bloom Gardens is diverse in its outlook. It contains different types of townhouses and villas. The retail comprises multi-purpose space containing coffee shops, small restaurants and convenience store. This project was completed in 2011.



## **MEYDAN SOUTHERN EXTENSION – DUBAI, UAE**

TrafQuest was commissioned by Meydan City Corporation to carry out the traffic and parking study for the Meydan Southern Extension. The project site is located in the Meydan, east side of the Al Khail Road and Southside of the Dubai Al-Ain Highway. The development is mixed use development a mixed use community that consists of villas, a shopping center, offices, retail shops and recreation facilities. Meydan Southern Extension is a highly secured gated community.



## **ONE ZABEEL PLAZA – DUBAI, UAE**

TrafQuest was assigned to carry out the traffic impact and parking studies for the new ICD Business Park at Zaabeel First Community in Dubai. One Zabeel Building is designed as a mixed use facility and is located in a busy and highly developed part of Dubai surrounded by highways and major arterials. RTA recently awarded a contract to upgrade the street network adjacent to the building and in particular Road 312. An elevated bridge will also be constructed and will go through the buildings.



## AL HABTOOR & PALM JUMEIRAH HOTEL – DUBAI, UAE

The Palm Jumeirah Island is a land fill in the shape of a palm tree. It consists of a trunk, a crown with 17 fronds, and a surrounding crescent island that forms an 11 kilometer-long breakwater. The Palm Jumeirah is touted as soon to be one of the world's best premier resorts. The Island is the self-declared "Eighth Wonder of the World". It features themed boutique hotels, three types of villas (Signature Villas, Garden Homes and Canal Cove Town Homes), shoreline apartment buildings, beaches, marinas, restaurants, cafés and a variety of retail outlets. TrafQuest was commissioned to carry out the traffic impact and parking studies for these two new buildings at Palm Jumeirah, Dubai.

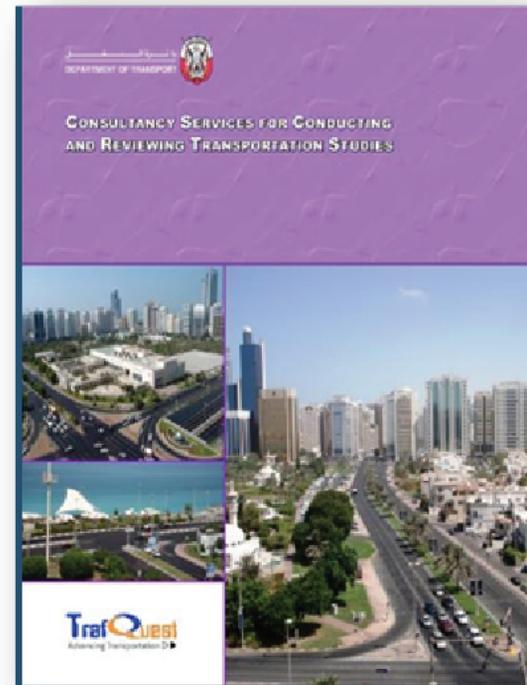


## SAMPLE CONSULTANCY SERVICES PROJECTS

### CONSULTANCY SERVICES FOR CONDUCTING & REVIEWING TRANSPORTATION STUDIES

In June of 2013, TrafQuest was contracted by the DoT to provide consultancy services for conducting and reviewing transportation studies. As part of this contract, TrafQuest currently employs ten (10) experienced and capable personnel embedded full time in the DoT offices in Abu Dhabi city and Al Ain. TrafQuest responsibilities under this contract include but are not limited to being able to conduct, review, and/or evaluate different types of studies such as:

- Transportation Master Plans
- Traffic Impact Studies
- UAE Building Application Procedures and Policies
- Strategic Planning and Policy
- Public/Private Parking Planning, Engineering & Regulations
- Engineering Standards & Manuals for Transportation Studies & Designs
- Review/Monitor Implementation of Elements of Strategic Plans (DoT STMP)
- Short-Term Congestion Alleviation & Road Safety Projects
- Validation & Review of Macro/Micro Models
- Pedestrian Studies
- Capital Improvement Program (CIP)
- Feasibility & Project Management Planning & Design for Special Projects
- Preliminary Road Layout Designs



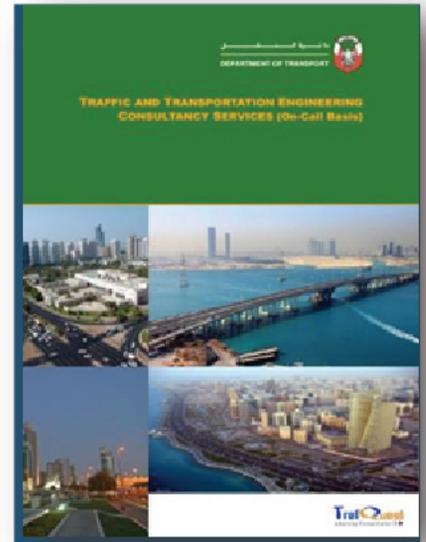
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### TRAFFIC AND TRANSPORTATION ENGINEERING CONSULTANCY SERVICES (ON-CALL BASIS)

In February of 2013, the Team of Iteris & TrafQuest have been selected by the Abu Dhabi Department of Transport on an on-call basis; to provide transportation engineering studies as well as design and supervision services for the Higher Committee on Traffic. The Services include:

**Traffic Studies:** TrafQuest is to undertake complete or partial traffic and transportation studies as per the Department's Transportation Impact Study (TIS) Guidelines. Typical studies may include the following:

- Analysis of the Operational Performance of the Existing and Proposed Road and Transportation Network
- Traffic Management Plans for Diversions and Construction Sites
- Accidents Analysis and Site Investigations
- Parking Studies and Layouts Development
- Pedestrian Studies
- Freeway Segment Evaluation, Study of Freeway Interchanges, Ramps, Merging, and Weaving
- Traffic Counts, Journey Time, and Customer Satisfaction Surveys
- Conceptual Designs and Initial Cost Estimates for Schemes



**Detailed Design:** TrafQuest is to provide all planning and design aspects including detailed plans, sections and detailed cost estimates required for tendering for construction purposes. The detailed design will include but not limited to the following items:

- Road and Corridor Layout Plans
- Detailed Design Based on Site investigations
- Services Plans and Reports
- Expropriation Plans and Reports
- Details of Road Marking and Traffic Signs
- Standard or as Agreed Cross Sections
- Longitudinal Sections
- Storm Water Drainage Design
- Full landscaping and irrigation design drawings
- Structural design drawings
- Traffic Diversion Analysis, Feasibility and Cost
- All Other Design Details (Footpaths, Traffic Signals, Street Lighting, Guardrails)

**Tender Documents:** TrafQuest is to coordinate with the Department for the preparation of tender documents in the required standard format. Other services include Consultancy Services for Tendering and construction supervision.



## EXPERIENCE IN PREPARING TECHNICAL MANUALS

The preparation of a top-quality engineering manual requires a unique blend of skills that include technical expertise, writing skills, experience with electronic format applications, an appreciation of the needs of the manual user, project implementation logistics and production capacity. The absence of any one of these elements can lead to failure, poor quality, client dissatisfaction, wasting project resources and schedule overruns.

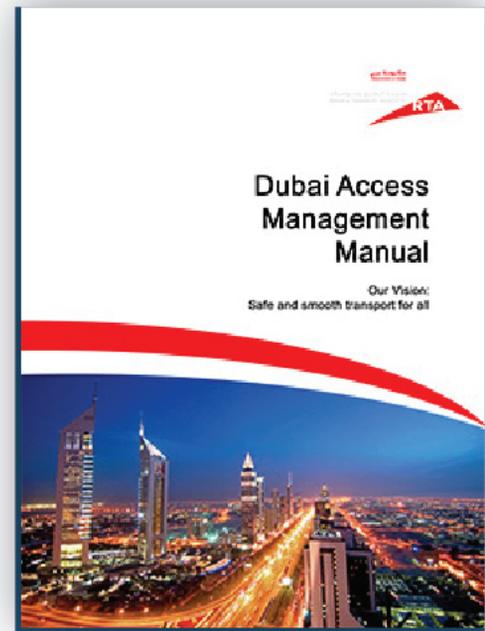
Through our experience, TrafQuest has perfected the engineering manual development process. We evaluate each proposed manual individually to ensure that each necessary skill is in place; that the necessary project resources are available; and that we orchestrate the project implementation logistics to ensure the preparation of a top-quality product for our client.

TrafQuest has a long and extensive experience in developing technical engineering manuals tailored to the specific needs and requirements of our clients. Engineering manual production is a key business sector for TrafQuest; it is not a random project-specific pursuit. Furthermore, TrafQuest has led the development of 18 different technical manuals in Dubai and Abu Dhabi alone, making us one of the leading and most accomplished consulting firms in technical manual writing in the UAE. This extensive experience in the region provides TrafQuest with a unique advantage and extensive knowledge of the local environment, institutional structures and stakeholder participation. Furthermore, our advanced manual writing skills coupled with our broad and extensive experience in conducting Traffic Impact Studies in Dubai (and the GCC region)

The following is a brief look at some of the manuals developed by TrafQuest in the UAE during the past 5 years.

### DUBAI ACCESS MANAGEMENT MANUAL

Access management is the application of roadway design and traffic operations considerations to the location and design of access from the highway to the adjacent land uses. The objective is to ensure roadway safety and operation efficiency while providing reasonable access to the adjacent land uses. The Dubai Access Management Manual (AMM) provides clarification of the administrative procedures for implementing an access management program and standards. This includes policy, planning, design, and highway system operations. The manual also provides careful attention to access issues when land use and development decisions are made. In addition, the manual details the TIS requirements including road hierarchy, trip generation, trip distribution, parking supply and demand, transportation planning model runs, and existing and future conditions analysis, mitigation measures, analysis of mitigation measures and cost sharing calculations. Furthermore, the Dubai AMM provides Access management techniques based on established traffic engineering and roadway design principles.



### UNIFYING & STANDARDIZATION OF HIGHWAY ENGINEERING PRACTICES IN ABU DHABI

The Abu Department of Transport awarded TrafQuest the challenging task of unifying and standardizing highway engineering practices in the entire Emirate of Abu Dhabi. Out of 35 proposed manuals, TrafQuest was commissioned to develop 18 documents that include guidelines, manuals, specifications and standards for management, planning, design, construction, maintenance and operation of highway projects. The main goal of this project is to optimize the performance of the highway networks with consideration to minimizing the initial capital and running costs. The main objectives of the project are to:

- Enhance the management, planning, design, construction, maintenance and operation of highway projects in the Emirate.
- Ensure safe & uniform operational & structural capacity throughout highway network.
- To conform to sustainability and environmental best practices.

The documents will be based on the most appropriate, internationally approved and accepted practices in planning, design, construction and management, adapted to meet conditions and practices prevalent in Abu Dhabi Emirate. The documents to be developed by TrafQuest include:

1. Highway Performance Management System
2. Manual of Uniform Traffic Control Devices for Abu Dhabi
3. Manual of Uniform Traffic Control Devices for All GCC Countries
4. Traffic Signals and Electronic Warning Systems
5. Congestion Management Procedures
6. Route Numbering Manual
7. Roadway Lighting
8. Roadside Advertising Manual
9. Access Management Manual
10. EHS Manual for Road Projects
11. Environmental Assessment for Road Projects
12. Road Geometric Design Manual
13. Road side Design Guide
14. Right of Way utility Distribution Manual
15. Standard Drawings
16. Land Surveying and Mapping Guide
17. Road Structures Design Manual (Bridges and Tunnels)
18. Roads, Bridges and Tunnels Maintenance Manual

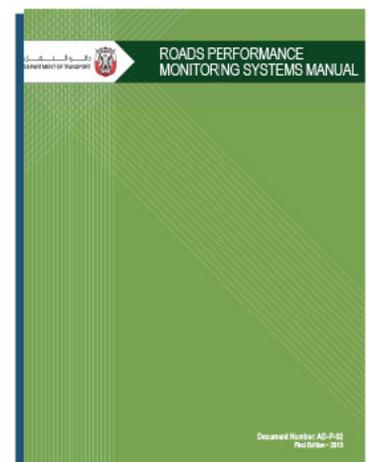


From all the documents developed for the Department of Transport in Abu Dhabi, TrafQuest would like to highlight the following relevant documents:

## **ROAD PERFORMANCE MONITORING SYSTEM**

Most national departments of transport have collected systematic data on their roadway systems since the middle of the twentieth century. These processes are typically referred to as performance monitoring systems. This document examines these existing processes and leverages best practices from several other national departments of transport, in order to create a comprehensive Roads Performance Monitoring System (RPMS) for the Abu Dhabi Emirate.

Although this document will perform a similar function in the Abu Dhabi Emirate as it does in other nations, there are some differences. In some countries, this manual is the result of a legislative action and, as such, defines mandatory collection processes, encoded into law. In Abu Dhabi, this document is an internal agency manual that defines best practice within the agency, and specifies a clear implementation framework for performance monitoring. It does not mandate specific technologies or collection formats. It does not impose collection requirements on other stakeholder agencies (such as the Municipality of Abu Dhabi), nor does it define any agency consequences for lack of monitoring data.

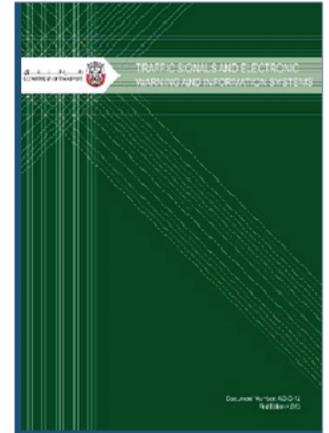


Because it is developing its performance monitoring regime in 2011, Abu Dhabi has the opportunity to leverage the experience of legacy agency practice, and incorporate the advances in monitoring technologies that have taken place since most agency RPMS processes were crafted. This manual takes advantage of these opportunities by keeping only the essential portions of existing process, and incorporating advanced monitoring technologies and techniques into its recommendations.

The manual follows a three-part structure. The first part takes a strategic view toward monitoring and lays out high-level requirements for monitoring data. The second part takes a more tactical approach to understanding the processes required to monitor performance. The final section takes an operational approach and details the implementation of these processes through specific activities and applications.

## TRAFFIC SIGNALS & ELECTRONIC WARNING AND INFORMATION SYSTEMS

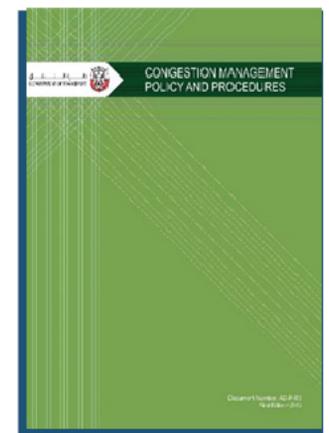
This Manual covers guidelines and standards that define the development of signal and electronic warning and information systems. The Manual covers elements of design, operations and maintenance that should be considered by managers and engineers when performing planning studies and/or developing design plans for signal and electronic warning and information systems. The Manual addresses local practices in Abu Dhabi, but also covers other standard applications that are used internationally which also have significant relevance to the operations of modernized signals in general. Target users of this Manual include, but are not limited to Executives and Decision Makers, Managers, Engineers and Designers, Technicians, Contractors, Equipment Vendors, and Academia.



## CONGESTION MANAGEMENT POLICY & PROCEDURES

The Abu Dhabi Department of Transport (DoT) systematic planning process for measuring, reporting and managing roadway congestion in a specific region or corridor. The intent is to integrate the CMPP into Abu Dhabi's existing planning activities and help with ultimately achieving the goals of the Surface Transport Master Plan. The intent is to integrate the CMPP into Abu Dhabi's existing planning activities and help with ultimately achieving the goals of the Surface Transport Master Plan.

The CMPP shall provide the process for development of targeted Congestion Management Plans (CMP) that address particular regions and corridors within the Emirate. Each CMP evaluates and provides the mechanism for monitoring transportation performance and congestion on the multi-modal regional transportation system using established performance measures, and is managed through the development of a series of transportation improvement strategies. The CMPP intends to protect the Emirate's investments in, and improve the effectiveness of the existing and future transportation network by not allowing the system to reach unacceptable operating conditions.



# ROAD DESIGN & CONSTRUCTION SUPERVISION EXPERIENCE

## SAMPLE PROJECTS

### CONGESTION MANAGEMENT POLICY & PROCEDURES

**Client:** Fine Foods (M/S Al Seer)

**Project Value:** 2,500,000.00AED

**Project Scope Of Work:** Development of the infrastructure utilities and traffic signal works including (Sewerage, Storm water, Etisalat, Du and streetlighting) as well as access points and parking areas

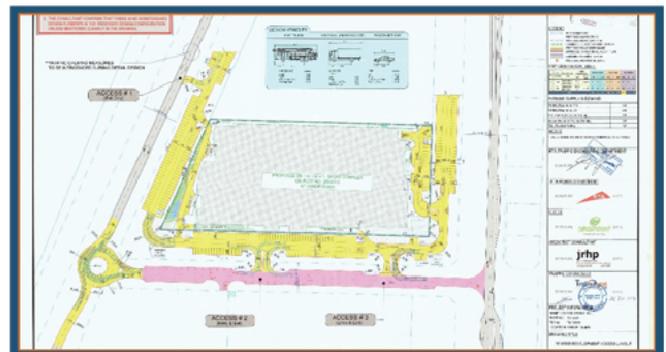


### DESIGN & SUPERVISION OF ROAD MODIFICATIONS, ACCESS AND PARKING DRIVEWAYS TO SPORT SOCIETY MALL, MIRDIF, DUBAI

**Client:** M/S Leader Group

**Project Value:** 1,426,726.00 AED

**Project Scope Of Work:** Construction of access driveway to the sports society and modification of roads, work included all the utilities, Pavement and signages works.



### BALADNA MILK PLANT FACTORY INFRASTRUCTURE EXPANSION, DOHA QATAR

**Client:** Client: M/S Leader Group.

**Project Value:** 17,234,000 QAR

**Project Scope Of Work:** Appointed by EHAF Qatar Consulting Engineering Services to provide detailed design for Baladna Milk Plant Factory Infrastructure Expansion 4. Baladna, Qatar's leading and largest dairy producer, aiming to increasing its production and launching new product lines through Phase 4 expansion.



As part of the project, the following activities were performed:

- Infrastructure road design
- Pavement design of roads with interlocking tiles
- producing detailed cross sections
- preparing auto-turn swept path analysis
- optimizing the quantities of cut and fill through grading
- producing required signing and marking within the development
- preparing standard details

## ENOC DEPOT DESIGN OF SERVICE ROAD MODIFICATIONS, ACCESSSES AND BUS LAYBY, JABEL ALI, DUBAI, UAE

**Client:** M/S EMIRATES NATIONAL OIL COMPANY LTD.

**Project Value:** 2,053,165.00 AED

**Project Scope Of Work:** Project Scope Of Work: Access road & utilities modifications including installation of sewerage, Strom water, ducts, streetlighting as well as the pavement and signages work

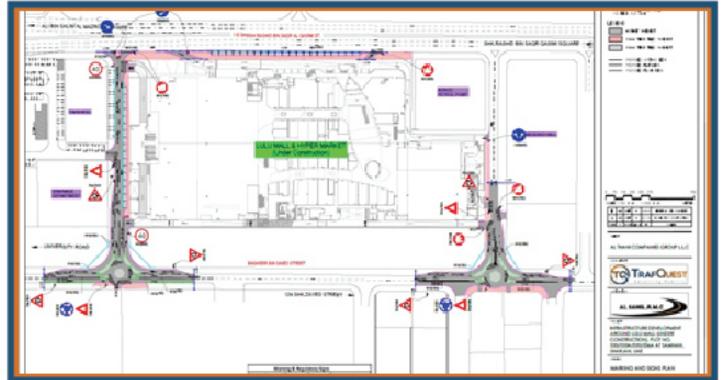


## INFRASTRUCTURE DEVELOPMENT AROUND LULU MALL AT SAMNAN, SHARAJAH

**Client:** M/S Line Investments and Property L.L.C

**Project Value:** 3,184,880.80 AED

**Project Scope Of Work:** Development of the infrastructure utilities and construction of an access road to the mall, The utilities included (Sewerage, Drainage, Electricity, Water, Du, Etisalat, Streetlighting, Pavement and signage works).

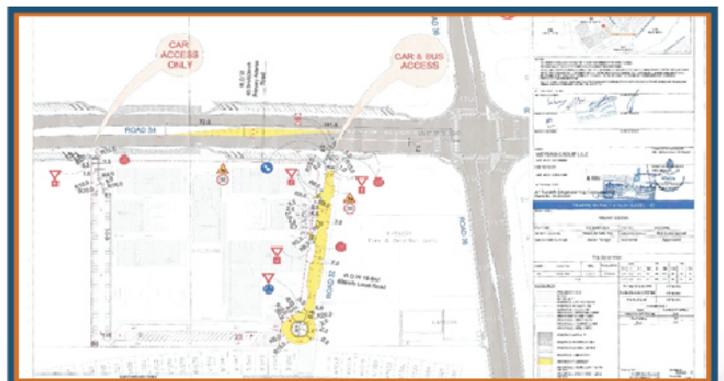


## DESIGN AND CONSTRUCTION SUPERVISION OF ACCESS DRIVEWAYS AND ROAD MODIFICATIONS IN DISTRICT 11, DUBAI

**Client:** M/S Meydan Group

**Project Value:** 2,095,417.00 AED

**Project Scope Of Work:** Construction of access driveway to the schools and modification of roads, work included all the utilities, Pavement and signages works





**DUBAI: P.O. BOX 35701 | ABU DHABI: P.O. BOX 128940**



**PH: +971 55 954 7898 | +971 4 250 6390**



**FAX: +971 4 250 6391**



**MAIL: M.YOUNIS@TRAFQUEST.COM**

**WWW.TRAFQUEST.COM**