

## SUCCESS STORY

## Creating a Public Transport System from Scratch

HOW ABU DHABI PLANNED ITS  
NEW BUS NETWORK

### PROJECT GOAL

The United Arab Emirates consist of 7 emirates with 9.2 million inhabitants, of which 2.2 million live in the capital, Abu Dhabi. Being a part of one of the fastest growing economies, the Department of Transport (DoT) has committed to provide a sustainable transport system supporting the Emirate's economic growth and ensuring a good quality of life for its residents.

### RESULTS

As part of an excellent integrated Public Transport network, a new Public Bus Transportation Service has been installed, with PTV Visum at its heart.

In 2008, the Department of Transport (DoT) launched The Public Bus Transportation Service, as it strives to create an integrated world-class public transport network which serves people of all parts of the Emirate as best as possible. DoT has been active in improving the quality of its bus services and expanding the bus network's coverage; in fact, by the end of 2011, there was a total of 124 lines which served by a fleet of 560 buses. The Bus Office Division at the DoT is now responsible for a bus network that carries over 50 million passenger trips per annum within the different regions of the Emirate of Abu Dhabi.

### CHALLENGES

Setting up a Public Transport system in a culture dominated by cars was a specific challenge to the Abu Dhabi DoT. Overcoming this challenge involves not only installing a new mode of transport but also convincing the population to change their travel habits and take advantage of the emerging public transport system.

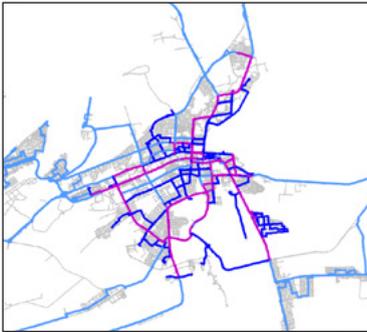
### THE PLANNING PROCESS

The planning process at the DoT encompasses a strategic transport plan, including the creation of a new bus network and, on the operational side, the scheduling of timetables and calculating resource requirements such as number of buses and drivers.

In order to analyze if the planned transport network would be sufficient to cater to the expected travel demand, a Bus Planning Model was created using PTV Visum. Using the Bus Planning Model, a realistic approach to analysis the bus network's efficiency is made possible.

## ADVANTAGES OF PTV VISUM

- Saves you time with on-the-fly analysis and lets you test more scenarios to gain deeper insights
- Multi-resolution modelling with built-in Dynamic Traffic Assignment on macroscopic and mesoscopic levels, and seamless linkage to PTV Vissim
- All the transport planning functionalities you would expect, plus advanced features such as activity-based demand modelling
- Intuitive and highly visual with 3D views
- Data fusion with maps from TomTom, HERE, and much more
- Technical support deployed within 24h, with webinars, user group meetings and an active community with large user base



The new bus network

PTV Visum takes into account all road users and their interactions and is used as standard for any query or issue in transport planning.

“A main consideration when we selected Visum as the platform for our Bus Planning Model is the strong operations planning functionalities the software provides. Integrating travel demand data into a newly planned bus network, we can use Visum to directly assess the efficiency of the bus network through network performance indicators we have set up within the model. The network is then exported directly into a scheduling system for our operations team to put into implementation”, says Tock Jit Fen, Director of Planning & Development Department at the Abu Dhabi DoT. To ensure that new bus networks comply with service guidelines, the DoT has defined several KPIs, which are compiled in a service specification sheet, calculated for each line. The Bus Planning Model churns out, amongst other information: Service Coverage, Expected Passenger Volume, Utilization, Number of Buses Required, Peak Vehicle Requirements, Average Network Speed, and Fuel Consumption.

### EXPLOIT THE FULL POTENTIAL

Equipped with an integrated statewide transport model in PTV Visum, the DoT is now able to exploit the full potential of Public Transport Planning:

- Network planning & evaluation
- Timetable planning, based on realistic runtime profiles
- Line blocking to estimate the number and types of required vehicles
- Interfaces to other solutions such as scheduling software, automated fare collection system, and automated vehicle management system

In the planning process adopted by DoT, PTV Visum allows planners to incorporate passenger volumes from automatic fare collection system and runtimes from automated vehicle management system directly into the network and to support its bus planning work. This has helped to streamline DoT’s planning process and allowed the Bus Office Division to implement a twice-yearly network planning cycle.

“The visualization tools from Visum have also made it easier for our management team and decision makers to understand the impact of our bus service changes. We now have a model that not only addresses the technical requirements in bus network planning, but also aids our decision makers in their decision-making process”, Jit Fen added.