

ITS Industry Briefing O & M Perspective

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ITS – Operations and Maintenance

- ITS is recognised as a key factor in the provision of an efficient and effective transportation network.
- The advantages of ITS and its ability to improve the safety and travel time of the traveling public and emergency vehicle response times is directly proportional to a fully functional ITS.
- Business continuity and traveller satisfaction demand that the availability of ITS remains as high as possible which in turn is dependent on the reliability of ITS equipment.



ITS – Operations and Maintenance

- Proper operation of ITS relies on both general response maintenance (emergency and non-emergency) and preventative maintenance in order to decrease downtime of ITS equipment and devices, its communications infrastructure or related subsystems.
- In developing the ITS for the State of Qatar, there is a responsibility upon all involved to design, manufacture and install ITS components that are close to maintenance free.
- There is also a responsibility on the Operator to make sure that ITS maintenance is given a high priority in order to maximize system availability.



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It is expected that manufacturers/suppliers provide a high level of local maintenance support. This would include but not limited to:

- Proactively monitoring the availability of major components and materials for obsolescence during the expected life of the equipment, and ensuring that sufficient spares and materials are available locally.
- Be responsible for the second and third-line maintenance support of the equipment supplied.
- Providing a local facility for maintenance support based on set levels of service for repairs with direct access to local/regional technical staff.



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It is also expected that manufacturers/suppliers set up and maintain websites that contain information relating to the operation and maintenance of ITS. The websites would include items such as:

- Operation & Maintenance manuals and diagrams
- List of software versions available together with release notes
- Database of ITS components installed with software revisions and upgrades
- Discussion forum section, with bulletin board for announcements
- Links to other relevant websites
- Etc.



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Ultimately what are we looking for as O&M:

- **Maintenance free equipment or evidence of High Mean Time Between Failures (MTBF)**
- **Improved system reliability which is clearly a way of improving system availability and minimizing downtime (i.e. increasing the MTBF)**
- **Equipment that supports a reduction in the Mean Time To Repair (MTTR)**
- **Easily accessible equipment for safe maintenance - High value for ease of maintenance**
- **Swappable components to provide minimum disruption to network operations**
- **Road scheme designs that provide safe access for maintenance of equipment**
- **Interoperability and redundancy**
- **Long design life and scalability**
- **Fault management system with remote repair**
- **Initial and on going training**
- **Optimum lifecycle cost for software and hardware**



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What do we look for during installation and system commissioning:

- Material selection
- Quality Assurance during installation
- Acceptance Testing
- Seamless integration with existing subsystems and control rooms
- New subsystem Integration & End to End testing
- Spare Parts availability and inventory
- Systems Handover (As built drawings, manuals, etc.)
- Maintenance procedures for equipment installed
- Local technical support and training

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Finally we as the Operator plan to establish an ITS Maintenance Program which should help recognize several benefits:

- ITS Quality Assurance – An ITS maintenance program will allow us to better track device failures and MTBFs, identify the causes of failure and the types and levels of maintenance response.
- ITS Reliability – An ITS maintenance program will provide us with the ability to have greater control over the reliability of the ITS across the State of Qatar.
- ITS Cost Benefit – An ITS maintenance program allows for the long term tracking of detailed maintenance costs and help strengthen the preventative maintenance to extend the life of ITS devices.

ITS – Operations and Maintenance

- **In closing, the ITS program in Qatar will be a major investment for the State and it is expected that travelers will grow dependent on it and they will demand service levels that we as System operators have to meet.**
- **With the right design, adequate material, proper installations and care and maintenance, we can maximize the availability of the ITS and hopefully meet the traveler expectations and provide maximum benefits to the users.**

Thank you