



Global Future Cities Programme

Planning an ITS intervention

9th February 2022

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Understanding requirement

Understanding requirement

Researching and discussing the need of a scheme

A requirement could be defined as:

“a condition or capability that should be present in a product, service, or result to satisfy its specifications” (Project Management Body of Knowledge).

or

Something that is needed or that must be done.

A description of how a system should behave.

A property or attribute of a system.

Understanding requirement

SMART Goals

- Specific,
- Measurable,
- Achievable,
- Relevant, and
- Timely



*All successful people have a goal.
No one can get anywhere unless he
knows where he wants to go and
what he wants to be or do.*

-Normal Vicent Peale

Understanding requirement

Requirements and desirable outputs

General questions that may be asked in these sessions may include:

- What is the goal?
- What problem does your scheme resolve?
- What are the user's goals?
- What are the operator's goals?
- What are the maintainer's goals?
- What are the main drivers(priorities)?
- What are only desirable outputs?
- What metrics should the scheme be measure against?
- What are the constraints and limitations?
- Does this scheme sit within, work with or clash with other proposals?

Identification of standards

Identification of standards

What standards must the solution comply with?

What regulatory bodies will oversee the scheme?

What are their minimum requirements?

How will these possibly shape the solutions available

Do these effect the previous stages and result in additional information being required?



Defined and agreed
requirements

Defined and agreed requirements

The Client's initial stage gate

Within this section of the design the Client can review and approve the work done to date. Once reviewed the Client will agree or ask for additional work prior to allowing the scheme to progress to the next stage.

Approval at this stage by the Client is required prior to progression to the next stage.



Existing
infrastructure,
equipment, and
location constraints

Existing infrastructure, equipment, and location constraints

What existing systems are available that may assist or hinder a possible solution

- Site based information;
- Operation based information; and
- System based information.



Site based information

- Location including GPS/Lat&long
- Pictures
- Explanation of what is there
- Condition of current assets
- Vegetation around the site
- If there is existing power supply
- If there is an existing communication supply
- Ground conditions
- Additional points that others may have knowledge on
- Ownership of any existing infrastructure
- The purpose of the existing infrastructure and how is it operated to achieve this
- Buried services (electricity, gas, communications, etc.) around the site
- Sub surface ground conditions

Operation based information

- Ownership of any existing infrastructure
- The purpose of the existing infrastructure and how is it operated to achieve this
- Buried services (electricity, gas, communications, etc.) around the site
- Sub surface ground conditions

System based information

- What and where does the back office of the system reside?
- Who is the supplier of the system?
- What are the constraints of the existing system?
- What else is connected to or controlled by the system?
- What is the access requirements to the back office system?





Stakeholder review and agreement

Stakeholder review and agreement

The Client's second stage gate

Within this section of the design the Client can review and approve the work done to date. Once reviewed the Client will agree or ask for additional work prior to allowing the scheme to progress to the next stage.

Approval at this stage by the Client is required prior to progression to the next stage.



Detailed design

Detailed design

- Construction
- Integration
- Operation

Construction

The detailed design phase will develop a design such that a construction Contractor will have all information to undertake their work.

- Pavement
- Structures
- Environmental constraints
- Drainage
- Electricity supplies
- Communication systems
- Technology infrastructure
- Environmental constraints

Integration

Further to detailed construction information, the design shall consider and provide full information to the Contractor or how the system will connect and integrate within any existing system.

- Timings
- Synchronisation
- Control and communication protocols
- Overarching system limitations or controls

Operational

Further to detailed construction information, the design shall consider and provide full information to the Contractor or how the system will connect and integrate within any existing system.

- Adherence of the proposals to the functional requirements
- Maintenance requirements
- Health and safety of all users
- Overarching system limitations or controls



Design approval

Design approval

The Client's third and final stage gate

Within this section of the design the Client can review and approve the work done to date. Once reviewed the Client will agree or ask for additional work prior to allowing the scheme to progress to the next stage.

Once approved procurement of the system can begin.