



THINK GLOBAL, ACT LOCAL

# ROAD DESIGN AND IMPLEMENTATION

What sets Transport Engineers apart from the rest of the engineering milieu is seeing the bigger transport picture.

Transport is the key focus area of Innovative Transport Solutions, with the objective to manage the complete project cycle, from initial concepts, followed by engineering designs and then the implementation.

## Road Network Planning

Road networks are developed over time and implementation is largely influenced by changes in land use. Land use planning affects trip generation which in turn affects the need for roads.

The hierarchy of roads is a key component of road network planning as freeways and major arterials have an exclusive mobility function while residential streets primarily provide access.

## Complete Road Design

Design principles have to consider the entire range of factors impinging on the design – engineering, landscape, environmental, community expectations, non-motorised transport and universal access.

A holistic approach to the total road design considers the effects of each element on the other elements of the design.

Geometric design not only includes the horizontal and vertical alignment of roads, but also the design of interchanges and intersections. It also incorporates the design of road markings and traffic signs in accordance with the relevant design manuals and statutory requirements.

## Stormwater Design

Stormwater design forms an integral part of road design. Effective drainage is not only a road safety requirement but also ensures that properties adjacent to roads are not damaged as a result of stormwater. As is the case with geometric design, some authorities have specific guidelines regarding stormwater management and design.

## Tender Documentation and Evaluation

ITS has been responsible for all aspects of tendering procedures. Working with clients in both the private and public sector has given ITS exposure to preparing tender documents based on various Conditions of Contract (FIDIC, GCC) and technical specifications (COLTO, SABS 1200).

We incorporate different viewpoints to determine future demand through appropriate analysis.

Striking a balance between the needs of different parties, who at times have opposing viewpoints, what is necessary for economic growth and a desirable end result whilst staying practical and within prescribed legislation/guidelines.

Provincial and local authorities need Road Master Plans to ensure that road networks are developed to optimally support existing and new developments in terms of both mobility and access.

ITS has developed Road Hierarchy and Road Master Plans for various municipalities

High order roads such as freeways and major arterials require route determination and preliminary design to be done in advance.

Some road authorities have specific geometric design standards as well as standard specifications and/or tender documentation.

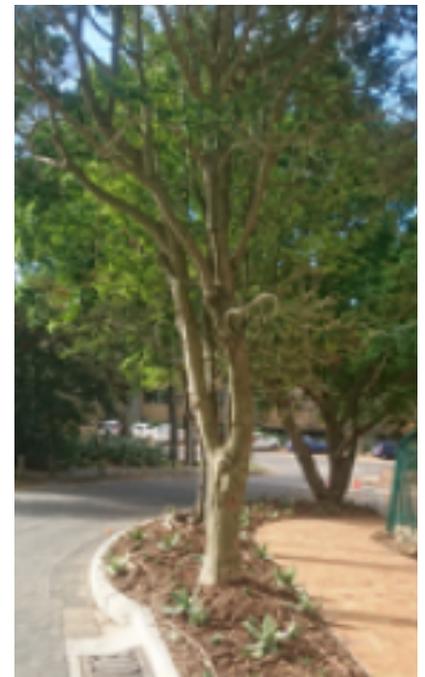
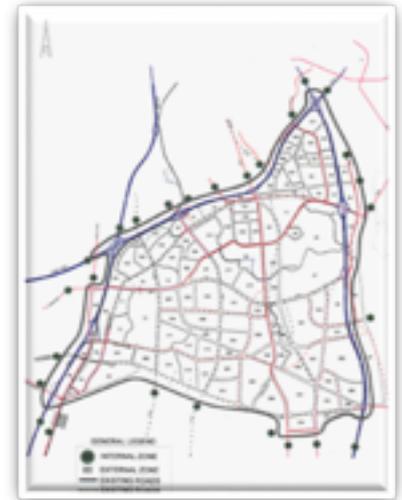
Geometric design standards are dependent on design speeds and the various authorities have specific requirements in this regard.

Adherence to EIA requirements also affects most road designs. ITS Engineers has experience in route determination, preliminary designs as well as detail designs for the various road categories.

It is essential that specific attention be paid to stormwater design due to the high cost of stormwater infrastructure as well as the high cost of repairing water damage in case of flooding. ITS designed various stormwater systems including channels, culverts and urban stormwater systems

Tender documents are prepared according to the latest CIDB requirements.

Site inspections are held to ensure that tenders are fully informed on the contractual and technical specifications as well as site conditions.



On receipt of tenders, an evaluation report is prepared in accordance with the client's guidelines. The report includes a full assessment of the tenders which includes financial risk assessment, technical ability and experience and cost analysis

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## Construction Supervision

Over the years ITS has been responsible for monitoring the construction of projects ranging from traffic signals, road upgrades, new roads, street lighting, intelligent transport infrastructure to interchange upgrades. To ensure that the highest standards are achieved, procedures and

quality control systems have been established which conform to the highest industry standards. All aspects of construction monitoring from site handover, quality control and monitoring, measurement and payment and dispute resolution are dealt with.



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