MERCURY

# Using GIS in Traffic and Transport Infrastructure Solutions

02 - 06 Nov 2026
Rome (Italy)

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

# Using GIS in Traffic and Transport Infrastructure Solutions

**Ref.:** 15416_307148 **Date:** 02 - 06 Nov 2026 **Location:** Rome (Italy) **Fees:** 7200 **Euro**

## Introduction:

Authorities in many developed countries now actively use Geographic Information Systems GIS for highways and transport management, mainly due to the benefits of falling costs and increasing ease in planning, monitoring, and managing complex systems involved in transportation and management, accident analysis, and route planning.

Geographic Information System GIS tools and techniques significantly aid in determining capacity enhancements, improving operations, and identifying the most strategic investments to keep any country's transportation system running optimally. This GIS in traffic and transport infrastructure solutions course is designed to cover the technical aspects of using Geographic Information Systems GIS and develop critical spatial thinking and decision-making skills.

## The Importance of GIS in Traffic and Transportation:

Integrating geospatial technologies such as GIS in traffic management and transportation has revolutionized the sector. GIS enables professionals to visualize and analyze data geographically, facilitating improved transport solutions. The importance of GIS in transportation cannot be overstated, as it enhances traffic infrastructure planning, management, and monitoring, leading to resilient and efficient transport infrastructure.

## Targeted Groups:

- Traffic and Transportation Engineers and Professionals.
- Professionals in Urban Planning and Development.
- Project Managers in Infrastructure Solutions Consulting.
- Data Analysts and technicians in Traffic Management Centers.
- Researchers and Consultants.
- Practitioners in Traffic and Transport Engineering.
- Traffic Safety Professionals.
- Highway and Roadway Design Engineers.

## Course Objectives:

At the end of this GIS in traffic and transport infrastructure solutions course, the participants will be able to:

- A thorough understanding of how Geographic Information Systems GIS can help transportation studies.
- Identify trends in traffic operations and safety performance measures, leading to improvement in transportation safety.
- Detect root causes of traffic incidents and determine effective countermeasures.
- Evaluate the performance of segments, corridors, networks, or regions.
- Pinpoint hot and cold spots via density estimation heat mapping.
- Conduct complex spatial analysis required to plan the transportation systems of the future.

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- Build dynamic and rich mapping applications.
- Gain critical spatial thinking skills and become confident in spatial decision-making.

## Targeted Competencies:

Upon the end of this GIS in traffic and transport infrastructure solutions training, the participant's competencies will:

- Geographical Information Systems GIS Fundamentals.
- Understanding Geographic Information System GIS Maps.
- Data Collection.
- Visualization and Data Processing.
- Geospatial Analysis and Hotspot Analysis.

## Course Content:

### Unit 1: Geographical Information Systems GIS Fundamentals:

- Geographic Information System GIS Applications in General.
- Geographic Information System GIS Applications in Transportation Studies.
- Significant Functions of Geographic Information System GIS.
- Relating Information from Multiple Sources.
- Geographic Data and the Database.
- Data Acquisition.
- Data Integration.
- Explore Data Structure.
- Data Modeling.
- ArcMap Practice.

### Unit 2: Understanding Geographic Information System GIS Maps:

- Data Information.
- Spatial data.
- Geographic Information System GIS Database.
- Raster vs. Vector Data.
- GIS Shapefiles.
- ESRI Shapefile format.
- Displaying and Navigating Geographic Information System GIS Maps.
- Feature Attributes.
- Census Units.
- The Point, Line, and Polygon Data.

### Unit 3: Data Collection:

- Global Positioning System GPS.
- Geographic Data Library.
- Census Data.
- Transportation Data and Analytics with Geographic Information System GIS.
- Geospatial Crash Analysis.

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## Unit 4: Visualization and Data Processing:

- Symbolizing and Labeling Geographic Information System GIS Data.
- Continuous and Categorical Data.
- Classification Methods.
- Normalization.
- Geographic Information System GIS Data Query.
- Classification.
- Identify, Select, and Find.
- Select Features by Attributes.
- Joining and Relating Tables.
- Spatial Joining.
- Dissolving and Clipping layers.

## Unit 5: Geospatial Analysis and Hotspot Analysis:

- Introduction to Spatial Analysis.
- Buffering Features.
- Overlaying Data.
- Spatial Analysis Methods to Identify Hotspots.
- Fishnet-based Analysis.
- Kernel Density Estimation.

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## Registration form on the :
## Using GIS in Traffic and Transport Infrastructure Solutions

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