

# **Smart Roadside Infrastructure Market Forecasts to 2032 – Global Analysis By Component (Roadside Sensors, Smart Cameras & Surveillance Systems, Communication Devices (V2X, DSRC, C-V2X), Smart Lighting & Signage, Tolling Systems and Maintenance & Support Services), Deployment Mode, Technology, Application, End User and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Smart Roadside Infrastructure Market is accounted for \$7.83 billion in 2025 and is expected to reach \$21.09 billion by 2032 growing at a CAGR of 15.2% during the forecast period. Smart roadside infrastructure refers to technologically advanced systems and facilities installed along roadways to enhance traffic management, safety, and connectivity. It integrates sensors, cameras, communication devices, smart lighting, and data processing units to monitor traffic flow, detect incidents, and support vehicle-to-everything (V2X) communication. These systems enable real-time data exchange between vehicles, pedestrians, and traffic management centers, improving road efficiency and reducing accidents. By leveraging IoT, AI, and cloud technologies, smart roadside infrastructure contributes to sustainable urban mobility, environmental monitoring, and the development of intelligent transportation ecosystems.

Market Dynamics:

Driver:

Growth of V2X and connected vehicles

Smart intersections, adaptive signage, and real-time traffic management systems are being integrated to support connected mobility. Public and private investments in intelligent transport systems (ITS) are reinforcing early adoption. Demand spans across urban corridors, freight routes, and autonomous vehicle test beds. Integration with cloud platforms, edge computing, and 5G networks is expanding operational scope. These dynamics are positioning V2X proliferation as a key driver of the smart roadside infrastructure market, thereby boosting overall market growth.

#### Restraint:

##### Interoperability and standards fragmentation

Manufacturers and municipalities face challenges in ensuring compatibility across hardware, software, and communication layers. Regulatory ambiguity and regional standardization gaps are slowing rollout timelines. Stakeholders must navigate fragmented ecosystems and evolving specifications. These factors are constraining market expansion despite rising demand for connected mobility infrastructure.

#### Opportunity:

##### Push toward autonomy and ADAS validation

Smart infrastructure is being used to simulate driving scenarios, validate algorithms, and enhance vehicle perception. Integration with digital twins, simulation platforms, and safety validation frameworks is reinforcing adoption. Public initiatives in autonomous corridors and mobility-as-a-service (MaaS) are expanding deployment. These developments are creating favorable conditions for market growth, thereby accelerating uptake of smart roadside technologies.

#### Threat:

##### Legacy infrastructure and stakeholder coordination

Municipalities and private operators must align on data sharing, funding, and long-term planning. Retrofitting legacy assets with smart capabilities requires significant investment and cross-sector collaboration. Delays in procurement, policy harmonization, and stakeholder engagement are increasing operational risk. These limitations are introducing systemic barriers and constraining full-scale market development.

### Covid-19 Impact:

The Covid-19 pandemic disrupted the Smart Roadside Infrastructure market, causing temporary delays in infrastructure projects, reduced mobility demand, and budget reallocations. Construction slowdowns and supply chain interruptions affected deployment timelines and component availability. However, the increased focus on contactless transport, digital traffic management, and resilient urban infrastructure partially offset the slowdown. Post-pandemic recovery is driven by growing demand for intelligent, adaptive, and safety-enhancing roadside systems, along with innovations in V2X integration, cloud-based monitoring, and autonomous mobility support across global markets.

The communication devices (V2X, DSRC, and C-V2X) segment is expected to be the largest during the forecast period

The communication devices (V2X, DSRC, and C-V2X) segment is expected to account for the largest market share during the forecast period owing to its foundational role in enabling real-time data exchange between vehicles and infrastructure. These devices support critical functions such as collision avoidance, traffic signal prioritization, and dynamic routing. Manufacturers are optimizing protocols for latency, bandwidth, and security across urban and highway environments. Demand remains strong across smart city deployments, freight corridors, and autonomous vehicle zones. This segment continues to anchor the smart roadside infrastructure market, thereby boosting overall market growth.

The logistics & freight companies segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the logistics & freight companies segment is predicted to witness the highest growth rate driven by demand for route optimization, fleet safety, and predictive maintenance. Smart roadside infrastructure is being deployed to support real-time vehicle tracking, automated weigh stations, and dynamic traffic alerts. Integration with telematics platforms, cloud dashboards, and AI-based logistics planning is enhancing operational efficiency. Public-private partnerships in freight corridors and smart ports are accelerating adoption. Demand for cost reduction, delivery reliability, and regulatory compliance is reinforcing momentum, thereby accelerating market expansion.

### Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share due to its rapid urbanization, infrastructure investment, and strong government support for intelligent transport systems. Countries like China, Japan, South Korea, and India are leading in V2X trials, smart highway deployments, and connected mobility pilots. Public initiatives in smart cities, autonomous corridors, and digital infrastructure are reinforcing demand. Regional manufacturers and global players are scaling deployment through public tenders and strategic partnerships. Competitive pricing and policy alignment are supporting widespread adoption. Asia Pacific continues to anchor global growth in smart roadside infrastructure.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR driven by strong investment in autonomous mobility, regulatory clarity, and innovation in connected infrastructure. The U.S. and Canada are expanding use of smart roadside systems in freight corridors, urban intersections, and highway safety programs. Public-private partnerships and federal funding for ITS modernization are accelerating market penetration. Demand for real-time traffic intelligence, ADAS validation, and V2X integration is reinforcing growth. Regional startups and research institutions are leading in protocol development and pilot deployments. North America is emerging as a high-growth region for smart roadside infrastructure technologies.

Key players in the market

Some of the key players in Smart Roadside Infrastructure Market include Siemens AG, Schneider Electric SE, ABB Ltd., Kapsch TrafficCom AG, Cubic Corporation, Iteris, Inc., Econolite Group, Inc., SWARCO AG, FLIR Systems, Inc., Q-Free ASA, TomTom N.V., Bosch Mobility Solutions, Indra Sistemas S.A., Huawei Technologies Co., Ltd. and Sensys Gatso Group AB.

Key Developments:

In March 2024, Kapsch launched the RIS-9360 Roadside Unit, earning OmniAir certification for C-V2X interoperability. This next-gen RSU supports seamless integration with existing tolling and traffic management systems, enabling scalable deployment of smart roadside infrastructure.

In July 2025, Schneider Electric acquired the remaining 35% stake in its India joint

venture, consolidating control over smart infrastructure operations. The move strengthens its strategic position in roadside electrification and digital distribution systems across high-growth regions.

#### Components Covered:

Roadside Sensors

Smart Cameras & Surveillance Systems

Communication Devices (V2X, DSRC, C-V2X)

Smart Lighting & Signage

Tolling Systems

Traffic Management Software

Data Analytics & AI Platforms

Installation & Integration Services

Maintenance & Support Services

#### Deployment Modes Covered:

Cloud-Based

On-Premises

#### Technologies Covered:

Dedicated Short-Range Communication (DSRC)

Cellular Vehicle-to-Everything (C-V2X)

Wi-Fi / Bluetooth

## Satellite

### Applications Covered:

Traffic Management & Control

Toll Collection & Electronic Payment

Roadside Safety & Incident Detection

Parking Management

Freight & Logistics Monitoring

Road Weather Information Systems (RWIS)

Vehicle-to-Infrastructure (V2I) Connectivity

### End Users Covered:

Urban Infrastructure Authorities

Highway & Expressway Operators

Logistics & Freight Companies

Public Transportation Agencies

Law Enforcement & Emergency Services

Other End Users

### Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

#### Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

#### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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