The state of intelligent mobility in 2026

Paving the way to smarter cities

S&P Global
Market Intelligence

Commissioned by

miovision

Table of contents

Executive summary

Cities face mounting pressure to achieve Vision Zero goals, operate with shrinking staff and stretch limited budgets — conditions that are accelerating demand for intelligent mobility solutions.

Intelligent mobility leverages connectivity, sensors, analytics and AI technologies to orchestrate transportation systems, vehicle-to-everything (V2X) communication, road networks and autonomous vehicles, thereby enhancing efficiency, safety and multimodal flow.

Generative AI, including large language models and agentic technologies, empowers cities to proactively analyze complex mobility patterns across data sources, simulate and forecast the impact of policy and infrastructure changes, and dynamically coordinate multimodal networks, transforming transportation management from a reactive discipline to a predictive and adaptive one.

Beyond improving congestion and advancing the objectives of Vision Zero (a global initiative to eliminate traffic fatalities and promote safe, equitable transportation systems), intelligent mobility can deliver broad benefits across the ecosystem. Potential benefits include enhancing safety for vulnerable road users; improving productivity for transit employees; optimizing fleet operations; and supporting traffic engineers, emergency responders, original equipment manufacturers and public agencies. Additional benefits, such as reduced congestion and associated emissions, position intelligent mobility to deliver a smarter, more sustainable transportation environment that serves every stakeholder, from individual travelers to large-scale transit networks.

Digital transformation is the foundation for intelligent mobility. According to a study by 451 Research, the largest proportion of US public-sector respondents (38% of North American government organizations surveyed) are in the mid-stage of digital transformation, characterized by planning and researching to develop strategies and execute formal initiatives (see Figure 1). Taken together, the percentages of agencies researching strategies and those with no formal plans represent an untapped opportunity for smarter government investment. This gap is increasingly important as new mandates push governments to accelerate the adoption of advanced technologies including AI.

As cities digitize infrastructure and operations, they can prioritize building an intelligent mobility ecosystem, anchored by AI-enabled platforms that orchestrate modes, assets and services to deliver safer, more efficient and more sustainable urban mobility.

Figure 1: Plurality of government agencies at the mid-stage of digital transformation
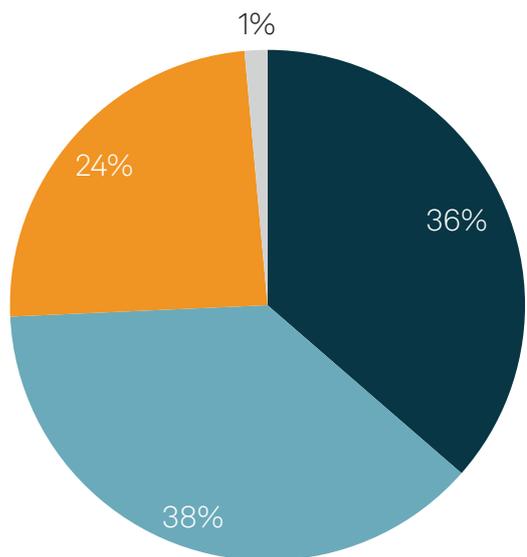
- **Execution** — we have a formal strategy and are actively digitizing our business processes and/or assets

- **Evaluation** — we are planning and researching to develop a digital transformation strategy

- **Consideration** — we are considering it but have no formal plans

- **No strategy** — we currently have no digital transformation strategy

Q. Which of the following best describes the status of your organization's digital transformation strategy?
Base: Government respondents (n=140).
Source: 451 Research's Voice of the Enterprise: Internet of Things, OT Perspective, Use Cases & Outcomes 2025.

Key findings

– The US intelligent mobility market is poised for growth as governments transition from mid-stage digital transformation to fully scaled intelligent operations. The US Department of Transportation's SMART Grants program and Vision Zero-driven deployments in cities such as New York, Philadelphia, Columbus, Denver and San Francisco exemplify how cities are tackling siloed systems, fragmented data, reactive operations and tightening municipal budgets through AI-enabled traffic management, connected infrastructure and data-sharing platforms. Intelligent mobility is shifting from isolated point solutions to integrated, AI-enabled ecosystems that break down silos and enable shared data and systems, fueling smarter, more connected cities.

– AI is emerging as the orchestration layer for safer, more sustainable urban mobility, helping cities overcome resource limitations and rising infrastructure demands while keeping planners, traffic engineers and policy leaders firmly in control of how insights are interpreted and acted on through a human-in-the-loop approach.

– Workforce productivity and operational efficiencies remain top priorities over full autonomy as municipalities seek safe, reliable, cost-effective ways to modernize transportation and optimize traffic flow under tight financial and staffing constraints.

Defining intelligent mobility

Intelligent mobility unifies data across road networks, public transit, private vehicles, shared mobility and government fleets — including emergency and maintenance units — into integrated platforms powered by real-time analytics and AI. These platforms help cities optimize traffic flow, plan maintenance, enhance safety for vulnerable road users, and reduce congestion and emissions, supporting Vision Zero and sustainability goals. Technical hurdles and staff shortages remain barriers, but momentum is increasing as cities recognize intelligent mobility as an evolution of existing systems rather than a leap into the unknown.

Early wins in data integration, AI-assisted operations and cross-agency collaboration demonstrate tangible benefits, helping leaders justify investments and overcome resistance. As standards and AI technology mature and successful pilots scale, intelligent mobility is positioned to become the default operating model for urban transportation.

Intelligent mobility as an operating system

Historically, urban mobility initiatives have focused on connecting infrastructure for remote management and solving narrow operational problems. Cities often deployed siloed traffic management tools — sensor networks, data collection platforms, digital services — acquired separately by individual departments with limited coordination across agencies. These efforts rarely scaled beyond their original scope, limiting their ability to address systemic challenges such as congestion, safety for pedestrians and cyclists, or emissions reduction.

Many of these projects were also reactive, launched in response to visible bottlenecks, political pressure, citizen complaints or grant-driven opportunities, rather than through long-term strategic planning. While these legacy systems laid the groundwork for more integrated approaches, they largely enabled cities to monitor conditions rather than coordinate responses across modes and jurisdictions or optimize operations holistically.

The next phase moves beyond point solutions to systems that proactively anticipate issues and optimize resources using AI, analytics and automation. Cost-effective cloud, AI, sensors and high-speed connectivity enable real-time coordination, while technologies such as V2X and GenAI generate and process data at high volume and scale. Cities and private firms are shifting from passive data collection to active, AI-enabled orchestration.

Scaling intelligent mobility across stakeholders

Because mobility involves an intricate network of actors, the rise of intelligent mobility requires unprecedented coordination across both public and private stakeholders. Next-generation services — including intelligent transportation system connectivity, autonomous vehicle support, mobility as a service, V2X networks and advanced traffic management systems — are powerful on their own. Yet, they rarely achieve full impact without interoperability, scalability and resilience.

Grounding these systems in day-to-day operations underscores the importance of unifying platforms. Intelligent mobility must support core, practical use cases: optimizing signalized corridors, coordinating traffic operations with emergency responders during incidents, granting transit priority during peak hours and managing multimodal flows in real time. By synchronizing decision-making across agencies, jurisdictions and digital infrastructure, intelligent mobility enables cities to shift from siloed systems to integrated, collaborative ecosystems ready to deliver safer, more efficient and more reliable services at scale.

Potential benefits of intelligent mobility systems include cost reduction, operational optimization, risk mitigation, service improvements for residents and greater support for sustainability efforts. However, challenges persist: Fragmented data, disconnected systems, budget constraints and workforce shortages hinder progress even as infrastructure demands grow. Among government respondents, 69% feel at least somewhat comfortable with AI adoption, but 26% remain neutral — pointing to upskilling gaps where IT teams need support evaluating new technologies and implementing policies. Addressing these gaps requires a holistic approach — integrating transportation, power grids and public services into orchestrated ecosystems that deliver measurable outcomes for every stakeholder, from individual travelers to large-scale transit networks.

Intelligent mobility ecosystem: The next stage of urban transportation

The intelligent mobility ecosystem represents a transformative leap in urban transportation, moving traditional intelligent transportation systems toward AI-driven platforms that unify data, automation and orchestration. This evolution is not just about digitizing existing processes, but about creating scalable, sustainable mobility systems that can adapt dynamically to real-time conditions. By integrating advanced technologies and breaking down silos, intelligent mobility lets cities deliver safer, more efficient and more resilient transportation services.

The push toward intelligent mobility is fueled by several drivers. Safety remains paramount as cities seek to reduce accidents and protect vulnerable road users through real-time computer vision-based alerting, predictive analytics and V2X connectivity. Sustainability is equally urgent, with municipalities aiming to cut emissions, optimize energy and resource use, and support climate goals by optimizing traffic flow and reducing stop and idle times, especially for large fleet vehicles. Quality of life is a central goal, ensuring that transportation systems enhance convenience, reduce congestion and improve urban livability. Finally, user productivity — both for commuters and city operators — highlights the need for seamless, integrated mobility solutions that minimize travel delays and maximize the efficiency of transportation departments.

Core capabilities and technologies

At the heart of the intelligent mobility ecosystem are advanced capabilities and technologies that work together to create a unified, responsive network:
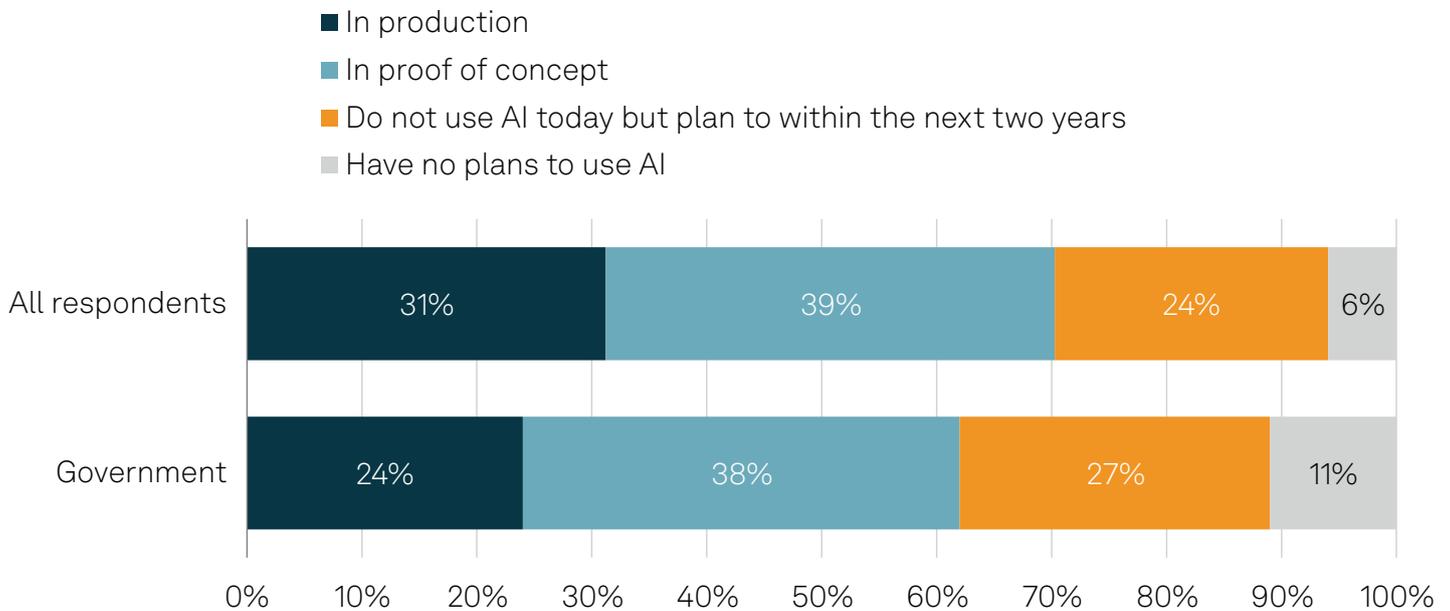
– Advanced traffic management systems: ATMS leverages sensors, cameras and analytics to monitor and manage traffic conditions dynamically. By integrating AI, these systems can predict congestion, optimize signal timing and proactively reroute traffic.

– Vehicle-to-everything communication: V2X technology connects vehicles to infrastructure, pedestrians and other vehicles, enabling real-time data exchange that enhances situational awareness, safety and traffic flow. This connectivity is critical for coordinated traffic management and collision avoidance.

– Autonomous mobility: Autonomy is central to the future of transportation, with key goals including improved safety and efficiency through automated operations. Examples include robotaxis, autonomous buses and shuttles deployed in select urban areas and controlled environments.

– Mobility as a service: MaaS platforms consolidate multimodal transportation options, including public transit, ridesharing and micromobility, into a single, user-friendly interface. This approach simplifies travel planning, reduces reliance on private vehicles and supports sustainable urban mobility.

– Electrification infrastructure: Adoption of electric vehicles, deployment of charging networks and integration with smart grids contribute to reducing emissions and improving energy efficiency. These measures support broader sustainability objectives while complementing automation, connectivity and intelligent orchestration across urban mobility systems.

– Edge sensing and IoT: Distributed sensors, intersection cameras and IoT devices provide granular, real-time data on traffic flow, weather and infrastructure conditions. Edge computing processes this data locally for faster decision-making, reducing latency and improving responsiveness.

– Data platforms and AI orchestration: Centralized data platforms provide a foundation by aggregating information from diverse sources — IoT devices, edge systems and enterprise applications — into a unified, trusted repository. AI orchestration provides an assistive control layer that helps coordinate workflows and manage dependencies across the ecosystem, giving operators a clearer, more holistic view of events. Rather than operating autonomously, these tools continuously analyze operational data to surface patterns, highlight anomalies and recommend actions that support predictive maintenance, dynamic routing and resource optimization. By embedding intelligence in these processes, AI helps teams digest complex information quickly and adjust systems in near real time, improving efficiency and resilience while keeping humans in the loop.

AI in government: Enabler of intelligent mobility

Artificial intelligence has emerged as a cornerstone of the next phase of intelligent mobility and smarter cities, reshaping how transportation systems operate, adapt and evolve. While the greatest proportion of government organizations remain in the pilot phase of AI implementation (38%), nearly a quarter (24%) have already scaled deployments, signaling a shift from experimentation to operational integration.

Parity with private-sector adoption rates underscores the recognition that leading public agencies are no longer technology laggards; instead, they are emerging as forerunners establishing benchmarks for how AI can be deployed responsibly at scale in complex, safety-critical environments. These agencies are using AI to mitigate labor shortages and skills gaps while delivering measurable gains in efficiency, safety and decision speed, in the process developing a playbook for scaling intelligent mobility solutions (see Figure 2).

Figure 2: Public agencies rivaling private sector in AI adoption

■ In production
■ In proof of concept
■ Do not use AI today but plan to within the next two years
■ Have no plans to use AI

All respondents: In production 31%, In proof of concept 39%, Do not use AI today but plan to within the next two years 24%, Have no plans to use AI 6%

Government: In production 24%, In proof of concept 38%, Do not use AI today but plan to within the next two years 27%, Have no plans to use AI 11%

Q. Which of the following best describes your organization's current adoption of artificial intelligence (AI) technologies to support its IoT projects and deployments? Select best answer.
Base: All respondents (n=760), government respondents (n=100).
Source: 451 Research's Voice of the Enterprise: Internet of Things, OT Perspective, Use Cases & Outcomes 2024.

Government agencies are relying on AI across core transportation functions such as traffic management, incident detection, demand forecasting, predictive maintenance and real-time transit information, enabling more responsive, data-driven operations. These enhancements are often a function of point solutions (either hardware or software) deployed by various vendors across a city's intelligent mobility stack. Working together, these capabilities aim to reduce congestion and delays, enhance road user safety and support more energy-efficient fleet operations. By extension, they are advancing broader safety, sustainability and emissions goals.

At the same time, rapid AI adoption introduces concerns that governments must manage. Risks include algorithmic bias in routing and enforcement, inequitable service allocation, opaque decision-making, and heightened cybersecurity and data privacy risks stemming from large-scale sensor data and video collection. Agencies also face organizational challenges, such as limited technical capacity, change management and workforce disruption, and the need for robust governance frameworks to ensure transparency, human oversight and public trust in AI-enabled mobility systems.

However, transportation leaders are not starting from scratch. National and international bodies such as the Transportation Research Board, ITS America and the US Department of Transportation are convening task forces, issuing guidance and hosting recurring forums focused on responsible, human-centered AI in transportation, giving cities and transit agencies concrete reference models, best practices and peer networks to draw from as they scale intelligent mobility systems.

Realizing the AI-driven vision of intelligent mobility requires alignment across a diverse network of stakeholders, including city and transportation department operations, transit agencies, emergency services, grid operators, public safety departments, private operators such as MaaS providers, fleet managers and micromobility platforms, as well as technology vendors and regional partners. Each plays a distinct role in operating networks, enforcing safety measures, delivering services and providing enabling technology. This variety of stakeholders makes collaboration essential to ensure that investments in AI and autonomy result in interoperable, secure and inclusive mobility systems.

The convergence of AI, automation and connected infrastructure depends on unified data frameworks and shared operating platforms that can support real-time intelligence. These platforms enable agencies to improve productivity, coordinate across jurisdictions and dynamically balance network loads to deliver more adaptive, citizen-centered mobility experiences. This creates a proactive, integrated ecosystem where technology connects systems and continuously learns from them to improve sustainability, safety and accessibility. Cities have relied on various technologies to realize their intelligent mobility goals (see Figure 3).

Figure 3: Government adoption of ITS applications led by easy wins, safety motivations
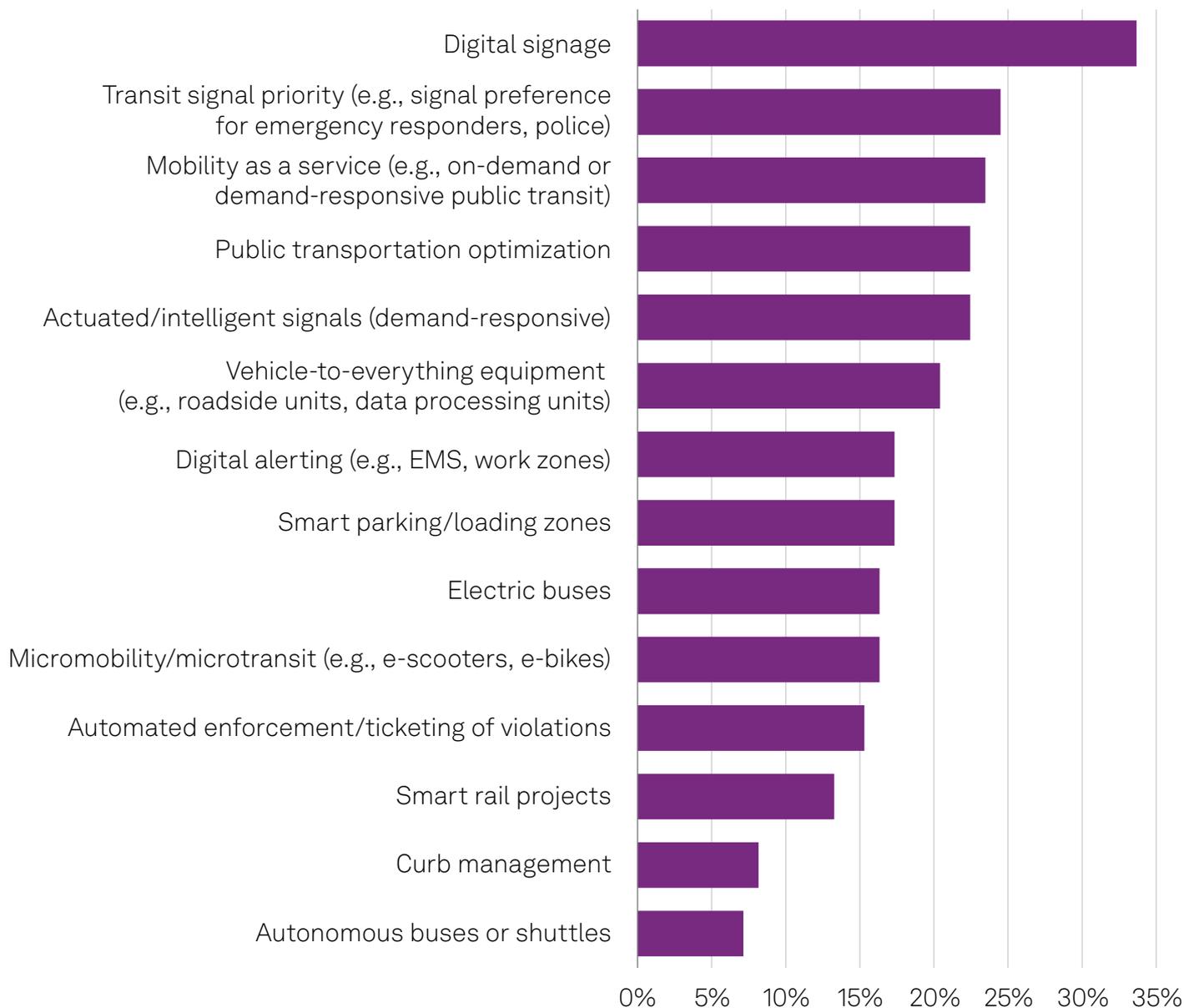
Q. Which of the following intelligent transportation system use cases do you have in place today? Please select all that apply.
Base: Government respondents (n=136).
Source: 451 Research's Voice of the Enterprise: Internet of Things, OT Perspective, Use Cases & Outcomes 2025.

Digital signage, which includes networked electronic displays that use dynamic, centrally managed content tied to live operational data, can provide passengers and operators with timely information, guidance and alerts. This use case emerges as the most mature and widely adopted in this dataset, with 34% uptake, indicating that agencies are prioritizing low-friction, visible tools that improve traveler information and wayfinding without major operational change. Transit-enabling measures such as transit signal priority (24%), mobility as a service (23%) and public transportation optimization (22%) form a strong middle tier, reflecting growing comfort with AI- and data-driven tools that can improve economic and safety outcomes. Core intelligent infrastructure — actuated signals (22%), vehicle-to-everything equipment (20%), digital alerting (17%) and smart parking/loading zones (17%) — shows solid but not universal deployment, suggesting agencies are gradually modernizing field devices and back-office systems.

More disruptive or operationally complex innovations such as electric buses, micromobility and microtransit, automated enforcement, smart rail projects, curb management, and autonomous buses or shuttles lag. These use cases have adoption at or below one in five respondents, underscoring that capital intensity, regulatory hurdles and organizational readiness remain key barriers to frontier mobility applications.

Why now?

Advances in cloud computing, AI, IoT and high-speed connectivity have reached a tipping point, making intelligent mobility both practical and scalable for mainstream city deployments. These technologies are becoming more affordable, interoperable and easier to integrate with existing infrastructure, allowing agencies to modernize legacy systems without full rip-and-replace programs. City leaders are increasingly able to invest across the mobility value chain — from onboard units in public buses and connected traffic signals to curbside sensors, digital signage and integrated control platforms — rather than treating each project as a stand-alone upgrade.

As the catalog of proven use cases expands and the operational benefits outweigh the implementation hurdles, transportation departments can shift from reactive management to proactive orchestration of intelligent mobility systems, using real-time insights to improve efficiency, resilience and safety while working within tight budget and staffing constraints.

Financing intelligent mobility

Delivering intelligent mobility at scale depends as much on sustained funding as on technology readiness. With cost barriers routinely stalling project deployments and scaling, survey data shows that agencies expect to lean primarily on public-sector sources, with federal grants or subsidies cited most frequently (54% of government respondents), followed by state grants or subsidies (46%) and in-place public funds such as existing city budgets (30%). These patterns suggest that many cities will seek to align intelligent mobility projects with established transportation and infrastructure funding streams, rather than invent entirely new mechanisms (see Figure 4).

Fig 4: Funding-ready: Grants and subsidies are the top funding sources for smart city initiatives
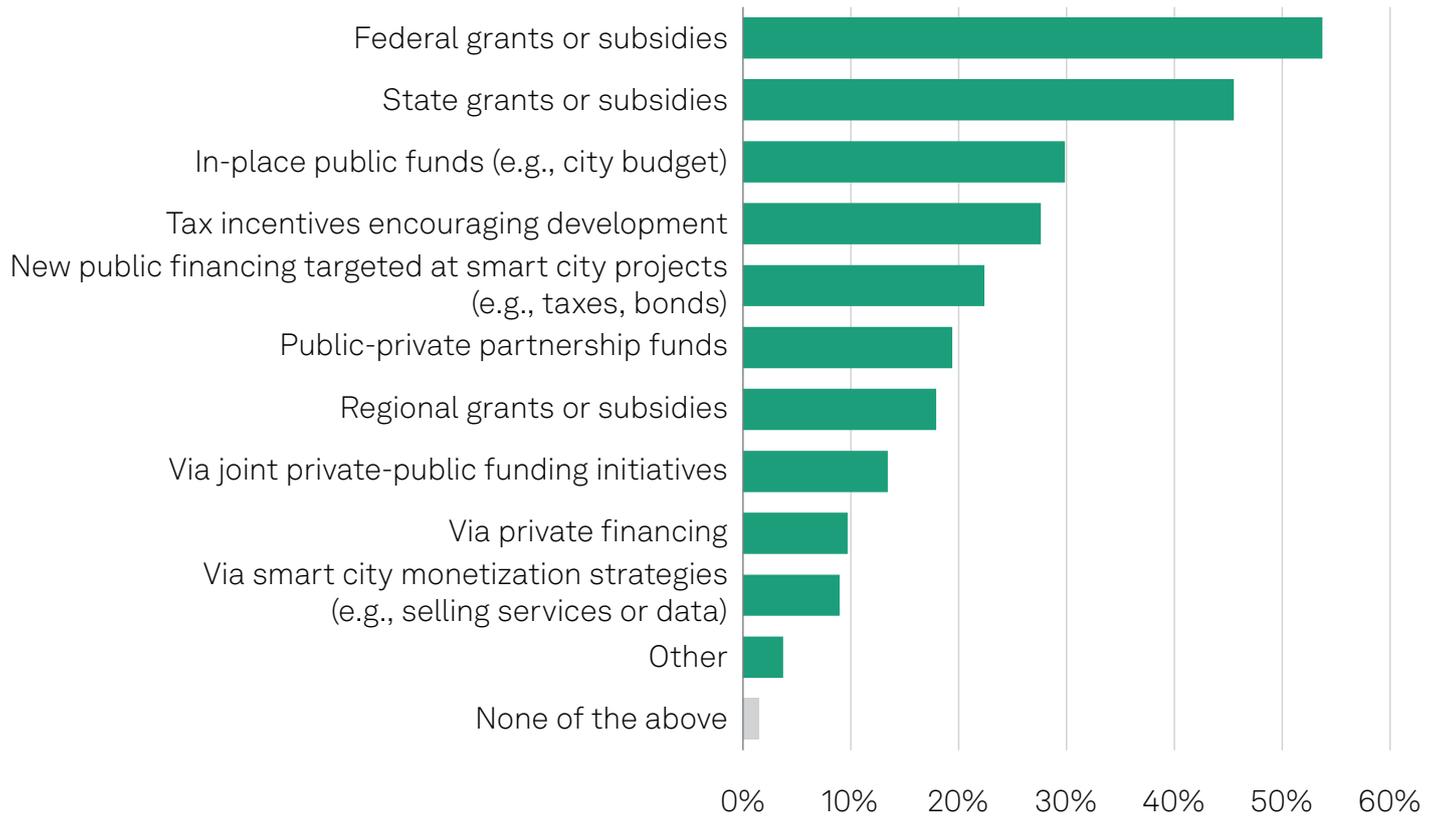
Q. How are your smart city initiatives funded? Please select all that apply.
Base: Government respondents (n=136).
Source: 451 Research's Voice of the Enterprise: Internet of Things, OT Perspective, Use Cases & Outcomes 2025.

Complementary funding sources will remain relevant, particularly as projects grow more complex and capital-intensive. Tax incentives encouraging development (28%), new public financing targeted at smart city initiatives (22%) and public-private partnership funds (19%) are positioned as important enablers. PPPs are long-term contracts between a government and private-sector institutions, typically involving private capital financing government projects and services up front, drawing revenue from taxpayers or users for profit over the course of the contract. Joint private/public funding initiatives (13%) are more flexible, where individual projects are cofinanced by government and private partners on a case-by-case basis. These initiatives, along with private financing (10%) and smart-city monetization strategies such as selling services or data (9%), remain secondary but emerging options.

Conclusions

As cities evolve into intelligent ecosystems, the public sector is prioritizing technological investments that improve citizens' quality of life. From promoting safer streets to enhancing transit services and reducing congestion, transportation is a promising area for urban innovation. Advances in AI technologies can boost the productivity and efficiency of intelligent mobility systems through data integration and demand-responsive operations that adapt to real-time roadway conditions while also potentially reducing operating costs. Beyond this, generative and agentic AI tools are emerging as copilots for traffic and transit teams, delivering insights in minutes that would once have required months of analysis, answering natural-language questions by drawing on massive datasets, and assembling recommendations that improve safety, reliability and systemwide flow.

MIOVISION

Learn more about Intelligent Mobility solutions from Miovision.

About the authors

Beatriz Minamy
Principal Research Analyst

Beatriz Minamy is a principal analyst covering automotive, commercial transportation and logistics within the IoT, Edge & Digital Industries channel at S&P Global Market Intelligence 451 Research. Her work focuses on the intersection of mobility, technology and energy. Her recent research includes topics such as electric mobility, software-defined vehicles (SDVs), AI-driven mobility, autonomous vehicles (AVs), intelligent transportation systems (ITS), fleet management, telematics and IoT platforms, vehicle-to-everything (V2X) communication, and the electrification of transportation — including EV charging infrastructure and its broader effects on both the electric grid and urban systems.

Zoe Roth
Research Analyst

Zoe Roth is a research analyst in the 451 Research technology research group within S&P Global Market Intelligence, covering the internet of things (IoT), edge computing and digital industries. Her research focuses on the evolution of smart buildings and smart spaces, with emphasis on vertical software ecosystems and the convergence of IT and OT across key sectors including commercial real estate, data centers, healthcare, campuses and retail. Zoe leads analysis on how AI applications, data platforms and automation technologies are transforming operational efficiency, sustainability and occupant experience within connected environments. Her recent work examines the rise of autonomous and adaptive buildings, the integration of energy management and building controls, and the role of location intelligence and spatial analytics in optimizing industrial and supply chain operations.

About this paper

A Pathfinder paper navigates decision-makers through the issues surrounding a specific technology or business case, explores the business value of adoption, and recommends the range of considerations and concrete next steps in the decision-making process.

About S&P Global Market Intelligence

At S&P Global Market Intelligence, we understand the importance of accurate, deep and insightful information. Our team of experts delivers unrivaled insights and leading data and technology solutions, partnering with customers to expand their perspective, operate with confidence, and make decisions with conviction.

S&P Global Market Intelligence is a division of S&P Global (NYSE: SPGI). S&P Global is the world's foremost provider of credit ratings, benchmarks, analytics and workflow solutions in the global capital, commodity and automotive markets. With every one of our offerings, we help many of the world's leading organizations navigate the economic landscape so they can plan for tomorrow, today. For more information, visit www.spglobal.com/marketintelligence.

CONTACTS

Americas: +1 800 447 2273
Japan: +81 3 6262 1887
Asia-Pacific: +60 4 291 3600
Europe, Middle East, Africa: +44 (0) 134 432 8300

www.spglobal.com/marketintelligence
www.spglobal.com/en/enterprise/about/contact-us.html