


The Vision of Autoflow Road Final Summary (Overview)

~Turn "crisis" into "opportunity" through Autoflow Road~

Autoflow Road: A new logistics system that transports goods using unmanned, automated transportation means powered by clean energy, with dedicated logistics spaces within a highway.

Background	Shortage of truck drivers due to population decline and overtime work restrictions: Estimated shortage of 900 million tons of transportation capacity by FY2030.	Reduction of CO2 emissions toward achieving Carbon Neutral
Interim Summary on the Vision of Autoflow Road (July 25, 2024)	<p>Interim Summary on the Future of High-Standard Road Network (October 2023, Subcommittee on Roads, National Trunk Roads Division, Council for Social Infrastructure Development): Necessity of considering the construction of Autoflow Road, fully utilizing road space, powered by clean energy.</p> <p>Concept "Utilize road space to create dedicated spaces" and transport goods using "unmanned and automated transportation measures enabled by digital technology" plus "Buffering function" that uses transportation space for storage to level out logistics demand</p> <p>Target, Cargo Characteristics Targeted at <u>small-volume, high-frequency shipments, with cargo loaded onto T11-standard pallets as the transport unit</u></p> <p>Assumed route <u>Tokyo-Osaka corridor, which has the highest logistics volume. Aiming for implementation by 2030 in sections where experiments or small-scale improvements are feasible,</u> such as the under-construction sections of the Shin Tomei Expressway</p>	
Establishment of a Consortium (May 2025)	It facilitates information sharing and discussion among private-sector companies interested in the operation and use of Autoflow Road, public institutions, and entities holding relevant technologies, with the goal of exploring business models, technical demonstrations of operations, strategies to promote technological development, and the appropriate approach to infrastructure development. (104 private companies participated as of July 31, 2025)	

Final summary: The document consolidates discussions from the Study Group on Autoflow Road regarding the vision of Autoflow Road, as well as opinions from the consortium, and outlines the implementation strategy for Autoflow Road for the current fiscal year and beyond.

The Role of Autoflow Road	<p>A world where goods are transported manually → Realize a world where goods are transported automatically by utilizing Japan's advanced technologies</p> <p>✓ Through discussions within a consortium, we are addressing technical challenges toward implementation through collaboration between industry, government, and academia.</p>	<ul style="list-style-type: none"> • Optimization of the entire logistics system • Seamless integration of logistics modes • Achieving carbon neutrality • Ensuring stable logistics during disasters, etc. 	
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Required functions of Autoflow Road	Services provided	Infrastructure (roadway, hubs)
	<p>Target sections Tokyo-Osaka as the principle route Expansion to Kanto, East Kanto, and Hyogo is under consideration.</p> <p>Hubs Set up multiple hubs including intermediate points/Consider integration with other modes Transport equipment ⇔ Automatic loading/unloading required for trucks Also consider refrigeration functions, automatic sorting, etc.</p> <p>Cargo shape Standard specification pallets (flat size) (including roll box-type pallets) with a height restriction of 2.2m</p> <p>Speed 70-80 km/h (technical development required)</p> <p>✓ Promptly conduct verification through demonstration experiments and other means for various elemental technologies</p> <p>✓ Examine technology development roadmaps and establish collaborative domains</p>	<p>(Roadway) Ground section: Major construction challenges ⇔ Underground section: High costs (e.g., soil disposal) Unify the structure to facilitate maintenance (to enable 24-hour logistics)</p> <p>(Hub) Road network capable of handling high truck traffic demand is necessary Coordination with existing logistics facilities, etc., also requires consideration</p> <p>✓ Conduct case studies and accelerate discussions toward implementation</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p style="text-align: center;">Case Study Section ※Digital twins will also be considered</p> <ol style="list-style-type: none"> ① Tomei, near Atsugi IC (Isehara JCT, etc.) to Tomei, Komakado PA or Ashitaka PA (Numazu IC) ② Tomei, near Atsugi IC (Isehara JCT, etc.) to Shin-Tomei, Surugawan-Numazu SA ③ Meishin, near Yoro JCT to Meishin, near Sekigahara IC ④ Shin-Meishin, Jo-yo IC to Yawata-Kyotanabe IC </div>

Effects of Autoflow Road

- Autoflow Road is expected to cover approximately 8% to 22% of the future shortage in transportation volume.
- Driver workdays : **20,000 to 57,000 person-days**
- CO₂ emissions reduction : **2.4 million to 6.4 million (t-CO₂/year)**

Implementation of Autoflow Roads

- ✓ Assuming private funding, maximizing the utilization of private-sector vitality
- ✓ Discussions are necessary regarding the future regulatory framework, structural standards, and safety criteria for Autoflow Road

Issues to Consider for the Future Consideration of Autoflow Road

- **An infrastructure strategy envisioning the future of logistics in Japan**
 - A medium- to long-term strategic perspective is necessary
- **Utilization of dedicated logistics spaces, emergency response, etc.**
- **Coordination with Other Modes and Fostering a Fair Competitive Environment**
- **Logistics reform through Autoflow Road**
 - Logistics reform through standardization of cargo specifications, systems, etc.

Next steps

- ✓ Demonstration experiments on six use cases related to transport equipment including the running performance in FY2025
- ✓ Simulations of intermodal connectivity and other areas
- ✓ Experiments on under construction sections of the Shin-Tomei Expressway through FY2027
- ✓ Commencement of operations on sections (preliminary routes) that can be implemented through small-scale improvements by the mid-2030s
- ✓ Promoting the development of the business environment, including institutional frameworks
- ✓ Explore the feasibility of implementation in sections where effects can be realized early
- ✓ Consideration of international standardization