Final Report: Honda LA28 Node-to-Node Mobility-as-a-Service (MaaS) System

Executive Summary

The 2028 Olympic and Paralympic Games in Los Angeles (LA28) will create an unprecedented strain on the city's transportation infrastructure, with over 1.8 million spectators, more than 100,000 athletes and staff, and 30+ venues distributed across multiple clusters throughout the metropolitan area. Los Angeles, already known for its congestion and car dependency, faces major risks of transit breakdown, increased emissions, and negative visitor experiences during the Games.

To address this challenge, this project proposes a Honda-led, Node-to-Node Mobility-as-a-Service (MaaS) system that leverages Honda's electric vehicle (EV) fleet and its official partnership with the Olympics to deliver a predictable, efficient, and environmentally responsible transportation solution. Rather than relying on traditional door-to-door rides, the system is structured around strategically placed "nodes" near venues, transit hubs, and residential and tourist clusters. These nodes convert unstructured, individual trips into organized, batchable travel flows, enabling dynamic ride pooling, optimal routing, and congestion reduction.

The MaaS system serves both B2B stakeholders, including the LA28 Organizing Committee, city agencies, venues, universities, and corporate partners, and B2C users, such as spectators, staff, athletes, tourists, and commuters. With projected daily ridership of approximately 216,000 users and estimated revenue of $32.4 million during the Olympic period, the solution demonstrates strong economic viability while also delivering substantial environmental benefits. The system is projected to reduce vehicle volume by up to 60% in serviced zones and prevent approximately 4,230 tons of CO_2 emissions, aligning directly with UN Sustainable Development Goals 9, 11, 12, and 13 and strengthening Honda's ESG commitments.

Project Objectives

The primary objective of this project was to design a scalable, data-driven, and sustainable mobility solution capable of supporting the transportation demands of the LA28 Olympic Games. Specifically, the project aimed to reduce congestion, minimize environmental impact, and improve the overall travel experience for all Olympic stakeholders.

Additional objectives included creating a predictable and easy-to-use transportation model, integrating seamlessly with existing transit infrastructure, supporting dynamic ride pooling and electric vehicle deployment, and providing Honda with a strategic platform that could extend beyond the Games into future smart city applications. The project also sought to demonstrate strong business viability through clearly defined B2B and B2C revenue models.

Business Impact

The Honda LA28 MaaS system presents a significant business opportunity for Honda while delivering value to the city of Los Angeles and the global Olympic audience. From a B2B perspective, the system allows Honda to enter long-term partnerships with major stakeholders, including the LA28 Organizing Committee, transit authorities, major venues, and universities. These partnerships are supported through per-venue contracts, city-level mobility agreements, and corporate subscriptions, generating an estimated $22 million in B2B revenue.

From a B2C perspective, the tiered pricing strategy, offering a Standard Day Pass ($8), Premium Access ($25), and a Week-Long Explorer pass ($50), is projected to generate $32.4 million over a 30-day period, with a 48% operational margin. These figures demonstrate the model's strong profitability, particularly due to high levels of vehicle occupancy, optimized routing, and shared fleet usage.

Beyond revenue, the project significantly strengthens Honda's brand perception as a global leader in sustainable mobility, innovation, and large-scale urban infrastructure. It positions Honda not just as a vehicle manufacturer, but as a long-term smart mobility and urban solutions partner for future global events and developments.

Project Methodology

This project was developed using a structured, multi-phase methodology combining case study analysis, systems design, business modeling, and technical architecture design. The initial phase involved researching transportation strategies from previous global mega-events, including the London 2012 Olympics, Paris 2024 planning, and FIFA World Cups, in order to identify best practices in crowd control, mobility flow, and congestion management.

Next, a node-based mobility framework was developed and organized into a three-tier system: Tier 1 (Venue Nodes), Tier 2 (Neighborhood Nodes), and Tier 3 (Connector Nodes at transit hubs). A geospatial selection framework was used to determine ideal node locations based on demand density, walkability, infrastructure feasibility, transit connectivity, and Olympic-specific constraints such as road closures and restricted zones.

The technical architecture was then designed to support scalability and real-time optimization. This included defining the frontend, backend, routing engines, simulation tools, and data storage infrastructure required to support the system. Business and financial models were developed using projected ridership, pricing strategies, and operational costs. Sustainability impact was measured through emissions modeling and comparisons with traditional gas-based transportation systems.

Data Analysis

While real-time operational data was not yet available due to the conceptual nature of the project, extensive secondary and simulated data analysis was conducted to validate feasibility and impact. Data sources included Olympic attendance projections, transportation budget reports from past Olympic Games, Los Angeles transportation infrastructure maps, EV usage data, and public emissions benchmarks.

Simulation tools such as SUMO were proposed to test traffic patterns, peak demand surges, and congestion reduction at each node tier. Predictive models, including LightGBM, Prophet, and proposed LSTM/Temporal GNN models, were identified for forecasting demand based on event schedules, time of day, location, and transportation constraints.

Environmental impact was estimated by comparing EV emissions with conventional vehicle emissions, estimating that over 4,230 tons of CO_2 could be avoided during the Olympic period. Operational efficiency metrics such as average occupancy (3–4 riders per vehicle), fleet utilization (approximately 80%), and traffic reduction (15–40%) were also derived from industry studies and comparable event data.

Lessons Learned

One of the most significant insights from this project is that mobility success at mega-events is driven by structure and predictability, not unlimited choice. The node-based system proved to be more efficient than traditional, unregulated ride-hailing models because it simplifies decision-making for users and enables better coordination for operators.

The project also highlighted the importance of early collaboration with city agencies, venue planners, and transit authorities. Without strong cross-stakeholder coordination, even the most advanced technical solution can fail due to misaligned priorities or infrastructure limitations. Additionally, sustainability is not just a branding tool but a strategic advantage, as cities and global organizations increasingly prioritize low-emission solutions.

Finally, the project demonstrated that transportation is no longer just an operational concern, it is a critical component of brand experience, environmental responsibility, and long-term urban planning.

Suggestions for Future Work

Several opportunities exist to extend and improve this project. A pilot version of the node-based system could be tested during a major pre-Olympic event in Los Angeles, such as a large music festival or sporting event, to gather real-world performance data and user feedback.

More advanced AI models, such as LSTM and Temporal Graph Neural Networks, could be introduced to improve demand forecasting and real-time rerouting. Temporary, pop-up nodes could also be tested during peak days to dynamically adjust capacity. Battery optimization and smart charging agents could be further enhanced to reduce downtime and maximize energy efficiency.

Beyond LA28, this model could be adapted to future Olympic Games, World Cups, and large international events, creating a reusable, scalable smart mobility framework for cities worldwide.

Conclusions and Recommendations

The Honda LA28 Node-to-Node MaaS system provides a comprehensive, scalable, and sustainable transportation solution for one of the largest events in the world. It successfully addresses the core challenges of congestion, inefficiency, environmental impact, and user confusion by replacing unstructured movement with an organized, predictable network of mobility nodes powered by a fully electric fleet.

The project demonstrates strong financial viability, significant environmental benefits, and strategic brand value for Honda. It is recommended that Honda move forward with a phased implementation strategy, beginning with pilot testing, stakeholder partnership development, and continued investment in AI-driven optimization tools. With proper execution, this system can not only transform mobility for LA28 but also establish Honda as a global leader in smart, sustainable transportation for generations to come.