CAPITALIZING ON TECHNOLOGICAL INNOVATIONS IN TRANSPORTATION FOR THE BENEFIT OF CITIZENS

Montréal wants to be at the cutting edge of technological innovations in the field of transportation. The city intends to make a name for itself in the deployment of intelligent transportation systems (ITS) and to hold an enviable position among innovative cities, both in Quebec and abroad. To achieve this, Montréal has adopted forward-looking and ambitious strategic ITS plan.

TRANSPORTATION IN THE AGE OF NEW TECHNOLOGIES

Recent developments in information technologies and communications have brought new opportunities for transportation. Cities can now gather, process, and share information at high speed. This information helps planners and managers of transportation networks to make better decisions, optimize the use of infrastructure and a more efficient, safe and sustainable movement of people and goods. ITS refers to the application of new information and communication technologies that are related to transportation. These are, for example, traffic management systems, variable message signs, centralized processing and analysis centres, vehicles and communication and information exchange networks are at the core of these systems. The benefits of ITS are in their capability to optimize the use of existing infrastructure, reduce costs and meet the growing mobility needs of citizens. They also play a crucial role in mitigating the disruption of multi-modal traffic, addressing the challenges of innovation and efficient urban mobility. The principles on which ITS are based are:

- the improvement of the capacity and effectiveness of public transport and road networks;
- the improvement of the quality and competitiveness of urban mobility;
- the reduction of the number of accidents and fatalities on the roads;
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THE UMMC: THE HEART AND BRAIN OF INTELLIGENT TRANSPORTATION SYSTEMS IN MONTRÉAL

The Urban Mobility Management Centre (UMMC) is the basis for the implementation of ITS in the territory. It is the operation centre to which information is obtained from various data collection devices (traffic signals, video surveillance systems, etc.) and which processes and manages it in real time to ensure the safety and mobility of citizens.

It should be noted that, although a global coverage of the territory is planned, not all the tools and equipment will be in place from the outset. The various data collection devices will be installed gradually, depending on the availability of funds and the resources required to ensure the safety and mobility of citizens.

Accomplished to date:
- deployment of the operation centre, including screens, software and video cameras;
- installation and connection of some of the traffic surveillance cameras on the territory;
- development of the UMMC operational processes and creation of online centre-to-centre links with transportation partners (Société de transport de Montréal, Transports Québec, Société de transport de Montréal, etc.).

Underway:
- field trials and testing of various devices;
- deployment of 400 additional traffic surveillance and traffic sensors for a global coverage of the territory.

TELECOMMUNICATIONS IN THE SERVICE OF TRANSPORTATION NETWORKS

The proposed integrated telecommunication system's aim is to ensure the proper functioning of the entire territory. The Ville de Montréal has begun the deployment of a fibre optic network throughout its territory in order to convey equipment (traffic signals, cameras, variable message signs) to the UMMC. This network ensures real-time information collection, thereby allowing communication with fixed equipment and remote data collection.

Accomplished to date:
- feasibility study on the integration of payment methods in order to facilitate intermodal travel and encourage the use of alternative modes of transportation. This harmonization could possibly be extended to other public services to citizens, such as libraries, museums, libraries centres, etc.;
- opportunity study on the harmonization of electronic payment systems; discussions initiated with partners in transportation;
- objective to extend the routing and real-time navigation services to citizens, emergency services and public transit agencies, for whom awareness of the network status in real time is crucial.

Accomplished to date:
- implementation of telecommunication networks on the territory to test the viability of the project on a limited scale. To date, the results are conclusive;
- study on the development of a graphic user interface for the partners.

GEO-TRAFFIC: A DYNAMIC DATABASE ON THE STATE OF TRANSPORTATION NETWORKS

This project is a research project that is possible to provide real-time information on the state of Montréal’s road network (road closures, congestion, incidents, and public transport disruptions). The goal is to gather a single platform, information that is relevant to traffic management and the operations of various partners, such as emergency services and public transit agencies, for whom awareness of the network status in real time is crucial.

Exchange mechanisms for sharing and processing information will be developed as an added value for the partners.

Accomplished to date:
- implementation of telecommunication networks in the city of Montréal;
- collection of real-time traffic information on the fibre optic network.

INFORMATION FOR TRAVELLERS: FACILITATE TRAVEL AND MODAL CHOICES

This project makes it possible to provide real-time information on transportation networks and real-time navigation choices. The goal is to gather a single platform, information that is relevant to traffic management and the operations of various partners, such as emergency services and public transit agencies, for whom awareness of the network status in real time is crucial.

Exchange mechanisms for sharing and processing information will be developed as an added value for the partners.

Accomplished to date:
- world-wide market analysis on best practices for the ITS system, carried out jointly with Transport Québec;
- feasibility study on implementing an information service for citizens, partners and emergency services in the city of Montréal;
- first phase of project implementation including data necessary for the proper functioning of the system;
- product improvement according to partners’ needs.

ELECTRONIC PAYMENT: FOR A BETTER MOBILITY EXPERIENCE

This project aims to extend these priority measures, first, at traffic lights and, second, along the various major public transportation corridors.

Accomplished to date:
- feasibility study on the integration of payment methods in transportation in Montréal.

TRAFFIC-SIGNAL PRIORITY FOR EMERGENCY SERVICES AND PUBLIC TRANSIT

The modernization of traffic signals allows the Ville de Montréal to be equipped with smart traffic signal controllers that can communicate with various modes of transport. It is now possible for emergency vehicles or buses equipped with the necessary devices to communicate with these smart traffic signals so that they can gain priority at intersections.

Accomplished to date:
- opportunity study on the harmonization of electronic payments in transportation;
- discussions initiated with partners in transportation;
- objective to extend the real-time navigation system to citizens, emergency services and public transit agencies.

Accomplished to date:
- opportunities study on the harmonization of electronic payments in transportation;
- discussions initiated with partners in transportation;
- opportunity to extend the real-time navigation system to citizens, emergency services and public transit agencies.

REFERENCES