



Engineering  
for people

# PUBLIC TRANSIT ENGINEERING SERVICES BUS RAPID TRANSIT





# A LEADER IN CONSULTING ENGINEERING



# EMPLOYEE-OWNED AND CLIENT FOCUSED

With more than 30 years of industry experience, CIMA+ is the consulting engineering firm of choice across Canada. Our interdisciplinary team works hand-in-hand with clients to deliver exceptional results on projects large and small.

We are proud to be employee-owned and rated one of Canada's best employers. This unique business model supports our strong culture of excellence, entrepreneurial spirit, and accountability. Clients love working with our talented roster of professionals and we take pride in delivering successful projects that set the stage for long-lasting, partnerships.

**40+**  
offices across  
Canada

**30+**  
years of industry  
experience

**3,600+**  
employees



**“ We wish to make a difference with our employees, clients, and business partners to shape an inclusive, fair and carbon neutral world. We must work towards this ideal that is not contrary but rather complementary to the sustained growth we are aiming to achieve. ”**

**Denis Thivierge, P. Eng.**  
President and Chief Executive Officer



CANADA 2023



# SUSTAINABLE MOBILITY AT THE HEART OF OUR EXPERTISE IN TRANSPORTATION

## CIMA+. A RECOGNIZED LEADER IN TRANSPORTATION ENGINEERING

CIMA+ is a multidisciplinary Canadian corporation that is active in the fields of consulting engineering, project management, communication systems, and the environment. Founded in 1990, CIMA+ has grown, both organically and through a series of mergers and acquisitions, to become one of the leading engineering consulting firms in Canada, with more than 3,600 employees working from over 40 offices.

CIMA+ has earned an enviable reputation in transportation engineering, and a number of its projects have won awards and distinctions over the years. Since the early 2000s, CIMA+ has developed leading-edge expertise in public transit, as we work to meet the needs of an increasing number of users who are seeking a safe, affordable and ecological transit option.

CIMA+ carries out projects that integrate a variety of public transit modes in urban, suburban and rural centres, including bus networks, shared taxis, subways and tramways. Our mandates specifically entail developing and recommending public transit solutions, improving the public transit offer, integrating service among the various modes of transportation and enhancing the efficiency of transit corridors.

Our team is in a position to advise you every step of the way during your public transit projects, from planning to commissioning, and including design and feasibility studies for various types of infrastructure assets and the associated equipment:

- Bus rapid transit (BRT) networks
- Reserved lanes and preferential measures
- Guides for standards respecting service, development and universal accessibility
- Terminals and stations
- Garages
- Park-and-ride facilities and drop-off lanes
- Subway and Light Rail Transit (LRT) networks
- Intelligent Transportation Systems
- Subway entrance structures, bus shelters and bus stops





# OUR FIELDS OF EXPERTISE

Our specialized public transit team offers an extensive range of services, including the following:

## DEMAND FORECASTING

- Origin–destination survey
- Number of riders (on/off)
- Random and specific counts

## STRATEGIC DEVELOPMENT PLAN

- Characterization of demand
- Modelling and simulation of the offer
- Design of service and infrastructure projects, vehicle requirements

## PLANNING OF THE SERVICE OFFER AND VARIOUS TYPES OF ANALYSES

- Assessment of transit network coverage and accessibility
- Assessment of transit time
- Management of bus stops and shelters
- Complaint management
- Development / optimization of service routes

## EVALUATION OF PERFORMANCE INDICATORS

- Punctuality, load profile, profitability
- Commercial speed

## INFRASTRUCTURE DESIGN AND DEVELOPMENT

- Concept development
- Feasibility study
- Functional and capacity analysis
- Preliminary design
- Drawings and specifications
- Cost estimates and schedules
- Services during construction



To help them to complete their projects effectively, our engineers have access to a variety of state-of-the-art transportation tools that allow them to assess trip generation and traffic conditions, primarily in the form of **traffic simulation** and **analysis** software:

- **AIMSUN version 8.1.3** for network modelling
- **SYNCHRO / SimTraffic 7,0 et 8,0** for modelling and optimization of traffic signals phasing, analysis of intersection capacities, arterial coordination and modelling of intersections with updated traffic signals
- **VISSUM version II** for regional modelling
- **VISSIM version 5.30** for microsimulations
- **HCS 2000** (Highway Capacity Software)

- **SIDRA Intersection** (Signalized and Unsignalized Intersection Design and Research Aid)
- **TSIS – CORSIM** (Traffic Software Integrated System for Corridor Simulation)
- **AutoTURN** for modelling the manoeuvring of heavy vehicles
- **PARKCAD version 3.0** for designing parking areas
- **Guidsign et Sign Spacing** for designing of traffic control signs
- **HDM version 9.0.** (Highway Data Management)
- **AGI32** for lighting calculations
- **OTISS** (Online Traffic Impact Study Software) for trip generation



1 REM, Photo : @jfsavaria



# RELATED EXPERTISE

Thanks to our multidisciplinary approach, our public transit experts work with our teams in other fields of transportation engineering on a regular basis, along with those involved in municipal engineering, water and environmental management and intelligent transportation systems (ITS).

Here is an overview of our expertise in transportation planning and studies:

## TRAFFIC

- Impact studies
- Characterization and estimation of the public transit demand
- Road network modelling and simulations
- Traffic counts: directional and between intersections
- Capacity analyses
- Traffic and parking master plans
- Site accessibility and functionality studies
- Configuration of parking areas
- Active and sustainable mobility plan

## TRANSPORTATION PLANNING

- Opportunity studies
- Transportation plans
- Demand estimates
- Network modelling and simulation

## ROAD SAFETY

- Safety audits
- Accident analyses
- Identification of traffic calming measures
- Analysis of points of conflict
- Development of road safety policies
- Safety studies (in the vicinity of parks, school zones)

## STATIC SIGNAGE

- Master plans
- Directional and routing signage
- Regulatory and warning signage
- Identification signage
- Signal structures
- Road markings

## DYNAMIC SIGNAGE (DETECTION, PRE-EMPTION, SYNCHRONIZATION)

- Traffic signals: design and operation
- Lane control systems
- Variable message signs
- Street lighting



1 Road safety assessment  
 2 Traffic impact study for a shopping centre  
 3 Public consultation for a sustainable transit master plan

4 Site accessibility study  
 5 Assessment of level crossings



# EXPERTISE IN THE DEVELOPMENT OF BUS RAPID TRANSIT NETWORKS

## BRT STUDY AND PLANNING

The Société de transport de Montréal wanted to build a permanent infrastructure on Côte-Vertu Boulevard in Montreal over a distance of five kilometres that would be reserved exclusively for buses and be operational at all times. The feasibility study that was conducted at the beginning of the project justified the creation of a bus rapid transit (BRT) network. CIMA+ carried out the preliminary design with a view to defining and developing the concept that best responds to the needs of the sector within a confined environment.

The client wanted to reduce transit time for users by 10% to 20% throughout the busy City of Montreal network. CIMA+ carried out the various steps involved in the development of a BRT network, namely:

- Final design, including surveying
- Preparation of drawings and specifications for the request for proposals and the construction
- Site supervision

## FEASIBILITY STUDY AND PRELIMINARY DESIGN FOR THE BUSIEST CORRIDOR IN AN URBAN CENTRE

Over the past seven years, working as a member of a consortium, CIMA+ has carried out a number of studies related to the construction of a BRT reserved bus lane on Pie-IX Boulevard in Montreal, which serves 40,000 passengers per day. The services provided included feasibility studies, preliminary and final designs, urban integration studies and prefeasibility studies related to electrification.

## PREPARATION OF ALL STEPS LEADING TO A REQUEST FOR PROPOSALS AND THE CONSTRUCTION OF A BRT NETWORK

CIMA+ validated, executed and completed all of the steps leading to the final design for a major artery, spanning the sectors of Laval and Montreal, and comprising 11 kilometres of specific on-site reserved lanes, 17 stations and 2 park-and-ride facilities. During a subsequent phase, CIMA+ prepared drawings and specifications for the request for proposals and the construction, and provided technical support during the request for proposals process and during construction within the territory of the City of Laval. This BRT network currently ensures 40,000 trips per day, and long-term potential is estimated at approximately 70,000 trips.



1 Source : ARTM (formerly AMT)

2 Source : STM



## FOR MORE INFORMATION, CONTACT US:

[info@cima.ca](mailto:info@cima.ca)

### CIMA+ HEAD OFFICE

600-3400, boulevard du Souvenir  
Laval QC H7V 3Z2 Canada  
T 514 337-2462

### WE HAVE A LOCAL PRESENCE FROM COAST TO COAST, ALL ACROSS CANADA.

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Clareville Edmonton – Downtown Edmonton – West Gatineau Granby Guelph Halifax Kelowna Kitchener  
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**KINCENTRIC**  
**Best Employer**

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