

2005 TAC Sustainable Urban Transportation Award

The Gunningsville Bridge and Associated Urban Bypasses

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1. Introduction

A new replacement bridge across the Petitcodiac River was constructed by the New Brunswick Department of Transportation, linking the communities of Moncton, Riverview and Dieppe, or the Greater Moncton Area (GMA). This \$ 28-million structure was officially opened by New Brunswick Premier Bernard Lord and Transportation Minister Paul Robichaud on November 19, 2005. Further work to enhance connections to the new Gunningsville Bridge is underway through the Canada Strategic Infrastructure Fund (CSIF) Agreement for Municipal Bypass Projects. Once these projects are completed, the bridge will have access controlled connections that will serve as a vital urban transportation corridor by creating an inner GMA cross-river loop concept. This will contribute to an enhanced quality of life by protecting the environment and, at the same time, support the long-term economic growth and greater prosperity of the GMA.

2.0 The new Gunningsville Bridge

The Gunningsville Bridge has a four-metre-wide sidewalk for combined pedestrian and cyclist traffic and two observation decks, which makes it the first of its kind in New Brunswick. In addition, it is aesthetically pleasing with textured and stained concrete barrier walls and abutments to give the impression of stone, custom-designed black decorative railings and light standards with fluted poles and decorative scrollwork, light pilasters, pillars, decorative lighting. The bridge is four lanes with a 22.96 m deck width supported by eight spans over a length of 425 metres. The sidewalk connects an extensive recreational trail system on both sides of the river and will create more choices and opportunities for walking, cycling, transit and high occupancy vehicles.

The Gunningsville Bridge will contribute to the development and enhancement of sustainable urban transportation by:

- Promoting sustainable urban transportation with respect to efficiency (both reduced congestion and energy use/GHG), safety and environmental impacts, while promoting social, mobility and equity goals.
- Promoting economic growth through fuel consumption savings, and the reduction of vehicle hour delays (passenger vehicles and trucks).

The Bridge was designed and built to blend with its tidal marsh environment by incorporating a variety of detailed special features. The superstructure utilizes both prestressed concrete and steel plate girders. To provide simple, clean lines and a continuous and consistent colour scheme, the exterior concrete girders received a colour coating to match the weathering steel of the plate girders. Self-compacting concrete, acid stain and integral colour provide decorative architectural detail. The abutment breastwalls, wingwalls and endposts, and the barrierwalls have recessed random block ashlar stone patterned panels. Flat recessed panels are also incorporated in the endposts, light pilasters, pillars and barrierwalls. The stones are acid stained to emulate the colours of local geological formations.

Two scenic arch shaped observation platforms (17.75m x 3.3m) are imparted with two different 3-dimensional flatwork surfaces. The integrally coloured concrete has a stamped block pattern for the arch (red) surrounded by an ashlar stone pattern (beige). Colour release powders provide contrast. Textured black powder coated aluminum pedestrian and traffic rails, light standards and overhead sign structures provide an ageless quality. The traffic and pedestrian railings were custom designed, detailed and fabricated. The light standards have fluted poles and decorative scrollwork.

As a result of these features, the new Gunningsville Bridge was more expensive than traditional design and construction techniques. This was the first time aesthetic enhancements were funded, but in doing so, the Department developed number of cost effective alternatives to conventional architectural techniques.

1. The concrete formliner and topical acid staining techniques achieved the look of stone at a lower cost and increased durability to hand-laid stone.
2. The black, powder-coated aluminium railings and light standards are more cost effective and durable than traditional cast iron materials that they were fabricated to resemble.

The construction of the new Bridge has greatly improved traffic flow and will ensure the future prosperity of the communities. At the same time, keeping the name Gunningsville Bridge pays tribute to the past and by naming the pedestrian walkway Veteran's Walk, honors the public service of a Community. The Bridge provides an improved physical link between two communities of Moncton and Riverview but also provides a recreational riverfront focal point for the enjoyment of all now and in future years.

3.0 The Cross-River Loop Concept

The ongoing construction of controlled access roads is made possible by an agreement between Canada, the Province of New Brunswick and the municipalities of Moncton, Riverview and Dieppe. New access controlled bypasses in the Greater Moncton region will allow traffic to move between and around the three municipalities more efficiently and safely. The Moncton and Riverview projects are directly linked with the Gunningsville Bridge. The extension of Vaughan Harvey Boulevard to the new bridge in Moncton, and the Riverview bypass project from the new bridge to Findlay Boulevard will establish a complete GMA cross-river circle.

The loop concept includes the new Gunningsville Bridge, the east-west bypass in Riverview from the new bridge to Findlay Boulevard, and from the Petitcodiac river causeway and Wheeler Boulevard to Mountain Road and Vaughan Harvey Boulevard and its proposed extension, and back to the new Petitcodiac River bridge. All projects falls under CSIF Sustainable Urban Growth Investment category as an urban bypass with limited access points.

- The Moncton project involves the construction of extensions to two existing urban highways, Vaughan Harvey Boulevard and Assomption Boulevard, to connect to the north end of the new Gunningsville Bridge. These connections will allow traffic to bypass a portion of Main Street and other congested downtown streets providing better access to several arterial routes throughout the city.
- The Riverview Bypass project will connect to the south end of the new bridge and will provide a bypass around the southern portion of the Town that will connect to Findlay Boulevard and the Petitcodac River Causeway.

In keeping with supporting the objective of sustainable communities, this project will reduce the need for travel, and enhance travel options through more choice and opportunities for walking, cycling, transit and high occupancy vehicles. In the case of each of these projects, the main benefits to public transit result from anticipated improvements to the system efficiency of the road network.

- Increased transportation system efficiency, including reduced congestions and bottlenecks (reduced vehicle hour delays);
 - Overall the improvements to transit system efficiency will result from the decreased congestion and improved LOS of the bypassed routes and direct routing (e.g. from Riverview to downtown Moncton). This will assist in improving service and thus create capacity without purchasing new transits.
 - In the specific case of the Moncton segment, public transit will be enhanced through better traffic flow and shorter loop times and thus more seat availability. The general manager of Greater Moncton's public transportation authority, Codiac Transit, indicates that the bypass project will result in both immediate and long-term cost savings and public transit service improvements. With respect to the Moncton segment the following benefits will be realized and implemented:
 - Transit routes will be routed across the new bridge eliminating 7-9 minutes on peak hour trips and 20 minutes in total on off-peak trips.
 - The reduction in trip time will allow Codiac to increase seat capacity and frequency of trips.
 - The shortened routes will enhance the quality of transit service.
 - In the case of Riverview, the north-south extension to the Gunningsville Bridge will assist in improving service in the town. At present, 3 routes operate in Riverview with their only link being in downtown Moncton. The new north-south corridor will allow the establishment of a community bus link with an express bus.

- Demonstrates a reduction in carbon monoxide emissions;
 - The Projects are expected to reduce carbon monoxide emissions in the atmosphere primarily as a result of more efficient movement of all modes of traffic. All together the reductions are estimated at 3, 696,000 kg over a 20-year period (Moncton: 1,983,000 kg; Riverview: 584,000 kg; and, Dieppe 1129,000 kg).
- Demonstrates a net reduction in other air contaminants;
 - In the case of the Moncton segment of the bypass, it is expected that all exhaust emissions from vehicles will be reduced by as much as 765 tonnes per day. This data is not available for the Riverview or Dieppe.
- Contributes to the mitigation of congestion
 - Besides the LOS improvements along the existing route segments that will be bypassed, downstream urban streets in the GMA should also experience reduced congestion.

The Gunningsville Bridge



Sidewalk and Observation Platforms



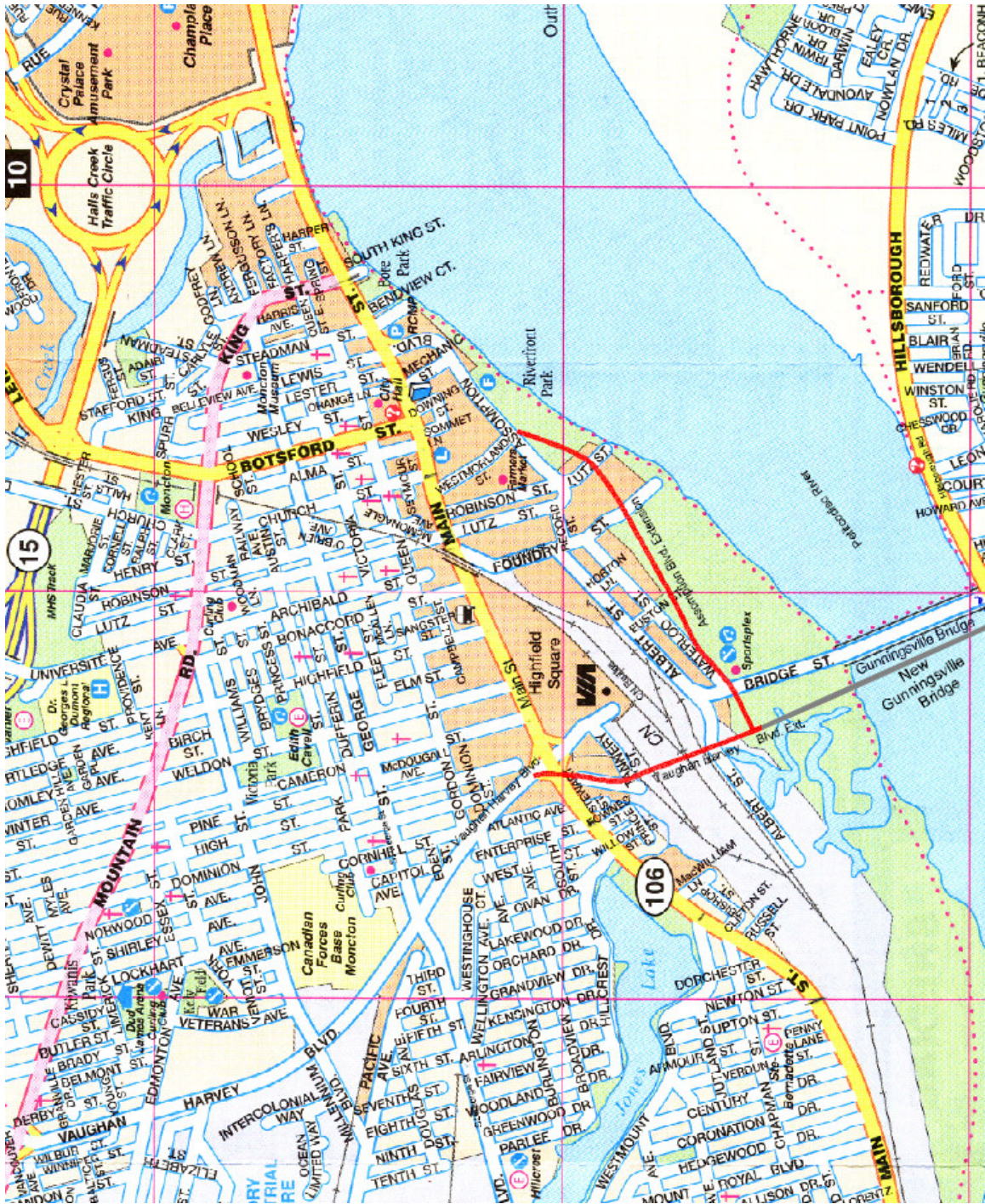
Aesthetic Enhancements



Approaches and Connecting Riverfront Trail System



Moncton Bypass Project



Riverview Bypass Project

