

**BRANDON AREA ROAD NETWORK
DEVELOPMENT PLAN
EXECUTIVE SUMMARY
FOR PLANNING PURPOSES ONLY**

Prepared For
Manitoba Infrastructure and Transportation
and
The City of Brandon

Submitted By
MMM Group

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STANDARD LIMITATIONS

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EXECUTIVE SUMMARY

Traffic patterns and volumes have been changing throughout the City of Brandon and its surrounding municipalities during the last several years. Continued development and redevelopment within the City of Brandon, including commercial, industrial, institutional and residential, is anticipated to affect traffic patterns and volumes to an even greater extent.

To address these current and anticipated changes, Manitoba Infrastructure and Transportation (MIT) and the City of Brandon (City) commissioned this study to develop a Brandon Area Road Network Development Plan. This Plan establishes a prioritized Infrastructure Investment Plan for the City of Brandon road network and Provincial highways that provide service to and from Brandon within a 60-km surrounding area. Throughout the study process there has been a focus on the interconnectivity, dual funding, and dual responsibility between the Province and the City.

Study Objectives

The objectives of the study include the development of a prioritized Road/Street/Highway Infrastructure Investment Plan for the City of Brandon and its surrounding area. The plan will be used to guide the development and maintenance of a safe, affordable and efficient road network to meet the projected economic development and social needs of the Brandon area over the next 20 years.

The proposed plan will focus on improving public safety, serving the regional economy and social needs while complementing ongoing land development. The plan will recommend solutions with a view to providing an efficient, economical, socially responsible and environmentally sustainable road network in Brandon and its surrounding area. The solutions are to be developed to a conceptual planning level (i.e., single line with associated functional characteristics) with preliminary cost estimates. The plan will recommend strategies that will contribute to sustainable transportation including alternative sources of funding for the recommended solutions.

Methodology

The study focused on six main goals, including:

- Review of current traffic, collisions, roadway conditions, and development patterns.
- A public consultation program that offered residents and stakeholders an opportunity to participate in the study and offer input on transportation-related concerns and mitigation measures.

- Development of a computer-based traffic forecasting model.
- An origin-destination study to identify trip making characteristics.
- Identification of transportation strategies to help guide future transportation decision making, including traffic calming, traffic impact study Policy, alternative funding options, smart growth features, parking standards, road classifications and standards.
- Identification of future transportation infrastructure needs to accommodate forecast year 2026 traffic volumes.

Study Steering Committee

MIT and the City established a Steering Committee to provide guidance and direction to the consultant team based on each of their individual goals. The primary goal of the City of Brandon, with respect to transportation, was to provide a safe, affordable and efficient road network for the users within the City of Brandon. The primary goal of MIT, with respect to transportation, was to provide a safe, affordable and efficient road network for traffic and the transport of goods on the Provincial roadway network within the 60-km study area. Steering Committee members included:

City of Brandon Members	MIT Members
Rod Sage (City Project Director)	Dave Duncan (MIT Project Director)
Ted Snure	Amar Chadha
Steve Hayward	Doug Struthers
Bob McDonald	Brant Magnusson

Environmental Scan

The 2001 Statistics Canada census listed the City of Brandon and surrounding area as having a population of 41,037 people. This marked a 1.1 percent growth in population since the previous 1996 census, a rate that is nearly double that of the Provincial average. Within the entire study area, including the 60-km radius around the city, the 2001 population was 71,885, approximately 57% of which was within the City of Brandon.

Information regarding the transportation mode choice for residents of Brandon to and from places of employment was also reviewed and compared with the Provincial average.

Work-Related Transportation Mode Choice		
Transportation Mode	Brandon Residents	Provincial Average
Personal Vehicle	78%	72%
Passenger in Personal Vehicle	7%	8%
Public Transportation	3%	9%
Walk / Bicycle / Other	12%	11%

The existing road network for the 60-km study area consists of a mixture of roadway types ranging from local streets to Provincial highways. The primary focus of the study within the City of Brandon was on collector and higher-level roads as these roads carry the bulk of vehicle trips and typically have higher volumes compared to local roads.

The roads around Brandon are comprised of Provincial highways and roads under the jurisdiction of MIT. The primary focus of the study outside the City of Brandon was on provincial trunk highways (PTH) and roads (PR) within a 60-km radius of the City of Brandon that accommodate vehicle trips to and from the city.

A pavement condition assessment was undertaken for roadways within the City of Brandon as well as Provincial highways and roads outside the City of Brandon. Dozens of road segment locations and spot locations were identified as “fair” or worse. Many of these locations were improved in 2006 during pavement work or are planned for improvements in 2007.

A review of design and geometric standards for the City of Brandon found them to be in accordance with the latest revision of the Geometric Design Guide for Canadian Roads by the Transportation Association of Canada (TAC).

The City of Brandon has a designated truck route network, and some of these roads have been further designated for dangerous goods. Changes are recommended to the truck route network and the dangerous goods route based on proposed changes to the major road network.

Parking standards in the City of Brandon are currently controlled by Zoning By-law No. 6642, which identifies minimum parking dimensions as well as the minimum required number of spaces for different land uses, and the Landscape Design Regulations, which sets out specific design standards for landscape screening and internal landscaped islands. The two documents set out a relatively thorough framework for the provision of off-street parking, more so than many jurisdictions

in terms of identifying the number of accessible parking spaces, and setting out landscape design standards. Five modifications to these standards are recommended for consideration.

A review of collision data along Provincial highways for the years 2000 through 2004 was carried out for both the number of reported collisions by road segment and the collision rate. None of the calculated collision rates were sufficiently high enough to warrant further review.

Brandon Transit currently operates 10 transit routes in the City of Brandon that provide access to major destination points in Brandon. Historical transit ridership information was obtained for 1994 through 2006. Annual transit ridership in Brandon has averaged over 750,000 rides per year over the past 13 years. Transit ridership in Brandon tends to peak during the winter months and is lowest during the summer months, typically a reflection of summer vacations and schools being closed.

The Brandon and Area Planning District is a partnership between the City of Brandon, the Rural Municipality of Cornwallis and the Rural Municipality of Elton. The Brandon and Area Planning District Development Plan (By-law #78/01/04), which was revised in 2005, is a long-range plan to guide development in the District. The Plan sets out objectives and policies that direct development locations and standards.

No parking issues were identified during the consultation process with City and MIT personnel. City representatives on the Steering Committee noted early in the process that downtown parking had been examined previously and was not considered a problem.

A high-level overview of safety issues was undertaken within the study area. The identification of critical areas of concern and potential remedial measures was also undertaken. A key element of the overview was a review of intersection collision data where available, and a review of selected highway links within the 60-km study area.

Public Participation

An extensive public consultation program was developed that included:

- A project website (<http://www.ndlea.com/brandonroadstudy>),
- Two public Open Houses (June 22, 2005 and April 3, 2007),
- Two public Workshops (October 26, 2005 and May 4, 2006),

- A public display (February 3 – 7, 2006 and February 9 – 23, 2006), and
- A formal presentation to City Council (XX, 2007).

In total, more than 700 people visited the project website and over 100 actively participated in the project's open houses and workshops.

Transportation Model

Long-range transportation planning studies such as this typically forecast traffic volumes for a 20-year horizon period using computer-based transportation planning models. For this study a TransCAD model, which was specifically designed for planning, managing, and analyzing the characteristics of transportation systems, was used to develop and analyze the roadway network.

Based on a comparison between existing conditions and forecast Year 2026 conditions, a number of road links were identified as either at or above capacity, particularly in areas expected to accommodate much of the future development. These results suggest that a number of roadway modifications are required in Brandon to accommodate anticipated growth. When these improvements were incorporated, the number of links at or above capacity was dramatically reduced, especially along 1st Street, 18th Street and PTH 1.

Based on TransCAD model results, the environmental scan, and the public consultation program, six general issues and concerns were identified for the transportation network. Strategies to address each specific issue were then developed as the next step in the process leading to recommendations.

Issue Identification and Strategy Development

The following table provides a list of the major issues and concerns that arose during the study and the corresponding strategies that are proposed to be employed to address these issues and concerns in the future.

Issue / Concern	Strategies
1. Alternative Transportation and Environmental Considerations	<ul style="list-style-type: none"> • Transit development • Adequate multi-use trail system • Ensure sidewalk accessibility
2. Safety	<ul style="list-style-type: none"> • Minimize traffic related conflicts
3. Route Classification and Goods Movement	<ul style="list-style-type: none"> • Provide a road system that locates trucks on appropriate routes
4. Access and Traffic Management	<ul style="list-style-type: none"> • Minimize traffic related conflicts and ensure appropriate access
5. Traffic and Intersection Capacity	<ul style="list-style-type: none"> • Efficient road network that meets future traffic growth and operation
6. Future Roadway Needs	<ul style="list-style-type: none"> • Roadway network that meets future traffic and economic needs

Recommendations and Recommended Priorities

Recommended projects were categorized into short-, mid- and long-term planning horizons based on input received through the environmental scan, transportation planning model, public consultation program, and Steering Committee. In addition, some projects were identified as 'beyond horizon year' if they are expected to occur beyond the 20-year study horizon.

Recommended projects identified as 'lower cost' could be undertaken within annual operating budgets or with administrative policy changes. Recommended projects identified as 'Major Capital Upgrades' or 'Major Capital Twinning' would require programming and budgeting in the capital budget process.

Preliminary class D cost estimates (based on 2007 rates and subject to change) were prepared for the recommended road network upgrades based on typical unit costs per metre of roadway, excluding land costs, taxes, utility relocations and engineering. Many of the items recommended, such as changes in classifications and updating of the traffic signal control coordination plans, do

not lend themselves to easily identifiable cost estimates, therefore a yearly allowance was identified.

It must be recognized that this document is intended for PLANNING PURPOSES ONLY and that planning and long range prioritization of projects is independent of financial resources. As such, proposed projects will be considered in light of other Departmental priorities and will be undertaken as and when funding permits.

Prioritized Recommendations – Lower Cost Items ¹					
Recommendation	Short-Term	Mid-Term	Long-Term	Beyond Horizon Year	Prelim. Cost Estimate ²
Truck/Dangerous Goods Route Changes	✓	✓	✓	✓	OP/AD ³
Update Roadway Classifications	✓	✓	✓	✓	OP/AD
Reassessment of Road Jurisdictions	✓			✓	OP/AD
Traffic Calming Guidelines	✓	✓	✓	✓	OP/AD
Traffic Impact Study Policy	✓	✓	✓	✓	OP/AD
Access Management Strategy	✓	✓	✓	✓	OP/AD
Smart Growth Principles	✓	✓	✓	✓	OP/AD
Synchronization of traffic signals	✓				\$100,000
Transit signal priority study/implementation	✓				\$100,000
Extended hours of operation for Transit	✓				\$300,000/yr
Conceptual design of Western By-pass	✓				\$200,000
Modifications to Parking Standards	✓				OP/AD
Traffic count monitoring program	✓	✓	✓	✓	\$10,000/yr
Intersection reviews and upgrades	✓	✓	✓	✓	As required
Safety review project recommendations	✓	✓	✓	✓	As required

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² Estimated costs in this table are based on 2006 dollars and were developed to be used as a parameter in the prioritization of the projects. These estimates will change in the future as a result of inflation and should not be used for future budgeting purposes.

³ OP/AD indicates a project that can be undertaken within an operational budget or administrative policy change.

Prioritized Recommendations – Major Capital Upgrades ^{1, 2}				
Recommendation	Short-Term (to 2012)	Mid-Term (to 2019)	Long-Term (to 2026)	Beyond Horizon Year
Urban Upgrades				
18th Street (PTH 10): Twin Structures at Assiniboine River (Thompson Bridge)	\$17,000,000			
18th Street (PTH 10): CPR Overpass (Daly Overpass)			\$20,000,000	
Richmond Avenue: Roundabout at 34th Street	\$500,000			
Rural Upgrades				
PTH 1: Phase 1 – Service Roads	\$5,000,000	\$5,000,000		
PTH 1: Phase 2 – Interchange at 18th Street		\$20,000,000	\$20,000,000	
PTH 1: Phase 3 – Interchange at 1st Street			\$15,000,000	\$15,000,000
PTH 1A: CPR Underpass at Kemnay	\$2,500,000	\$2,500,000		
PTH 10: Forrest By-pass	\$5,000,000			
PTH 110: Eastern By-pass Completion	\$30,000,000			
Proposed Western By-pass				TBD ³
Total	\$60,000,000	\$27,500,000	\$55,000,000	TBD

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³ TBD: To Be Determined

Note: The above recommendations relate to Provincial roadways that are classed as Core routes, or roadways within the City of Brandon itself.

Prioritized Recommendations – Major Capital Twinning (4-lane Divided) ^{1, 2}				
Recommendation	Short-Term (to 2012)	Mid-Term (to 2019)	Long-Term (to 2026)	Beyond Horizon Year
Urban Twinning (4-lane Divided)				
1st Street (PTH 1A): PTH 1 to Braecrest Drive			\$5,000,000	
1st Street (PTH 1A): Braecrest Drive to Kirkcaldy Drive		\$2,000,000		
1st Street (PTH 1A): Richmond Avenue to PTH 110			\$4,000,000	
Victoria Avenue (PTH 1A): 34th Street to 50th Street		\$3,000,000		
Victoria Avenue (PTH 1A): 50th Street to Western By-pass				TBD ³
18th Street (PTH 10): PTH 1 to Braecrest Drive			\$5,000,000	
18th Street (PTH 10): Braecrest Drive to Assiniboine River		\$2,000,000		
18th Street (PTH 10): Maryland Avenue to Patricia Avenue	\$3,000,000			
18th Street (PTH 10): Patricia Avenue to PTH 110			\$3,000,000	
Richmond Avenue: 26th Street to 34th Street		\$1,000,000		
Rural Twinning (4-lane Divided)				
PTH 10: Brandon to PTH 25	\$25,000,000			
PTH 10: PTH 25 to Minnedosa			\$40,000,000	
Total	\$28,000,000	\$48,000,000	\$57,000,000	TBD

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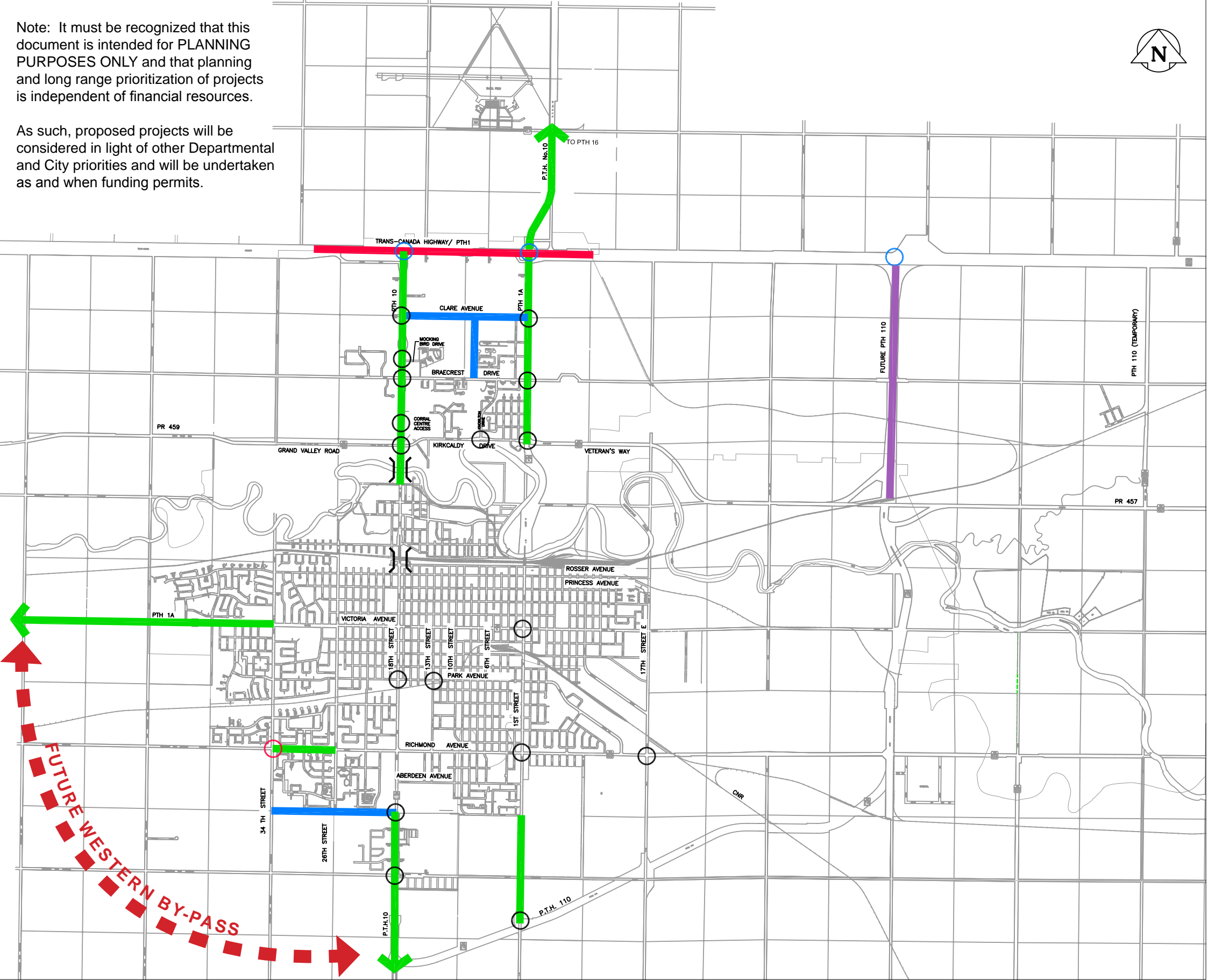
Note: The above recommendations relate to Provincial roadways that are classed as Core routes, or roadways within the City of Brandon itself.

Three recommended projects are not categorized above as they are 'development driven' based on future residential development in Brandon, including Clare Avenue (1st Street to 18th Street), Maryland Avenue (26th Street to 34th Street), and Lark Street (Braecrest Drive to Clare Avenue).

Figure ES-1 illustrates the lower and major capital cost recommendations.

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As such, proposed projects will be considered in light of other Departmental and City priorities and will be undertaken as and when funding permits.



LEGEND

IDENTIFIED MAJOR IMPROVEMENT PROJECTS

- ONGOING INTERSECTION REVIEWS
- INTERCHANGE
- ROUNDABOUT
-)) TWIN BRIDGES
- UPGRADE TO 4 LANE DIVIDED
- UPGRADE TO EXPRESSWAY
- UPGRADE TO CORE ROUTE

DEVELOPMENT DRIVEN PROJECTS

- DEVELOPMENT REVIEW



Source: City of Brandon

PROJECT TITLE

Brandon Area Road Network
Development Plan

FIGURE ES.1:
RECOMMENDED
UPGRADES

Conclusions

The following conclusions are offered:

1. That as the City addresses future transit service improvements, the measures noted in the Transit Priorities section (7.1.1) are considered.
2. That the smart growth principles noted in the Greenspace and Smart Growth Considerations section (7.1.2) be incorporated when reviewing future development proposals.
3. That the City and MIT undertake the short-term safety initiatives identified in the Safety Improvement Projects section (7.2.1).
4. That the strategies identified in the Traffic Calming Strategy section (7.5.2) be considered when volume and/or speed control measures are deemed necessary.
5. That the City adopt changes to the City's Truck and Dangerous Goods Route Network identified in the Route Classification and Goods Movement section (7.3).
6. That the City adopts the access management guidelines set out in the Access and Traffic Management section (7.4).
7. That modifications noted in the Access Management Strategy for the Brandon Area section (7.4.1) be incorporated into the City's current parking standards.
8. That the policy outlined in the Traffic Impact Study Policy section (7.5.1) and included in Appendix D be adopted by the City and applied to any future development applications.
9. That the City adopts the road classification system, and related design standards, in the Route Classification and Goods Movement section (7.3).
10. That the City and MIT conduct detailed operational reviews at the intersections noted in the Intersections section (7.6.1), selecting two to five intersections per year to examine.
11. That the City and MIT implement road link improvements as noted in the Road Upgrades section (7.6.2).
12. That the alternative funding options discussed in Appendix E be examined in detail by City administration to determine if they are applicable. The funding options focus on incorporating off-site development improvements on a site-by-site basis, transportation assessments, and impact fees.
13. That a traffic count monitoring program be established to monitor operations at key intersections that may need upgrades within the horizon year time frame and review whether adjustments to traffic signal phasing or timing may be required.
14. That traffic control modifications planned by MIT occur within the next two years.
15. That roundabouts continue to be considered at collector – collector intersections if technically feasible as an alternative to traffic signals.

16. That the City ensures the transportation model is updated on a regular basis and maintained for future traffic recommendations.