COUNTY OF Brant Simply Grand

COUNTY OF BRANT
Transportation Master Plan

IBI GROUP

Summary Report

December 2022

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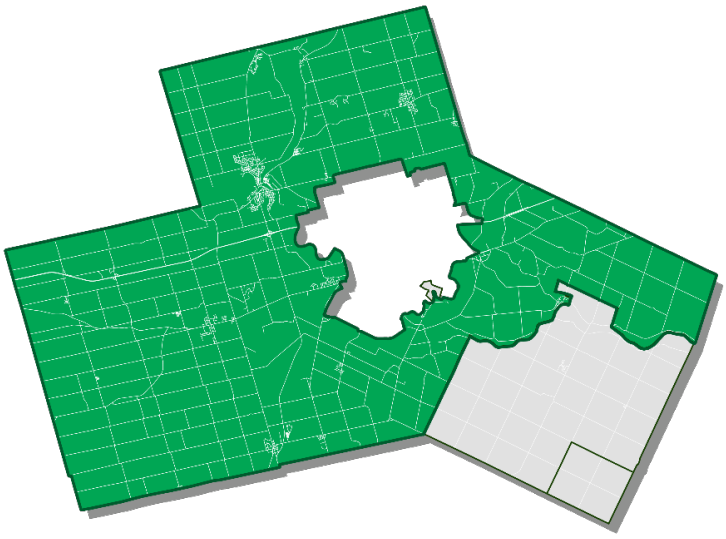
Summary Report

The County of Brant Transportation Master Plan (TMP) is a long-term strategy that guides the planning, development, renewal and management of a multi-modal transportation system. The TMP will help support the County of Brant's vision for the future and respond to projected needs.

Updating the Transportation Master Plan

This TMP is the County of Brant's strategy for investing in roads, transit, walking and cycling to 2051. It also identifies policies and strategies for the County to manage its transportation network, developed to meet the transportation vision and goals, which aim to improve efficiency and safety for all modes of travel, and to protect the County's natural environment.

The County's last TMPs was adopted in 2016. Travel conditions are changing— updating the TMP ensures that current needs are considered, and the changing demographics and priorities of the County and its residents are reflected. The County continues to grow, with new residents arriving and new industries and commercial development. The Covid-19 pandemic response has changed travel patterns with more people now working from home. Technologies are changing – electric vehicles, on-demand transit and an ever-increasing share of online shopping are shaping the way people and goods move. It's an exciting time to update the County of Brant TMP!



This TMP Update was developed with extensive input from the public through online surveys and virtual public information centres. Stakeholder input also played a vital role in shaping the TMP, including County agencies, adjacent municipalities including the Cities of Brantford and Hamilton, Oxford County, Norfolk County and Waterloo Region, as well as the Ministry of Transportation of Ontario and Metrolinx. The TMP reflects concerns we've heard about safety, active transportation, road network efficiency, supporting the economy, trucks and transit.

Alignment with the new Official Plan

The County of Brant has prepared a new Official Plan (OP). As the County continues to change, the OP aims to ensure that growth is supported and directed in a way that encourages economic prosperity, builds resiliency to climate change, and supports the development of complete communities.

OP policies like supporting walkability and active transportation networks, as well as creating innovative solutions to traffic congestion and parking in Downtown Paris, will help keep County residents and visitors moving.

The TMP, together with the OP, provides a blueprint for transportation growth management, long-term planning, and funding of transportation networks. The TMP supports transportation-related directions of the OP.

Municipal Class Environmental Assessment Process

The TMP study followed the Municipal Class Environmental Assessment (MCEA) planning process for Master Plans under the Environmental Assessment Act. The MCEA process provides a transparent approach to planning and building municipal infrastructure. The TMP followed the Master Planning Process Approach #1 and involved the completion of the first two phases of the MCEA planning process:

- MCEA Phase 1: Identify the problem or opportunity
- MCEA Phase 2: Identify and evaluate alternative solutions to address the problem and establish a preferred solution

Complete Streets are streets planned and designed with the needs of all road users in mind – people who walk, bicycle, take transit, drive and carry commercial goods.

Complete Streets improve public health and promote livability by improving the safety, comfort, and accessibility of all people regardless of age or ability.

Complete Communities meet the needs of all residents in a community. They are walkable neighbourhoods that allow residents to live, shop, work and play. They include a variety of housing types, community spaces, parks, retail and food options, and Complete Streets.

The TMP supports the new Official Plan and adopts a Complete Streets policy to ensure the County has the framework it needs to build healthy and Complete Communities.

About This Report

This report summarizes the key recommendations, infrastructure projects, policies and strategies developed during the TMP study. Further details are available in four background reports, provided under separate cover. Together, this document and the four background reports form the County of Brant Transportation Master Plan. The background reports are:

- Phase I: Needs and Opportunities
- Phase II: Network Assessments and Alternative Solutions
- Phase III: Supporting Strategies
- Engagement Summary

Consultation

Effective and meaningful engagement throughout the study process is essential to developing a robust updated TMP.

Two rounds of public and stakeholder consultation were held throughout the TMP study, which included outreach to identified Indigenous Nations. The first round aimed to create a consensus on the study's vision and goals as well as to hear residents and stakeholders most important needs, issues, and ideas. The second round sought feedback on the draft transportation networks and supporting strategies.

Input was received from different groups through multiple channels, providing important feedback, helping shape the outcomes of this study.

> Engagement groups and consultation activities are documented and summarized in the **Engagement Summary report.**

What We Did

- Two virtual Public Information Centres
- Live virtual public meeting
- Two stakeholder workshops
- Online survey, interactive mapping activity, and question comment box

Comments received via the public meeting, survey, mapping activity and comment box helped directly shape the TMP, and many of the recommendations in this report respond directly to the input provided. These include policies and strategies like traffic calming, improving walkability through Complete Streets strategies, recommending roundabouts, and recommending improved local and regional transit connections,

What We Heard

Below are some of the ideas we heard from the public during the TMP study.

> We constantly have speeders on King Street in Burford. There really needs to be some kind of speed bump or control. It is very unsafe for our children. **- Burford**

> Preserve historical areas and make them more accessible to pedestrians. Let people walk around and be healthy without having to worry about aggressive or distracted drivers. **- Unknown**

> Stop installing traffic signals, only roundabouts when warranted from now on. **- Paris**

> Need to address improvements to traffic patterns in high tourist areas. **- Paris**

> Establishing GO Rail transit from Brantford to Toronto would be a huge benefit to the region. **- Mount Pleasant**

> I suggest a local bus service within Paris and between Paris and Brantford. **- Paris**

> When they took away the pedestrian crossing lights in downtown, it took away safety for seniors or those with disabilities. **- Paris**

> We need sidewalks in residential neighbourhoods, especially as traffic is increasing. **- St. George**

> More protection and less density allowed to help transportation so we can preserve as much as we can and alleviate the impact the County is contributing to climate change and loss of natural habitat. **- Paris**

> There will be opportunities to partner with Brantford and Kitchener-Waterloo on transportation roadways that will help protect our environment. **- Paris**

Wording of some quotes has been simplified.

Vision for the County of Brant

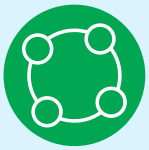
The transportation vision is an overarching statement that represents the aspirations of the TMP and reflects the desired future of the County of Brant. All recommendations and decision-making work toward realizing the vision.

A draft version of the vision was presented to the public during the first round of consultation where it received overall support. The vision was updated based on the feedback received.

> An inclusive multi-modal transportation system that safely and reliably connects the places where we live, work and play.

TMP Goals

The four goals represent outcomes of the TMP and are used to evaluate planning solutions throughout the study. The goals were presented to the public during the first round of consultation, and were updated based on the feedback received.



Connected Communities and Businesses

Improves multi-modal travel options, traffic operations and safety, and the connectivity of regional transportation networks.

Healthy and Complete Communities

Improves local mobility options and trails, supports the development of complete communities, and increases the resilience of local transportation to future conditions.

Protected Environment

Minimizes disruption of local habitats, waterways, agricultural land, and natural heritage features, and reduces GHG emissions and the ensuing long-term climate impacts.

Responsible Stewardship

Represents cost-effective spending on infrastructure and operations and takes advantage of partnership opportunities to enhance the effectiveness of investments.

Needs and Opportunities

Transportation needs and opportunities in the County of Brant were identified through technical analysis, stakeholder consultation and public input. The following summarizes the identified needs, and the opportunities that respond to these needs.

The identification of needs and opportunitities is documented in detail in the **Phase I: Needs and Opportunities report.**

Rapid Growth

Meet the Needs of Existing and Future Travel Demand. Respond to rapid growth by adapting and improving existing infrastructure, developing travel demand management strategies, and implementing operational improvements to serve increased trips along key corridors.

Localized Issues

Improve Road Network Safety and Operations. Address safety and operational issues identified through corridor and traffic impact studies, and review traffic operations in Downtown Paris to strengthen the community's importance as a civic destination.

Goods Movement

Ensure Efficient Goods Movement. Support efficient goods movement while managing heavy vehicle impacts by providing a high-quality connected truck route network, in particular a Paris West Bypass, and adopt a Complete Streets approach accounting for all road users.

Active Transportation

Make Active Transportation More Attractive. Respond to a growing need for local and County-wide cycling connections within and between communities; this also supports Complete Communities, active school travel, recreational cycling and tourism.

Public Transit

Grow Transit Connections and Coverage within, to and from the County. Respond to service gaps by expanding County-wide transit, working with adjacent municipalities to improve connectivity, and advocating for inter-regional transit via the GO Transit Regional Express bus network.

Road Network

The road network serves as the base for most personal and commercial travel in the County of Brant, including walking, riding a bicycle, using a mobility device, riding transit, driving or moving goods. It is the most important component of the County's transportation system and integral to the region's economy and quality of life.

The development of the recommended road network is documented in the **Phase II: Network Assessments and Alternative Solutions report.**

Recommended Road Projects

Recommended projects are listed below, with project numbers corresponding to Maps 1 and 2, shown subsequently.

No.	Project Location	Recommendation	Timing	Cost
1	Rest Acres Rd (King Edward St to Highway 403)	Widen to 4 lanes. (Currently under construction, to be completed by 2024.)	2021-2031	Under Construction
2	Grand River St N (Hartley Ave to St. Patrick St)	Widen to 4 lanes.	2021-2031	$12.1 M to $18.8 M
3	Grand River St N (St. Patrick St to William St)	Widen to 4 lanes as specified in the completed EA.	2021-2031	$7.6 M to $11.8 M
4	King Edward St (Irongate Dr to Church St / Dumfries St)	Intersection or operational improvements (e.g. adding turning lanes, modifying traffic signals, roundabouts).	2021-2031	$3.6 M to $7.2 M
5	Dundas St W (Dumfries St to Willow St) and Dundas St E (Willow St to Paris Rd)	Intersection or operational improvements (e.g. adding turning lanes, modifying traffic signals, roundabouts).	2021-2031	$4.5 M to $9.0 M
6	Paris Rd (Dundas St E to Brantford Boundary)	Intersection or operational improvements (e.g. adding turning lanes, modifying traffic signals, roundabouts) and potential widening to 3-lane cross-section.	2021-2031	$5.8 M to $8.1 M
7	Oak Park Rd (Paris Rd to Brantford Boundary)	Intersection or operational improvements (e.g. adding turning lanes, modifying traffic signals, roundabouts).	2041-2051	$1.8 M to $3.6 M

No.	Project Location	Recommendation	Timing	Cost
8	Bishopsgate Interchange (Bishopsgate Rd and Highway 403)	Construct interchange to complete the Paris West Bypass route.	2021-2031	$8.0 M[1]
9	Powerline Rd (Bishopsgate Rd to Rest Acres Rd)	Upgrade corridor to arterial road standard to improve the Paris West Bypass route.	2021-2031	$5.0 M to $9.6 M
10	Highway 24[2] (Bethel Rd to Colborne St W)	Intersection or operational improvements (e.g. adding turning lanes, modifying traffic signals, roundabouts).	2041-2051	Provincial Project
11	Colborne St (Highway 24 to Brantford Boundary)	Intersection or operational improvements (e.g. adding turning lanes, modifying traffic signals, roundabouts).	2031-2041	$6.3 M to $12.6 M
12	County Rd 18 (Highway 54 to Colborne St E)	Intersection or operational improvements, including providing additional left-turn capacity and north/south through capacity at CR-18 and Colborne St E.	2031-2041	$3.6 M to $7.2 M
13	Cockshutt Rd (Hagan Rd/ Oakland Rd to Brantford Boundary)	Intersection or operational improvements, including traffic signals at McGill Rd / Sour Springs Rd, Burtch Rd, and Indian Line and adding turning lanes at Phelps Rd and Hagan Rd / Oakland Rd.	2031-2041	$4.5 M to $9.0 M
14	Watts Pond Rd / Ayr Rd / Keg Ln (Pinehurst Rd to Brant Oxford Rd)	Upgrade Watts Pond Rd and Keg Ln to rural arterial road standard, install roundabouts at Watts Pond Rd / Pinehurst Rd, Watts Pond Rd / Ayr Rd and Keg Ln / Brant Oxford Rd, and traffic control improvement at Ayr Rd / Keg Ln.	2031-2041	$10.2 M to 19.9 M
15	Drumbo Rd (Pinehurst Rd to Brant Oxford Rd)	Upgrade to rural arterial road standard and construct roundabout at Drumbo Rd and Brant Oxford Rd.	2041-2051	$2.1 M to 5.9 M

[1] Due to the scale and regional significance of the project, cost-sharing support from the MTO is required.
[2] Project under provincial jurisdiction and requires support and initiation by the MTO.

No.	Project Location	Recommendation	Timing	Cost
16	St. George Capacity Improvements	Traffic control signals or roundabouts at Main St S and High St, Beverly St W and High St, Main St N and Highgate Dr / Mansfield Dr, and turn lanes at Beverly St and Main St, subject to Secondary Plan.	2021-2031	TBD
17	Grand River Crossing Environmental Assessment	Defer Paris East Bypass. County to undertake a Grand River crossing EA study by 2041 that will include bypass and bridge widening alternatives, with potential implementation after 2041.	2031-2041	$1 .0 M
18	New Road (between Consolidated Dr and Green Ln)	Assume right-of-way between Consolidated Dr and Green Ln and upgrade to municipal standard as an Urban Employment Collector road.	2021-2031	$2.6 M to $4.8 M
19	Downtown Paris Traffic Study	Undertake a multi-modal study to develop a preferred transportation network and design that considers pedestrian needs, cycling needs, through-traffic needs, parking needs (including the potential to convert angled parking to parallel parking) and Complete Communities objectives.	2021-2031	$0.07 M

The following total investment is recommended across the three phases:

- 2021-2031: $49.2 M to $77.3 M
- 2031-2041: $25.6 M to $49.7 M
- 2041-2051: $3.9 M to $9.5 M

Note that the cost summaries above do not include implementation costs of projects that may be recommended by the future Grand River Crossing EA, the St. George Secondary Plan, or Downtown Paris Traffic Study. Highway 24 improvements (under Provincial jurisdiction) are also not included.

Long-Term Bypass Strategy

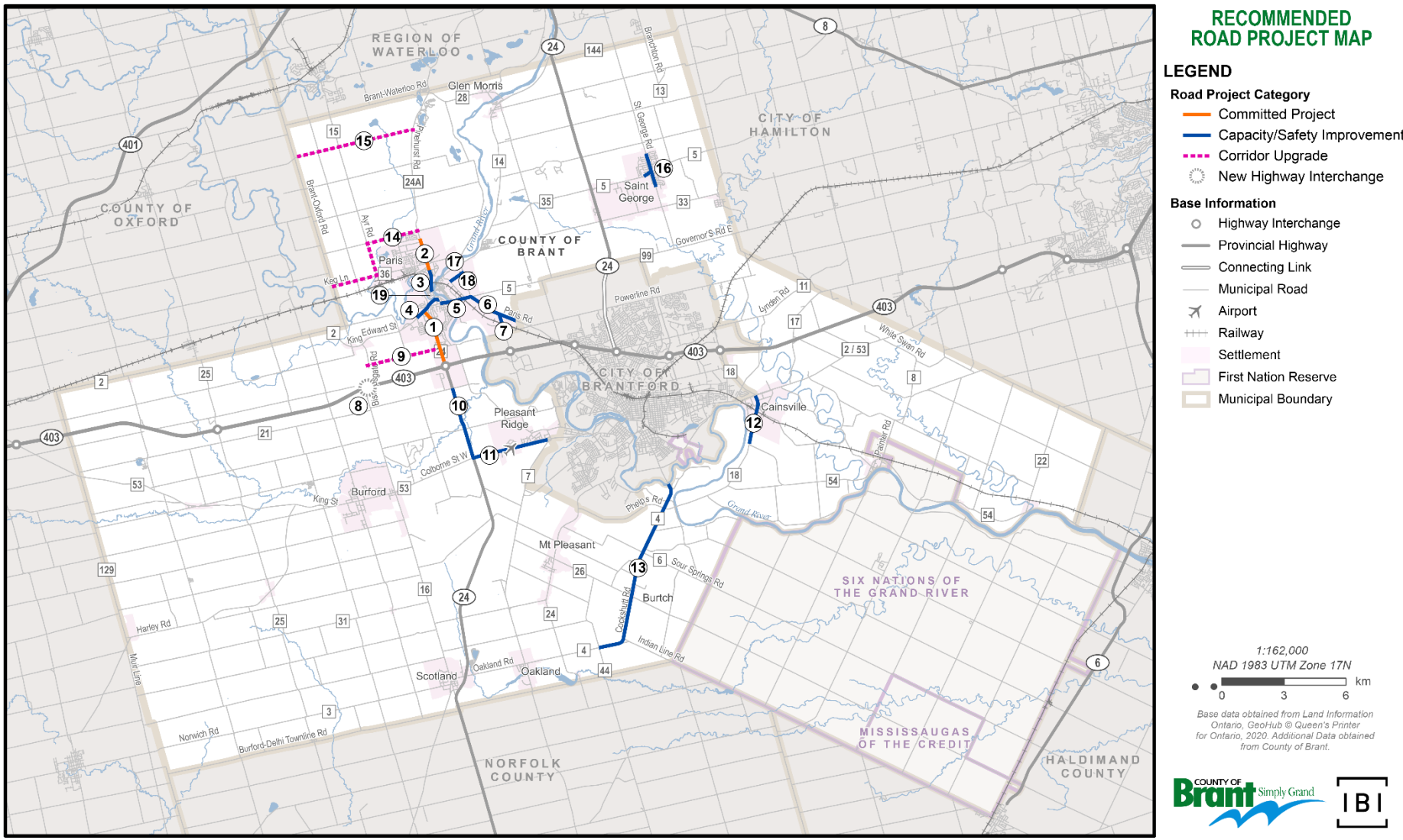
A modified Paris West Bypass will present an attractive alternative routing for trucks and other vehicles around Paris, mitigating the short- and medium-term need for the Paris East Bypass. However, projected growth does indicate a solution is needed in the longer-term (i.e. implementation beyond 2041).

It is recommended that corridor modifications be undertaken to improve truck and traffic management west of Paris (project #14 above). A Highway 403 interchange at Bishopsgate Road (project #8) is considered a project of provincial significance and would support the regional movement of people and goods. Its construction (with cost-sharing support from the Province) will complete the Paris West Bypass. An interim solution recommends short-term improvements to Powerline Road (project #9). The interim and ultimate routing for the Paris West Bypass is shown in Map 3.

Residents identified Silver Street as a concern throughout the TMP study due to high volumes of through truck traffic and lack of consistent sidewalks. A truck restriction on Silver Street would be difficult to enforce given the land uses along Silver Street and Grand River Street. The preferred approach is to encourage trucks to use the west bypass route and discourage use of Silver Street through the design approach and elements discussed in this TMP.

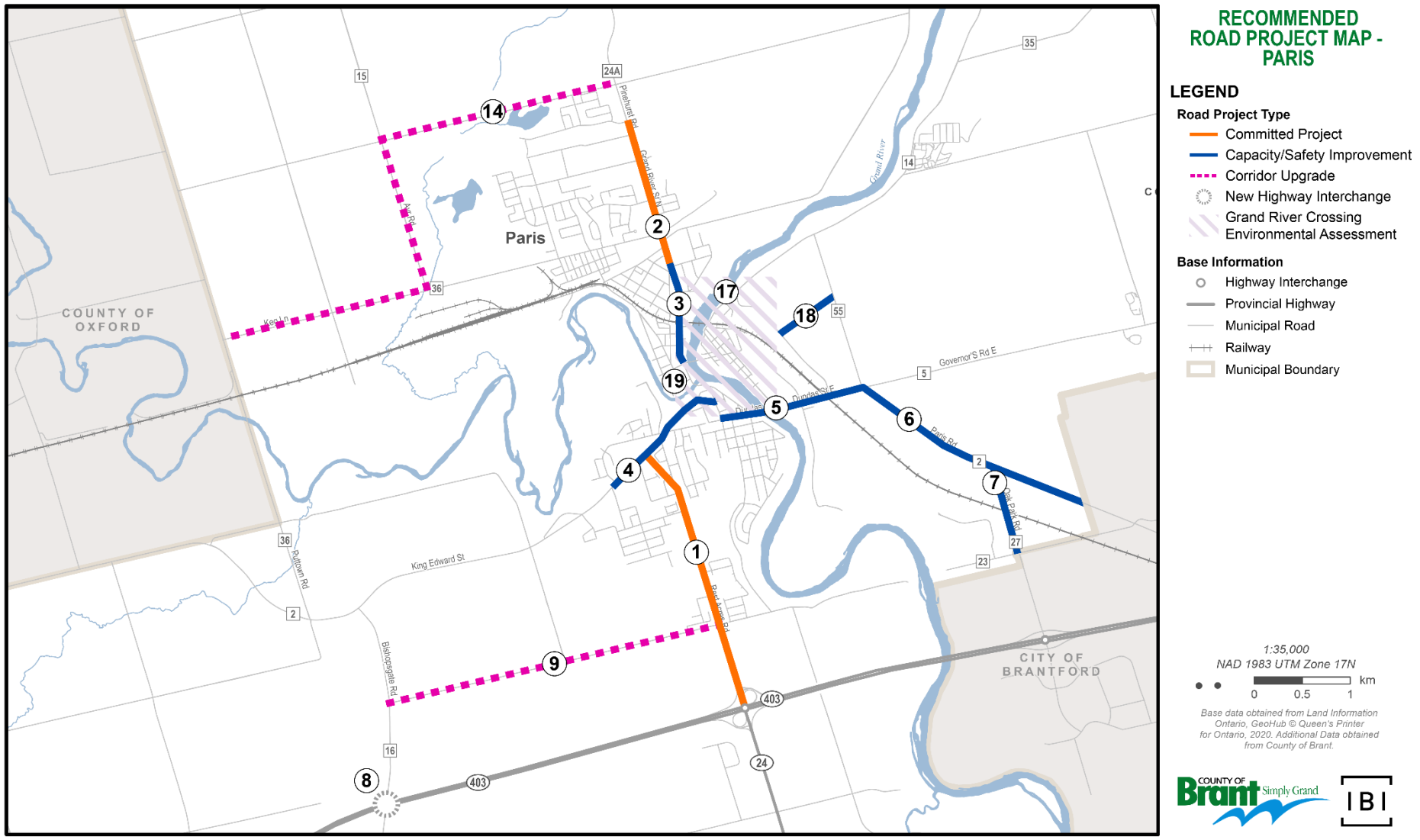
In the longer term, it is recommended that the County undertake a Grand River Crossing Environmental Assessment by 2041 (project #17). The study will consider how to respond to congestion over the Grand River and include analysis of a potential east bypass or existing bridge widening alternatives. Construction would depend on future studies (including an updated Transportation Master Plan for the County of Brant) and traffic conditions.

Map 1 – Recommended Road Projects



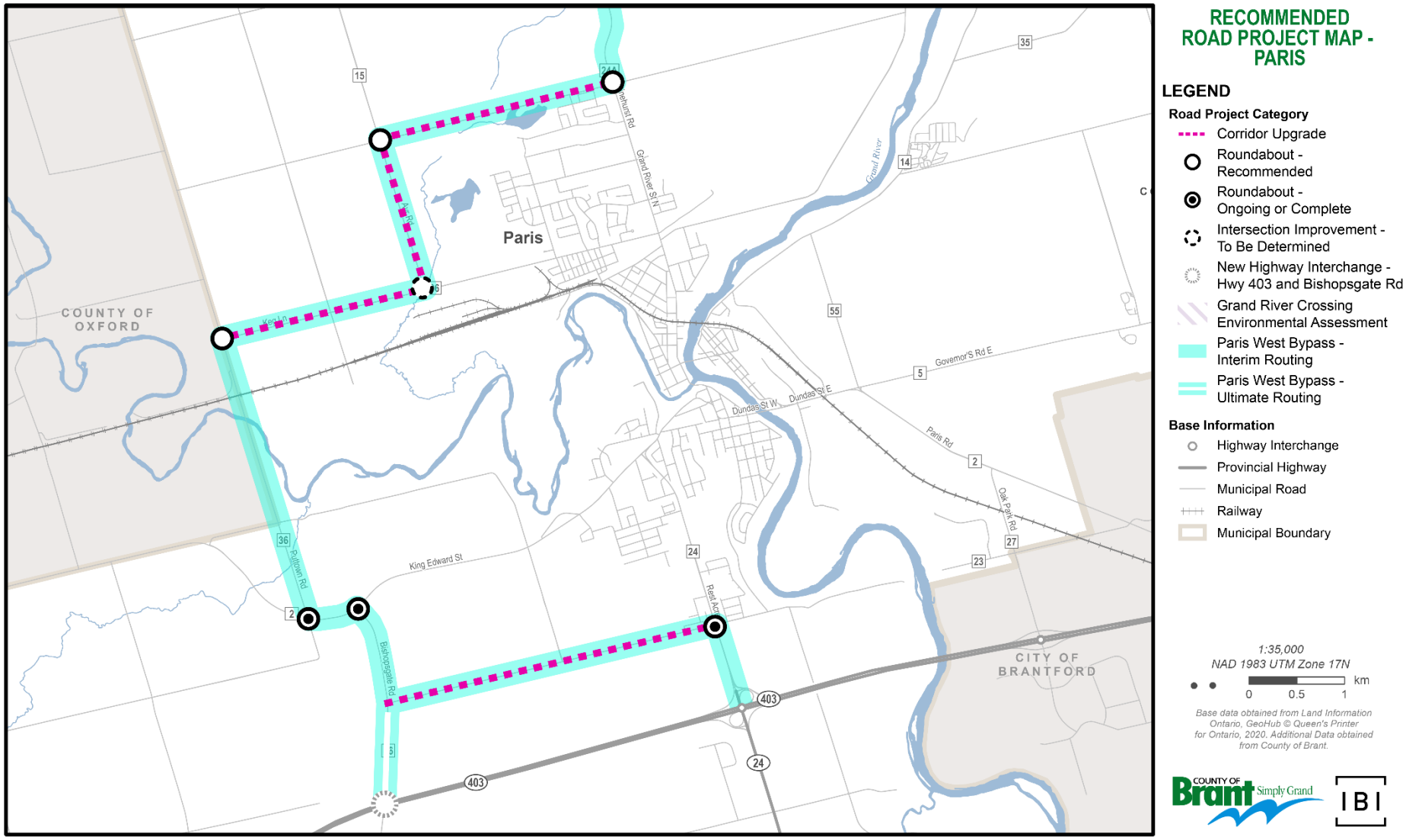
Note: Project numbers correspond to the Recommended Road Projects table provided previously.

Map 2 – Recommended Road Projects, Paris



Note: Project numbers correspond to the Recommended Road Projects table shown previously.

Map 3 – Paris West Bypass Interim and Ultimate Route



Active Transportation

Cycling

The development of the recommended cycling network is documented in the **Phase II: Network Assessments and Alternative Solutions report.**

The TMP recommends a cycling network that:

Balances routes that serve both transportation and recreation trips

Provides linkages to connect communities across the County

Identifies higher priority routes and longer-term improvements

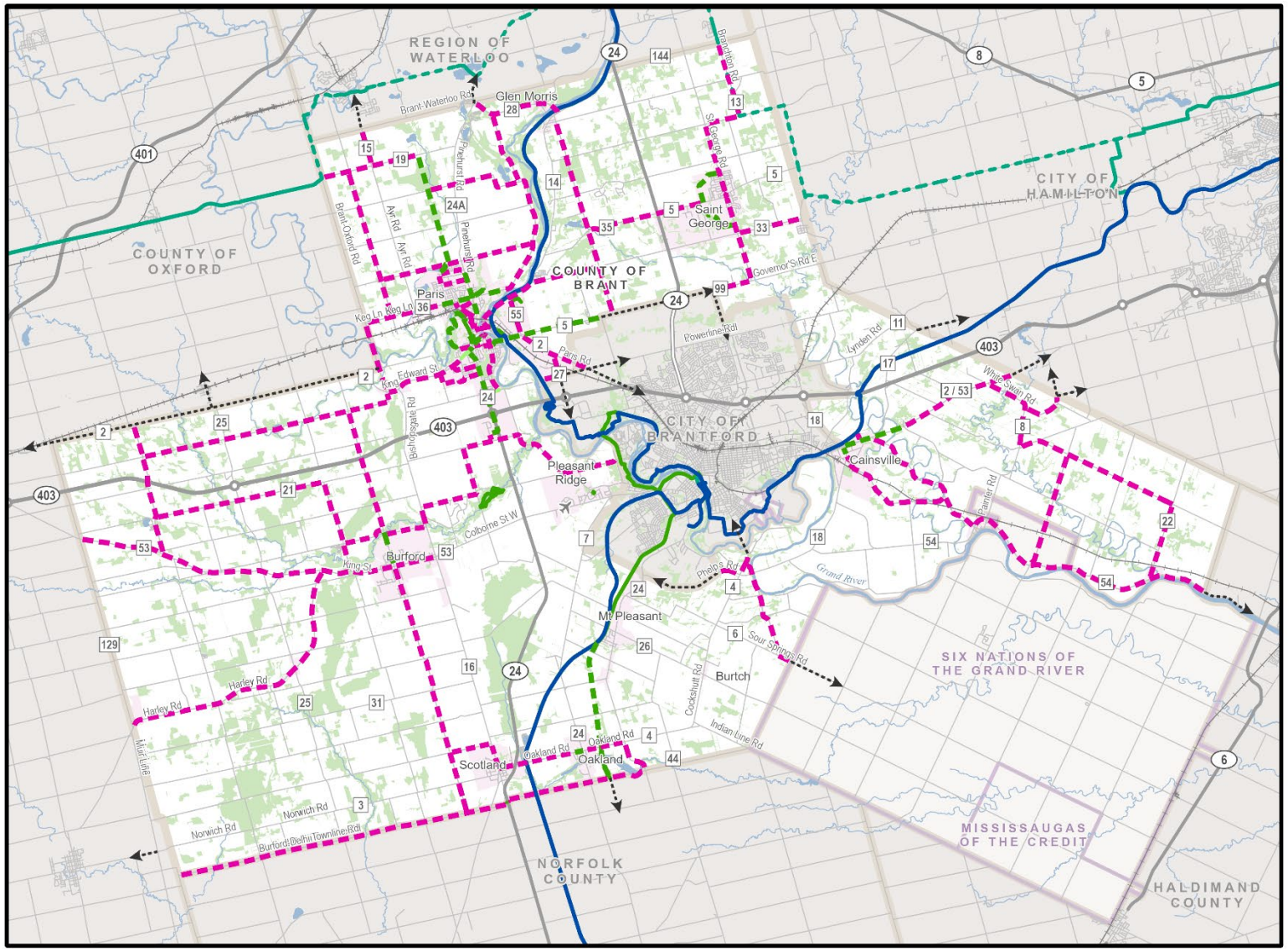
The recommended cycling network is shown in Map 4, with additional detail in Maps 5 through 7 for Paris, St. George and Cainsville, respectively.

Recommended cycling facility types are shown in Map 8.

Through the 2051 TMP horizon, the TMP recommends a sustained investment of more than $700,000 per year to advance the active transportation network. Costs by facility type are outlined below.

Facility Type	Length (km)	Cost
Quiet Streets	147.5	$1,475,000
Paved Shoulders	99.3	$6,724,000
Multi-Use Path/Trail	31.8	$12,709,000
Advisory Bike Lanes	7.3	$146,000
Signed Bike Lane	7.6	$305,000
Protected Bike Lane	2.9	$175,000
Cycle Track	0.6	$479,000
Total	**296.9**	**$22,013,000**

Map 4 – Recommended Cycling Network



RECOMMENDED CYCLING NETWORK

LEGEND

Existing Network
- Trans Canada Trail
- Off-Road Multi-Use Trail
- Muli-Use Path

Proposed Network
- Off-Road Trail
- On-Road Cycling Route

Provincial Cycling Network
- Existing
- Proposed
- Connection to Adjacent Municipality's Existing or Planned Route

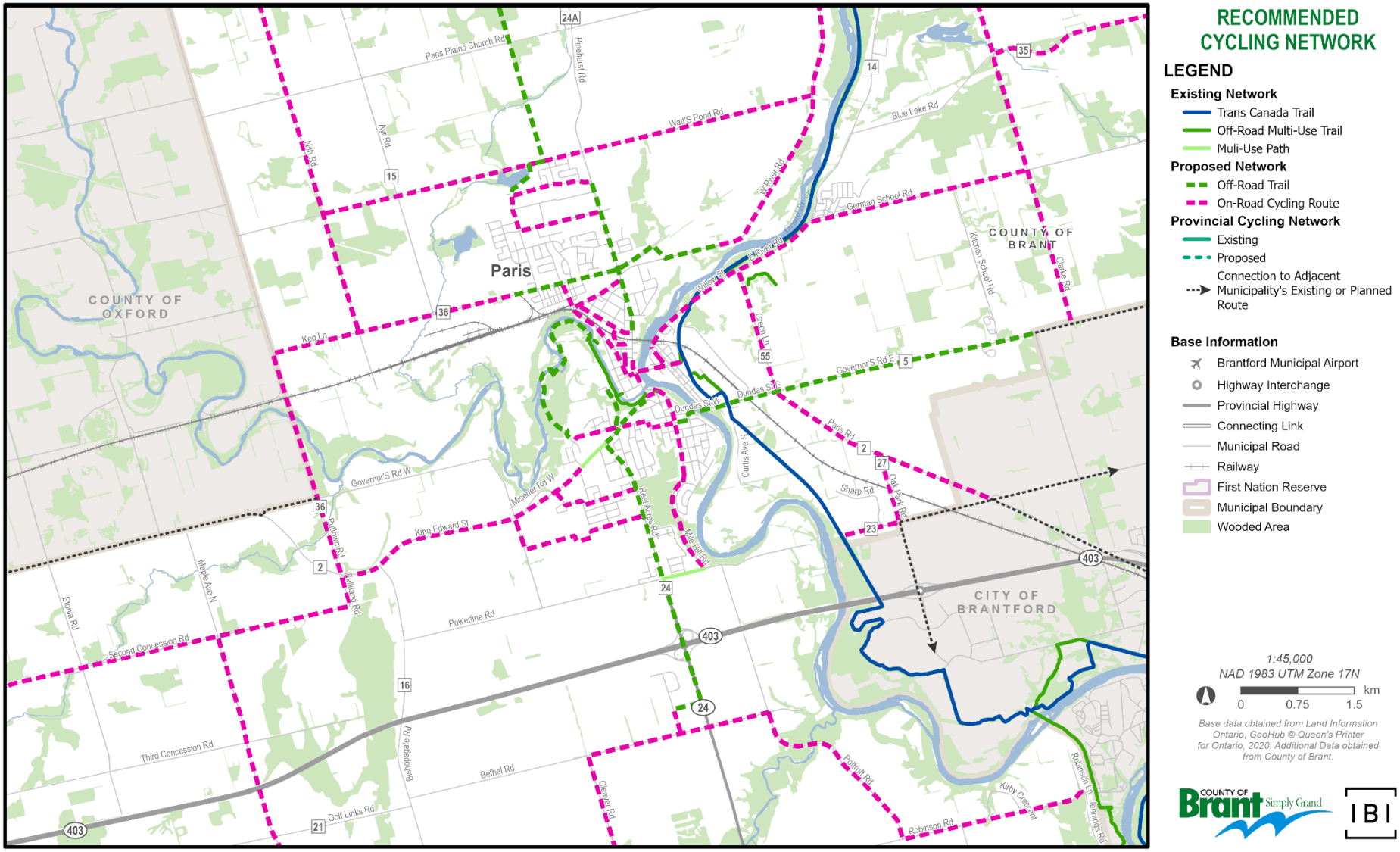
Base Information
- Brantford Municipal Airport
- Highway Interchange
- Provincial Highway
- Connecting Link
- Municipal Road
- Railway
- Settlement
- First Nation Reserve
- Municipal Boundary
- Wooded Area

1:162,000
NAD 1983 UTM Zone 17N

0 3 6 km

Base data obtained from Land Information Ontario, GeoHub © Queen's Printer for Ontario, 2020. Additional Data obtained from County of Brant.

Map 5 – Recommended Cycling Network, Paris



RECOMMENDED CYCLING NETWORK

LEGEND

Existing Network
- Trans Canada Trail
- Off-Road Multi-Use Trail
- Muli-Use Path

Proposed Network
- Off-Road Trail
- On-Road Cycling Route

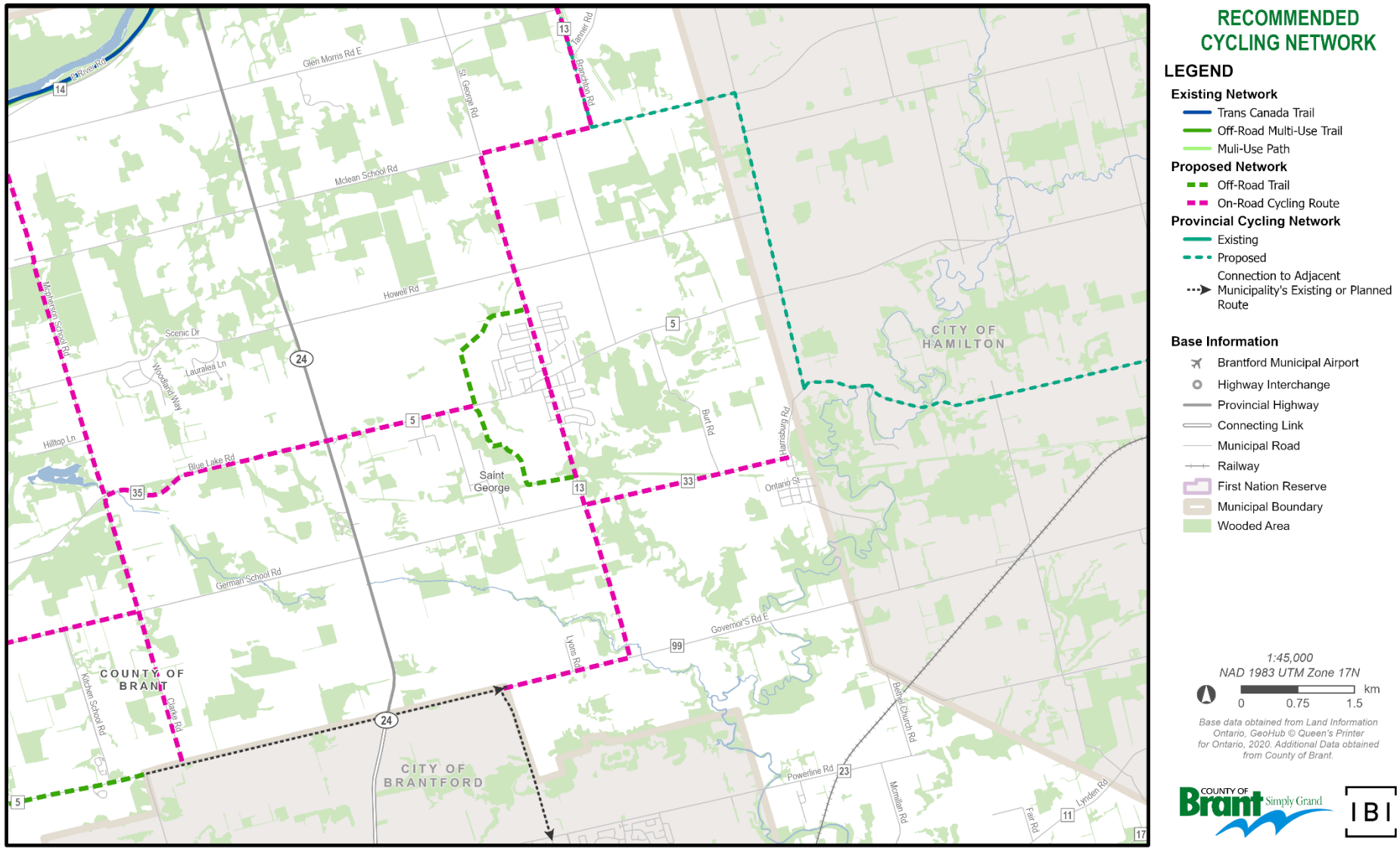
Provincial Cycling Network
- Existing
- Proposed
- Connection to Adjacent Municipality's Existing or Planned Route

Base Information
- Brantford Municipal Airport
- Highway Interchange
- Provincial Highway
- Connecting Link
- Municipal Road
- Railway
- First Nation Reserve
- Municipal Boundary
- Wooded Area

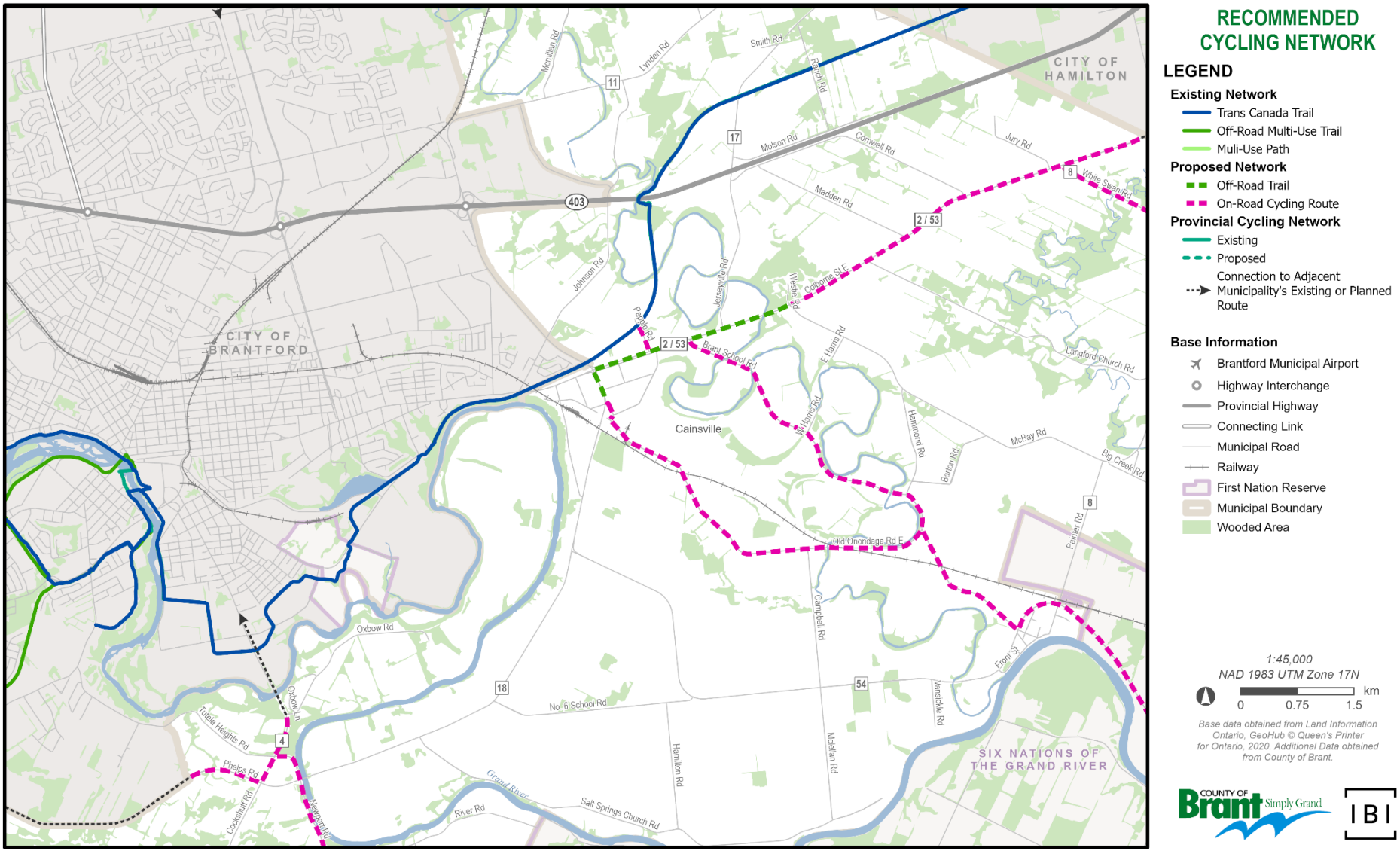
1:45,000
NAD 1983 UTM Zone 17N

km
0 0.75 1.5

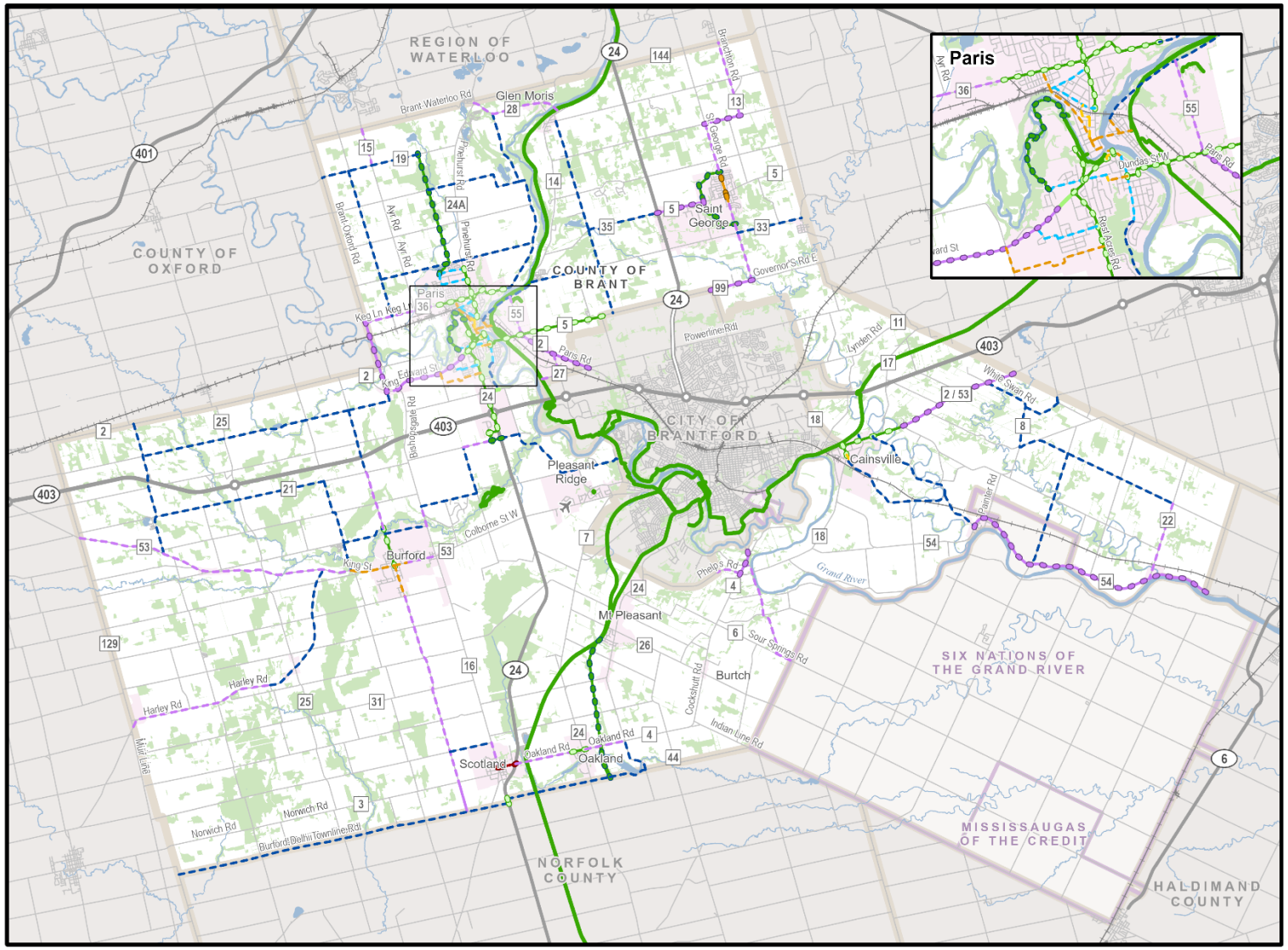
Map 6 – Recommended Cycling Network, St. George



Map 7 – Recommended Cycling Network, Cainsville



Map 8 – Recommended Facility Types



Note: Cycling projects within Downtown Paris are subject to further refinement of route and facility type through the Downtown Paris Traffic Study.

Walking and Wheeling

Sidewalks are an integral part of the transportation network, providing mobility for all residents and visitors regardless of their chosen mode of travel. Sidewalks provide safe local connections for children, older adults and persons using mobility devices, and serve a last mile function for transit riders and drivers to reach their destination in commercial areas like in Paris and St. George.

The TMP recommends the following:

- Update road design standards to require sidewalks be provided on a minimum of one side of new urban roads, and on both sides where appropriate in accordance with functional road classification characteristics and Complete Streets strategies.
- Continue to infill where need is highest, ensuring AODA accessibility standards are followed.
- Add sidewalks, where missing, as part of all road reconstruction projects in accordance with Official Plan policies.
- Undertake a pedestrian needs study to conduct a gap analysis of the existing sidewalk and trail network, and prioritize the construction of the highest need sidewalk gaps.

The costs of the existing sidewalk infill program should remain in-line with previously planned spending, including the integration of sidewalk construction with road network projects. The annual cost will depend on the outcome of the pedestrian needs study, which may recommend additional funding be allocated to sidewalk infill projects. The study itself can be expected to cost $50,000.

Transit

Public transit is becoming an increasingly important part of the mobility network in the County of Brant. The County's public transit system, Brant Transit, offers an on-demand, shared ride service and was launched in 2020. To access regional and longer-distance transit services, residents of the County must travel into Brantford to make connections at the Brantford Transit Terminal. Residents in Mt. Pleasant and Oakland also have access to Norfolk Transit, with a route connecting Brantford with Norfolk County.

The recommended transit strategy is documented in the **Phase II: Network Assessments and Alternative Solutions report.**

The following directions will support residents and visitors over the forthcoming decades as public transit continues to grow in importance both within the County and to the greater region and beyond.

Brant Transit

As communities grow, continue to expand Brant Transit to better serve ridership needs throughout the County of Brant (e.g. fleet expansion and improved service hours).

Continue to assess the need for fixed-route transit services within Paris and/or connecting communities within the County of Brant, and pilot the services where viable.

Partnerships with Adjacent Municipalities

Continue to seek partnerships with adjacent municipalities to provide or improve transit connections (e.g. the County of Brant is currently partnering with Brantford Transit to pilot a service for employment areas near Paris).

Assess the viability of providing access to the Brantford train station for connections between Paris and VIA Rail.

Provincial Partnership

Continue to participate with the Province in developing an inter-regional bus terminal (e.g. GO Transit) with park-and-ride facility at Highway 403 and Rest Acres Road in Paris.

Advocate for the inclusion of Paris in the Province's planned Brantford-Cambridge-Kitchener/Waterloo regional bus connection (e.g. bus stop or terminal on the east side of Paris).

The costs of these recommendations are highly variable, with significant details yet to be determined through subsequent studies. For a fixed route service, capital costs would include one or more full-sized city buses (approximately $750,000 each), depending on the service concept, as well as bus stop infrastructure. Operating costs can amount to $225 per hour per vehicle, and include staffing, management, fuel, maintenance, etc.

An additional capital cost of approximately $2M would be required to construct a transit terminal along with maintenance facilities, with a potential location in the Paris Rd and Dundas St E area.

It is recommended that the County of Brant undertake a study with the City of Brantford to develop a service plan to expand Brantford Transit service into the County. Costs of these services are dependent on study outcomes, as well as on available provincial and federal funding support.

Over time, it would be expected that the system be developed towards an operating cost of $2 M to $3 M per year in the 2031 to 2041 time frame, but should be considered for planning purposes until the various studies and partnerships outlined above are fully explored.

Costs for GO Transit expansion are not included as it would be assumed to be funded by the Province.

Supporting Strategies

The TMP recommends the following new or updated strategies and policies to support the TMP recommendations and help achieve the vision and goals.

The development of supporting strategies is documented in the **Phase III: Supporting Strategies report.**

Complete Streets

The following policy objectives are integral to the County of Brant successfully adopting and implementing the Complete Streets Strategy that encompasses this TMP.

Complete Streets in the County should be:

Safe and Accessible. Consider the equitable, comfortable and safe movement of all road users to accommodate all ages and abilities.

Context Sensitive. Address different land use and local needs by adopting a context-based approach to implementation that meets the needs of all road users appropriate to the road's context and strategic objectives.

Balanced. Consider the mobility needs of all road users relative to the function of the roadway at the onset of the planning process when implementing road projects – this includes resurfacing, rehabilitation, reconstruction and new construction projects.

Designed for Place Making. Consider place making opportunities of the public realm (street furniture, public art), embracing the County's unique cultural heritage to support an attractive, vibrant, inviting and inclusive public realm while meeting the mobility and functional needs of the street.

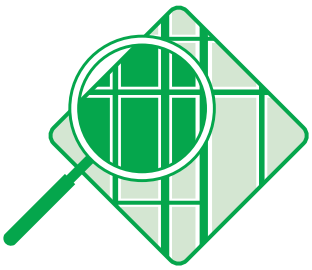
Measurable. Apply a multi-modal lens to measuring level of service to ensure the implementation of Complete Streets aligns with the vision for the County of Brant. Quantitative mode-specific measures (e.g. linear-kilometres of cycling facilities added to the cycling network), as well as mode share changes should also be used in the evaluation process.

Appropriately Maintained for All Seasons. Ensure that maintenance standards enable year-round mobility for all road users. This could include developing a priority winter maintenance network for pedestrian and cycling networks that exceeds the requirements set out in the Municipal Act.

Integrated Throughout County Departments. Identify municipal staff to represent relevant County departments to help in adopting the Complete Streets approach in their policies and procedures.

Justifiable and Traceable: Identify a procedure for documenting and addressing exceptions to the Complete Streets Policy to ensure a transparent and traceable process in outlining when some multi-modal elements are excluded from a project.

Functional Road Classification



A functional road classification framework is a road management tool that establishes a hierarchy of roads based on each road segment's context and the degree to which the segment prioritizes serving mobility vs. land access needs. The road classification framework ties into several other aspects of transportation planning, including:

- Establishing standards for functional characteristics such as land access, traffic volume thresholds, level of service (LOS), speed limits, typical accommodation of cyclists and pedestrians, and parking provisions
- Identifying routes suitable for heavy vehicles and truck traffic
- Implementing a Complete Streets strategy
- Establishing design standards and cross-sections
- Integrating and coordinating land use planning with transportation planning
- Directing and prioritizing maintenance and operational activities.

The County of Brant has a total of nine functional road classes for roads under its jurisdiction. These are summarized below for both urban and rural contexts, and listed from lowest to highest mobility functions.

Urban Public Lane: The sole purpose for these roads is to provide access to residential or employment properties at low speeds. Through traffic is discouraged or prohibited.

Urban Residential Local: These roads exist primarily to provide access to adjacent residential land uses, and movement of traffic is a secondary consideration. Sidewalks should be provided to separate pedestrians from traffic and on-street parking is generally provided on one side of the road.

Urban Employment Local: These roads provide access to employment and commercial uses, which typically generate higher volumes of traffic than residential land uses. Roadway widths are wider to accommodate the larger and heavier vehicles.

Urban Residential Collector: Collector roads serve as the connection between local roads and arterials, and generally give equal priority to land access and to mobility. They are designed to carry moderate volumes of traffic.

Urban Employment Collector: These roads provide access to employment and commercial uses, and need to be designed to accommodate the physical requirements of heavier vehicles.

Urban Arterial: The primary function of Urban Arterial roads is mobility. Urban Arterial roads connect between Provincial Highways and other arterial or collector roads, and/or serve as the main connection between major activity centres.

Rural Local: These roads are designed primarily to provide access to individual properties in rural areas, including residences, and agricultural and aggregates operations. They carry relatively low volumes of traffic.

Rural Collector: These roads are generally balanced between land access and mobility functions. They do not carry as much through traffic as Rural Arterial roads and serve as connections between Rural Local roads and Rural Arterials.

Rural Arterial: Rural Arterial roads serve as the primary connections in rural areas between activity centres. They connect directly with provincial highways, as well as to other arterials and collector roads. They are designed to carry high volumes of traffic.

The recommended road classification is shown in Map 9 on the following page.

Standard Cross-Sections

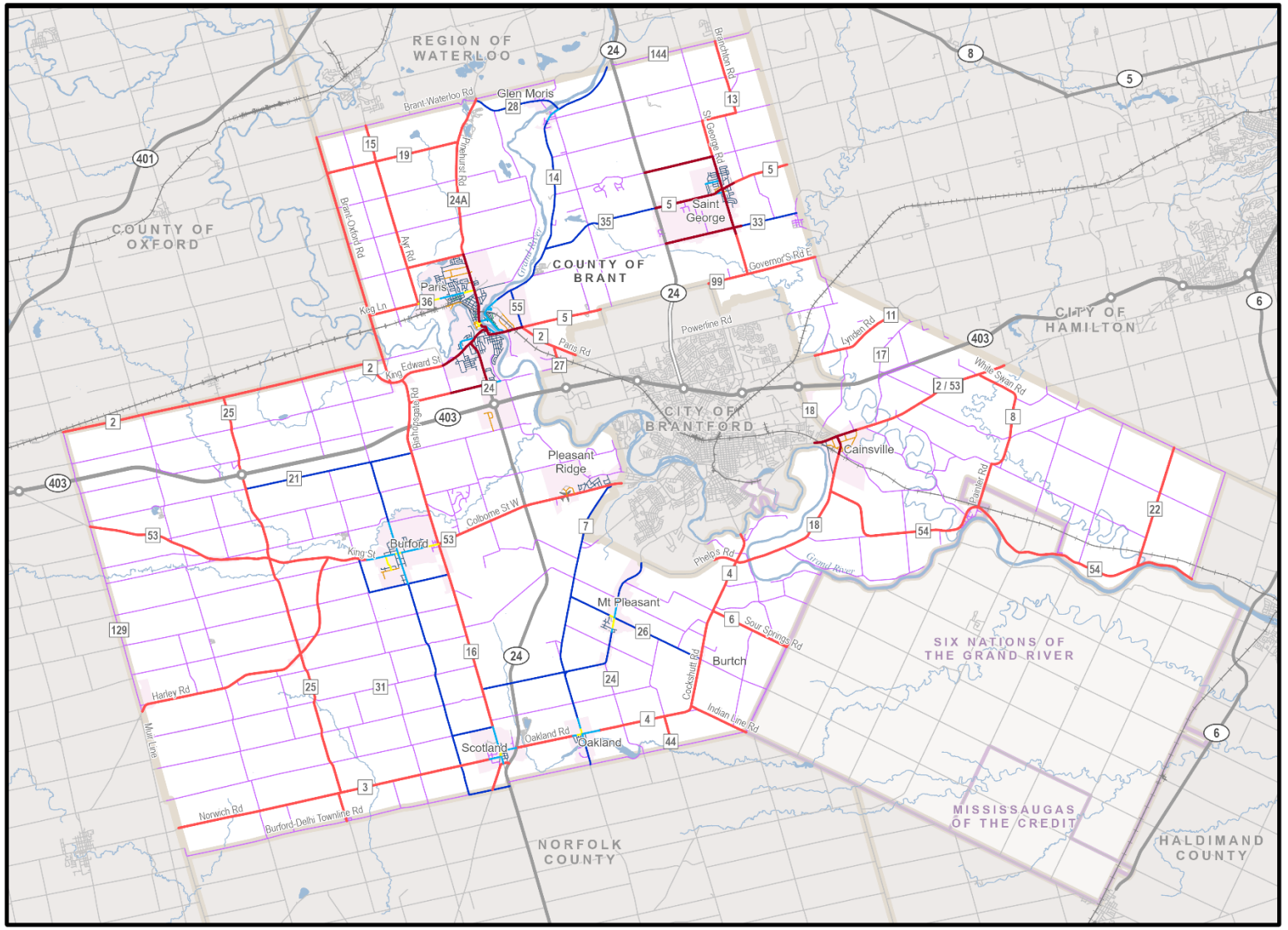
Typical cross-sections should reflect the variations of each **functional road classification designation**, which illustrate the allocation of various road elements including vehicle lanes, sidewalks, cycling facility type, parking and minimum right-of-way.

Defined right-of-way widths are generally considered minimum standards and additional space may be needed depending on local needs or context determined through planning and design. Additionally, cross-sections are to be used as a target for new planning and not intended to be applied as retrofit, where individual study of needs and space available would be required on a case-by-case basis.

It is recommended that the County of Brant develop standard cross-sections consistent with transportation planning best practices as per the following reference documents:

- Geometric Design Guide for Canadian Roads (Traffic Association of Canada, 2017)
- Ontario Traffic Manual Book 18 Cycling Facilities (2021)

Map 9 – Recommended Functional Road Classification



RECOMMENDED ROAD CLASSIFICATION

LEGEND

Functional Road Classification

- Urban Arterial
- Urban Residential Collector
- Urban Residential Local
- Urban Employment Collector
- Urban Employment Local
- Rural Arterial
- Rural Collector
- Rural Local
- Public Lane

Note: Roads are current as of 2022

Base Information

- Brantford Municipal Airport
- Highway Interchange
- Provincial Highway
- Connecting Link
- Municipal Road
- Railway
- Settlement
- First Nation Reserve
- Municipal Boundary

1:162,000
NAD 1983 UTM Zone 17N

0 3 6 km

Base data obtained from Land Information Ontario, GeoHub © Queen's Printer for Ontario, 2020. Additional Data obtained from County of Brant.

Speed Limits

There has been increasing interest from members of the public and communities across Canada in lowering vehicle operating speeds to improve safety for all road users. This is particularly true in urban areas where drivers routinely mix with pedestrians and cyclists.

Speed is a major factor in the cause of collisions in all contexts and is a major determinant in the severity of collisions and the risk of serious injury or death, particularly in vulnerable road users.

To ensure suitable speed limits are set, the following are recommended in the County of Brant:

- Decrease the default or statutory speed limit on local streets in urban areas to 40 km/h.
- Follow Transport Association of Canada guidelines for setting speed limits where they should deviate from the default or statutory speed limits.
- Consider the role that street design has on driver compliance with speed limits and the concept of self-enforcing street design.

Traffic Calming

As part of the Brant Safe Streets strategy, the County of Brant recently adopted a traffic calming program called Mobile Brant Safe Streets System, supported by the TMP. The program is part of a larger initiative to improve road safety, reduce speeding and implement both temporary and long-term road safety solutions.

Traffic calming can support these efforts through two approaches:

- **Context-Sensitive Physical Traffic Calming Measures:** Different traffic calming measures are suited to specific contexts, and it is important to apply an appropriate measure that responds to the circumstances of a specific location. Traffic calming can be applied in urban and rural contexts to slow traffic and reallocate shortcutting traffic away from local streets, as well as to reduce speeds on arterial roads.
- **Preventative Traffic Calming:** To avoid the need for retroactive traffic calming, where low speeds are desired on new streets, the road design should reflect this with characteristics intended to naturally lower travel speeds to the targeted maximum. Applying the County's Complete Streets approach, with a focus on safety, new roads should generally not require retrofit traffic calming implementation.

New Mobility

New and emerging transportation technologies provide opportunities for the County of Brant to develop a future-looking transportation network. These technologies include electric, shared, automated and connected transportation options, and also include micro-mobility devices such as e-scooters, bikes share, and e-bikes. These can reduce the use of private vehicles and reduce emissions, both of which are tied to goals of the TMP.

The TMP recommends the County consider installing public electric-vehicle charging stations at County owned and operated facilities as it can increase the ease-of-use of zero-emission vehicles for residents and visitors. Financial support for private-sector provision of public-charging stations can also be considered.

Micro-mobility is also a growing trend in urban transportation and can serve short-distance travel needs. Micro-mobility service providers should be supported, but regulations may be appropriate to reduce potential of waste or clutter. Similarly, autonomous vehicles are expected in the coming years or decades and will provide a benefit of increased personal mobility – local regulation may become appropriate to manage any service providers.

Travel Demand Management

Travel Demand Management (TDM) is the use of strategies, policies, infrastructure and technologies to optimize the transportation network by influencing and directing travel behaviour toward reduced single-occupancy vehicle use. TDM can work to reduce the pressure placed on the road network by changing travel demands, times and modes, leading to reduced congestion and reduced parking demand.

Specific TDM measures with potential applicability in the County include requiring bike parking and changing rooms at workplaces, reducing parking requirements in new developments, undertaking public information campaigns, improving active transportation and transit, and providing commuter parking lots.

As part of the transit strategy, the TMP Update advocates for a partnership with the Province of Ontario to develop a carpool lot at Rest Acres Road in Paris, with the possibility of including a GO bus stop. The development of a commuter parking lot at this location can help reduce single-occupancy vehicle trips originating in the Paris and Burford areas.

As the rural context and low density limit the effective application of some TDM measures, municipal staff must determine which TDM strategies are appropriate for the scale and context of the County of Brant.

Bridge Management Strategy

Closing or changing the intended use of an existing bridge structure needs to be adequately assessed, and the decision to maintain, replace or remove a structure depends on a number of factors, including the following:

- Availability and suitability of alternate routes
- Direct impacts to properties affected by a potential closure or change of use
- Traffic volumes
- Network or resiliency impacts
- Cost of replacing or rehabilitating the bridge

The TMP serves as the public's first notice of closure for the bridges identified in Map 10 on the following page. As these changes will impact users of these particular roads, further public consultation will be provided in anticipation of the changes.

One strategy that will be explored to lessen the impact on local residents and road users is to maintain the structure for active uses (pedestrians, cyclists, horseback, etc.) for as long as the structure is viable to do so.

Gravel-to-Hard Surface Conversion Plan

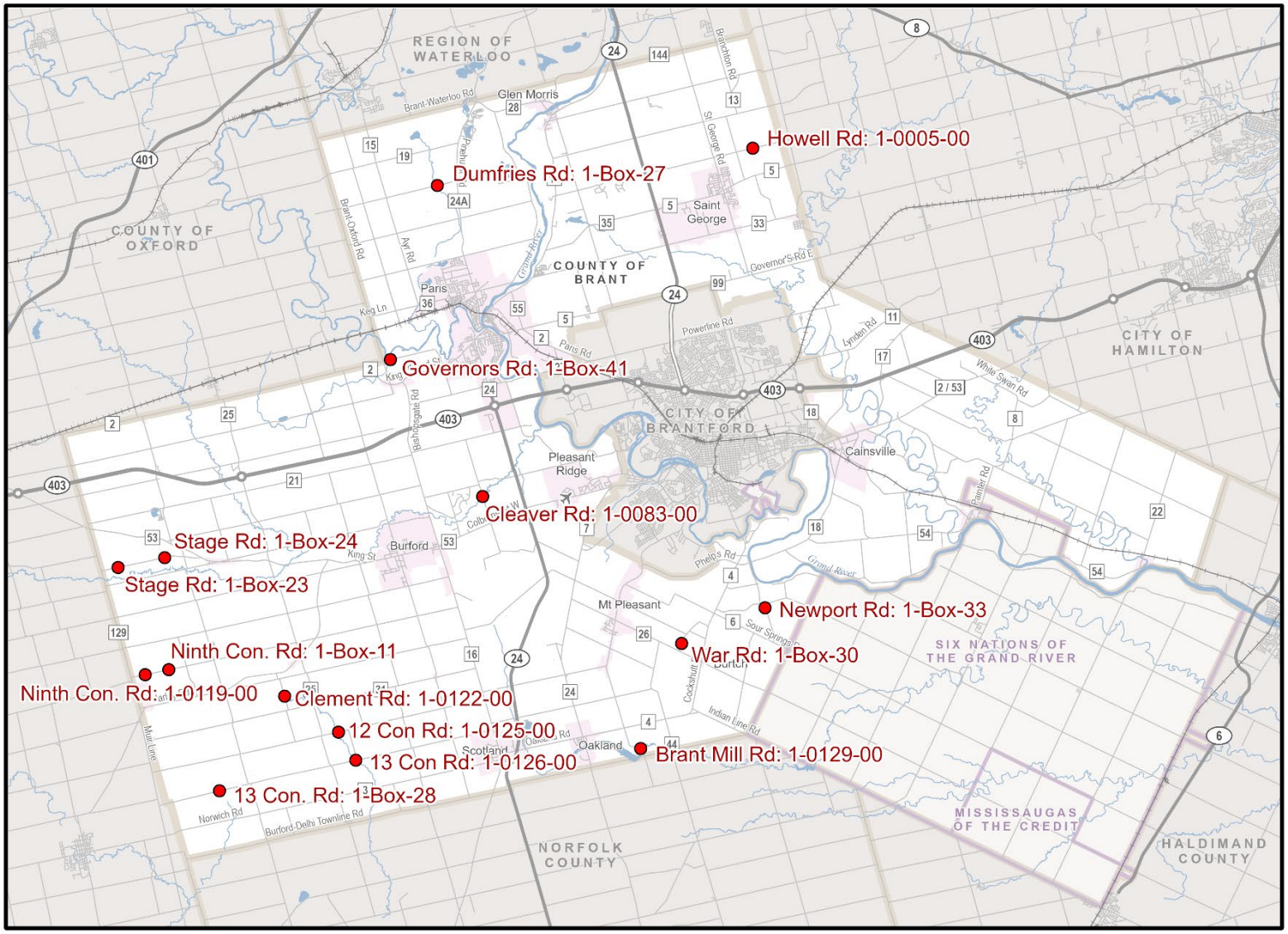
The County of Brant shall apply the Average Annual Daily Traffic (AADT) thresholds, as determined in correspondence with County of Brant staff, in identifying the most appropriate surface treatment, as follows:

- Granular: AADT <100
- Surface treated (Low Class Bituminous): AADT ≥100 and AADT <1,000
- Paved (High Class Bituminous): AADT ≥1,000

Where AADT data suggests a road surface should be paved, further analysis is required on a case-by-case basis to assess the other factors that contribute to determining the appropriate surface type (e.g. boulevard width, network connectivity, maintenance and drainage). If an upgrade is recommended, the project should be scheduled and prioritized through capital budget planning.

Hardtop surface conversion candidate roads proposed for the County of Brant are shown on Map 11, together with the existing road surface type of all County roads.

Map 10 - Candidate Bridge Structure Closure Under Consideration



BRIDGE CLOSURES

LEGEND

- Candidate Bridge Structure Closure Under Consideration

Base Information

- Brantford Municipal Airport
- Highway Interchange
- Provincial Highway
- Connecting Link
- Municipal Road
- Railway
- Settlement
- First Nation Reserve
- Municipal Boundary

1:162,000
NAD 1983 UTM Zone 17N

0 3 6 km

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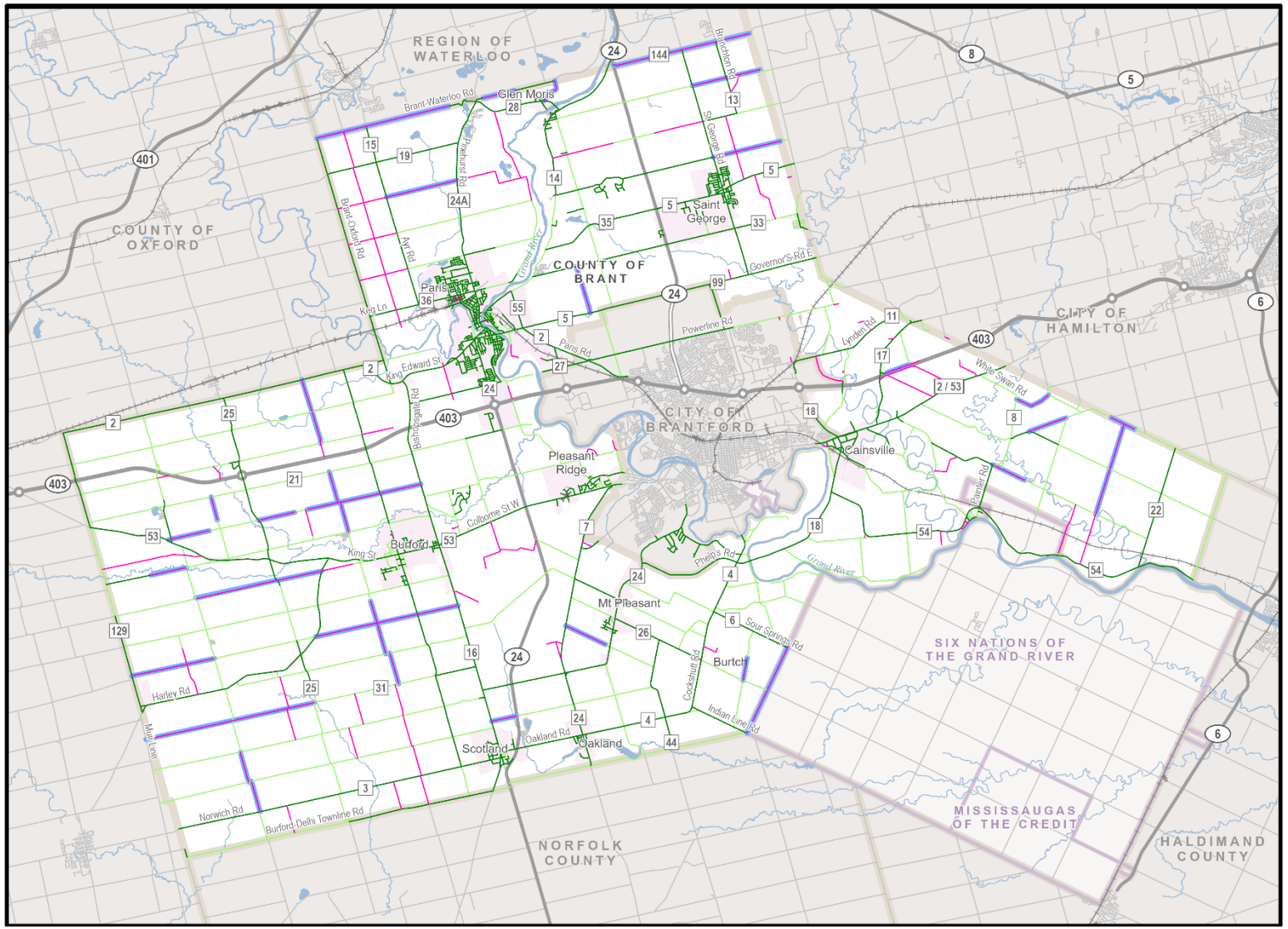
Map 11 – Roadway Surface Conversion Candidates



SURFACE TYPE

LEGEND

- Hardtop Surface Conversion Candidate Road Under Consideration

Surface Material (Including Planned Upgrades)

- High Class Bituminous
- Low Class Bituminous
- Unpaved

Base Information

- Brantford Municipal Airport
- Highway Interchange
- Provincial Highway
- Connecting Link
- Municipal Road
- Railway
- Settlement
- First Nation Reserve
- Municipal Boundary

1:162,000
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Implementation

Costs

Additional details regarding assumed costs can be found under each of the Road Network, Active Transportation, and Transit sections within this document, with additional information provided in the Phase III: Supporting Strategies report. Total assumed capital costs are summarized below.

Category	Timing	Total Cost	Annual Cost
Roads - Short Term	2021-2031	$41.2 M to $77.3 M	$4.1 M to $7.7 M
Roads - Medium Term	2031-2041	$14.4 M to $28.8 M	$1.4 M to $2.9 M
Roads - Long Term	2041-2051	$8.8 M to $18.4 M	$0.9 M to $1.8 M
Cycling - Infrastructure	2021-2051	$22.0 M	$0.73 M
Walking - Study	2021-2031	$0.05 M	n/a
Transit - To be determined through further study	n/a	n/a	n/a
Total		**$86.5 M to $146.6 M**	**$2.9 M to $4.9 M**

Monitoring

Performance measures should be adopted that assess the effectiveness of the policies, programs and infrastructure improvements in achieving the transportation vision and goals.

Key performance indicators that can be used to track the progress and impact of the TMP is presented below. The data required to track these metrics are largely accessible from existing sources, however, additional data collection may be necessary in some instances. It is recognized that the County of Brant may not be able to conduct data collection and monitoring immediately. The objective is to record and measure each indicator to measure progress on a regular basis, and results can be used to justify changes and updates, as required.

Performance Measures for Plan Monitoring

Indicator	Data Source	Frequency
Active Transportation		
Percent of the cycling network implemented	Capital program	Annual
Percent of sidewalk gaps implemented – assumes completion of pedestrian needs study	Capital program	Annual
Cycling network usage	Cycling counts	Annual
Pedestrian volumes	Turning movement counts	Annual
Transit		
Transit ridership data	Brant Transit	Annual
Transit service hours	Brant Transit	Annual
Service between Brantford and Paris	Transit provider(s)	Annual
GO Transit service provision to Paris	GO Transit	
Average annual capital and operating cost of public transit	Brant Transit	Annual
Average user cost of public transit travel	Brant Transit	Annual
All Users		
Safety monitoring per Brant Safe Streets	OPP collision data, other	Annual
Percentage of congested roads (high volume-to-capacity ratio)	County of Brant traffic count data	Annual
Assessment of Paris West Bypass diversion rate (personal and commercial vehicles)	County of Brant traffic count data, separate study	Every 5 years
Commuting mode share	Transportation Tomorrow Survey	Every 5 years
All-trips or non-commuting mode share	Transportation Tomorrow Survey	Every 5 years
Automobile ownership (number of vehicles per household)	Transportation Tomorrow Survey	Every 5 years
Mode share for short trips (e.g. <2 km, <5 km)	Transportation Tomorrow Survey	Every 5 years
Mode share by trip purpose (e.g. walking and cycling to school)	Transportation Tomorrow Survey	Every 5 years

Updates

As the County of Brant changes and grows, updating the TMP will ensure the plan responds to new issues, challenges and opportunities. Reviewing and updating the TMP at regular intervals ensures that underlying assumptions continue to apply, or new ones are updated to reflect applicable changes. Examples include the following:

- **Has growth occurred in the County of Brant as expected?**
- **Have travel patterns and mode share shifted in a way that was not anticipated?**
- **Has technology changed local mobility in a major way?**

The Municipal Class Environmental Assessment process recommends a review of master plans every five years. This review will determine whether there is a need to undertake a formal TMP update.