



# **FERNBANK**

## **COMMUNITY DESIGN PLAN**

### **TRANSPORTATION MASTER PLAN REPORT**

**DRAFT**

**June 2009**



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### **TRANSPORTATION MASTER PLAN REPORT**



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## Executive Summary

The Fernbank Owner's Group, has initiated the development of a Community Design Plan (CDP) for the Fernbank Community located in the West Urban Community of the City of Ottawa.

The Fernbank Community study area is proposed to encompass approximately 670 hectares of land between the established communities of Stittsville, Kanata West and Kanata South, and extending south from Hazeldean Road to Fernbank Road.

The recommended CDP reflects an urban community with the potential to contain between 10,000 and 11,000 dwelling units and 2400 jobs.

A key supporting document to the CDP is a Transportation Master Plan (TMP) that analyses the future long-term transportation infrastructure needs of the proposed community in conjunction with the needs previously established in the City's 2003 TMP/COP for the West Urban Community as a whole and confirmed in the recently adopted 2008 TMP, in order to ensure that the vision, strategic objectives and supporting principles of the City's 2003 Transportation Master Plan/City's Official Plan and 2008 TMP, will also apply to the Fernbank CDP.

The major transportation conclusion of the Fernbank TMP is, that in addition to the arterial road and rapid transit networks previously identified in the 2003 TMP, the Fernbank CDP will require the extension of both the rapid transit corridor and the North-South Arterial, with the rapid transit corridor extending from Hazeldean Road (Kanata West) south to Fernbank Road, with an end-of-service park-and-ride facility located there, and the North-South Arterial extending as an eventual four-lane divided roadway, also from

Hazeldean Road south to Fernbank Road. Save for local improvements at proposed intersection locations, Fernbank Road will not require four-laning before build-out.

It has been concluded that the preferred location of the Rapid Transit Corridor is in the median of the North-South Arterial with major stations to be located at Hazeldean Road, Abbott Street and Fernbank Road. It is also likely that minor transit stops will occur at some of the collector road intersection locations along the North-South Arterial corridor.

The existing TransCanada Trail which bisects the Fernbank CDP in an east-west direction along the south side of Abbott Street, will continue to function as a major multi-use pathway serving the West Urban Community as a whole. In view of its significance, it is recommended that sufficient right-of-way be projected for the long-term grade-separation of the TransCanada Trail at the North-South Arterial/Rapid Transit Corridor, if/when required. The planning of the North-South Arterial should also reflect the possible long-term use of the Trans Canada Trail corridor for commuter rail.

Additional multi-use pathways along the Carp River and within the Hydro Corridor are also identified.

On-road cycling facilities are recommended to be provided along all the arterial corridors as they are widened and upgraded to urban standards. These include Hazeldean Road, Terry Fox Drive, Fernbank Road and the new North-South Arterial. Although classified as a collector road, Shea Road is also recommended for on-road cycling facilities as already identified in the City's TMP. The TransCanada Trail would be the only shared pedestrian/off-road cycling facility.

A well-balanced network of major and minor collector roads, well spaced along the North-South Arterial Corridor, has also been identified on which local transit services will operate and which will facilitate efficient traffic progression along this important arterial corridor, thus protecting its function as a future bypass to Stittsville Main Street and its arterial service to the Fernbank CDP.

Collector roads within Fernbank will also link to existing collector roads within Kanata South and their future intersections are also well spaced along Terry Fox Drive, Hazeldean Road, Fernbank Road, Abbott Street and Shea Road.

The Transportation Master Plan component of the Fernbank CDP, in conjunction with the Master Servicing Plan and the Environmental Management Plan, satisfies the requirements of Phases 1 through 4 of the Class EA Process.

The following projects fall under the *Environmental Assessment Act*:

- Road 'A' Abbott/Iber Road to Terry Fox Drive (Schedule C)
- Road 'B' North-South Arterial to Fernbank Road (Schedule C)
- Road 'C' Shea Road to Terry Fox Drive (Schedule C)
- Road 'D' Hazeldean Road to Road 'A' (Schedule C)
- Road 'E' Abbott Street to Fernbank Road (Schedule C)
- Road 'F' Shea Road to Fernbank Road (Schedule C)
- Road 'G' Road 'C' to Fernbank Road (Schedule B)
- Road 'H' Road 'B' to Terry Fox Drive (Schedule B)

In conclusion, the new urban community reflected in the Fernbank CDP, can be adequately served by a minimal amount of additional transportation infrastructure above and beyond what has already been identified in the City's 2003 TMP/COP, and confirmed in the recently adopted 2008 TMP.

## Section 1.0 Introduction

The Fernbank Community is proposed to encompass approximately 670 gross hectares of land between the established communities of Stittsville, Kanata West and Kanata South, and the Study Area extends from Hazeldean Road on the north, the Carp River and Terry Fox Drive on the east, Fernbank Road to the south and, the existing Urban Area of Stittsville on the west, as shown on Figure 1-1 below.

Approximately 455 gross hectares of the total Fernbank Study Area are currently designated for urban development within the City of Ottawa (2003) Official Plan.

The Study Area encompasses the entire area between Stittsville and Kanata extending from Hazeldean Road south to Fernbank Road which includes lands that were not approved as ‘General Urban – Special Policy Area’ and ‘Future Urban Area’ in the OMB’s decision. It is anticipated that these lands will eventually be developed for urban purposes. The time horizon is not known at this time, however this plan and the infrastructure required to support the CDP will provide for eventual integration of these lands into the urban area.

**Figure 1-1: Study Area**



Three concurrent and integrated Class Environmental Assessment Studies/Master Plans were initiated: Transportation to provide the road network; Master Servicing Study for water, storm drainage and sanitary; and an Environmental Management Plan (EMP) for the natural environment and stormwater management/outlets. These reports have been prepared in conjunction with the Community Design Plan (CDP) for lands within the Study Area of the Fernbank Community. Approval of the CDP and subsequent development applications under the *Planning Act* will be supported by these Class Environmental Assessments/Master Plans. The three studies were prepared that followed integration with the *Planning Act* provision of

the Municipal Engineers Association Class Environmental Assessment Process (June 2000 as amended in 2007) (Class EA):

- Environmental Management Plan
- Master Servicing Study
- Transportation Master Plan

The purpose of this introductory section of the report is to:

- Explain the planning and environmental assessment approval processes that the three Class EAs followed;
- Describe the co-ordination and integration involved in the Class EAs and the supporting studies;
- Document the public and agency consultation undertaken; and
- Outline the implementation plan as part of the next steps.

### 1.1 Integration of the Environmental Assessment Act and the Planning Act

The Class EA process recognizes the benefits of integrating approvals under the province’s *Environmental Assessment Act* and the *Planning Act*. Any project which would otherwise be subject to the Municipal Class EA, that meets the intent of the Class EA (Section A.2.9 attached) and receives approval under the *Planning Act* is considered to be a Schedule A project and may proceed to construction.

Specific projects within the Fernbank CDP that are subject to the requirements of the *Environmental Assessment Act* include:

- Construction of new roads or other linear paved facilities (>\$2.2 Million - Schedule C);
- Widening of existing roads or other linear paved facilities (>\$2.2 Million - Schedule C);
- Construction of a new transit system (Schedule C)
- Works undertaken in a water course for the purposes of flood control or erosion control (Schedule B);

- Increasing pumping station capacity by adding equipment in an existing structure (Schedule A+);
- Establish, extend or enlarge a water distribution system where the facilities are not in an existing road allowance or utility corridor (Schedule B);
- Establish, extend or enlarge a sewage collection system where the facilities are not in an existing road allowance or utility corridor (Schedule B); and,
- Establish new stormwater retention/detention ponds and appurtenances or infiltration systems including outfall to receiving water body (Schedule B). Transit projects are now eligible to follow the new process that will allow a faster implementation for transit projects. The findings and conclusions of this CDP will become supporting documentation for future transit EA studies.

The municipal infrastructure projects for the Fernbank CDP are being identified, planned and approved through the development application process under the *Planning Act* in a manner that fulfills the requirements of the Municipal Class Environmental Assessment (Section A.2.9) process. As such, these projects will have satisfied the requirements outlined in Section A.2.9 of the Class EA process and will require no additional EA approvals. This allows the integration of both planning processes while ensuring the intent and requirements of both Acts are met (Figure 1-2). Section A.2.9 of the Class EA requires the following steps be incorporated into the planning process to fulfill the EA requirements:

Phase 1 and 2

- Identify the problem or opportunity;
- Identify alternative solutions;
- Inventory existing environmental conditions;
- Impact assessment and evaluation of alternative solutions;
- Selected preliminary preferred solution;
- Consult with the review agencies and the public; and,
- Select preferred solution.

If the project is a Schedule B, issue a Notification to allow for public review of the documentation of the work undertaken.

If the project is a Schedule C, continue as follows:

#### Phase 3 and 4

- Identify alternative design concepts for the selected alternative solution;
- Update existing conditions inventory (as required);
- Impact assessment and evaluation of alternative design concepts;
- Select preliminary preferred alternative design concept;
- Consult with the review agencies and the public;
- Select preferred alternative design concept;
- Document the work undertaken; and,
- Issue a Notification to allow for public review of the documentation of the work undertaken.

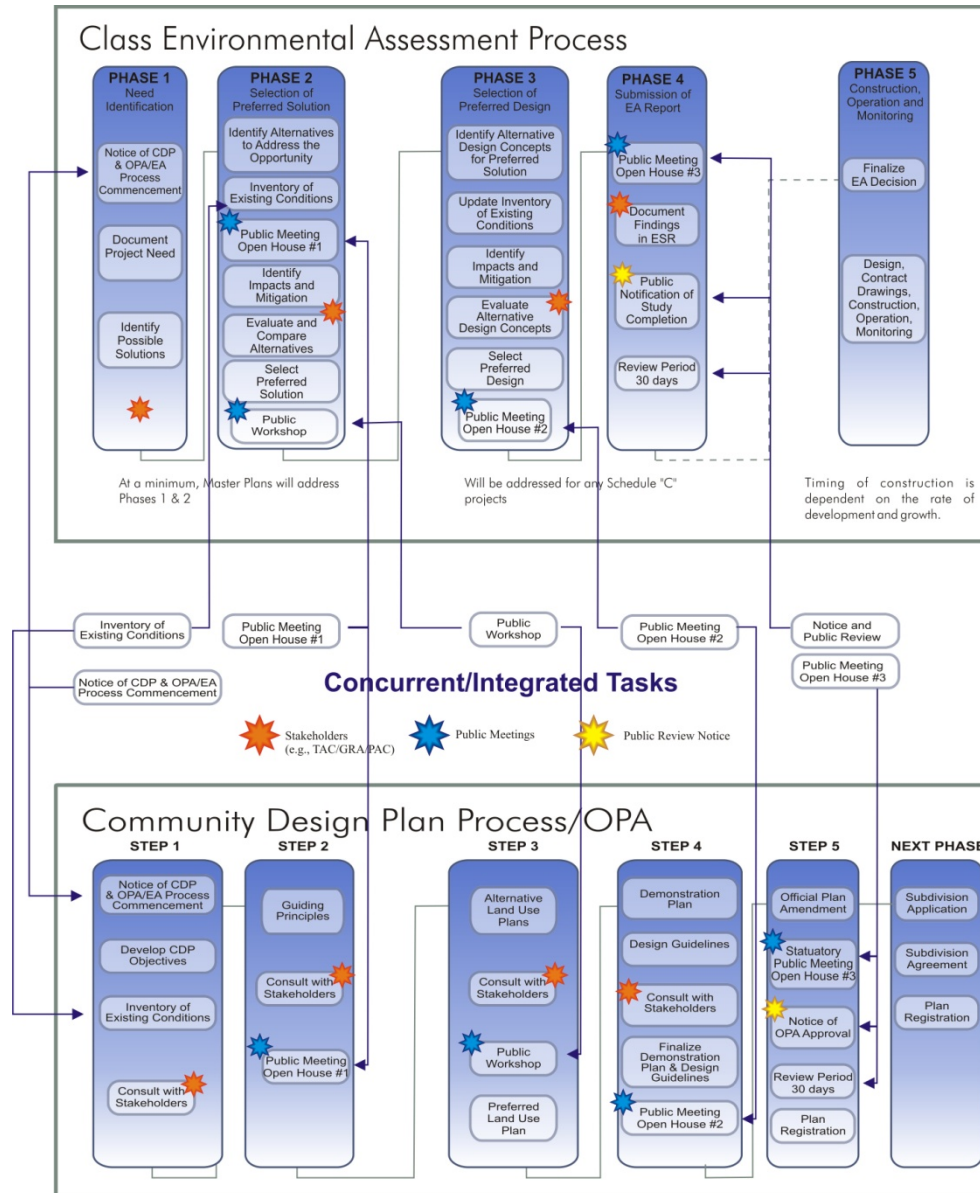
Following the review and approval of the Schedule B and C Class EAs, the projects can proceed to Phase 5 as follows:

#### Phase 5

- Complete design drawings and tender documents;
- Construction and operation; and
- Monitor for environmental provisions and commitments.

This process was outlined, reviewed and accepted in the Terms of Reference for the Fernbank CDP (June 2006) in consultation with the City of Ottawa and approval agencies (RVCA, MVCA, MOE, MNR).

Figure 1-2: Integrated Environmental Assessment and Planning Act Process



Review agencies and the public will have an opportunity to review the Class EA documentation being prepared for the Fernbank CDP, and have the ability to appeal to the OMB. The assessment and review process is being harmonized with the *Planning Act* as the development application process is occurring simultaneously. Notification of the conditions of planning approvals and the Class EA documents will be advertised through a Notice of Completion.

An integrated MEA Class EA *Planning Act* approach as identified in section A.2.9 of the MEA Class EA document allows for:

- A single point of contact ("One-Window") at the City and ensures consistent responses and notification to the public and media. If the CDP process and associated *Planning Act* application and Class EAs were not integrated, there could potentially be several different notices for meetings and public review periods in order to meeting the requirements of both processes.
- One approval framework schedule assists in ensuring that infrastructure and development would not proceed or be delayed if only one of the Class EA projects received a Part II Order request.
- Integrated Consultation – Consolidating the Planning Act and Municipal Class EA consultation will save time and money. Meetings can meet the requirements of both the land use planning and Class EA processes. This also helps to ensure consistent responses and notification to the public and media.
- Harmonized Review - Review agencies and the public will have an opportunity to review the Class EA documentation and the CDP documentation as an inclusive package and, accordingly, would be better able to understand the decision making processes.
- Integrated Review and Approvals – With the approval of the Official Plan Amendment and, by extension, the MEA Class EA projects through the Planning Act, any appeals will be

considered by the OMB and it will have access to all the studies needed for an informed decision.

Once approved, the preferred municipal infrastructure projects will generally not be subject to additional MEA Class EA approval requirements with the submission of subsequent site plan or plan of subdivision applications. This ensures that the environmental protection measures identified in the MEA Class EAs to permit development in the Study Area will be adhered to by any subsequent developments. Any amendments or revisions would be made using the addendum procedures in the Municipal Class EA, with the appropriate public review.

The implementation, over time, of the Fernbank CDP and the required supporting infrastructure will take place as *Conditions of Approval*. The approvals will be conducted under the *Planning Act*.

## 1.2 Co-ordination and Integration

The Study Team is large and consists of municipal staff from various City departments, many landowners, consultants, and approval agencies. The project proceeded under the direction of the City of Ottawa and benefitted from the direct involvement and guidance of:

- a Core Project Team (CPT) consisting of City staff and Councillors, Sponsoring Landowners and the consultants in a variety of disciplines;
- a Technical Advisory Committee (TAC) consisting of representatives from select government agencies and approval bodies;
- a Public Advisory Committee (PAC) consisting of representatives from directly affected Community Associations and interested community groups; and
- Government Review Agencies (GRA) who represent government agencies who administer specific permits and approvals.

Meetings were held and information was reviewed and shared amongst each of the study participants. Decisions were made in an integrated and iterative process throughout the course of the studies. Through this iterative discussion and consultation many additional tasks and investigations were undertaken to ensure compatibility between the various infrastructure requirements. The following Table 1-1 highlights the current activities/studies, how they were utilized and how they were integrated into the decision making process for the Study Team.

The reports and planning were undertaken in an integrated fashion in a similar time frame which resulted in an iterative planning and decision making process which is illustrated below followed by examples of interrelated aspects of the infrastructure and land use planning process such as:

- Analysis of existing conditions led to the Environmental Constraints Plan which was utilized as the starting point for the Land Use/Demonstration Plan.
- The establishment of drainage corridors to be preserved and/or enhanced led to the stormwater management facility configuration which was also utilized for developing the Land Use/Demonstration Plan.
- The establishment of sanitary collector sewers along proposed road facilitates to support orderly and cost effective phasing of development;
- The internal water distribution system was developed which reflects the transportation network;
- The development of a rapid transit plan which is integrated with the transportation network.

These examples of collaboration between the different studies were key to ensuring the requirements of all the land use and infrastructure components were accommodated in an acceptable manner.



**Table 1-1: Report Integration**

Report/Action	Function/Role	Utilization
Fernbank Community Design Plan Existing Conditions Report - Natural Environment (January 2007/Addendum January 2008)	To review the existing documentation regarding the natural environment features and functions in and adjacent to the Study Area.	Used by Novatech to identify natural features and develop existing conditions and environmental constraints plans. Used by Delcan to avoid and assess potential impacts of the transportation network on the natural environment Used by WND to develop land use patterns in consideration of the natural features of the study area.
Fernbank Community Design Plan Existing Conditions Report – Hydrogeology (January 2008)	To describe the site’s geology and the groundwater conditions associated with that geology in terms of infiltration potentials, groundwater recharge and discharge, and the groundwater flow systems.	Used by Novatech to identify groundwater conditions and to assess the potential impact of development on the groundwater system, including wells to be abandoned and groundwater infiltration targets.
Fernbank Community Design Plan Existing Conditions Report – Fluvial Geomorphological Assessment (March 2008)	The intent of this report is to document the existing conditions of the streams, channels and watercourses within the Study Area.	Used by Novatech to develop existing conditions plans, to delineate reach boundaries and channel sensitivities; identify and prioritize key issues in the watershed and recommend both structural and non-structural rehabilitation and restoration measures to establish natural levels of erosion in the watershed (resulting in the environmental constraints plan).
Fernbank Preliminary Geotechnical Evaluation Report (July 2007)	To provide preliminary engineering guidelines based on preliminary sub-surface conditions, as identified by borehole and test pit investigations	Used by Novatech to identify soils conditions and develop servicing and grading plans in consideration of potential grade raise restrictions.
Fernbank Community Design Plan Existing Conditions Report - Storm Drainage (January 2007)	To document the existing storm drainage and hydrology for the Study Area including the Monaghan, Flewellyn and Faulkner Municipal Drains which lie within the Jock River Subwatershed and the tributary of the Carp River and Hazeldean Creek within the Carp River Subwatershed.	Used by Novatech to establish existing conditions flows and constraints in all receiving watercourses, which are used as a baseline for evaluation of post development stormwater management solutions.

Report/Action	Function/Role	Utilization
Fernbank Community Design Plan Existing Conditions Report - Municipal Infrastructure (March 2007)	To document and provide an overview of the existing high-level water, sanitary, and utility infrastructure that currently services lands in the vicinity of the Study Area.	Used by Novatech to establish the capacities and configuration of existing servicing infrastructure which was used as a Baseline for determining impact and additional infrastructure required to service the development area.
Fernbank Community Design Plan Existing Conditions Report – Transportation (January 2007)	To describe the current transportation infrastructure networks and operating conditions in the vicinity of the proposed Fernbank Community.	Used by Delcan to confirm existing intersection and screenline levels of transportation service. Baseline for determining long-term future peak traffic volumes and appropriate major transportation infrastructure needs (roads/rapid transit) to serve the proposed Fernbank and adjoining communities.
Fernbank Community Design Plan Existing Conditions Report – Archaeological (January 2007)	To prepare a Stage 1 archaeological Assessment of the Fernbank Community lands, to identify areas of low or nil archaeological potential.	Used by WND to identify areas where additional archaeological assessment may be required prior to development.
Fernbank Community Design Plan Existing Conditions Report – Land Use	To review the existing physical land use planning conditions, policy framework and other City initiatives that would affect the development of future plans for the Fernbank Study Area.	Used by WND to identify alternative and preferred land use concepts for the Fernbank CDP.
Below Ground Infrastructure (Water/Sewer/Storm)	Develop infrastructure collection/distribution system to service the Fernbank Community	Integrated with the roadway network development.

### 1.3 Public and Agency Consultation

Consultation is an integral part of both the Planning and Class Environmental Assessment process. Consultation and the exchange of information was undertaken throughout the assessments using a variety of methods including meetings with community associations and the general public, electronic information distribution and regular meetings with the Study Team, approval agencies, and the three Ward Councillors.

The consultation undertaken was extensive and involved various stakeholders from the public and government agencies. A Core Project Team (CPT) met nine (9) times from project initiation to the development of the preferred land use and demonstration. There was also a Technical Advisory Committee (TAC) and Public Advisory Committee (PAC) which met four (4) and two (2) times at key project milestones. Four (4) Public Meetings were held with a total attendance of almost three hundred (300) people. Additional meetings were held with area land owners and community groups as required. Scheduling of consultation opportunities corresponded to key project milestones throughout the process.

Meeting details, Public Notices, and Presentation Materials are contained in a separate report Fernbank Community Design Plan – Public Consultation Report along with the comments and inputs received.

#### 1.3.1 Summary of Public Comments

A summary of the primary issues raised at the public meetings, from comment sheets and other submissions to the Study Team and Area Councillors are contained in Table 1-2 along with the response provided and any additional actions or clarifications. A more detailed account of the comments is contained in the Public Consultation Report.

**Table 1-2: Summary of Comments and Responses**

Issue Raised	Response
Natural Environment	Significant natural areas have been protected and incorporated into the CDP
Density	A mix of densities has been incorporated into the CDP with consideration of existing adjacent densities in the Kanata and Stittsville communities
Land use	Buffers have been incorporated into the CDP with consideration of existing adjacent land uses in the Kanata and Stittsville communities A mix of land uses has been provided to serve the existing and future communities
Schools	Primary and secondary school boards have provided input into the location and number of schools needed
Internal Roads	A road network has been developed to serve the needs of both the existing and planned communities Traffic circles will be incorporated where appropriate Internal and external connectivity has been considered
Transit	Identification of a rapid transit corridor, stations and an end-of-service Park and Ride lot have been included in the CDP OC Transpo has been involved in the identification of potential local transit routes and the protection of appropriate right-of-way widths

1.3.2 Government Agencies and Municipal Departments

Many government agencies, municipal departments and approval authorities were involved in the process. Agencies and individuals were contacted for specific advice and input regarding relevant issues and approvals or were given opportunities to review draft reports including:

Written and verbal comments were received from agencies and departments through the Advisory committee meetings and technical circulations. The comments received were typically focused on the agency's areas of interest or priorities. Some comments provided direction and guidance for upcoming approval and permitting requirements and others focused on specific technical issues. Input from these agencies were addressed through various means including:

- Individual and group agency meetings to provide clarification;
- Inter-agency sharing of comments, rationalizations, and decisions;
- Opportunities for continuing input;
- Completion of additional technical works;
- Design clarifications; and,
- Corrections and additions to the reports as appropriate.

1.4 Summary

Table 1-3: Information Way Finding

Information	Source/Report
Road Network	Fernbank Community Design Plan Existing Conditions Report – Transportation (January 2007)

Information	Source/Report
	Fernbank Transportation Master Plan (September 2008)
Rapid Transit Corridor	Fernbank Community Design Plan Existing Conditions Report – Transportation (January 2007) Fernbank Transportation Master Plan (September 2008)
Stormwater Management	Fernbank Community Design Plan Existing Conditions Report - Natural Environment (January 2007) Fernbank Community Design Plan Existing Conditions Report – Storm Drainage (January 2007) Fernbank Community Design Plan Existing Conditions Report – Fluvial Geomorphological Assessment (March 2008) Fernbank Community Design Plan – Master Servicing Plan (September 2008) Fernbank Environmental Management Plan (April 2008)
Drinking Water System Distribution	Fernbank Community Design Plan Existing Conditions Report – Municipal Infrastructure (March 2007) Fernbank Community Design Plan – Master Servicing Plan (September 2008)
Sanitary Sewers	Fernbank Community Design Plan Existing Conditions Report – Municipal Infrastructure (March 2007) Fernbank Community Design Plan – Master Servicing Plan (September 2008)

Information	Source/Report
Land Use	Fernbank Community Design Plan Existing Conditions Report – Land Use (January 2007) Fernbank Community Design Plan (September 2008)
Natural Environment (watercourses, woodlots)	Fernbank Community Design Plan Existing Conditions Report - Natural Environment (January 2007) Fernbank Environmental Management Plan (September 2008)
Archaeology	Fernbank Community Design Plan Existing Conditions Report – Archaeological (January 2007)
Public Consultation	Fernbank Community Design Plan – Public Consultation Report (September 2008)

general, and the urban development recommended in the Fernbank CDP, in particular.

The multi-use pathway, cycling, rapid transit and road networks for Fernbank are being identified, planned and approved through the Official Plan Amendment process under Sections 7 and 21 of the Planning Act in a manner that fulfills the Phases 1 through 4 requirement of the Municipal Class Environmental Assessment.

















## Section 2.0 Purpose of Report

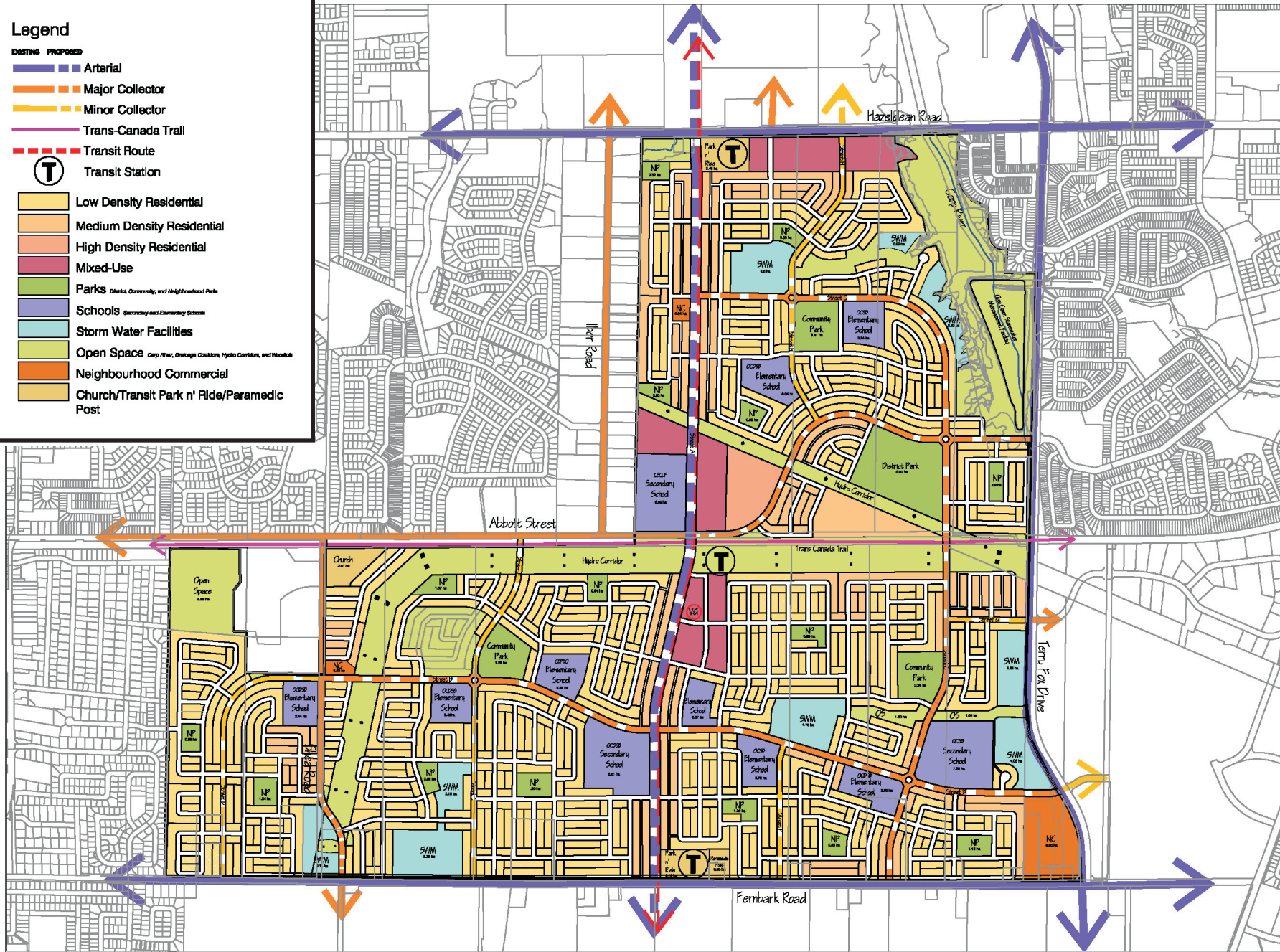
The purpose of this transportation report is to document the transportation analysis of long-term transportation infrastructure needs in support of the Community Design Plan (CDP) being recommended for the Fernbank Community, as shown in Figure 2-1.

This report, one of the supporting documents to the Fernbank Community Design Plan (CDP), details the transportation plan which has been designed to meet the full range of long-term transportation needs when the Fernbank Community is fully built-out by approximately 2031. The transportation infrastructure networks that are recommended will ensure appropriate levels of transportation service for the future growth of the West Urban Centre (WUC) in

# Legend

## DESTING PROPOSED

-  Arterial
-  Major Collector
-  Minor Collector
-  Trans-Canada Trail
-  Transit Route
-  Transit Station
-  Low Density Residential
-  Medium Density Residential
-  High Density Residential
-  Mixed-Use
-  Parks *Oleak, Community, and Neighbourhood Parks*
-  Schools *Secondary and Elementary Schools*
-  Storm Water Facilities
-  Open Space *Camp River, Storage Corridors, Hydro Corridors, and Woodlots*
-  Neighbourhood Commercial
-  Church/Transit Park n' Ride/Paramedic Post



## Section 3.0 2003/2008 Official Plans and Transportation Master Plans

The City of Ottawa’s Official Plan (COP), adopted by City Council in May 2003, supported by the analysis carried out for the 2003 Transportation Master Plan (TMP), has identified the following additional transportation infrastructure, in support of urban growth in the WUC, by the year 2021, as shown on Table 3-1.

**Table 3-1: Transportation Infrastructure Identified in the West Urban Centre (WUC) to be Implemented by 2021 (2003 COP/TMP)\***

Walking, Cycling and Multi-Use Pathways	Rapid Transit Projects	Road Projects
<ul style="list-style-type: none"> <li>• Carp River / Terry Fox Drive Corridor:  Along the Carp River and the Terry Fox Drive corridor from North Kanata to South Kanata.</li> </ul>	<ul style="list-style-type: none"> <li>• West Transitway Corridor (BRT): Eagleson Road to Hazeldean Road</li> <li>• East-West Corridor(LRT): Bells Corners to Klondike Road</li> </ul>	<ul style="list-style-type: none"> <li>• Hazeldean Road: Widen from 2 to 4 lanes from Terry Fox Drive to Carp Road and to 6 lanes from Terry Fox Drive to Huntmar Drive/Iber Road.</li> <li>• Eagleson Road: Widen from 2 to 4 lanes from Cadence Gate to Hope Side Road.</li> <li>• Hope Side Road: New 4 lane road from Eagleson Road to Highway 416.</li> <li>• Katimavik Road: Widen from 2 to 4 lanes from Terry Fox Drive to Eagleson Road.</li> </ul>

Walking, Cycling and Multi-Use Pathways	Rapid Transit Projects	Road Projects
		<ul style="list-style-type: none"> <li>• Maple Grove Road: Widen from 2 to 4 lanes from Terry Fox Drive to Huntmar Drive and a new road from Palladium Drive to the Stittsville Main Street Extension.</li> <li>• March Road: Widen from 2 to 4 lanes from Morgan’s Grant to Dunrobin Road.</li> <li>• North-South Arterial: New 4 lane road in Kanata West from Palladium Drive to Hazeldean Road.</li> <li>• Palladium Drive Realignment:</li> <li>• Realign from Huntmar Drive to new North-South Arterial.</li> <li>• Terry Fox Drive: New road from Goulbourn Forced Road to March Road.  New Road from Cope Drive to Eagleson Road at Hope Side Road.  Widen from 4 lanes to 6 lanes from Campeau Drive to Hazeldean Road.</li> </ul>

Walking, Cycling and Multi-Use Pathways	Rapid Transit Projects	Road Projects
		<ul style="list-style-type: none"> <li>Huntmar Drive: New road from Maple Grove Road to Hazeldean Road. Upgrade from Campeau Drive to Richardson Side Road. Widen from Campeau Drive to Maple Grove Road.</li> </ul>
Since modified in 2008 TMP		

The Fernbank TMP has assumed that all the transportation infrastructure that is identified in Table 3-1 will be in place by build-out of the COP and consequently has identified the specific additional infrastructure needs identified as necessary to service the additional urban development south of Hazeldean Road, as identified in the Fernbank CDP.

Since then City staff have proceeded with the 2008 Official Plan Update and as a supporting document the 2008 Transportation Master Plan has been recently completed and adopted by City Council in November 2008. The 2008 TMP has modified the long-term Rapid Transit infrastructure serving the West Urban Community (WUC) by 2031 to include two Bus Rapid Transit (BRT) corridors, one to Kanata North along March Road and the second serving Kanata West and Fernbank as far south as Fernbank Road as recommended in the Fernbank TMP.

Except for the six-laning of Terry Fox Drive between Hazeldean Road and Palladium Drive and the six-laning of Hazeldean Road between Terry Fox Drive and Iber Road/Huntmar Drive, the arterial road network now adopted in the 2008 TMP reflects all the previously identified arterial needs, detailed in Table 3-1, to which has been added the specific additional infrastructure identified in the Fernbank TMP, i.e., the extension of the Kanata West, North-South Arterial from Hazeldean Road to Fernbank Road.

As such, the 2008 TMP reflects the identified additional rapid transit and arterial needs of the Fernbank CDP.

The 2008 TMP also reflects the following arterial road phasing of particular relevance to the Fernbank CDP as detailed in Table 3.2.

**Table 3-2: 2008 TMP Arterial Road Phasing: Relevant to Fernbank CDP**

Phase 1 2009-2015	Phase 2 2016-2022	Phase 3 2023-2031
Campeau Drive: four-lane arterial Kanata Avenue to Huntmar Drive	Eagleson Road: Four-lane arterial Cadence Gate to Hope Side Road	Hazeldean Road: four-lane arterial Stittsville Main Street to Carp Road
	Earl Grey/Terry Fox Drive Underpass	
	Hazeldean Road: Four-lane arterial Iber/Huntmar Drive to Stittsville Main Street	Kanata West: North-South Arterial Four-lane road Hazeldean Road to Palladium Drive
Hazeldean Road: Four-lane arterial Terry Fox Drive to Iber/Huntmar	Hope Side Road: Four-lane road and two-lane extension Moodie	Katimavik Road: Four-lane road Terry Fox Drive to Eagleson



Phase 1 2009-2015	Phase 2 2016-2022	Phase 3 2023-2031
	Drive to Highway 416	Road
Hope Side Road Extension: Two-lane road Richmond Road to Moodie Drive	Huntmar: Four-lane Maple Grove Road to Campeau Drive	Maple Grove Road: Four-lane road Huntmar Drive to Terry Fox Drive
Terry Fox Drive: Two-lane road Richardson Side Road to Flamborough Road	Kanata West: North-South Arterial Two-lane road Hazeldean Road to Fernbank Road	Terry Fox Drive: Four-lane/six-lane road Campeau Drive to Palladium Drive (6 lanes) March Road to Richardson Side Road (4 lanes)
	Palladium Drive Realignment	
	Terry Fox Drive: Four-lane road Winchester Road to Eagleson Road	

It is worth noting that currently the Kanata West: North-South Arterial is phased by the City for completion between Hazeldean Road and Fernbank Road between 2016 at 2022 although there is a commitment by Fernbank developers for its earlier implementation by way of a front-ending agreement.

In addition to the identification of the aggregated infrastructure needs at build-out (considered to be by approximately 2031), it has also been assumed that the vision, strategic objectives and supporting principles adopted in the City’s 2003/2008 TMP/COP also continue to apply to the Fernbank TMP, thus ensuring that the proposed transportation systems will contribute to overall community objectives.

## Section 4.0 Relevant Recent Transportation Environmental Assessments (EAs)

A number of Transportation Environmental Assessments (EAs) of relevance to the Fernbank Community have either been completed or are close to completion by the Ministry of Transportation, the City of Ottawa and the Kanata West Land Owners Group. These are:

- a. Highway 417: Ministry of Transportation has completed a study to widen Highway 417 from Highway 416 to Highway 7. Four (4) lanes, (2 HOV + 2 all-purpose) will be added from Highway 416 west to the Palladium Interchange and from the Palladium Interchange west to Highway 7, 2 HOV lanes will be added. Construction is underway on the section from Highway 416 to Eagleson Road and the widening west of Eagleson Road is scheduled to be completed by 2013.
- b. Hazeldean Road Widening: An Environmental Study Report (ESR) has been completed by the City of Ottawa for the 4-laning of Hazeldean Road from the Terry Fox Drive to Carp Road and the long-term 6-laning between Terry Fox Drive and Iber Road/Huntmar Drive. The design drawings have also been completed.
- c. Kanata West Road Network: Completed in 2006 and currently awaiting Ministry of the Environment approval is the EA for the Kanata West Road Network which includes:
  - i. the extension of Huntmar Drive from Maple Grove Road south to Hazeldean Road as a 2/4 lane arterial (this link was completed in February 2008).

- ii. the extension of Campeau Drive as a 4-lane divided arterial from Didsbury Road west to Huntmar Drive.
  - iii. the North-South Arterial: a new 4-lane arterial linking the Palladium Drive Interchange to Hazeldean Road.
  - iv. the widening of Maple Grove Road to a 4-lane arterial standard from Huntmar Drive east to Terry Fox Drive.
  - v. relocated Maple Grove Road west of Huntmar Drive as a major collector.
- d. Terry Fox Drive: An ESR has been completed by the City of Ottawa that will result in the eventual construction of Terry Fox Drive as a 4-lane divided arterial linking March Road in Kanata North with Eagleson Road in Kanata South. The 6-laning of Terry Fox Drive between Campeau Drive and Palladium Drive will also take place eventually (the two-lane extension south to Eagleson Road was completed in 2007).
- e. The City of Ottawa has completed the EA for the 4-laning of Campeau Drive from Eagleson Road west to Didsbury Road.

These environmental assessments (EAs) have been important input in the CDP process for Fernbank. The major road network identified in the CDP reflects the direction established in the EA Studies, including the preferred locations of the North-South Arterial and the Rapid Transit Corridor north of Hazeldean Road that were established in the soon-to-be approved Kanata West ESR.

## Section 5.0 Urban Growth Parameters

The analysis of long-term transportation infrastructure needs in the West Urban Community (Table 3-1), as detailed in the 2003 TMP and reflected in the appropriate Schedules of the City’s OP, was based on the broad parameters of urban growth assumed in place at build-out, as detailed in Table 5-1 below.

**Table 5-1: 2003 Official Plan Projections of Population, Households, and Employment by 2021**

	Population	Households	Employment
City of Ottawa	1,192,000	430,000	749,000
West Urban Community (WUC)	186,000	67,000	90,000

As shown in Table 5-1, it was broadly assumed that by 2021 the WUC would contain a population of 186,000 persons in 67,000 households, along with 90,000 jobs, and that the City of Ottawa as a whole would have a population of 1.192 million people, 430,000 households, and 749,000 jobs by that time.

The long-term major transportation infrastructure requirements, as detailed in the City’s 2003 TMP, reflected in Table 3-1, and confirmed in the 2008 TMP, resulted from a needs analysis supported by the TRANS Travel Demand Forecasting Model.

Depicted on Figure 5-1 are the zones within the western growth area of the City of Ottawa that encompass parts of Kanata and Stittsville, Kanata West and Fernbank and which comprise a segment of the 358 zone system for the whole of the National Capital Region (NCR).

Table 5-2 contains the zonal parameter details, specifically the number of households and jobs, that were assumed to be in place by 2021 and on which the analysis of future transportation needs in the WUC, identified in the 2003 TMP was based.

**Table 5-2: Zonal Urban Growth Parameters for WUC: 2021 (2003 COP/TMP)**

Zone	Comprised of	Dwelling Units	Employment
502	Kanata South Business Park + Fernbank	2370	4422
503	Kanata + Fernbank	5588	3050
510	Stittsville + Fernbank	7693	746
512	Stittsville + Fernbank + Kanata West	14,195	5380
515	Kanata West + Kanata	3130	5900
516	Kanata West	0	4311
517	Kanata West	500	2815
540	Kanata West + Rural	2800	3400
541	Kanata West	3	3631
<b>TOTAL</b>		<b>36,279</b>	<b>33,655</b>

The Travel Demand Forecasting Model analysis carried out in support of the 2003 TMP/COP, resulted in the projection of afternoon peak hour person trips in the peak direction of travel (westbound) at the two, then relevant, screenlines adjacent to Fernbank, i.e., Terry Fox Drive and Eagleson Road, the locations of which are shown on Figure 6-1 and the details of which are summarized in Table 5-3.

**Table 5-3: Projected Screenline Person Trips: Afternoon Peak Hour: Peak Direction: 2021 (2003 COP/TMP\*)**

Screenline	Transit Trips	Automobile Trips	Total Trips
Terry Fox	5100	9700	14,800
Eagleson	9400	15,300	24,700

\*Figure 3.6 Projected Transit and Automobile Travel Demand-Screenlines: Ottawa 20/20 TMP: September 2003

As the 2003 TMP was used initially as the basis for the early development of the Fernbank CDP its subsequent replacement by the recently adopted 2008 TMP has led to an update of the analysis, as detailed in the ensuing Chapter 6.0.

**LEGEND**

- Kanata West CDP
- Fernbank CDP
- 541 Travel Zone Boundary

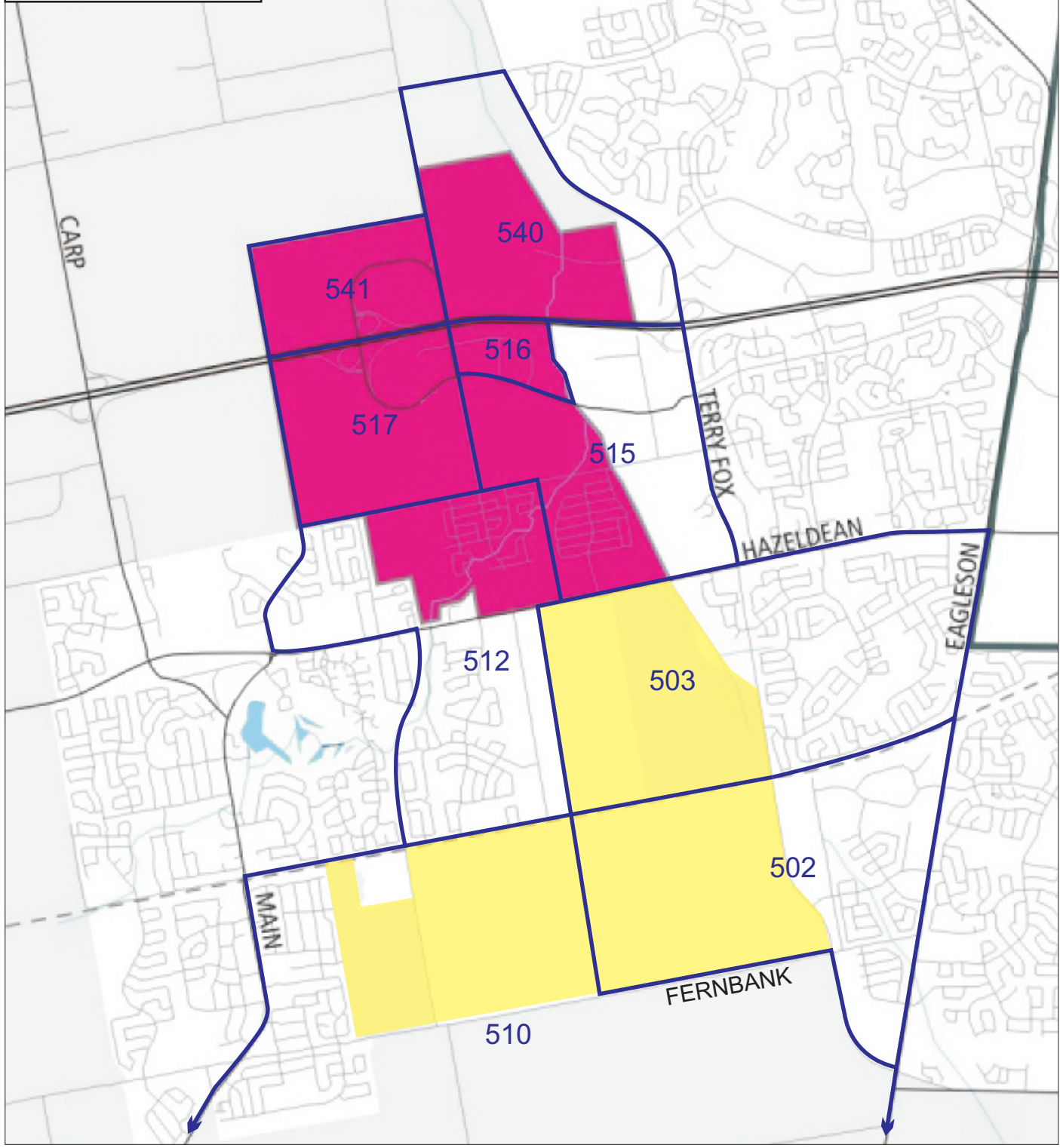


Figure 5-1: Relevant Travel Demand Forecasting Model Zones in West Urban Community

## Section 6.0 Updated Screenline Analysis: WUC Build-Out: 2031

The projected person trip totals depicted in Table 5-3 were based on the zonal parameters for the WUC that are detailed in Table 5-2.

Since that time, the City of Ottawa embarked on the preparation of their 2008 City Official Plan (COP) and Transportation Master Plan (TMP) updates, that will address the future extent and distribution of urban growth to the new horizon year, 2031. City staff have prepared updated estimates of the potential build-out parameters of all the zones comprising the WUC which are now the appropriate basis for projecting the future transportation infrastructure requirements of the WUC over the next 20/25 years, now assumed to include the Fernbank and Kanata West communities by that time.

The City has also updated their 2003 TMP in late 2008 as a supporting document to the 2008 COP and, in preparation for that update, the Travel Demand Forecasting Model was upgraded, and recalibrated to reflect more recent trip generation data ascertained from a City-wide origin-destination survey carried out in 2005, and existing screenlines travel data collected in 2006.

For comparison purposes, the basic parameters of the 2008 COP/TMP are summarized in Table 6-1.

**Table 6-1: 2008 Official Plan Projection of Population, Households and Employment by 2031**

	Population	Households	Employment
City of Ottawa	1,136,000	496,000	703,000

During the early stages of the preparation of the Fernbank CDP, as the detailed calibration of the Travel Demand Forecasting Model had not progressed sufficiently to be utilized, a partially updated version of the City’s Travel Demand Forecasting Model, the “Transition Model”, has been utilized to project future travel volumes at screenlines in the WUC by 2031. This updated model included updated housing and employment parameters for the zones of relevance to the WUC (Table 6-2), but with the remaining zones within the National Capital Region (NCR) keeping their 2021 parameters of growth, and with the resultant projected afternoon peak hour trips assigned to the networks of the 2003 COP (2021).

It is noteworthy that in addition to reflecting the build-out of the Fernbank and Kanata West communities, some of the zones in Table 6-2 contain Stittsville, Kanata and rural data.

**Table 6-2: Projected Fernbank and Kanata West Zonal Parameters: 2031**

Zone	Comprised of	Dwelling Units	Employment
502	Kanata South Business Park + Fernbank	4756	3150
503	Kanata + Fernbank	5821	500
510	Stittsville + Fernbank + Rural	5348	0
512	Stittsville + Fernbank + Kanata West	2809	1520
515	Kanata West + Kanata	2852	6600
516	Kanata West	-	360
517	Kanata West	512	8920
540	Kanata West + Rural	1302	6450
541	Kanata West	803	7380
<b>TOTAL</b>		<b>24,203</b>	<b>34,820</b>

The revised data shown in Table 6-2, and for the City of Ottawa as a whole, was then been inputted to the City's "Transition" Model and from that output has been ascertained the projected peak hour person trips, per direction, crossing each of the three Fernbank analysis screenlines, as identified in Figure 6-1. These projected afternoon peak hour person trip data in the peak direction of travel are detailed in Table 6-3. It is noteworthy that the Model forecasts person-trips by automobile and transit on the assumed road and transit networks. The impact of assumed TDM reduction rates, and walking and cycling trips are already accounted for in the model's output and are not reflected further in the needs assessment depicted in Table 6-3.

As shown on Table 6-3, the projected peak hour person trips at each screenline were then converted to passenger car units (pcus) by the application of appropriate factors for the assumed potential share of future trips by transit (transit modal split), an average private vehicle occupancy rate, and an allowance for the proportion of goods vehicles in the peak hour traffic stream. The resultant projected pcu totals were then compared to the currently (2007) available arterial network capacity at each screenline, as detailed separately in Table 6-4, with the difference between the projected screenline volumes (pcus) and the current screenline capacity (pcus) being the basis for establishing the long-term need for additional arterial lane capacity across each screenline by build-out (2031).

Since the completion of the earlier needs analysis employing the City's "Transition" Model, the City's 2008 TMP has been completed and approved by City Council (November 2008). The arterial needs analysis for the West Urban Community, reflecting the projected development of the Fernbank lands by 2031 was completed, employing the City's TRANS Model, and the appropriate zonal development assumptions for the City of Ottawa as a whole, i.e., by 2031.

The analysis of arterial capacity needs at screenlines in the WUC, based on the City's approved Rapid Transit Network, for implementation by 2031, and the achievement of the projected transit modal split targets now adopted by the City has resulted in the confirmation of the arterial road network originally identified in the 2003 COP/TMP (Table 3-1) with the modifications already addressed in the text of Section 3.0 and detailed in Table 3-2.



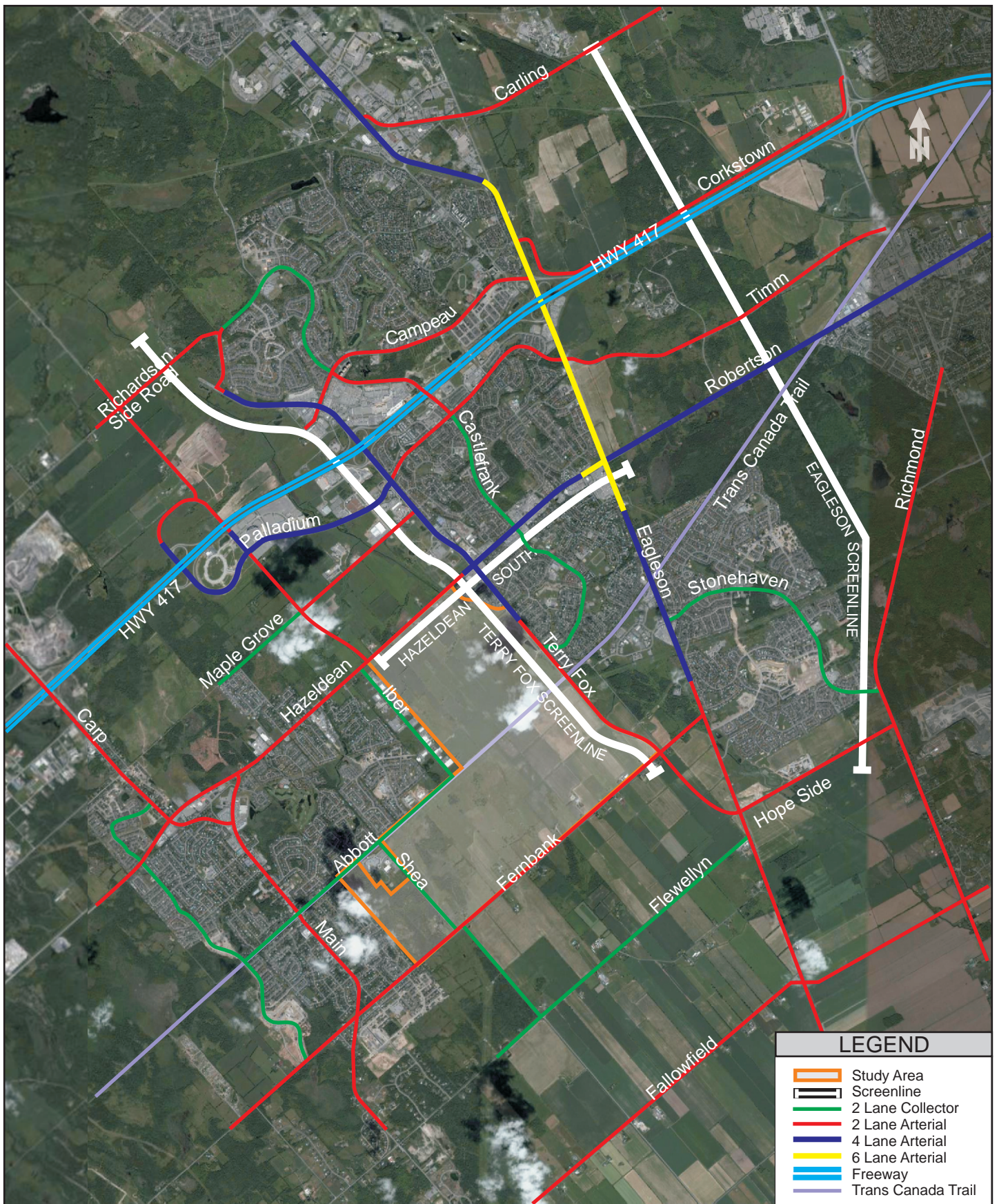


Figure 6-1: Major Road Network and Screenline Locations



**Table 6-3: Estimated Future Transportation Needs at Screenlines in WUC: Build-Out 2031: Transition Model, Afternoon Peak Hour**

Element	Screenline (Peak Directional Demand)		
	Eagleson Road (WB)	Terry Fox Drive (WB)	Hazeldean South (SB)
Projected afternoon peak hour person trips by auto/transit in peak direction	20,000	12,000	7,500
Peak hour transit modal split (assumed)	30%	25%	20%
Projected peak hour transit trips	6000	3000	1500
Projected automobile person trips	14,000	9000	6000
Projected autos per hour (1.3 ppv)	10,800	6900	4600
Projected pcus per hour (5% heavy goods, 6% light goods) (1.16 factor)	12,500	7200	5350
Current (2007) Screenline directional capacity: pcus/hr (Table 6-3 below)	10,500	10,385	5000
Current Screenline directional capacity at LoS 'D' (v/c = 0.9): pcus/hr	9450	9350	4500
Projected Screenline capacity deficiency (pcus)	3050	0	850

Element	Screenline (Peak Directional Demand)		
	Eagleson Road (WB)	Terry Fox Drive (WB)	Hazeldean South (SB)
Additional arterial lane requirements to satisfy projected directional needs at build-out (2031)	3 new lanes required	None required (see Section 7.0)	1 new lane required

**Table 6-4: Current Screenline Network Capacities (2007)\***

Screenline	Roads	No. of Lanes/Direction	Assumed Capacity / Directional (pcus/direction)
Eagleson	Highway 417	2	4620
	Carling Avenue	1	1050
	Corkstown Road	1	600
	Robertson Road	2	1995
	Timm Drive	1	600
	Stonehaven	1	1005
	Hope Side Road	1	630
	<b>TOTAL</b>		<b>9</b>
Terry Fox	Highway 417	2	4620
	Richardson Side Road	1	600
	Campeau Drive	not continuous	-
	Palladium Drive	2	2000
	Maple Grove Road	1	900
	Hazeldean Road	1	1365



Screenline	Roads	No. of Lanes/Direction	Assumed Capacity / Directional (pcus/direction)
	Fernbank Road	1	900
	<b>TOTAL</b>	<b>9</b>	<b>10,385</b>
Hazeldean South (new screenline)	Eagleson Road	2	2400
	Terry Fox Drive	2	2000
	Castlefrank Road	1	600
	<b>TOTAL</b>	<b>5</b>	<b>5000</b>
*Data from "Strategic Analysis of Travel Demand" Transportation Master Plan: July 2003			

## Section 7.0 Arterial Road Needs: Screenline Analysis Results

As a result of the long-term future screenline analysis detailed in Table 6-3, the following arterial needs, in addition to the current (2007) network, have been identified at each of the critical analysis screenlines in the WUC.

- (i) **Eagleson Screenline:** As a result of the MTO plan to add two freeway lanes per direction (1HOV + 1 all-purpose traffic) to Highway 417 between Eagleson Road and Highway 416, there is no need to add to the City of Ottawa arterial network capacity (Table 3-1) that will be available at the Eagleson Screenline by 2031. This conclusion is based on the achievement of an eventual 30% transit modal split (compared to the current 17%) at the Eagleson Screenline in the afternoon peak hour and does not negate the inclusion of the Hope Side Road Extension to Moodie Drive and

Highway 416 to deal with local traffic needs in South Kanata.

- (ii) **Terry Fox Drive Screenline:** The MTO Plan to add one general purpose and one HOV lane to Highway 417 west of Eagleson Road and the City’s plans to widen Hazeldean Road and Maple Grove Road, and extend Campeau Drive for local development needs means that with these projects in place there will be no need for any new additional east-west arterial capacity over and above that already identified in Table 3-1. Consequently, the 4-laning of Fernbank Road is not required from a screenline perspective by 2031 to serve the Fernbank Community. Again, this conclusion is predicated on the achievement of a 25% transit modal split at the Terry Fox Screenline in the afternoon peak (currently 10.5%).
- (iii) **Hazeldean South Screenline:** To cater to the north-south travel needs of the proposed Fernbank Community, and in particular to distribute traffic between the major arterials (Hazeldean Road, Palladium Drive and Highway 417), the need to extend the North-South Arterial south of Hazeldean Road to the Fernbank Road urban boundary has been established. While Table 6-3 reveals the need only for a 2-lane extension of the North-South Arterial south of Hazeldean Road, it is noteworthy that this conclusion is based on the assumption that a 20% transit modal split (considered to be a reasonable minimum target) will be achieved within the Fernbank Community, and that Castlefrank Road can be assumed to supply “arterial” capacity at the screenline. Consequently, the protection of sufficient right-of-way for a four-lane arterial between Hazeldean Road and Fernbank Road is recommended in anticipation of possible urban growth beyond 2031.

## Section 8.0 Estimated Screenline and Road Link Traffic at Build-Out

It is noteworthy that the analysis of future peak hour travel across screenlines in the WUC, as detailed in Section 6.0 above, leading to the conclusions with regard to future arterial needs at build-out (2031), detailed in Section 7.0, was initially based on the TRANS “Transition” Model, and confirmed later by the analysis based on data from the TRANS Traffic Prediction Model.

Shown on Table 8-1 are the latest available morning and afternoon peak hour person trip volumes, passenger car units (pcus) and the share of travel by transit (Modal Split) in the peak direction crossing each of the Eagleson and Terry Fox screenlines, counted by City of Ottawa staff in late May 2006, in preparation for the 2008 COP/TMP update.

**Table 8-1: 2006 Actual Screenline Peak Hour Person Trip and PCU Volumes and Transit Modal Split (MS)**

Peak Hour	Screenline							
	Eagleson				Terry Fox			
	IN	MS	OUT	MS	IN	MS	OUT	MS
A.M.	12,400 person trips 8450 pcus	28.5%			6500 person trips 5300 pcus	11.5%		
P.M.			11,400 person trips 8600 pcus	16.7%			7500 person trips 6000 pcus	10.5%

The latest available screenline data in Table 8-1 shows that in the morning peak hour, in the peak direction of travel (inbound/eastbound) there are approximately 12,400 person trips crossing the Eagleson Screenline and approximately 6500 person trips at the Terry Fox Screenline.

In the afternoon peak hour, the peak direction of travel (outbound/westbound) results in approximately 11,400 person trips crossing the Eagleson Screenline and approximately 7500 person trips crossing at Terry Fox.

It is also noteworthy that currently the maximum transit modal split is inbound in the morning at the Eagleson Screenline where a figure of 28.5% has been achieved. The return movement in the afternoon accounts for a near 17% modal split at the Eagleson Screenline in the outbound (westbound) direction.

At the Terry Fox Screenline, currently a transit modal split of 11.5% is achieved in the peak direction in the a.m. peak while a 10.5% transit modal split is achieved in the afternoon peak direction of travel.

Although the City’s TRANS Traffic Prediction Model does assign traffic volumes to the assumed road network across screenlines, as it employs more of an “all-or-nothing” as opposed to a “capacity restraint” approach to network assignment, it tends to favour the higher speed links at screenlines such as Highway 417. Consequently, the following estimates of future screenline link volumes and peak hour traffic totals are based on first principles as a check on the adequacy of the recommended arterial network at the relevant screenlines within Fernbank.

The following alternative estimates of the projected westbound and southbound traffic at the Terry Fox and Hazeldean Screenlines respectively, calculate the likely traffic in the afternoon peak hour

entering the Kanata West and Fernbank Communities based on the build-out of those communities (“local” traffic component) added to projected growth in the “through” traffic component, passing through each community to the west and south, respectively.

Current peak directional traffic westbound at the Terry Fox Screenline has been estimated at approximately 6000 pcus/hr, of which approximately 4500 pcus are classified as “through” traffic and 1500 pcus as “local” traffic.

At the Hazeldean South Screenline, the current southbound peak hour directional traffic has been estimated at approximately 2800 pcus/hr of which approximately 800 pcus are classified as “through” and 2000 pcus/hr as “local”.

Based on a projected growth rate of approximately 2% per annum, reflective of the current general rural traffic growth, the peak hour “through” traffic can be expected to grow by approximately 60% by 2031, i.e., by the time of build-out of the Kanata West and Fernbank Communities. The projected “through” traffic could therefore be anticipated to have grown to approximately 7200 pcus/hr in the westbound direction and to 1300 pcus/hr in the southbound direction at the screenline pair, at build-out (2031).

Assuming a total of approximately 17,000 dwelling units at build-out of the combined Fernbank and Kanata West communities, the projected westbound “locally” generated traffic crossing the Terry Fox Screenline will be approximately 5600 pcus/hr based on the following assumptions by 2031:

- 1.1 person trips per dwelling unit: p.m. peak hour
- 25% transit modal split (2031 TMP Target)
- 65%/35% directional split to/from residential development
- 90% directional split from the east and north
- 1.2 persons per automobile
- 1.16 commercial vehicle component factor

- 25% intra-community trips
- $$\frac{17,000 \times 1.1 \times .75 \times .65 \times .9 \times 1.16 \times .75}{1.2} = 5950 \text{ pcus}$$

The resultant westbound traffic volume at the Terry Fox Screenline, comprising “through” and “local” traffic components is estimated to be 13,150 pcus/hr (7200 pcus “through” and 5950 “local”).

The above estimate is approximately 83% greater than the projected Terry Fox Screenline volume of 7200 pcus/hr determined earlier (Table 6-3), by the “Transition” traffic model projection of 2031 built-out conditions and approximately 48% greater than that finalized later by the TRANS Traffic Prediction Model for the 2008 TMP. Consequently, the “first principles” estimate can be assumed to be a much more conservative estimate of future traffic volumes (i.e., at the high end of the range of estimates).

Based on the projected p.m. peak hour total of 13,150 pcus at the Terry Fox Screenline at build-out, there would be a resultant deficiency of 3800 pcus by 2031 compared to today’s capacity (LoS ‘D’). Fortunately, the proposed 8-laning of Highway 417 by MTO, the addition of Campeau Drive as a 4-lane arterial, the 4-laning of Maple Grove Road and Hazeldean Road will result in the addition of sufficient extra capacity at the Terry Fox Screenline to address this more extreme potential capacity deficiency should it arise.

Consequently, the projected deficiency of 3800 pcus would be satisfactorily addressed by all the currently proposed new roads and widenings and, as before, the 4-laning of Fernbank Road would not be required by 2031, although spot widenings could be required to address local traffic operational issues.

In the southbound direction, at the Hazeldean South Screenline, the projected local peak hour traffic generated by the approximate 10,700 dwelling units in the Fernbank Community is estimated to be

approximately 4500pcus/hr resulting in a total estimate of approximately 5800 pcus/hr southbound (1300 pcus “through” and 4500 pcus “local”).

The projected “local” traffic component of 4500 pcus/hr southbound at the Hazeldean Road (South) screenline is based on the following assumptions at build-out:

- 1.1 person trips per dwelling unit: p.m. peak hour
- 20% transit modal split (assumed target)
- 65%/35% directional split to/from residential dwellings
- 90% directional split from the north/east
- 1.3 persons per automobile
- 1.16 commercial vehicle component factor
- 15% intra-community trips

$$\frac{10,700 \times 1.1 \times .80 \times .65 \times .9 \times 1.16 \times .85}{1.2} = 4500 \text{ pcus}$$

1.2

The westbound and southbound peak hour traffic volumes at both Terry Fox and Hazeldean South Screenlines as estimated from first principles, are subsequently judged to distribute over the available major road network in the following manner at build-out, as shown in Table 8-2.

It is noteworthy that while a 4-lane divided arterial cross-section (4 UAD) is being recommended for the North-South Arterial within the Fernbank Community, the resultant traffic distribution depicted in Table 8-2 suggests that it is likely that only two lanes will be required by 2031.

**Table 8-2: Assumed Afternoon Peak Hour Traffic Distribution: Terry Fox and Hazeldean South Screenlines**

Screenline	Road Link	“Through” Traffic pcus/hr	“Local” Traffic pcus/hr	Total Traffic Pcus/hr
Terry Fox	Richardson Side Road	600	100	700
	Campeau Drive	300	1300	1600
	Highway 417	4000	900	4800
	Palladium Drive	300	1250	1550
	Maple Grove Road	400	1000	1400
	Hazeldean Road	1100	1000	2100
	Fernbank Road	500	400	900
	<b>TOTAL</b>	<b>7200</b>	<b>5950</b>	<b>13,150</b>
Hazeldean South	Eagleson Road	600	1700	2300
	Terry Fox Drive	500	1200	1700
	Castlefrank Road	0	700	700
	North-South Arterial	200	900	1100
	<b>TOTAL</b>	<b>1300</b>	<b>4500</b>	<b>5800</b>

## Section 9.0 Assessment of Long-Term Transit Needs

The City's 2003 COP/TMP and the Kanata West ESR have already addressed the provision of rapid transit to Kanata West north of Hazeldean Road and concluded that the West Rapid Transit Corridor should be extended to that location by 2021 (Table 3-1).

The ESR recently completed for the Kanata West development identified a preferred corridor for rapid transit between Kanata Centrum and Hazeldean Road, and the right-of-way of the preferred corridor is currently being protected through the development approval process.

The analysis of future arterial needs, that has been carried out above (Tables 6-3 and 8-2) and the conclusions reached with respect to the additional road capacity at the critical screenlines in the West Urban Community, assumed that transit modal split targets initially reflective of the 2003 TMP and subsequently reflecting those confirmed in the recently adopted 2008 TMP, will have been achieved at each screenline by 2031. The assumed target at the Eagleson Screenline (30%) reflects the initial output from the "Transition" Model, and the assumed targets at Terry Fox (25%) and Hazeldean South (20%) Screenlines are based on the Eagleson Screenline figure, recognizing a westbound stepped reduction in the targets to be achieved as potential passenger markets decrease. These transit modal share assumptions were considered to be appropriate reasonable minimum targets in view of the levels of transit modal split currently being achieved in the afternoon peak hour at both screenlines (Table 8-1).

Although neither the 2003 TMP or 2008 TMP contain a transit modal split target for the Hazeldean South Screenline, the analysis of

future arterial needs (Table 6-3) has assumed that a minimum 20% transit share will be achieved at build-out. A 20% transit share has been assumed as a reasonable minimum future long-term goal for the Fernbank Community, based on the following factors:

- Kanata and Kanata West will be served by two bus rapid transit corridors, one through the Town Centre to Hazeldean Road, and one to Kanata North;
- Rapid transit south of Hazeldean Road can be extended along the North-South Arterial Corridor and potentially extend to the urban boundary with a system-end park-and-ride facility at Fernbank Road;
- Local transit service to Fernbank would be focused on the new rapid transit stations being planned at Hazeldean, Abbott, and Fernbank;
- Local service will be introduced early in conjunction with on-going development through early-service agreements with area developers; and
- The modal share target reflects a gradual decline from 30% at Eagleson Road and 25% at Terry Fox Drive that were assumed initially. (It is worth noting that the 2008 TMP has now projected transit modal split targets of 34% (a.m.)/38% (p.m.) at the Eagleson Road Screenline and 21% (a.m.)/25% (p.m.) at the Terry Fox Drive Screenline.

A 20% transit modal split in the peak direction (southbound) at Hazeldean Road translates into a projected peak hour transit ridership of approximately 1500 persons per hour and while these levels of peak hour transit ridership are unlikely to be achieved until towards the end of the planning period, the planning of the arterial and major collector road network which is discussed in Section 12.0, will facilitate the early introduction of local transit service in conjunction with development phasing.

Based on a future bus occupancy rate of 40/50 passengers per vehicle, the above transit ridership results in a southbound volume of approximately 30 to 40 buses per hour. Bus volumes in excess of 30 buses/hr are assumed to justify the provision of an exclusive corridor on which to operate.

While the projected bus volumes at build-out are at the low end of the recognized target to justify an exclusive rapid transit corridor, one of the overall guiding principles of the City's Transportation Policy is that the need to travel by automobile should be minimized by the extension of rapid transit corridors to the extremities of the urban boundary in conjunction with system-end park-and-ride facilities. Consequently, a rapid transit corridor located within the median of the North-South Arterial and terminating at Fernbank Road, has been identified as a technically viable transit solution to serve the Fernbank Community. The implementation schedule of the rapid transit corridor will depend on the staging of the planned development and the growth in transit modal split over time in the WUC as a whole.

When implemented, the future Fernbank Community will have high quality transit service to meet resident's needs and to minimize the major arterial road needs as determined in Tables 6-3 and 8-2, while the timely introduction of rapid transit will facilitate end-of-service park-and-ride facilities to be introduced, first at Hazeldean Road, and finally at Fernbank Road, in accordance with City of Ottawa policy.

The spacing of the major collector road network on which the majority of local transit service will eventually operate within the community reflects the ultimate locations of rapid transit within the North-South Corridor right-of-way, appropriate station spacing, and the policy to maximize the amount of the future population within a 5-minute walk of future transit service.

## Section 10.0 Alternative Transportation Services

Having identified a peak hour arterial lane deficiency when compared with the proposed arterial capacity south of Hazeldean Road by 2031, initially identified in the 2003 TMP to serve that part of the proposed WUC, including the Fernbank development south of Hazeldean Road, a number of "Alternative Solutions" were identified.

**"Alternative Solutions"** as defined in the Municipal Class EA are feasible alternative ways of solving an identified problem or addressing an opportunity. The "problem and/or opportunity" is servicing the proposed Fernbank community as an urban development, at build-out of the City's OP (COP)(2031).

Alternative Solutions considered for transportation, and their evaluation, are outlined in Table 10-1.

Reinforced by the 2003 TMP, the Existing Conditions Report (Transportation), and the updating of the technical analysis in support of the Fernbank development, the preferred alternative solution to meet the long-term transportation system requirements, includes a combination of TDM/TSM measures, improved transit (including rapid transit by way of the extension of the Kanata West

**Table 10-1: Alternative Transportation Solutions**

Alternative Solution	Transportation and Land Use	Social Environment	Natural Environment	Comment	Carried forward
Do Nothing (no transportation facilities provided, but development would still proceed as planned)	✘	✘	✘	Does not satisfy the travel demand Does not address the problem/opportunity Does not meet the intent of the planning or transportation policies	<b>No</b>
Limit Growth	✘	~	~	Will satisfy a reduce travel demand – some transportation facilities will still be required Does not fully address the problem/opportunity Requires mitigation to lessen negative environmental impacts of reduced amount of transportation needs	<b>No</b>
Improve cycling and pedestrian mobility and TDM	~	✓	✓	Does not satisfy the travel demand These factors are considered to be an inherent part of all the alternatives carried forward but will not be carried forward as an alternative solution on their own	<b>Yes</b>
Widen/Improve Existing Road(s) (Hazeldean Road to 4/6 lanes; Terry Fox Drive to 4 lanes)	✓	~	~	Satisfies a substantial part of the travel demand Addresses the problem/opportunity Requires mitigation to lessen negative environmental impacts	<b>Yes</b>
Construct New Road(s) within the development area (arterial and collectors with connection to existing roads)	✓	~	~	Satisfies part of the travel demand Addresses the problem/opportunity Requires mitigation to lessen negative environmental impacts	<b>Yes</b>
Provide rapid transit service (Extension of Kanata West Rapid Transit Corridor)	✓	✓	✓	Satisfies an important part of the travel demand and provides alternative means of travel Addresses part of the problem/opportunity Will assist in reducing vehicle travel thereby improving air quality	<b>Yes</b>

- ✘ Negative Impact
- ✓ Positive Impact
- ~ Neutral/Mitigable Impact

Rapid Transit Corridor), road widenings and new roads as part of an overall transportation network.

Accordingly, the principal elements of the future transportation network serving the WUC include:

**Transportation Demand Management (TDM)**

- In addition to a TDM reduction factor of 3% of all work trips, the analysis of future arterial needs as based on the output from the Travel Demand Model reflects increased walking and cycling targets, and increased vehicle and trip shifting targets to future peak hour travel estimates, which are built into the Model’s inter-zonal trip projection strategy.

**Widen/Improve Existing Road(s) by:**

- Widening Highway 417 to 6/8 lanes (MTO Project)
- Widening Hazeldean Road to 4 lanes; Carp Road to Terry Fox Drive
- Widen Maple Grove Road to 4 lanes; Huntmar Drive to Terry Fox Drive
- Widen Terry Fox Drive to 4 lanes south of Winchester Drive, and to 6 lanes between Campeau Drive and Palladium Drive
- Local improvements to Fernbank Road in the vicinity of new intersections with collector streets serving the Fernbank CDP (constructing auxiliary lanes and installing traffic signals)

**Construct New Road(s):**

- 4-lane Campeau Drive from Terry Fox Drive to the Palladium Interchange
- 4-lane North-South Arterial to Fernbank Road

- Collector network including; links to Hazeldean Road, Fernbank Road, Terry Fox Drive, the North-South Arterial, Iber Road, and Abbott Street

**Rapid Transit Service:**

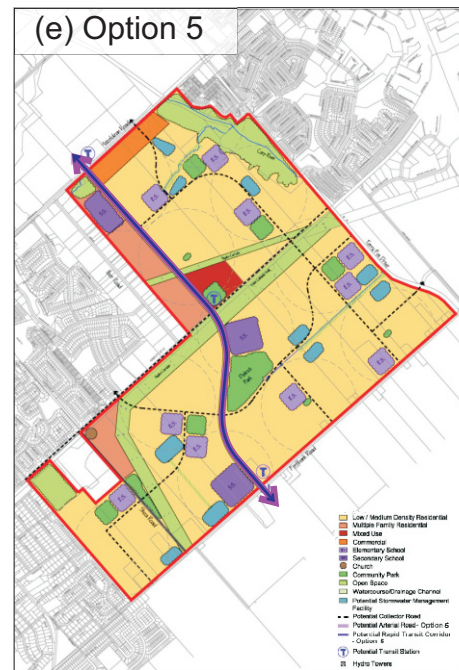
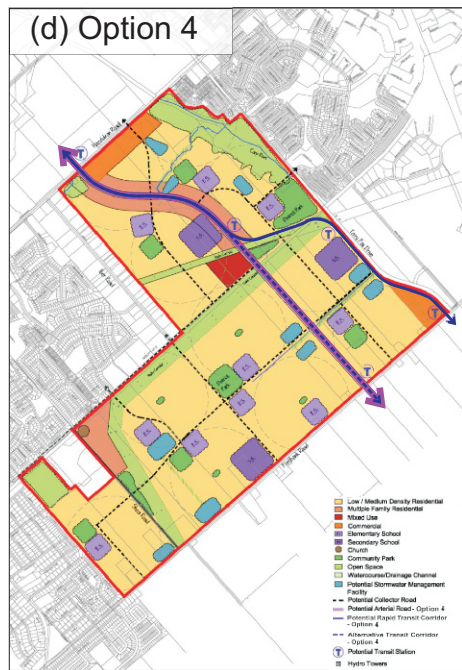
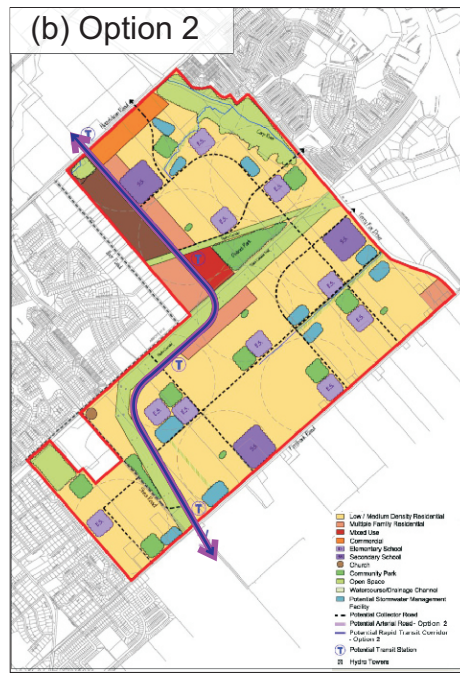
- Rapid transit corridor between Hazeldean Road and Fernbank Road located in the North-South Arterial ROW
- Park and Ride lots at Fernbank Road and Hazeldean Road

It is noteworthy that the only new major transportation infrastructure identified to service the combined Kanata West/Fernbank community (over that initially identified in the 2003 TMP/COP) includes the extension of both the North-South Arterial and the Rapid Transit Corridor from Hazeldean Road south to Fernbank Road, the Fernbank collector/local road network and a park-and-ride facility at Fernbank Road.

**Section 11.0 Transportation Network Options**

Following the determination of long-term capacity needs at the two analysis screenlines adjacent to the Fernbank Community (Terry Fox and Hazeldean South), and the resultant arterial network to serve the five (5) land use options that were developed, five (5) alternate alignments were evaluated for the North-South Arterial and the Rapid Transit corridor with the rapid transit corridor assumed to follow the arterial road systems in whole or in part, as detailed on Figure 11-1, between Hazeldean Road and Fernbank Road.





## 11.1 North-South Arterial Alternative Alignments

The five (5) alignment options for the North-South Arterial depicted on Figure 11-1 are detailed as follows:

- Option 1:** Between Hazeldean Road and Fernbank Road the alignment involves a straight southerly extension of the North-South Arterial alignment from Kanata West, parallel to Iber Road leaving a sufficient depth of development to facilitate either high density residential or a mixed-use of business park/high-density residential between the two roads.
  
- Option 2:** Same as Option 1 between Hazeldean Road and the TransCanada Trail. South of the TransCanada Trail the alignment swings sharply to the west, parallel to Abbott Street before turning sharply to the south along the Hydro Corridor to the Fernbank/Shea Road intersection.
  
- Option 3:** South of Hazeldean Road the alignment swings sharply to the west to parallel the rear of the commercial lots along the east side of Iber Road continuing south in a straight line to an intersection with Fernbank Road.
  
- Option 4:** South of Hazeldean Road the alignment swings to the east to an approximately central location between Iber Road and Terry Fox Drive before continuing southwards to Fernbank Road, parallel to Terry Fox Drive.


- Option 5:** Same as Option 1 between Hazeldean Road and the TransCanada Trail, where the alignment swings sharply west and then sharply south to parallel the Hydro Corridor before ending at Fernbank Road, approximately 500m east of Shea Road.

The five (5) alignment options were evaluated under the criteria headings of Geometrics, Compatibility with Existing and Future Transit/Road Operations, Capital Cost and Operating Cost. The evaluation results are summarized in Table 11-1 and are depicted pictorially on Figure 11-2.

As a result of the evaluation, Option 1 with slight modifications, become the technically preferred option as reflected in the recommended Concept Plan, Figure 2-1.

## 11.2 Rapid Transit Corridor Option Details

Similar to the North-South Arterial, a total of five (5) Options for the proposed Rapid Transit Corridor between Hazeldean Road and Fernbank Road were also identified and evaluated. As the combination of rapid transit and the North-South Arterial within the same right-of-way was considered to be the most efficient strategy, four of the five rapid transit alignments were similar to the North-South Arterial alignment options as described above, i.e., Options 1, 2, 3 and 5. Option 4 utilizes the North-South Arterial (Option 4) corridor between Hazeldean Road and the Hydro Corridor which it enters, continuing eastwards to the Terry Fox Drive corridor, and which is then followed southwards to Fernbank Road. The rapid transit corridor options are also depicted on Figure 4(a) to 4(e). The rapid transit corridors were evaluated under the criteria of Geometrics, Compatibility with Existing and Future Transit/Road Operations, Transit Ridership Potential and Accessibility, and Safety/Security of Passengers. The results are summarized in Table 11-2, and are also depicted pictorially on Figure 11-2.

	Concepts				
	Option 1	Option 2	Option 3	Option 4	Option 5
<b>Transportation Infrastructure</b>					
<b>Rapid Transit</b>					
1: Geometrics	●	◐	◑	○	◒
2: Compatibility with Existing and Future Transit/Road Operations	◑	◐	●	◐	◑
3: Transit Ridership Potential and Accessibility, Safety/ Security or Passengers	●	◒	◑	◐	●
<b>Roads</b>					
4: Geometrics	●	◐	◒	◒	◑
5: Compatibility with Existing and Future Transit/Road Operations	◑	◒	◑	◑	●
<b>Other Transportation</b>					
7: Non-vehicular Transportation	◑	◐	◒	◒	◑
<b>Cost</b>					
8: Capital Cost	●	○	●	◐	◑
9: Operating Cost	●	○	●	◐	◑
<b>Recommended Option</b> 	Least preferred ○ ◐ ◒ ◑ ● Most preferred				

**Table 11-1: Evaluation of North-South Arterial Alignment Options**

North-South Arterial		Option 1	Option 2	Option 3	Option 4	Option 5
Criteria	Indicator					
1. Geometrics	Alignment of N-S Arterial compatible with desired design speed	Best – straight alignment	Okay - but curves approaching minimum radius	Good - almost straight	Good - straight with gradual curves	Good - straight with gradual curves
	Accommodates safe intersection location/operation	Best - facilitated by straight alignment	Okay - but sharper curves restrict intersection locations	Poor - being adjacent to Iber, does not allow Abbot intersection	Poor - curvature combined with easterly alignment and resultant crossings of hydro corridor and Trans Canada Trail restrict intersection locations	Good - gentle curves have, marginal impact
	Compatible with efficient development/use of adjacent lands	Best- as centrally located and straight alignment offers maximum flexibility for collector road network access	Worst – as curves restricts collector road layout options and south portion is single-loaded road	Okay – due to straight central alignment but north portion is a single-loaded road	Good – due to central location but moderate curves have some impact on development of collector road network and land use access	Good – due to central location but moderate curves have some impact on development of collector road network and land use access
2. Compatibility with Existing and Future Transit/Road Operations	Sufficient integration with adjacent off-site road network while minimizing undesirable “cut through” traffic	Okay - does not connect directly to Terry Fox or Abbot	Good - but consider collector road connection opposite Cope	Best - connects efficiently with all adjacent communities	Poor - not good connectivity to/across Terry Fox	Good - but consider collector alignment with Castlefrank and off-set with Granite Ridge Drive
	Location of arterial allows for development of efficient and effective collector road network	Best - no constraints	Poor - does not accommodate Abbott connection to N-S Arterial	Poor - does not accommodate Abbott connection to N-S Arterial	Best - no constraints	Best - no constraints

North-South Arterial		Option 1	Option 2	Option 3	Option 4	Option 5
Criteria	Indicator					
	Appropriate number and location of road network connections to the bounding arterial roads from a capacity perspective	Poor - fewer connections to Terry Fox and not at best locations	Good - but could be better with direct Cope connection	Best - most connections opposite existing/planned intersections	Poor - fewer connections to Terry Fox and not at best locations	Good - but could be better with direct Castlefrank connection
	Maximum integration with pathway systems and area-wide transit service	Good -- central N-S Arterial location maximizes opportunities	Poor - offset location and adjacent to hydro corridor adversely impacts integration	Good - central N-S Arterial location maximizes opportunities	Good - central N-S Arterial location maximizes opportunities	Good - central N-S Arterial location maximizes opportunities
	Planned adjacent land uses compatible with arterial road proximity, and can be efficiently served by it	Good - central location with straight or moderately curved alignment maximizes compatibility and accessibility	Worst - curvature impacts accessibility of adjacent lands	Good - central location with straight or moderately curved alignment maximizes compatibility and accessibility	Good - central location with straight or moderately curved alignment maximizes compatibility and accessibility	Good - central location with straight or moderately curved alignment maximizes compatibility and accessibility
3. Capital Cost	Length of arterial and collector road networks and number of traffic signals	Best - straight N-S Arterial and similar to others regarding collector road length and signals	Worst - N-S Arterial and transit corridor 35% longer than shortest option	Best - straight N-S Arterial and similar to others regarding collector road length and signals	Poor - jogs in N-S Arterial and transit corridor add cost	Good - slightly greater cost for N-S Arterial, but collector road length and signal requirements similar
4. Operating Costs	Operation and maintenance costs	Best - shortest length of road and rapid transit facilities	Worst - greatest length of highest order transportation facilities to maintain	Best - shortest length of road and rapid transit facilities	Poor - significant length of high order transportation facilities to maintain	Good - slightly higher operating costs due to curvilinear alignment

**Table 11-2: Evaluation of Rapid Transit Corridor Options**

Rapid Transit Corridor		Option 1	Option 2	Option 3	Option 4	Option 5
Criteria	Indicator					
1. Geometrics	<ul style="list-style-type: none"> <li>- Ease of construction and operation consistent with minimum rapid transit design speed</li> <li>- Compatible with efficient development/use of immediately adjacent lands within the CDP</li> </ul>	<p>Best – straight alignment</p> <p>Best - no odd shaped residual parcels</p>	<p>Worst - due to length and degree of curvature</p> <p>Okay - as curves are adjacent to hydro corridor and majority of corridor is straight</p>	<p>Best - straight</p> <p>Good - as majority of corridor is straight</p>	<p>Poor - due to length and number of curves</p> <p>Worst - due to separation from arterial and numerous curves</p>	<p>Good - minor curves and slight increase in length</p> <p>Okay - as curves are gentle and majority of corridor is straight</p>
2. Compatibility with Existing and Future Transit/Road Operations	<p>Minimal construction or operational impact on other facilities/uses when constructed after most other CDP land uses and facilities</p> <p>Minimizes number of arterial and collector road crossings so as to reduce conflicts and increase transit vehicle speed</p> <p>Compatibility with existing and future transit facilities/routes, and ease of connection to them</p>	<p>Best – most direct alignment with least amount of adjacent future land uses</p> <p>Okay - four (4) major crossings</p> <p>Best - centrally located with good access</p>	<p>Worst - due to longer length, thus more adjacent land uses</p> <p>Poor - greater length with potential for more crossings</p> <p>Poor - adjacent to hydro corridor, restricts accessibility</p>	<p>Best– most direct alignment with least amount of adjacent future land uses</p> <p>Best - fewest crossings with three (3)</p> <p>Best - centrally located with good access</p>	<p>Poor - due to length and more adjacent land uses</p> <p>Worst - most crossings</p> <p>Poor - eastern alignment inefficient for Stittsville service connectivity</p>	<p>Good - adjacent land uses similar to Options 1 and 3, but corridor slightly longer</p> <p>Best - fewest crossings with three (3)</p> <p>Best - centrally located with good access</p>
3. Transit Ridership Potential and Accessibility, Safety/Security of Passengers	<p>Maximizes potential use of park &amp; ride lot</p>	<p>Good- could have one (1) Park and Ride lot in hydro corridor with a second lot on developable land</p>	<p>Best - could have two (2) Park &amp; Ride lots in adjacent hydro corridor, and is located closest to Stittsville</p>	<p>Good - could have one (1) Park and Ride lot in hydro corridor with a second lot on developable land</p>	<p>Poor - because of adjacent constraints due to east alignment. Not well located relative to Stittsville</p>	<p>Good -could have one (1) Park and Ride lot in hydro corridor with a second lot on developable land</p>

Rapid Transit Corridor		Option 1	Option 2	Option 3	Option 4	Option 5
Criteria	Indicator					
	Serves higher density land uses with greater potential for transit ridership (i.e., Transit-Supportive Land Use)	Best - centrally located and adjacent to all higher density	Okay - somewhat removed from High School and central location	Best - centrally located adjacent to all higher density	Poor - furthest removed from density and central location	Good - centrally located but removed from multi-family Residential at Abbott/Shea
	Station integration with area's sidewalk and pathway systems	Good - central to community and stations, close to Trans Canada Trail	Poor - station accessibility restricted due to adjacency to hydro corridor, and somewhat removed from Trans Canada Trail	Okay - station accessibility somewhat restricted due to adjacency to Iber and somewhat removed from Trans Canada Trail	Worst - stations not well located relative to new community or to Trans Canada Trail	Best - accessible from all sides and station adjacent to Trans Canada Trail
	Station locations maximize all-day visibility and user safety/security	Best - centrally located and adjacent to high activity areas	Poor - lengthy southern section mostly low density and impacted by adjacency to hydro corridor	Good - centrally located but impacted by adjacency to Iber	Okay - north section good, but south section impacted by adjacency to hydro corridor and possible future six (6) lane Terry Fox	Best - centrally located and adjacent to high activity areas



**Table 11-3: Transportation System Impact Assessment and Mitigation Details**

Criteria	Indicator	Assessment	Mitigation	Significance
<b>• North-South Arterial Option 1</b>				
1. Geometrics	Alignment of N-S Arterial compatible with desired design speed	Best - Provides an almost straight alignment to achieve the desired design speeds	Detailed design to ensure appropriate design speeds are controlled	Insignificant
	Accommodates safe intersection location/operation	Good – no skewed or offset intersections proposed.	None	Positive
		Intersections are spaced appropriately for access and signalization	None	Positive
	Compatible with efficient development/use of adjacent lands	Good – due to straight central alignment	None	None
2. Compatibility with Existing and Future Transit/Road Operations	Sufficient integration with adjacent off-site road network while minimizing undesirable “cut through” traffic	Connects efficiently with all adjacent communities	Detailed design to ensure intersection operations to do not encourage cut through traffic within and adjacent to the CDP area	Insignificant
	Location of arterial allows for development of efficient and effective collector road network	Best – central N-S Arterial location allows for appropriate spacing and alignment of collector road network	Transportation Study to ensure collector road network is able to adequately serve expected traffic	Insignificant
	Appropriate number and location of road network connections to the bounding arterial roads from a capacity perspective	Best - most connections opposite existing/planned intersections	Transportation Study to ensure surrounding road network can accommodate expected traffic levels	Potentially Significant
	Maximum integration with pathway systems and area-wide transit service	Central N-S Arterial location maximizes opportunities	None required	Positive

Criteria	Indicator	Assessment	Mitigation	Significance
	Planned adjacent land uses compatible with arterial road proximity, and can be efficiently served by it	Central location of arterial roads with straight or moderately curved alignment maximizes compatibility and accessibility	Ensure appropriate access to adjacent development is provided by local/collector road network at development approvals stage	Insignificant
3. Non-vehicular Transportation	Promotes pedestrian and cycling usage	Good - central location of N-S Arterial and good connectivity to adjacent community.	Ensure proposed network integrates into City's Cycling Plan	Insignificant
	Provides an integrated non-vehicular pathway system (including integration with the TransCanada trail) to allow for connection within and outside of the community	Okay - can be worked into all options	Ensure adequate connections to the TransCanada trail are provided	Insignificant
	Non-vehicular pathways can be provided within the hydro corridor to connect internal/external land uses	Provides good connections with pathways	None required	Positive
4. Capital Cost	Cost estimate for design and construction	Class D cost estimate for design and construction is \$90 to \$100 million	Will be included in City's Development Changes By-Laws possible construction through Front Ended agreements with developers	Not applicable
5. Operating Costs	Cost associated with the maintenance and operation	Cost associated with the maintenance and operation of the facility, transit, pathways and landscaping over the life cycle of the facilities will be the responsibility of the City of Ottawa	Maintenance will be a charge on City's Transportation Budget	Not applicable

Criteria	Indicator	Assessment	Mitigation	Significance
<b>(b) Rapid Transit</b>				
1. Geometrics	<ul style="list-style-type: none"> <li>- Ease of construction and operation consistent with minimum rapid transit design speed</li> <li>- Compatible with efficient development/use of immediately adjacent lands within the CDP</li> </ul>	<p>Best – straight alignment</p> <p>Good - as majority of corridor is straight</p>	<p>Detailed design to ensure integrated arterial/rapid transit corridor will function acceptably</p> <p>None required</p>	Insignificant
2. Compatibility with Existing and Future Transit/Road Operations	Minimal construction or operational impact on other facilities/uses when constructed after most other CDP land uses and facilities	Best– most direct alignment with least amount of adjacent future land uses	Construction management plan to ensure construction impacts to other corridor users are minimized.	Insignificant
	Minimizes number of arterial and collector road crossings so as to reduce conflicts and increase transit vehicle speed	Best number of intersections with major collectors limited to three (3)	Detailed design to ensure safe intersection operations	Insignificant
	Compatibility with existing and future transit facilities/routes, and ease of connection to them	Best - centrally located with good access distribution	Transit service planning to ensure future routes will connect and operate efficiently	Insignificant
3. Transit Ridership Potential and Accessibility, Safety/Security of Passengers	Maximizes potential use of park & ride lots	Good - could have Park and Ride lots at either end of the community	None required	Positive
		Best - Centrally located adjacent to all higher density development	None required	Positive

### 11.3 Transportation System Impact Assessment

As shown on the preferred Fernbank Concept Plan, Figure 2-1, a combined alignment of the North-South Arterial and Rapid Transit Corridor, supported by a network of collector roads has been developed to service the preferred land-use concept identified.

The impacts of the recommended Fernbank CDP transportation system, and their potential mitigation strategies, are detailed in Table 11-3.

## Section 12.0 The Transportation Plan

### 12.1 Plan of Roads

The projected distribution of traffic in the peak direction at the Hazeldean South and Terry Fox Screenlines (Table 8-2) reflects the assumed likely distribution of traffic either “local”, or “through”, within the Fernbank Community on the road network identified in the Recommended CDP (Figure 2-1).

Highway 417 with its future 8 lane cross-section will always be the dominant east-west roadway serving the WUC and will carry the dominant component of “through” traffic west of Kanata.

Hazeldean Road, which is an existing arterial road in the City of Ottawa’s Official Plan (Schedule ‘D’), will continue to play a major role within Fernbank/Kanata West, as the dominant east-west arterial centrally located to the future communities south of Highway 417 linking Stittsville and Kanata.

In addition to Hazeldean Road, the east-west arterial network includes Campeau Drive, Palladium Drive, Maple Grove Road and Fernbank Road.

In order to service the proposed development north and south of Hazeldean Road in Kanata, Kanata West and Fernbank, and to feed traffic to/from Highway 417 and the other east-west arterial corridors, the north-south major road network will be composed of Eagleson Road (4/6 lanes), Castlefrank Road (2 lanes), Terry Fox Drive (4/6 lanes), the Huntmar Drive Extension (2/4 lanes) and the North-South Arterial south to Fernbank Road as an eventual 4-lane divided arterial.

Existing Terry Fox Drive and Eagleson Road, due to their combined continuity to the south, can be expected to carry a considerable quantity of north-south “through” traffic. The required additional north-south arterial capacity and linkage to Highway 417 as well as the required bypass function of Stittsville for “through” traffic would be provided by the eventual 4-lane extension of the North-South Arterial to the urban boundary at Fernbank Road.

In the east-west direction, the key issue is the distribution of traffic between all the north-south and east-west corridors where the already identified Hazeldean Road capacity increase to 4 lanes, accompanied by MTO’s widening of the Highway 417 corridor and the road improvements within Kanata West will be adequate for future needs, to build-out.

Having identified the east-west and north-south arterial needs, the principal secondary issue that arose was the identification of an appropriate network of collectors (major and other) that would distribute the generated traffic to the peripheral arterial network with resultant acceptable collector traffic volumes and arterial/collector intersection spacing where signalization needs could be addressed at a future date, if warranted, and the impact on arterial traffic progression and efficient operation, minimized.

Based on an estimated afternoon peak hour ‘local’ traffic volume of approximately 4500 pcus inbound to the Fernbank Community from the north/east, the recommended Concept Plan has identified six (6)

arterial/major collector and several arterial/minor collector intersections that will serve traffic directly to the new community resulting in an average projected peak direction traffic volume of less than 600 pcus/hr (implying daily volumes not exceeding 9000 vph), considered to be an acceptable average peak hour volume for major collector roads .

In addition, the proposed spacing of major collector/arterial intersections, in excess of 600 m, is considered to be very acceptable for signalization and arterial traffic progression should future signalization warrants be met, which is very likely.

Although it is also likely that most minor road intersections with the North-South Arterial will be confined to right-only traffic movements some may justify signalization and median breaks, and it would be very desirable to ensure that, at the time of detailed subdivision layout, they would also be spaced as efficiently as possible, availing of the already considerable spacing achieved between major collectors. In so doing, the important arterial/bypass function of the North-South Arterial will be maintained to the maximum possible extent.

It is also noteworthy that intersections of major collectors can be assumed as possible locations for roundabouts within communities which despite additional property implications and costs have the potential for traffic calming within residential areas.

The resultant road hierarchy composed of arterials and collectors with appropriate intersection spacing to accommodate the likelihood of signalized intersections, and satisfying the requirements of the recommended CDP, is shown on Figure 12-1, while Table 12-1 details the required major transportation projects, their EA status ultimate rights-of-way.

It is noteworthy that while the North-South Arterial south of Hazeldean Road will likely be constructed initially as a 2-lane arterial, the required right-of-way to be protected is 41.5m, which

will provide for the long-term extension of a combined four-lane arterial with a rapid transit corridor located in the median from Hazeldean Road to the urban boundary limit at Fernbank Road.

**Table 12-1: Primary Transportation Network Details**

Link	Description	Lane Requirements	Environmental Assessment Status	Proposed Right-of-Way
North-South Arterial Extension	- new southerly extension of North-South Arterial in KWDA to the Fernbank CDP boundary at Fernbank Road	- 4 lanes from Hazeldean Road to Fernbank Road	- this study satisfies Phases 1 and 2 of Class EA process - subject to Phases 3 and 4 of Class EA process	- 41.5m (including RT)
Fernbank Road, Existing Alignment	- local improvements at new collector road intersections serving the Fernbank Community	- auxiliary turning lanes added as required	- N/A	- 37.5m (current COP) (to be determined by EA Study)
Rapid Transit Corridor	- to be located in median of North-South Arterial between Hazeldean and Fernbank Roads	- N/A	- Conceptual alignment defined in Fernbank CDP. Subject to an Individual Environmental Assessment	- Included in the 41.5m North-South Arterial right-of-way

Typical cross-sections of arterial and collector roads are to be found in the CDP Report.

## 12.2 Pedestrian and Cycling Plans

The major road network, comprised of arterials, major collectors, and collector roads, and which has been identified in the final CDP, will be the foundation of the planned network of facilities for pedestrians and cyclists.

Pedestrian connectivity will be supported by the provision of sidewalks on both sides of arterial and collector roads and on at least one side of most other local roads.

The 2003 TMP has identified Fernbank Road (Main Street to Shea), Shea Road, Hazeldean Road, and Terry Fox Drive to be links in the Primary Urban Cycling Transportation Network of on-road cycling roads, which is to be implemented and maintained in accordance with current City policy. Accordingly, the upgrading of existing, and the construction of new arterials, such as the North-South Arterial, will include on-road cycling facilities, either by way of exclusive bicycle lanes or shared facilities, as circumstances allow. Fernbank Road between Shea Road and Terry Fox Drive will be added to the Primary Urban Cycling Transportation Network.

As all City roads are considered to be cycling facilities, cycling supportive design and construction will apply to all parts of the new road network as they are implemented.

**Legend**

- Arterials**
  - Existing (Solid black line)
  - Proposed (Dashed black line)
- Major Collectors**
  - Existing (Solid red line)
  - Proposed (Dashed red line)
- Minor Collectors**
  - Existing (Solid brown line)
  - Proposed (Dashed brown line)

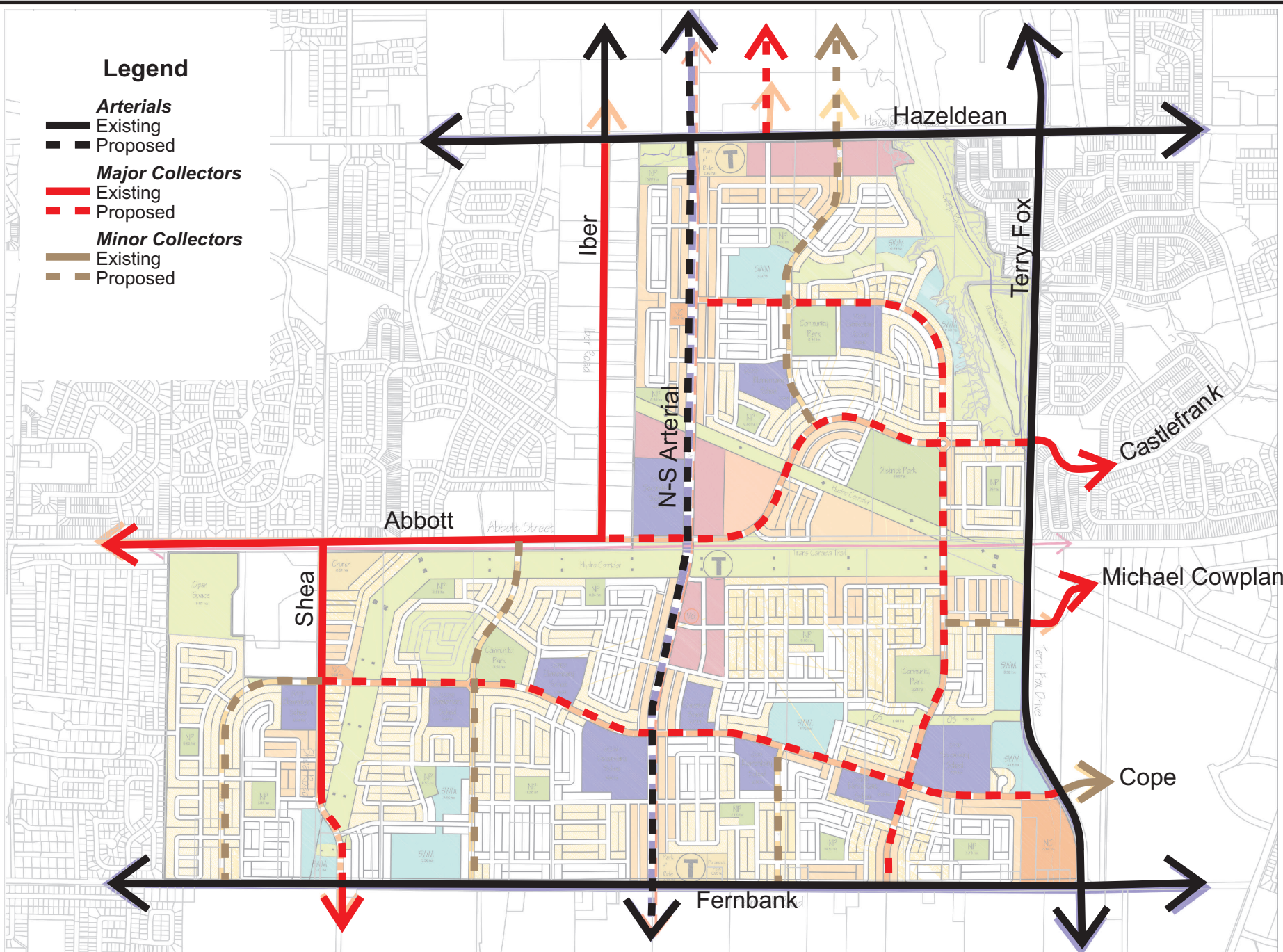


Figure 12-1: Proposed Major Road Network



### Legend

- Proposed On-Road Cycling Routes
- Off-Road Cycling Route

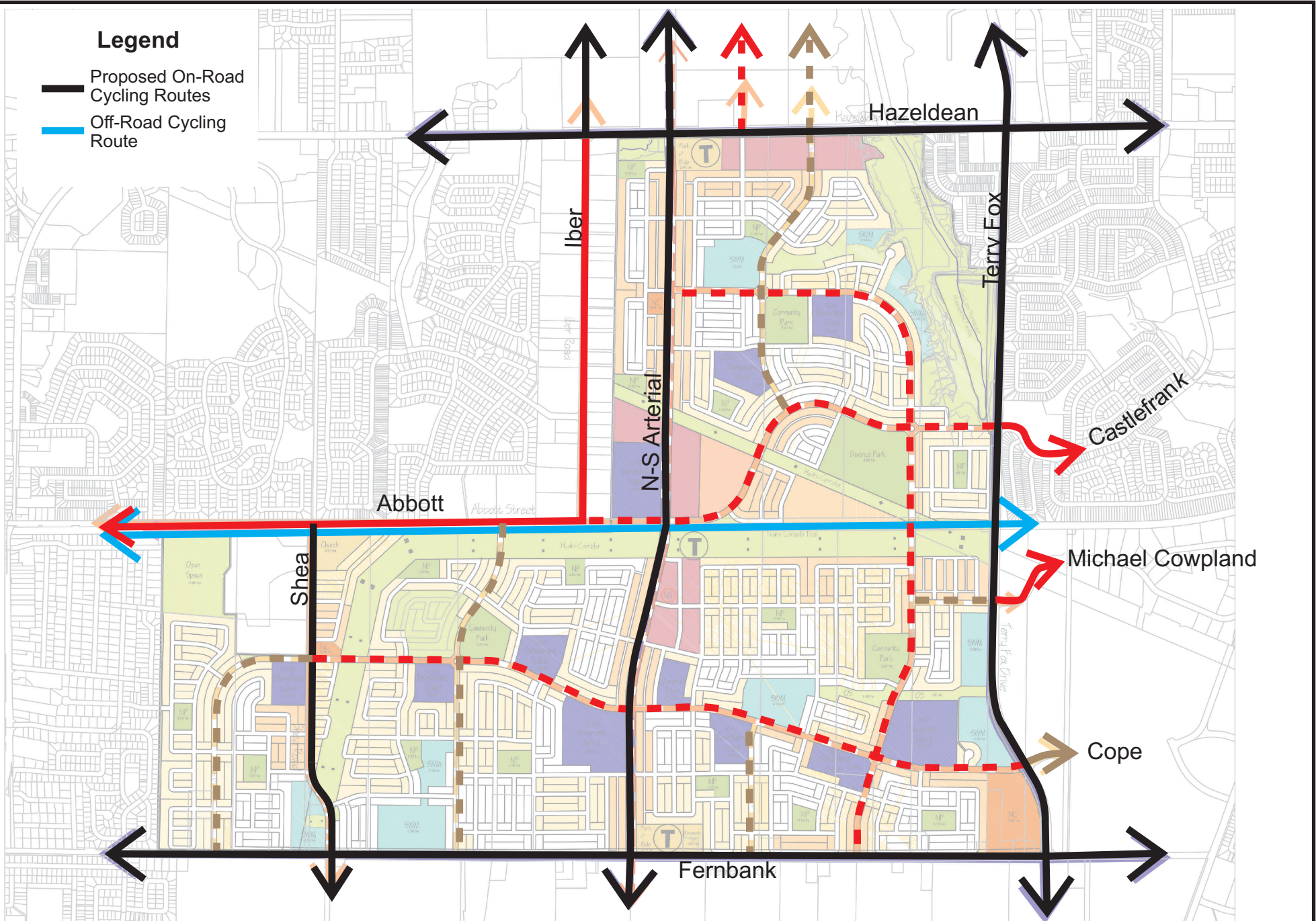


Figure 12-2: Proposed Primary Urban Cycling Transportation Network



Figure 12-3: Proposed Greenspace and Pathway Systems



The TransCanada Trail, which is a major off-road bicycle and pedestrian corridor, bisects the Fernbank Community and will play a major role in providing multi-use pathway facilities for the new community. In view of its importance, it is recommended that the long-term grade-separation of the Trans-Canada Trail at the North-South Arterial be protected for and the planning of the North-South Arterial should reflect the possible long-term use of the Trans Canada Trail corridor for commuter rail.

Figure 12-2 depicts the proposed extensions to the Primary Urban Cycling Transportation Network within Fernbank and Figure 12-3 depicts the proposed Greenspace and Pathway Systems.

### 12.3 Transit Servicing Plan

The recommended implementation of rapid transit in Kanata West will provide the key element for the provision of high quality transit service to the Fernbank community. Transit service will be reliable, accommodating, cost-effective, safe and courteous, responding to the needs of residents, businesses, schools, and visitors to Fernbank. The corridor will extend as far south as the urban boundary, (currently Fernbank Road) where a park-and-ride facility can be implemented with stations located at Hazeldean Road, Abbott Street and Fernbank Road.

Figure 12-4 depicts the recommended rapid transit corridor extension within Fernbank while Table 12-1 also details the project.

It is worth noting that the proposed rapid transit corridor will likely enter the median of the proposed North-South Arterial, north of Hazeldean Road in the vicinity of the proposed Hazeldean Station.

Transit vehicles will operate locally on the collector/arterial network as urban development proceeds and with routes focussed on the rapid transit corridor as it is extended beyond Kanata Centrum. Detailed transit routing will be determined at the time of subdivision approval

when interim bus turn-arounds may be required until such time as a continuous road network is completed.

To capture transit ridership in the initial phases of development, the developers will be required to enter into early transit service agreements. Service will be provided in new residential areas in advance of when ridership would be high enough to meet the City of Ottawa's financial performance standards. The cost to provide a basic peak period service is to be paid by the developer until such time that the number of units occupied is at a level when ridership would be high enough to meet the minimum financial performance standard. Developers will also enter into agreements to provide all-day service that would bridge the time period between when the City would be responsible for peak period service and the time when the number of units would be high enough to meet the minimum financial performance standards for all-day service.

As development continues and when there are at least 250 new housing units beyond a five-minute walk (400 meters) to either a Rapid Transit route or to service in Stittsville or Kanata, a separate peak service route will be implemented and "transit stops" will be located where appropriate. At least 500 new housing units, that are located more than a ten-minute walk (800 metres), will be required for the provision of all day transit service.

With the completion of the Rapid Transit Corridor EA, precise station layouts will be determined at each of the major station locations along the corridor (Hazeldean, Abbott and Fernbank) in addition of more precise configurations and locations of the proposed park-and-ride lots. It is also possible that more minor "transit stops" may be introduced at some of the locations where minor road intersections occur along the North-South Arterial/Rapid Transit Corridor, in order to ensure the highest quality service to adjacent residents.

### 12.4 Potential Phasing: Road Network

The phasing of development within the Fernbank Community will be dictated largely by the timing and availability of services including transportation. Consequently, the availability of arterial and major collector road capacity, either existing or new, along with contiguous developments that will ensure efficient and effective public transit service at all stages of development are considered to be the primary transportation factors that will drive the pattern of development.

It is worth noting that City of Ottawa staff have recently identified an infrastructure implementation program that has identified the following projects that are of relevance to the Fernbank CDP.

- Phase 1: 2011-2016: Hazeldean Road: Widening to four lanes between Terry Fox Drive and Iber Road
- Phase 2: 2016-2022: Kanata West North-South Arterial: Two-lanes from Hazeldean Road to Fernbank Road
- Phase 2: 2016-2022: Hazeldean Road: Widening to four lanes between Iber Road and Stittsville Main Street
- Phase 2: 2016-2022: Terry Fox Drive: Widening to four-lanes between Winchester Drive and Eagleson Road
- Phase 3: 2023-2031: Kanata West North-South Arterial: Four-lanes from Hazeldean Road to Palladium Drive

Reflecting the likely timing of arterial infrastructure serving the Fernbank Community, the following Table 12-2 reflects the potential phasing of the community from a transportation perspective.

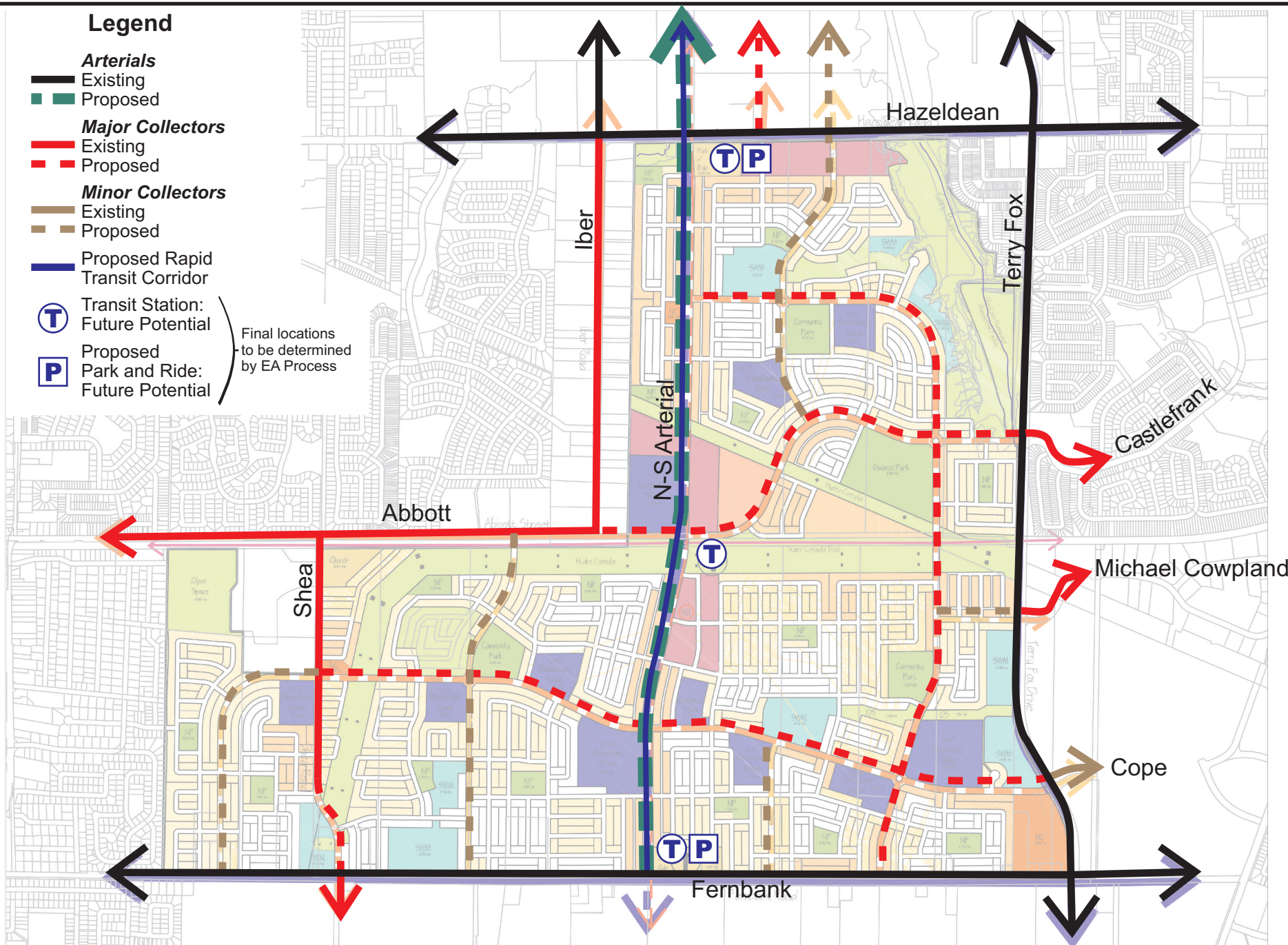
**Table 12-2: Potential Development Phasing**

Transportation Elements	Development Capacity
<ul style="list-style-type: none"> <li>• North-South Arterial: Two-lanes between Fernbank Road and Abbott Street (including collector road connection to Iber Road)</li> </ul>	3000 units
<ul style="list-style-type: none"> <li>• Hazeldean Road: Four-lanes</li> <li>• North-South Arterial between Abbott Street and Hazeldean Road</li> </ul>	8000 units
<ul style="list-style-type: none"> <li>• Terry Fox Drive: Four/six lanes as per 2008 Transportation Master Plan</li> </ul>	Build-out

# Legend

- Arterials**
  - Existing
  - Proposed
- Major Collectors**
  - Existing
  - Proposed
- Minor Collectors**
  - Existing
  - Proposed
- Proposed Rapid Transit Corridor
- Transit Station: Future Potential
- Proposed Park and Ride: Future Potential

Final locations to be determined by EA Process



## Section 13.0 Conclusions and Recommendations

The following are the conclusions and recommendations arising from the analysis of the long-term transportation system needs to serve the proposed Fernbank Community Design Plan.

1. The proposed Fernbank Community, as identified in the recommended CDP is estimated to have the potential to contain between 10,000 and 11,000 dwelling units and 2400 jobs at build-out, within the urban boundary.
2. The proposed Fernbank Community is assumed to develop in parallel with the Kanata West Development Area (KWDA) over the next 20-25 years to the horizon year (2031) of the upcoming City of Ottawa Official Plan (2008).

The combined development of the two new communities is anticipated to contain approximately 17,000 dwelling units and 26,500 jobs, and will result in the need for additions to the arterial road and rapid transit networks, over and above those in place today, the majority of which had already been identified in the 2003 City of Ottawa Official Plan and Transportation Master Plan and which have now been included in the recently approved 2008 Transportation Master Plan.

3. The achievement of a peak hour transit share of travel approaching 25% in the peak direction west of Terry Fox Drive will, if achieved, result in transit ridership figures of approximately 3000 passengers per hour at build-out. Volumes of this magnitude justify the extension of rapid transit within Kanata West to the Fernbank community.
4. Although the peak hour transit ridership within the Fernbank Community will be considerably less than that within Kanata

West (approximately 1500 pph v 3000 pph), the application of the current City of Ottawa Policy to extend rapid transit to the future urban boundaries means that a Rapid Transit Corridor extension from Kanata West (Hazeldean Road) to Fernbank Road must be protected for.

5. Based on the assumption that the peak hour transit share targets of the recently approved 2008 TMP are achieved as a result of the proposed implementation of rapid transit corridors to the extremities of the urban area by 2031, no additional arterial capacity will be required through the Greenbelt by 2031 over and above that already identified in the 2003 COP and confirmed in the 2008 TMP, along with the proposed widening of Highway 417 to 8 lanes, by MTO.
6. The development proposed in the recommended Fernbank CDP will require the extension of the North-South Arterial as a future 2/4-lane arterial south to the urban boundary at Fernbank Road, in addition to the arterial widenings already identified in the 2003 TMP and confirmed in the 2008 TMP (Hazeldean Road and Terry Fox Drive).
7. The recommended arterial road network at build-out in the vicinity of the Fernbank Community should comprise:
  - Hazeldean Road: 4 lanes: Terry Fox Drive to Carp Road
  - Terry Fox Drive: 4 lanes: Castlefrank Road to Eagleson Road  
6 lanes: Palladium Drive to Campeau Drive
  - North-South Arterial: 2/4 lanes: Palladium Interchange to Fernbank Road
  - Fernbank Road: local upgrades (auxiliary lanes/traffic signals) at collector

road intersections between Shea Road and Terry Fox Drive

8. Within the KWDA, the proposed alignment of the North-South Arterial has been identified as far south as Hazeldean Road. The Fernbank Community requires its extension from Hazeldean Road to Fernbank Road. Combined with a rapid transit corridor, the recommended right-of-way is 41.5m from Hazeldean Road to Fernbank Road.
9. In addition to providing arterial capacity to the Fernbank Community, the North-South Arterial will function as a bypass of Stittsville, reducing traffic volumes on Stittsville Main Street.
10. All other arterial rights-of-way remain as identified in the 2003 City's Official Plan (Hazeldean, Terry Fox, Fernbank).
11. The 4-laning of Fernbank Road is not required under the current land use assumptions of the Fernbank CDP. Should the urban boundary be extended south at some future date, the ROW being protected in the current 2003 COP (37.5m) will satisfy future capacity needs (four-laning).
12. The major collector road network identified in the Fernbank CDP is recommended to have a ROW not less than 26m.
13. The currently available capacity on Terry Fox Drive, Fernbank Road and Abbott Street coupled with the recently proposed timing of strategic arterial capacity, in particular the four-laning of Hazeldean Road between Iber Road and Terry Fox Drive commencing in 2011 and the Kanata West North-South Arterial, will facilitate the orderly phasing of the Fernbank Community at an average development rate of approximately 500 dus per annum.
14. The planned widening of Highway 417 by MTO to be completed over the next 3/4 years, adding 4 lanes east and west of Eagleson Road, will greatly ease congestion at both

the Eagleson and Terry Fox Screenlines with complementary relief provided to the east-west arterial system.

However, the increased freeway corridor capacity will emphasize the need for increased north-south arterial capacity, to be provided by the North-South Arterial, in order to efficiently utilize the additional freeway capacity being made available in the near future.

15. It is recommended that grade-separation of the Trans-Canada Trail at the North-South Arterial corridor be protected for.