

Mahogany Community, Manotick Development Concept Plan



January 2008

Mahogany Community, Manotick **Development Concept Plan**

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January 2008

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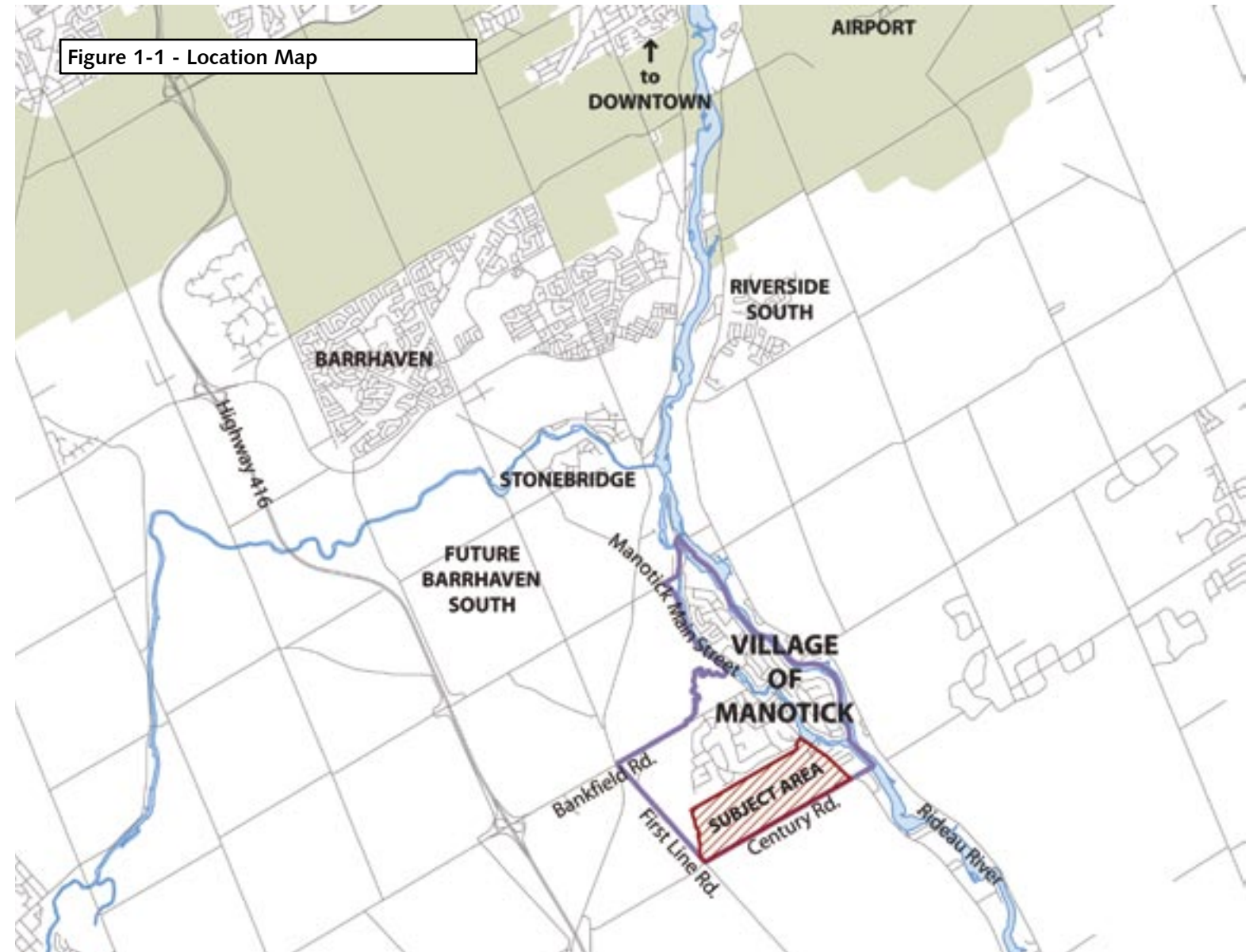
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CHAPTER 1 - INTRODUCTION

The Mahogany Community, Manotick Development Concept Plan for the Serviced Development Area (i.e. Subject Area lands) is required by the Village of Manotick Secondary Plan, 2001. Minto Developments is proposing a residential development, Mahogany Community, on the lands south of the existing Village Core and within the Village boundary of Manotick. The implementation of the Development Concept Plan (DCP) will require an Official Plan Amendment to the 2001 Secondary Plan. The DCP contains a Land Use Concept Plan which provides a blueprint for future development. In addition, the DCP contains a Demonstration Plan, which illustrates the implementation of the Community Design Guidelines, which have been prepared specifically for the Mahogany Community. Furthermore, the DCP contains an implementation and phasing strategy to guide future development approvals. A Background Report, January 2008, available under separate cover, was prepared along with technical studies supporting the development.

1.1 THE LANDS

The Village of Manotick is located in the City of Ottawa, approximately 30 minutes (40 km) from downtown Ottawa and approximately 20 minutes (20 km) south of the Ottawa Macdonald-Cartier International Airport, as illustrated in Figure 1-1. The Village is situated south of the existing and future communities of Barrhaven South, Riverside South, and Stonebridge. Prior to amalgamation, the Village formed part of the Township of Rideau.



1.2 PLANNING HISTORY

The Village of Manotick is situated at the intersection of four former townships; North Gower, Nepean, Gloucester, and Osgoode as illustrated in Figure 1-2, which is a map of the County of Carleton. The plans for the Village of Manotick were registered with Carleton County by Kent Moss Dickinson in 1861.

Manotick was incorporated as a Police Village within the Township of North Gower by the Carleton County Council in 1903. The Police Village included both the mainland and portions of Long Island.

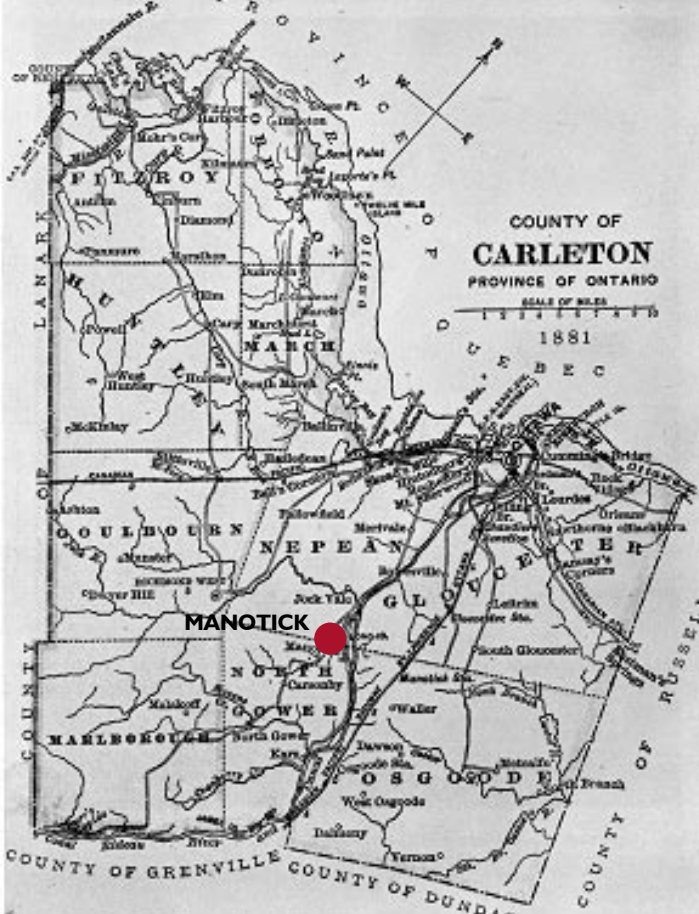
At a higher level, North Gower, Nepean, Gloucester, and Osgoode Townships became a part of the Regional Municipality of Ottawa-Carleton when it was formed in 1969.

On January 1, 1974, the Township of Rideau was formed through the amalgamation of North Gower and Marlborough Townships. When this happened, the Manotick Police Village was dissolved and the Village of Manotick, including both the mainland and Long Island portions, became part of Rideau Township.

In response to Rideau Township's draft official plan amendment to expand the village boundary of Manotick, the Ministry of Environment provided a response on February 9, 1990 that provided the following observation and conclusion:

"In conclusion this Ministry does not support the concept of growth of Manotick to a population of 6,000 persons on the basis of private wells supplies and septic tank disposal systems. It is recommended that the extension of municipal services from the Nepean South Community be considered."

Figure 1-2 - County of Carleton, 1881



The 1992 Rideau Official Plan expanded the village boundary to include the Subject Area lands that are now owned predominantly by Minto. The village boundary was approved by the Regional Municipality of Ottawa-Carleton in 1995; however, development within the village boundary was deferred pending completion of a Servicing Options Study and a Secondary Plan.

The Servicing Options Study completed by Robinson Consultants recommended that development of the Subject Area lands be on the basis of central sewer and water services.

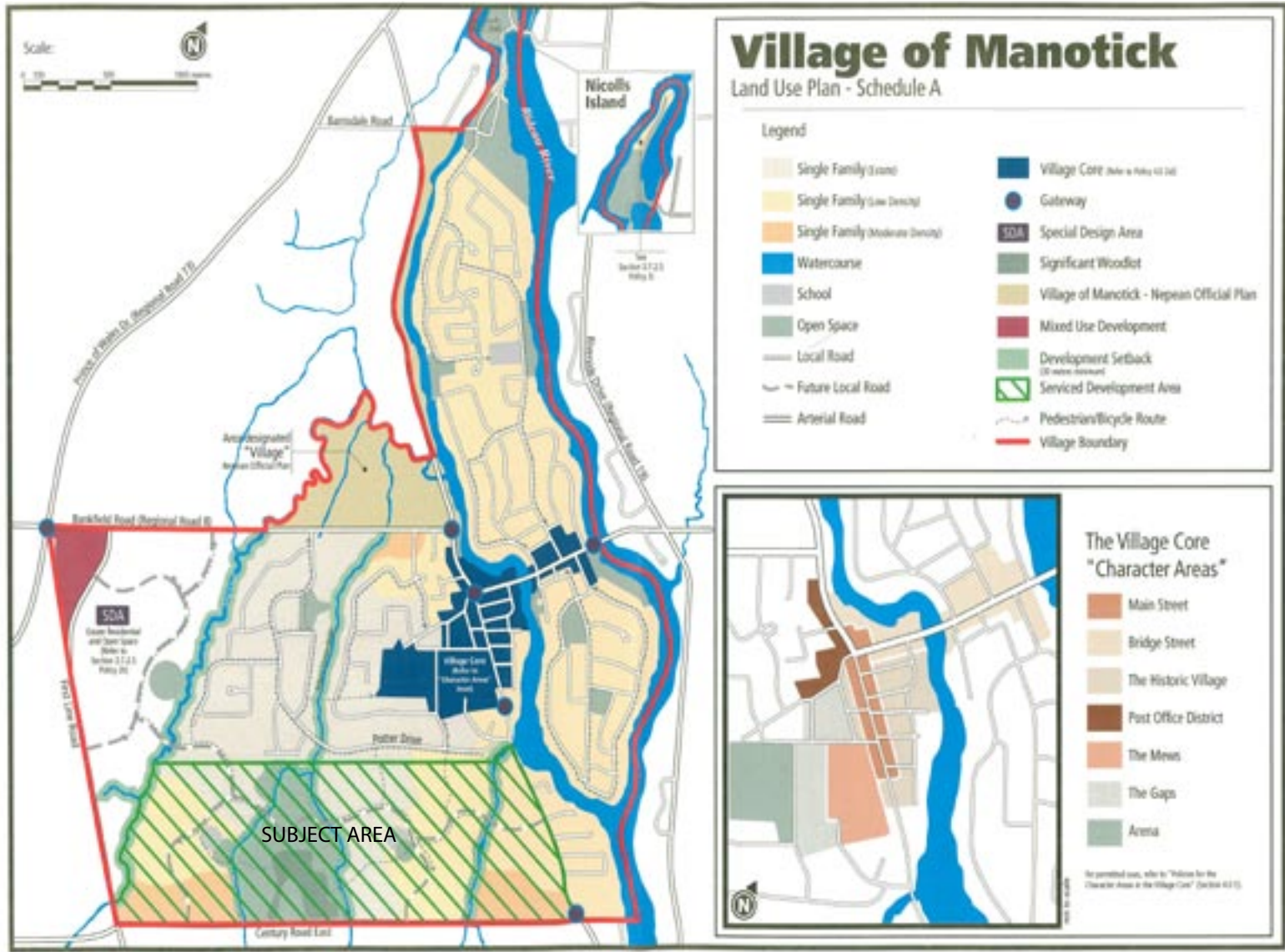
The Secondary Plan was adopted by Rideau Township in 2000. The Plan designates the Subject Area outlined in Figure 1-3 as Serviced Development Area which is subject to the following policies:

1. Areas designated Serviced Development Area on Schedule A shall be developed without amendment to this Plan provided the following conditions are satisfied:
 - i) All development shall be on the basis of central water and wastewater services.
 - ii) A comprehensive development concept plan has been prepared for the entire area, to the satisfaction of the City of Ottawa, that will facilitate the logical phasing of development in the area (the integration of transportation links, parks and open space, schools, pedestrian links and stormwater) and that will form the basis for various, subsequent plans of subdivision; and
 - iii) The location and ownership of the schools, recreation and/or open space areas will be to the satisfaction of Council, and determined in consultation with the affected land owners and the Manotick community.

In 2001, the new City of Ottawa was created by the amalgamation of 11 urban and rural municipalities and the Regional Municipality of Ottawa-Carleton. Rideau Township was included in this amalgamation and thus, Manotick is now a part of the City of Ottawa.

The Manotick Secondary Plan was approved by the new City of Ottawa in 2001. The Subject Area shown in Figure 1-3 has been approved for future development since 2001. This document, the Development Concept Plan has been completed, as required by the Secondary Plan and will be subject to the approval by the City.

Figure 1-3 - Manotick Secondary Plan



1.3 SUBJECT AREA

The Development Concept Plan (DCP) Subject Area includes all of the lands designated Serviced Development Area in the Manotick Secondary Plan illustrated in Figure 1-3. The Subject Area illustrated in Figure 1-4 is approximately 194 ha (480 acres) within the Village of Manotick boundary, south of the Village Core. The Subject Area is bounded to the north by the existing residential area of Manotick Estates, Watterson Street, and Carrison Drive; to the south by Century Road; to the east by Manotick Main Street; and to the west by First Line Road and Mud Creek as illustrated in Figure 1-4. To the east of the Subject Area is the Rideau River and Long Island, which also forms part of the Village of Manotick. The Special Design Area (SDA) lands are west of Mud Creek. Mahogany Harbour on the Rideau is at the northeast corner of the Subject Area.

1.4 LAND OWNERSHIP

The majority of the Subject Area lands is owned by Minto Developments Inc. There are other parcels along Manotick Main St. and First Line Road, and a parcel of land located in the southwest corner of the Subject Area, which are owned by private individuals or condo corporations. These lands are included and illustrated within the Subject Area boundary for contextual and long range planning purposes.



Figure 1-4 - DCP Subject Area

1.5 DEVELOPER'S INITIATIVE FOR ENERGY EFFICIENCY

Minto views the Mahogany Community in Manotick as an exciting and leading edge opportunity to build energy efficient houses in today's increasing awareness of energy efficiency and responsibility to sustainable community development.

"Inspiration - the Minto Eco Home" in Manotick was one of 12 projects selected by the Canada Mortgage and Housing Corporation (CMHC) to build a Net Zero Energy House from 72 entries across Canada. One of the most important features is the high level of insulation in the building envelope, including double wall construction along with strategically located triple pane windows. In addition, the home would have a sophisticated ducted-filtered solar ventilation systems to maintain humidity and temperature levels. Minto has also made a commitment that all homes in Mahogany Community will be a minimum of Energy Star™ rated.

The Inspiration House is an example of energy efficient, sustainable housing. It is anticipated that "Inspiration" will open its doors in 2008, with tours guiding visitors through features and benefits of real world sustainable living. It is planned that many features of the Net Zero Energy Model will be available to future home owners in the Mahogany Community.



While Minto's Mahogany Community is not part of the Leadership in Energy and Environmental Design - Neighbourhood Developments (LEED-ND) US Pilot Program, efforts have been made to apply the standards to this development. Additional information on Minto's application of LEED criteria in the Mahogany Community can be found in the Background Report.

CHAPTER 2 – GUIDING OBJECTIVES AND PRINCIPLES

The planning objectives are overarching goals that guided the preparation of the Land Use Concept Plan. The objectives have been developed through a number of sources, including Official Plan policies, community input, Project Team input, and sustainable best practices. The Community Planning Objectives and Principles will guide future development of the Mahogany Community.

2.1 COMMUNITY PLANNING OBJECTIVES

1. Preserve ecological and key natural features such as woodlots, Candidate Area of Natural and Scientific Interest (ANSI) and watercourse corridors
2. Design the community as an extension of the Village by reflecting the traditional and unique village character
3. Provide a mix of housing types to broaden choices in the Village consistent with changing demographic profile
4. Provide low energy consuming housing construction options
5. Design the community as an extension of the Village by providing appropriately located pedestrian, cycling and emergency vehicle connections
6. Provide sufficient road connections to the bounding arterial roads at safe locations to efficiently distribute site traffic, to minimize circuitous travel, and to accommodate the early implementation of transit service

7. Provide safe multi-modal transportation linkages including pedestrian and cycling linkages on roadways, and through existing and future parks, school sites, open space, and on both developed and undeveloped land connecting to the Village Core
8. Phase development to coincide with the provision of as required servicing and transportation infrastructure
9. Incorporate sustainable elements in the planning of the new community. This would include protection of the natural environment, consideration of cultural and social amenities, and opportunities for commercial development within a fiscally responsible framework
10. Maximize opportunities for energy efficiency such as solar gain
11. Provide adequate active recreational space and recreational facilities within an integrated park system
12. Provide for efficient use of planned water and sewer services within an overall Village servicing strategy
13. Incorporate sustainable practices in the design of water, sewer and stormwater systems
14. Maximize opportunities for enhanced planting in the stream corridors and integrate planting into stormwater design solutions where appropriate
15. Provide a variety of architectural models, and range and mix of sizes keeping with the existing village character

2.2 COMMUNITY DESIGN PRINCIPLES

The design principles have been derived from an analysis of Manotick's cultural landscape and a discussion of community values. Some of the values identified as being important to the community were:

- connectability;
- special consideration and community support for seniors;
- mix of housing;
- unique sense of community; and
- protection of natural environment.

Analysis of the existing Village reveals several patterns, which if applied to the new development, will strive to make it an extension of the Village rather than a separate entity on the south edge of the Village.

While most of the Village is composed of fairly recent residential neighbourhoods, the original Village conveys such a strong impression of intrinsic character that it outweighs some of the bland or neutral commercial development in the Core. The grid block system, 'T' intersections and streets which end in views to the river, or green spaces, are all patterns that can be repeated.

The residential neighbourhoods have varying sizes of homes, but all of these neighbourhoods are notable for their mature, informal northern landscape. Many of these large trees are evergreen, and tend to be clustered in small groups and copses, rather than as regularly spaced street trees. Another very distinctive characteristic of Manotick is the clear definition not only of the Village, in its rural setting, but also the various neighbourhoods. This is a result of natural boundaries, such as the Rideau River, and open space which buffer and separate neighbourhoods. Additionally most neighbourhoods have 'green gateways' such as Barnsdale Road, which is like a rural lane, or turning off Bridge Street to either the north or south neighbourhoods on Long Island.

Manotick also resonates with reminders of earlier times. The various monuments, key buildings and active community historical associations all indicate that heritage is clearly a strong community value. Vestiges of former uses, such as hedgerows, and sheds and garages are reminders that this is a place with a past. Views of boats and navigation aids on the Rideau waterway are other reminders of the Manotick connection with other settlements along that cultural landscape.

These three broad characteristics of the Village; clear definition of neighbourhoods, echoes of the past, and an informal northern landscape, are major key influences in the design principles for the new community, as set out below.

2.2.1 Optimize connections with the existing Village

- Provide good walking routes to the Village Core
- Maximize connections from the woodlot and creek open space corridors (Mud Creek in particular) to the rest of the Village
- Provide trail and path network through and along open space system, including safe street crossings

2.2.2 Breakdown the scale of the community by defining neighbourhoods (a series of neighbourhoods, rather than one large subdivision)

- Use open space system to separate neighbourhoods
- Design spine roads as green, pedestrian friendly corridors which define edges of neighbourhoods
- Provide 'green' gateways into neighbourhoods
- Create pedestrian friendly streetscapes with landscaping and a variety of façades
- Provide distinctive neighbourhood identity with public

elements such as parks and mail pick-up areas and architectural cohesiveness

2.2.3 Design with Nature

- Preserve and enhance the woodlots and streams as the open space framework of, and wildlife corridors through, the new community
- Plant mixed hedgerows and plant groups (copses) of trees
- 60 m minimum wildlife corridors along streams with enhanced planting (30 m buffer zone on each side of the normal high water mark of watercourse)
- Use native vegetation as part of stormwater management (i.e., a treatment train) such that runoff is detained / slowed before it discharges to a watercourse
- Retention of natural vegetation on slopes to reduce erosion
- Conservation of as many existing trees as feasible
- Use of appropriate natural infiltration techniques on site to reduce the need for stormwater management ponds
- Orientation of streets to maximize opportunities for passive solar heating and reflection of natural contours
- Protection of natural stream corridors and incorporation of natural features into open spaces

2.2.4 Make thematic references to Manotick and the Rideau Waterway heritage

- Maximize visual and circulation connections to the Unnamed Drain and Mahogany Harbour
- Design park elements as vestiges or echoes of the former agricultural use and create myths about former uses (e.g., stone walls that seem to be old barn foundations, street names

would be similar to former landowners, names of the lock stations and lakes along the Rideau River

- Use Rideau Canal 'lock stations vernacular' for community elements – fences, entry features, postal boxes areas, etc.
- Provide a mix of architectural forms and sizes reflective of the existing village character

2.2.5 Organize land use and housing types in relationship to abutting fabric

- Locate largest lots adjacent to Potter Drive and provide buffers along Manotick Main Street
- Provide a variety of housing types within each neighbourhood
- Provide the basis of an informal, northern landscape consistent with the existing Village throughout the new community
- Use a native plant palette with a high coniferous content

2.2.6 Crime Prevention Through Environmental Design (CPTED)

- Incorporate CPTED Principles into the community design
- Promote accessibility, safety and security within the various housing environments

CHAPTER 3 – LAND USE CONCEPT PLAN

3.1 THE CONCEPT PLAN

This Development Concept Plan (DCP) is a composite of the Planning Objectives, the Community Guiding Principles, the Land Use Concept Plan and the policies that guide it, and an Implementation Strategy. The Community Design Guidelines and Demonstration Plan further detail and support the policies provided in this Chapter.

The intent of the DCP is to provide a blueprint to guide development of the Mahogany Community. This Plan is the result of an extensive and iterative consultation process with the Village residents and stakeholders, as well as input from municipal staff, regulatory and advisory agencies. The Land Use Concept Plan considered the policy objectives in the City of Ottawa Official Plan, 2003, Consolidated 2007 and the Village of Manotick Secondary Plan, 2001, and is consistent with the Provincial Policy Statement, 2005.

The Land Use Concept Plan and a summary of the land distribution for the Subject Area are found in Section 3.3 of this report. An analysis of the natural resources in the Mahogany Community provided detailed information to inform the Land Use Concept Plan. The following section provides a summary of EcoTec’s Natural Environment Existing Conditions January 2008 report, available under separate cover.

3.2 NATURAL RESOURCES

Vegetation Communities

According to EcoTec’s report, the Subject Area is approximately 18% treed, 4% old field meadow/scrubland, and 78% agricultural with no buildings or structures. An old stone foundation and a silo were noted on the property. Farm field access laneways and 13 vegetation communities, including lowland meadows, hedgerows, coniferous and deciduous forests exist within the Subject Area.

Prominent within the Subject Area is Natural Environment Systems Strategy (NESS) Area 506. This area is located in the middle of the Subject Area (comprised generally of Communities 5, 7, 8, and 10), as illustrated in Figure 3-1. NESS 506 includes a mature upland butternut deciduous forest containing more than 50 large butternut trees and the Manotick Drumlin Forest Candidate Area of Natural and Scientific Interest (ANSI). NESS 506 was classified as moderately significant within the City of Ottawa according to Brunton (1997). EcoTec (2007) has confirmed NESS 506 as a moderately significant area within the City. Its small size limits its significance under the NESS criteria. The significance rating of NESS 506 is primarily due to the natural condition of the area, the rare species found on site, and the watercourses that flow through it. The Manotick Drumlin Forest is a Candidate ANSI being considered as potentially provincially significant due to the rarity of this Ice Contact landform in this region. It is recommended that NESS 506 including the Candidate ANSI, with the exception of a small poplar stand (Community 6) be retained as a natural area.

Watercourses

Four watercourses were noted on or immediately adjacent to the Subject Area. The Wilson-Cowan Drain, a tributary of Mud Creek, and the Rideau River tributary are considered to be permanent, warm water fish bearing watercourses with the potential to provide spawning habitat for northern pike, muskellunge and baitfish species.

The Wilson Cowan Drain tributary is considered to be an intermittent cool-water creek with the potential to provide seasonal habitat for fish species. Mud Creek is considered to be a permanent cool-water creek with both baitfish and sport fish species present. Mud Creek provides spawning habitat for northern pike, muskellunge and baitfish species within the stretch associated with the Subject Area. In general, the temperature regime of a watercourse is defined as coldwater (<19°C), cool water (19 - 25°C) or warm water (>25°C). The base flow and thermal regimes of these watercourses must be maintained to avoid fisheries impacts.

Works within or adjacent to the watercourses will need to be reviewed and approved by the Rideau Valley Conservation Authority (RVCA), and may also require approval from the Ministry of Natural Resources (MNR) or Department of Fisheries and Oceans (DFO). Additional information on fish habitat, including habitat mapping, will be provided as necessary to allow for the assessment of potential fisheries impacts resulting from these works. No in-water works will occur between March 15 and July 1.

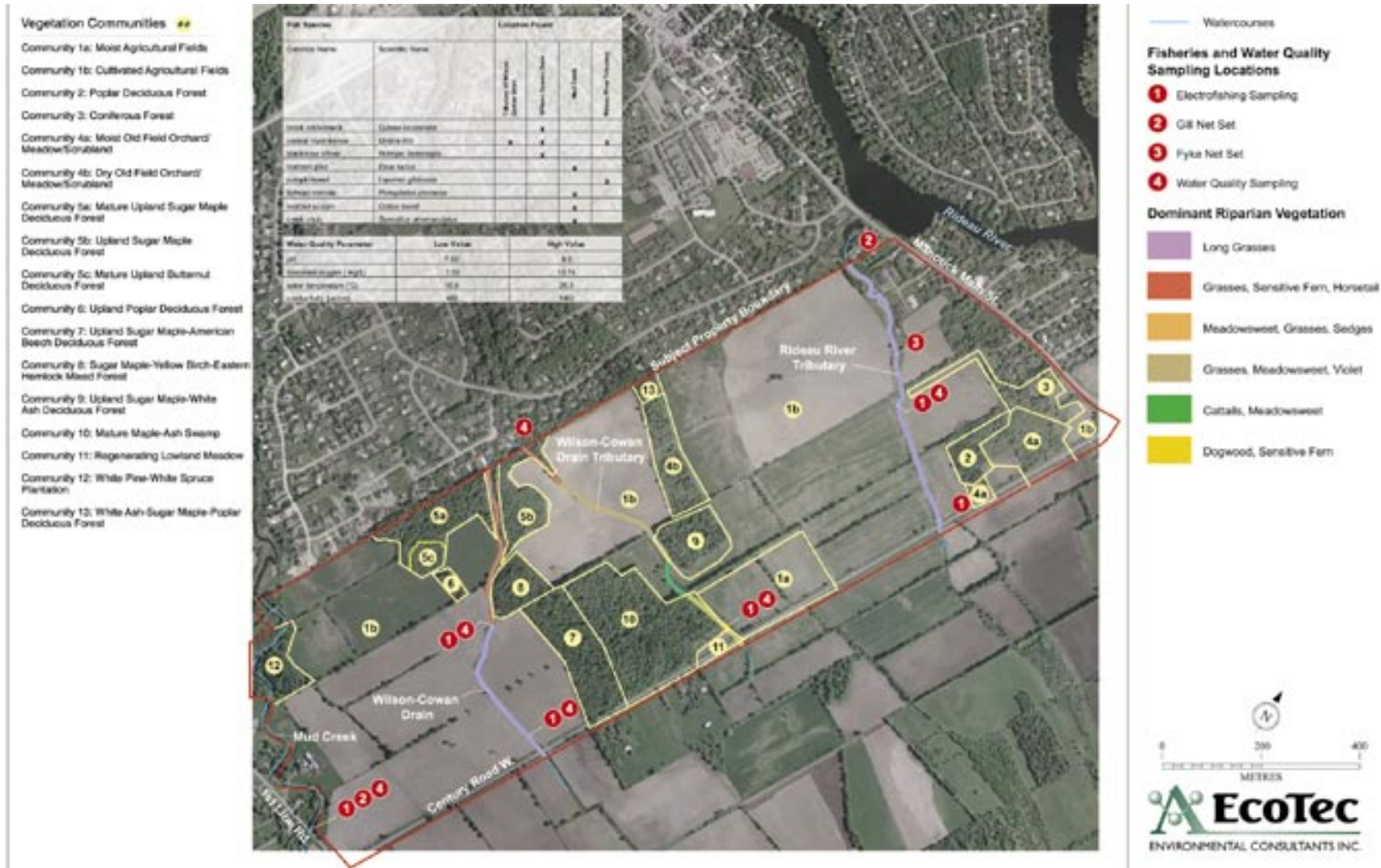
Water Features

A small pond is located in the southeast corner of the property. Local residents report that the pond was constructed as a landscape feature in the 1930s. A low value of dissolved oxygen and a water temperature of 27°C would indicate that the pond is likely not spring fed. No fish were captured within the pond. The pond is likely recharged by the stormwater runoff generated based on area topography.

Wildlife

Wildlife species were noted through observations (sightings, tracks and scats) and call. Twenty wildlife species, including reptiles, amphibians and mammals were noted in the Subject Area. Within the eastern half of the Candidate ANSI, where the standing water within the swamp was the deepest, evidence of amphibian

Figure 3-1 - Vegetation Communities



breeding was noted. This habitat is mainly suitable for breeding toads and the wood frog, gray tree frog, and spring peeper as water within the swamp dries up in the summer months and most other frog tadpoles overwinter. The pond in the southeast portion of the Subject Area also provided habitat for amphibians with potentially suitable breeding habitat for toad or frog species such as the wood frog, green frog, leopard frog, gray tree frog, and the spring peeper. It may not be capable of supporting these species year-round, due to shallow water levels. This pond collects local surface water and shallow subsurface infiltration from a small (6 ha) catchment area, with water levels being maintained by the relatively impermeable subsoil. Reduction of the catchment area will likely result in the pond becoming a seasonally wet feature, which will limit its use by some species.

Wildlife corridors or linkages occur throughout the Subject Area. The most notable linkages are the Mud Creek corridor which is considered a significant linkage in the Marshall Macklin Monaghan report (2005) and the connection from the Candidate ANSI along the Wilson-Cowan Drain to Mud Creek and eventually to the Rideau River. Habitats are connected from one side of the property to the other by fragmented hedgerows.

The forested NESS Area 506 and another woodlot to the east (Community 9) provide a high diversity of habitat suitable for a variety of different wildlife species. Habitat within this area includes forest edge, forest interior, mature deciduous and mixed forest, tree cavities, standing water, rock, leaf litter, understorey vegetation, riparian zones, and shaded watercourses. Due to the high amount of diversity of habitat over a relatively small area of land, and the presence of rare species within the habitat. These communities are considered to be important for wildlife within Manotick and the Mud Creek subwatershed. The old field meadow/scrubland and open cultivated and uncultivated fields provide a low diversity of habitat over a large area of land.

Rare Species

Background research revealed no record of any species at risk in the Subject Area, however two threatened turtle species, the Blanding's turtle and the musk turtle, as well as an endangered bird species, loggerhead shrike, have been noted within the local area (D. Jacobs, pers. comm. 2006). Suitable breeding habitat for the loggerhead shrike was reported but not found within the Subject Area. This is discussed in greater detail below.

Both the musk turtle and the Blanding's turtle prefer shallow permanent bodies of water with soft bottoms and lots of aquatic vegetation. Mud Creek provides localized areas adjacent to the Subject Area which contain these features and thus these species could be found within this creek. None of the other watercourses contained habitat suitable for these turtles.

The endangered butternut tree has been located within the Mud Creek watershed and 157 trees were also found in the Subject Area within the NESS 506 Area, along hedgerows, and adjacent to Mud Creek in the northwest portion of the property by EcoTec. Additional butternut trees were noted by Rose Fleguel (2007) on subsequent visits. The butternut is threatened by a fungal disease known as the butternut canker. This fungus is known to infect trees through open wounds and then expand rapidly to kill the infected tree within a few years though larger trees can take much longer to show dieback (ROM, 2007; Forest Gene Conservation Association, 2007). All of the butternut trees within the property had some form of the butternut canker though trees were overall in good health, except for one immature tree in the southeastern portion of the property (Community 4a) (Fleguel R 2007). In general, butternut trees are scattered throughout a forest in low numbers. In contrast to this, one stand in the northwestern part of NESS 506 (Community 5c) was composed almost entirely of mature butternut trees up to 96 cm in diameter.

The regionally rare Hitchcocks sedge and glade fern have been recorded by Brunton (2005) within the NESS 506 natural area.

These species were not observed during the fall 2006 and spring/early summer 2007 surveys. The floating arrowhead was observed in three locations on site including Mud Creek, Wilson-Cowan Drain and the pond. This species is designated as sparse by Brunton (2005), however it appears to be locally abundant.

Additionally several species rare to the Ottawa-Carleton region were noted either nesting or as possible nesters on site including the Cooper's hawk, magnolia warbler, Lincoln's sparrow and the yellow-throated vireo. In addition, a possible sighting was made of an endangered Henslow's sparrow near the Rideau River tributary. The occurrence of this provincially and federally endangered species should be confirmed.

One of the objectives of EcoTec's study was to assess the sites capability to hold breeding populations of loggerhead shrike (*Lanius ludovicianus*). The findings failed to indicate any evidence of this species or potential suitability of the site for this species for the purposes of breeding. The loggerhead shrike prefers habitats comprised of short grasslands (primarily in the form of pasture land) interspersed with shrubs, fencerows and a multitude of other habitat features (Alberta Sustainable Resource Development, 1999). Though some of the habitat features preferred by loggerhead shrike are present on site, the lack of short grass prairie or pasture habitat is a limiting factor for this species on this site at this time. In order to preserve and enhance the natural features within Mahogany Community, the following will apply:

Vegetation and Woodlands:

- NESS 506 (except Community 6) and Candidate ANSI should be retained and designated as a Natural Environment Area. If retention is not feasible, development within this area will only proceed in accordance with the recommendations of an Environmental Impact Statement (EIS).
- A minimum City-owned buffer of 5m is recommended around the Natural Environment Area, with final buffer width to be determined through an EIS prior to development.

Figure 3-2 - Constraint Details

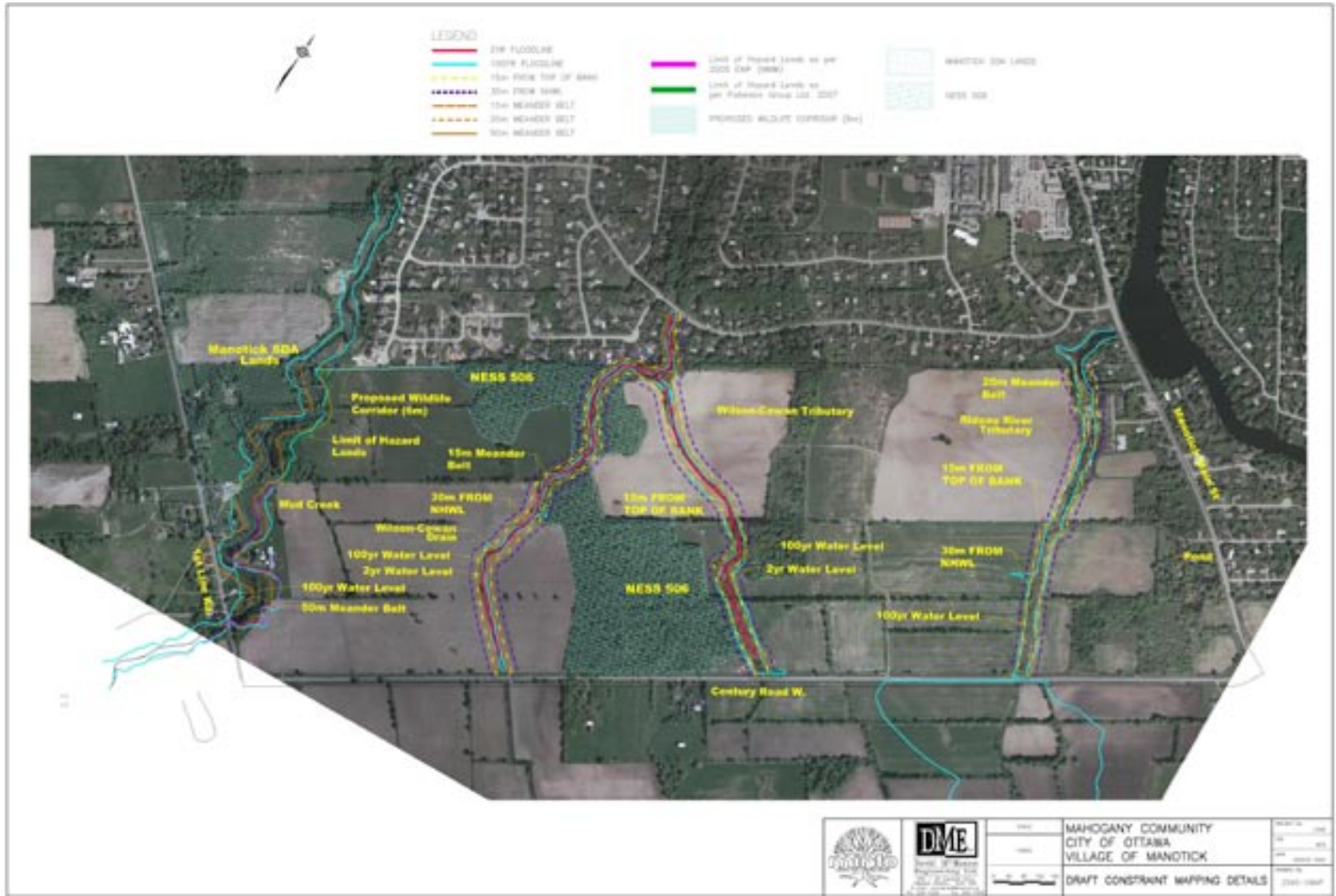
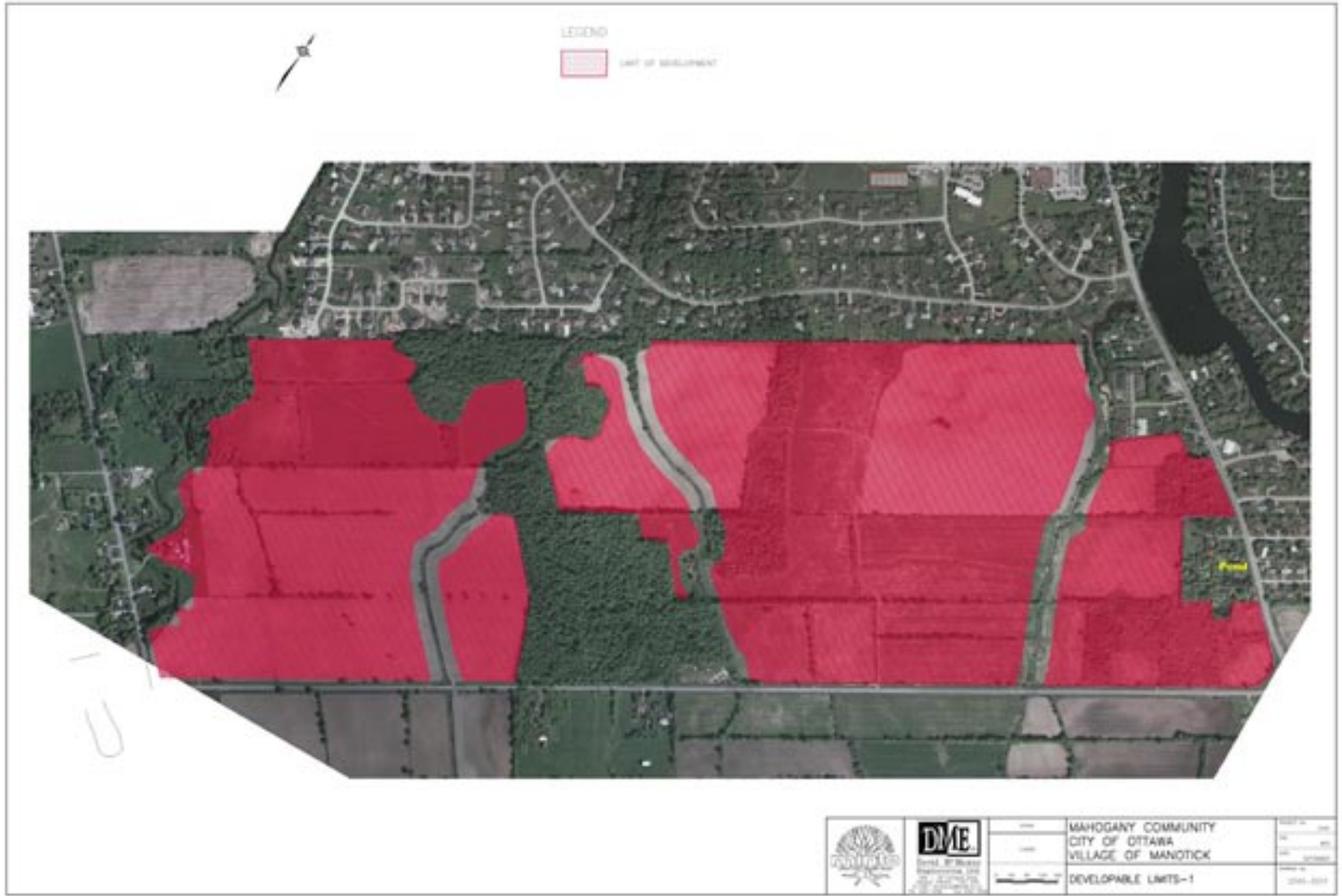


Figure 3-3 - Constraints to Development



Figure 3-4 - Limits of Development



- Trails or pathways should not be developed through the Natural Environment Area, with the possible exception of the previously disturbed northern area (Community 5a). Trails may be established within the buffer lands if approved by the City and the RVCA.
- The Spine Road should be aligned to make use of the existing break in forest cover through NESS 506.
- Protect and enhance forest cover in the meander belt of Mud Creek.
- Landscape and tree preservation plans should address the protection of healthy specimen trees for retention or transplanting, including butternut trees. A minimum standards guideline will be prepared by a landscape architect for the design of hedgerows and wildlife corridors prior to the development of any landscape and tree preservation plans.
- Every effort will be made to use alternative stormwater management systems in order to avoid construction through the Natural Environment Area.
- Alternative locations/designs for the stormwater facility adjacent to Mud Creek will be explored to avoid impacting on vegetation Community 12.

Fisheries

- No in-water works should occur between March 15 and July 1.
- Maintain baseflow within watercourses.
- A clear-span bridge crossing should be used at Mud Creek to avoid fisheries impacts.
- Design culvert crossings to accommodate fish migration. Use open foot culverts or embed culverts at least 20% to avoid perching.
- The existing migration barrier within the Rideau River tributary could be removed to allow fish passage (it is currently limited during peak flows).
- Any streambed disturbed due to area development should

be restored with original bed material or rounded riverstone gravel/cobble. Cobble substrate could be placed within Mud Creek near the proposed crossing, depending on localized hydraulic conditions.

- Disturbed banks of Mud Creek crossing could be lined with “turtle friendly” soils to provide suitable nesting habitat.

Wildlife

- Watercourse crossings should use oversized culverts (or bridges) to provide opportunity for safe passage by small wildlife species.
- Enhance watercourse corridors on site with native trees and shrubs to replace lost vegetation, improve riparian cover and provide up to 60 m wildlife corridors.
- Provide a minimum 6 m buffer of native trees and plantings along the northern border of the Subject Area, to create a wildlife corridor between Mud Creek and NESS 506. The buffer will be secured through public ownership or through a conservation easement at the time of subdivision.
- Migratory bird nesting surveys will be required prior to any site clearing in field, scrubland or forest habitats from April to mid-August. Owl nesting surveys will be required prior to tree removal in Community 9 from December to April. Active nests may require the retention of natural vegetation buffers to avoid impacts during development.

Endangered Species

- A survey to confirm whether Henslow’s sparrow is present will be required prior to development of open field habitat.
- The Ostry method should be used to assess viability of butternut trees on the property. As per direction from MNR, mature specimens are to be replaced at a ratio of 10:1, immature at 5:1 and saplings at 1:1.

Summary

Based on the environmental fieldwork and findings, Figure 3-2 illustrates the constraints details; Figure 3-3 illustrates constraints to development; and Figure 3-4 illustrates the limits of development. The natural environment features and functions have been considered in the preparation of the Land Use Concept Plan in an integrated manner based on a natural systems approach. Habitats suitable for protection/retention have been identified and mitigation measures developed including design with nature practices to reduce negative impacts.

The Official Plan defines “design with nature” as an approach that employs the aquatic, terrestrial and biological characteristics into a site design to reduce the reliance on technological solutions, which are expensive and less environmentally sensitive. The approach may include:

- Retention of natural vegetation on slopes to reduce erosion;
- Conservation of as many existing trees as feasible;
- Use of appropriate natural infiltration techniques on site to reduce the need for stormwater management ponds;
- Street and building orientation to maximize opportunities for passive solar heating and reflection of natural contours; and
- Protection of natural stream corridors and the incorporation of natural features into open spaces.

3.3 LAND USE DISTRIBUTION

Based on Figure 3-5, the Land Use Concept Plan, the following table lists the distribution of land uses.

Table 3-1 - Land Use Distribution

Land Use	Area (Hectares-Ha)	Area (Acres-Ac)
Residential (Phases 1-5)	65	161
Schools	5	12
Parks* and Open Space (includes Neighbourhood Amenity) (Phases 1-5)	7	17
Natural Environment Area	21	52
Stormwater Management Ponds	7	17
Watercourse and Development Setback	19	47
Future Development Area	33	82

* Subject to further review of the parkland conveyance calculation.

The following table identifies potential units and housing densities for the Mahogany Community (Phases 1-5).

Table 3-2 - Housing Units and Densities (Phases 1-5)

House Type	# of Units	Area (Ha)	Area (Ac)	Gross Area (Ha) (includes roads @ 25%)	Gross Area (Ac) (includes roads @ 25%)	Gross Residential Density*
Single Family (Low Density)	70	9	22	11	27	6.4 u/ gross ha (2.6 u/ gross ac)
Single Family (Moderate Density)	950	48	119	60	148	15.8 u/ gross ha (6.4 u/ gross ac)
Mixed Residential	345	8	20	10	25	34.5 u/ gross ha (13.8 u/ gross ac)
TOTAL (Phases 1-5)	1365	65	161	81	200	16.8 u/ gross ha (6.8 u/ gross ac)

*The gross residential density was measured using the Village of Manotick Secondary Plan Policy 3.7.2.5 (2)(e) definition which reads "Gross residential' refers to a unit of land, either an acre or hectare, designated for residential development on Schedule A, and does not include lands designated as "School", "Open Space", "Watercourse", "Significant Woodlots", and "Development Setback". It is proposed to amend this definition to also exclude "Natural Environment Area" and "Stormwater Management Ponds". In effect this definition includes all residential area plus roads.

The housing mix is summarized as a percentage of the total number of units proposed for Phases 1-5:

- Single Family (Low Density) = 5%
- Single Family (Moderate Density) = 70%
- Mixed Residential = 25%

From this it is evident that the predominant form of housing in the Mahogany Community is single-detached housing of approximately 75%.

There are eleven (11) land use categories as follows:

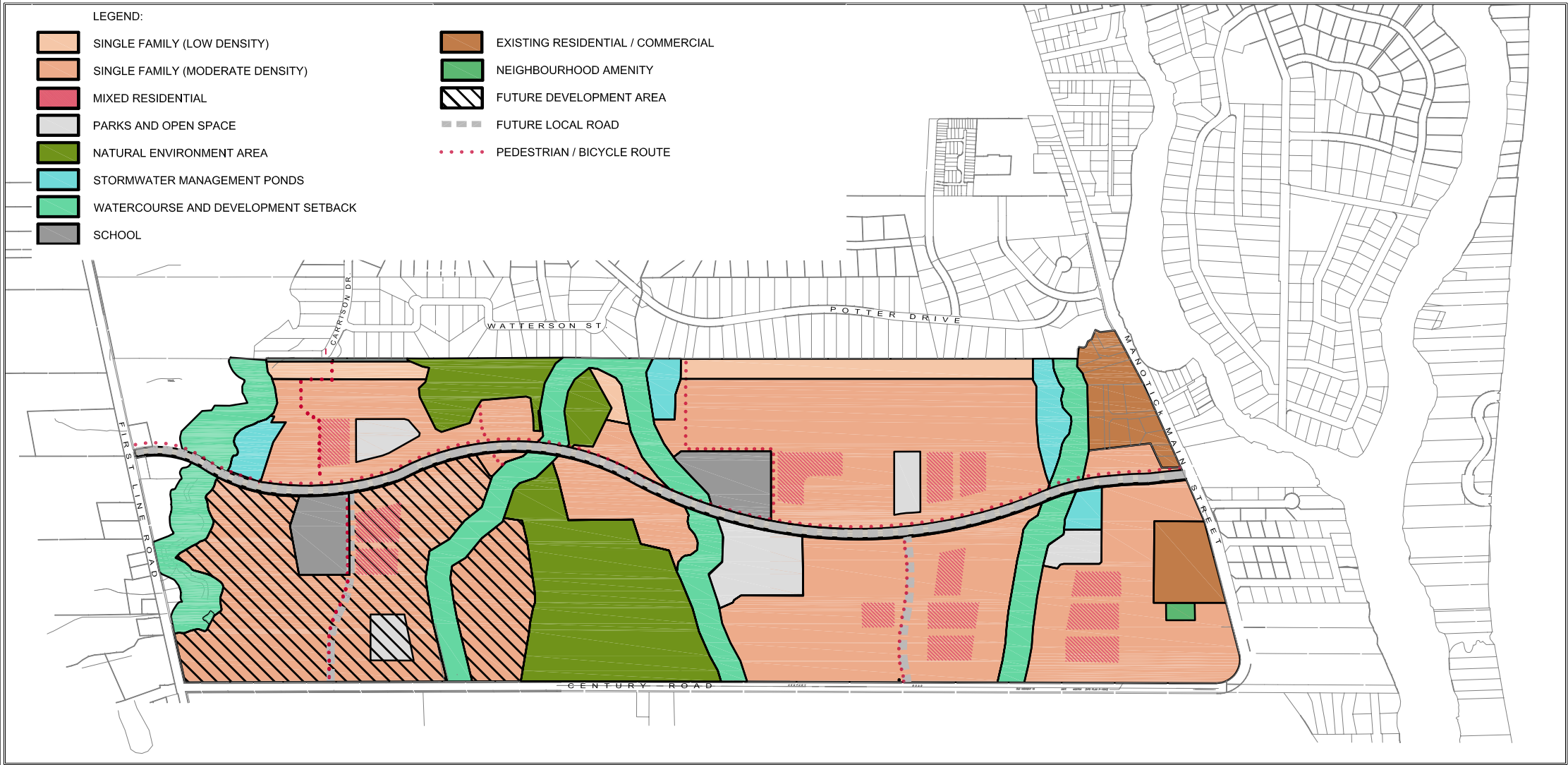
1. Single Family (Low Density)
2. Single Family (Moderate Density)
3. Mixed Residential
4. Parks and Open Space
5. Natural Environment Area
6. Neighbourhood Amenity
7. Stormwater Management Ponds
8. Watercourse and Development Setback
9. School
10. Existing Residential / Commercial
11. Future Development Area

3.3.1 Single Family (Low Density)

The purpose of the Single Family (Low Density) land use category is to provide a transition area and to provide similar-sized lots of the existing estate-type lots on private services on Potter Drive, Carrison Drive and Manotick Estates along the northern boundary of the Subject Area.

Single-detached dwellings are permitted uses within the Single Family (Low Density) land use category with an approximate lot size of 22 m x 50 m (72 ft x 164 ft).

Figure 3-5 - Land Use Concept Plan



3.3.2 Single Family (Moderate Density)

The purpose of the Single Family (Moderate Density) area is to provide an adequate amount of land to accommodate larger lots for single-detached dwellings, which are permitted within this land use category. The lot sizes for this land use category would range from approximately 13.5 m (44.3 ft) to 18 m (59 ft) for frontage and a lot depth of 32 m (105 ft). These lot sizes are larger than the typical standard lot size for an urban single-detached dwelling of 9 m x 30 m (30 ft x 100 ft). The density for these areas are up to seven units per gross residential acre (16 units per gross residential hectare).

3.3.3 Mixed Residential

The purpose of the Mixed Residential land use category is to provide areas for ground-oriented multiple unit housing forms in the Village of Manotick. This designation allows more compact development and a variety of housing. The Mixed Residential areas are located within the neighbourhood cells throughout the Subject Area. The Mixed Residential land use category can include various forms of housing types, including small lot singles, street townhomes, linked bungalows, semi-detached, and multiple clusters. The densities of the Mixed Residential should not exceed 35 units per gross residential ha (14 units per gross residential acre).

The Mixed Residential units should be distributed throughout the Mahogany Community as shown conceptually on the Land Use Concept Plan and represent no more than 25% of the total residential units for the area.

3.3.4 Parks and Open Space

An integrated parks and open space system identifies the lands that would accommodate a full range of active and passive recreational opportunities, such as sports fields, children's play areas, leisure areas, including pathways and trails. Public parks and trails, community hall, washroom and change facilities, parking lots, and commercial uses in support of the primary park function are also permitted uses in this land use category.

The Mahogany Community consists of a park hierarchy of 3 levels of Parks and Open Space - Community Park, Neighbourhood Parks, and Linear Pathway System. One (1) community park and four (4) neighbourhood parks are proposed, one (1) of which is in the Future Development Area. The park system is linked by a linear pathway system.

The Official Plan identifies a target of 4 ha per 1,000 population for greenspace (or approximately 16-20% of gross land area), which includes Stormwater Management (SWM) ponds. The other Official Plan target is 2 ha per 1,000 population (or 8-10% of developable area) for parks and leisure, which includes dedicated parkland under the Planning Act (5%), as well as parks owned by the City and other public agencies.

Based on the measured Subject Area of 194 ha and the Land Use Concept Plan, the Mahogany Community should pursue the target of at least 16% of gross land area for greenspace. This translates to gross 194 ha x 16% = 31 gross hectares. The Mahogany Community is proposed to meet this requirement by providing 41 ha or 21% of the total area for greenspace.

The process to determine the final calculation for the acreage of the 5% parkland conveyance at the development stage may result in an additional number of acres to be conveyed for public parkland. In this case, the additional acreage beyond that shown in Figure 3-5 will be used to add to the area of one or more of the parks as presented in the Land Use Concept Plan.

More details on greenspace and parks are found in Chapter 4 of this document.

3.3.5 Neighbourhood Amenity

A small area of natural greenspace will be retained around the pond in the southeastern part of the property as a neighbourhood amenity and seasonal wildlife habitat. The permitted uses in this land use

category include trails and pathways. The location and design of any such amenities will need to be approved by the City and the RVCA.

3.3.6 Natural Environment Area

The purpose of the Natural Environment Area designation is to protect the largest natural feature in the Mahogany Community (i.e., the significant woodland comprised of NESS 506 and the Candidate ANSI, which is approximately 20 ha in size). EcoTec's analysis has verified the significance of NESS 506 and recommends the NESS (except Community 6) for retention. These areas are above the 5% parkland dedication as required by the Planning Act. The area is designated as a Natural Environment Area in the Manotick Secondary Plan (2008) and is subject to the policies in Section 3.7.2.8 (2) (d).

The intent of this designation is to retain these features in their natural state. It is the intention of the Plan that the City secure these lands to preserve them for the community. The acquisition of the NESS area will be subject to the acquisition policies in Section 5.2.1.5 (c) and (e) of the Official Plan, 2003, Consolidated January 2007, and will also be subject to Corporate Services Committee and City Council approval. In the event that the subject woodlot cannot be preserved through acquisition, development of the lands will only be permitted in accordance with the recommendations of an EIS.

3.3.7 Stormwater Management Ponds

The purpose of the Stormwater Management (SWM) Ponds land use category is to provide land to accommodate the stormwater management infrastructure requirements to meet regulatory requirements. A total of four (4) stormwater management ponds are required for the Mahogany Community. Two of these are proposed along the east and west sides of the Unnamed Tributary; one is proposed to the east of the Wilson Cowan Drain tributary; and one is proposed on the east side of Mud Creek. All SWM facilities will provide enhanced water quality treatment, including temperature controls where required. Further details regarding the

SWM pond sizes based on approved stormwater management design criteria can be found in IBI's Draft Stormwater Management Serviceability Study (June 2007), available under separate cover. If other sustainable methods of handling stormwater are approved by the City, these areas may change.

3.3.8 Watercourse and Development Setback

The purpose of the Watercourse and Development Setback use category is to protect the three watercourses in the Subject Area, including the Unnamed Tributary to the Rideau, Wilson-Cowan Drain and its tributaries, and Mud Creek from future development.

Setbacks are required adjacent to all watercourses in the area, as shown in Figure 3-2. The setback is to be 30 m from the normal high-water mark, 15 m from top of bank, the geotechnical setback, the 1:100 flood line or the meander belt, whichever is greater. A minimum 30 m setback from the normal high water level has been established for the Unnamed Tributary and the Wilson-Cowan Drain and its tributaries. The setback for Mud Creek has been established in the Environmental Management Plan for the Special Design Area Component of Manotick (Marshall Macklin Monaghan, WESA 2006). Site-specific geotechnical studies will be required prior to development to assess whether these setbacks will be sufficient from an erosion control standpoint.

The permitted uses in the land use category include trails and pathways. The location and design of any such amenities will need to be approved by the City and the RVCA.

3.3.9 School

The purpose of the School land use category is to reserve potential school sites to serve the future residents of the Manotick community. Two (2) elementary schools, as requested by two of the four area school boards have been identified in the Land Use Concept Plan.

The location and size of the school sites have been provided to accommodate the identified interests of the school boards. However, the sites have not been allocated to the interested school boards, which is determined as part of the subdivision process. Under the Planning Act, school boards have seven (7) years to hold the lands for a future school site.

Schools and associated uses such as day care centres are permitted uses in the School land use category. If identified school sites are not required by any of the school boards, consideration should be given to using the sites for other institutional uses or residential purposes and will be subject to a rezoning to determine the appropriate use.

3.3.10 Existing Residential / Commercial

This land use category is shown on the Land Use Concept Plan to recognize the existing residential and commercial properties along Manotick Main Street. These uses should continue to function as residential and commercial uses in accordance with the existing zoning by-law. A landscape buffer of 3 m to 4.5 m will be provided between the existing properties within the future residential development.

3.3.11 Future Development Area

The lands designated Future Development Area currently cannot be supported by any transportation solution. Development of these lands will not be approved until there is a transportation solution to accommodate development on these lands. A public process in the form of an Official Plan Amendment will be required to permit development. The Amendment shall be supported by a Traffic Impact Study to demonstrate that the road system in Manotick can accommodate additional development.

3.4 THE TRANSPORTATION MASTER PLAN

Transportation Overview

The following summarizes the Transportation Overview prepared by Delcan Corporation in July 2007 which identified the transportation impacts and requirements of the Mahogany Community Land Use Concept Plan. The Transportation Overview is provided under separate cover. The Overview identifies the Subject Area (Manotick Village and arterial roads to the north) existing transportation conditions, the projected site-generated traffic, the planned transit service, the planned downstream arterial road network modifications, the required Village of Manotick roadway modifications and future monitoring requirements to determine if and how the Community can reach its development potential from a transportation perspective. A list of transportation studies and reports is included in the Background Report, January 2008.

The Mahogany Community in Manotick Development Concept Plan Transportation Overview was based on the most current DCP at that time, which proposed 1823 residential units comprised of 1392 single-family units and 431 townhome units. Since then, the Mahogany DCP has been revised to include 1700 dwelling units, 123 fewer than were accounted for in the analysis for the Transportation Overview. The transportation analysis contained herein is based on the original 1823 dwelling units and has not been revised according to the current DCP to account for the decreased number of proposed dwelling units. Regardless, the conclusions stand including the general transportation infrastructure phasing requirements. The net effect of 123 fewer units would be less traffic at full community build-out.

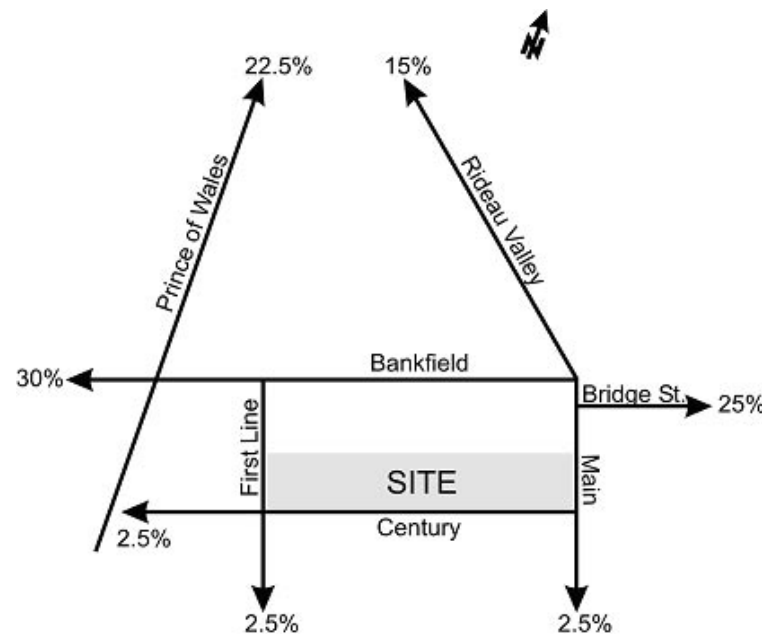
Given that the Development Concept Plan for the proposed Mahogany Community could change before final submission to the City of Ottawa, an update of the analysis of projected conditions reflective of the final DCP submission may be appropriate for final

approval. As documented herein, Transportation Impact Assessments (TIAs) for the various phases of development is a requirement as part of the City's approval process. The TIA would emphasize the transportation requirements and impacts of each of the proposed phases, reflective of the current plan at that time.

3.4.1 Existing Conditions

The Transportation Overview addressed traffic conditions and impacts both in the Village of Manotick and downstream (to the north) on both sides of the Rideau River. Some of the following information summarized herein is more recent than that provided in Section 4.4 of the Background Report, January 2008 and is the basis for analysis.

Within the Village, many of the existing signalized intersections have movements that are currently operating close to or at capacity



during peak periods. Included are the intersections of Manotick Main/Bankfield, Manotick Main/Bridge, Bridge/River Road, Bridge/Long Island and Prince of Wales/Rideau Valley Drive.

These conditions are due primarily to the high traffic volume (2000 vph in the peak periods) using Bridge Street to cross the Rideau River. This traffic is comprised of local traffic, commuter traffic and significant truck traffic and it has reached the capacity level due to the lack of road/bridge capacity across the Rideau River in the south Ottawa study area.

Away from the Village, the appropriate analysis tool is screenline analysis. There are three strategic screenlines located in the vicinity of the transportation study area of interest.

- Fallowfield Road Screenline (SL 9): Located along the north boundary of Barrhaven, it extends from Richmond Road, west of Highway 416 to Prince of Wales Drive in the east, intercepting all the north-south major roads through the Greenbelt, including Richmond Road, Moodie Drive, Highway 416, Cedarview Road, Greenbank Road, Woodroffe Avenue, Merivale Road and Prince of Wales Drive.
- Jock River Screenline (SL 49): Located along the Jock River, it extends from Moodie Drive in the west to the Rideau River in the east. This screenline captures traffic volumes on Moodie Drive, Highway 416, Cedarview Road, Greenbank Road, Jockvale Road and Prince of Wales Drive.
- Rideau River South and Manotick Screenlines (SL 20 and SL 42): Located along the Rideau River South Screenline (SL 20) extends from Heron Road in the north to just north of Fallowfield Road. The Manotick Screenline (SL 42) extends from south of Fallowfield Road southerly to Mitch Owens Drive. Together, these screenlines capture east-west traffic volumes crossing the Rideau River at Heron Road, Hog's Back Road, Hunt Club Road and Bridge Street.

Table 3-3 provides a summary of current (2006) traffic volumes for each of these screenlines, as well as the resulting volume-to-capacity (v/c) ratios (given the assumed directional capacity) and Levels of Service (LoS).

With regard to Level of Service, LoS A corresponds to a v/c of 0.60 or less, indicative of excellent intersection performance. At the other end of the scale and in contrast, LoS F corresponds to a v/c greater than 1.0, consistent with poor intersection performance (i.e. significant delays and queuing).

As shown in Table 3-3, the analysis indicates that the three screenlines of interest currently have available capacity in the peak direction, during the peak hours, except for the combined Rideau River South/Manotick Screenline in the afternoon peak hour (v/c = 0.92). These results are consistent with our peak period field observations.

Table 3-3 - Existing Screenline v/c Rates and LoS

Screenline	Current Assumed Directional Capacities	Peak Directional Traffic Volumes (PCUs)		Current Volume /Capacity (v/c) Ratios and Level of Service			
		AM	PM	AM	PM	AM	PM
Fallowfield Road	12,000	8,920	8,890	0.74	C	0.74	C
Jock River	8,600	3,570	3,690	0.42	A	0.43	A
Rideau River South / Manotick	7,000	5,820	6,420	0.83	D	0.92	E

Potential Residential Unit Targets

The most recent iteration on the Land Use Concept Plan identifies approximately 1,700 units, including the Future Development Area (77% singles and 23% mixed residential). Current thinking is that initial occupancy would occur approximately coincident with the opening of the planned Strandherd-Armstrong Bridge across the Rideau River. The current timing of Bridge construction/completion is 2011, at which time occupancy of approximately 120 units a year is proposed to start. At this rate, 1,200 units in the Mahogany Community would occur by year 2020 at the earliest. However, since all of the Subject Area is not owned by Minto, and as the estate lots may develop slower, build-out could extend to 2028. The analysis herein, as a conservative scenario, is based on 2025 build-out.

Relevant Subject Area Transportation Projects

As listed in Table 3-4 and illustrated in Figure 3-6, there have been a number of transportation-related studies undertaken within, and downstream (north) of Manotick Village to identify and resolve the transportation network requirements of existing development and planned growth in the south sector of the City.

These projects, if implemented in a timely manner, will provide the necessary downstream road and transit capacity to accommodate the travel requirements of south Ottawa residents in the Barrhaven, Riverside South, and Manotick areas.

Community Transit, Pedestrian and Cycle Plan

Transit: With the modified grid plan of the Land Use Concept Plan, the significant majority of community residents will be within 400 m walking distance of transit stops. With the provision of a continuous East-West Spine road, as well as connections south to intersect Century Road, OC Transpo has advised that both Regular Route 186 and Express Route 45 can be efficiently rerouted to serve the Mahogany Community. As the community develops, route frequency can be adjusted to reflect the demand. Route

186 connects to the Barrhaven Town Centre and to the Southwest Transitway at Fallowfield Road, and Route 45 connects to the Southeast Transitway at South Keys.

Pedestrians: Community residents will be well served by a network of sidewalks and pathways in keeping with the current character and function of Manotick Village. The East-West Spine road will be bounded on one side with a 3 m wide asphalt recreational pathway. The two primary north-south road connections to Century Road will have a 2 m wide concrete sidewalk on one side, as will the north-south road that potentially connects to Potter Drive and is bounded on one side by a major school site. The creek and open space corridors will be bounded on both sides by 2 m wide stone dust pathways which will extend through to adjacent communities to the north. The exact location of these paths shall be determined in consultation with the City of Ottawa and the RVCA. Sidewalks are not proposed on local streets.

Cyclists: Internal to the community, cyclists can be accommodated on-road or on 3 m wide recreational pathway located adjacent to the East-West Spine road. Casual cyclists can also use the stone dust paths that connect through to the neighbourhood adjacent to the north.

Build-Out (2025)

In determining and analyzing the projected year 2025 traffic conditions in and adjacent to the Village of Manotick, there was a need to make a number of assumptions, as follows:

- site peak hour traffic generation was based primarily on Institute of Transportation Engineers (ITE) rates except for single family homes where traffic counts from a similar community (Findlay Creek) were used to slightly adjust ITE rates;
- distribution of site-generated traffic to area roads and intersections;
- a background traffic growth rate of 25% to year 2025;

- a redistribution of 500 vph two-way total away from Bridge Street with the opening of the Strandherd-Armstrong Bridge, currently assumed for 2011⁺;
- full occupancy of the approximate 205 residential units planned for the Special Design Area located west of Mud Creek and adjacent to First Line Road; and
- full occupancy of 1823 dwelling units within the Mahogany Community, including a minimum of one road connection to Manotick Main Street, one road connection to First Line Road and multiple road connections to Century Road.

Detail with regard to site traffic generation and distribution follows.

Traffic Generation: Given the non-suburban location of the subject site and the area's relatively low transit ridership, a combination of ITE Trip Generation rates and similar subdivision traffic counts (Findlay Creek) were used to derive appropriate peak hour vehicle trip rates. When applying these rates to the proposed 1823 residential units, two-way total peak hour traffic generation is estimated to be approximately 1230 vph and 1310 vph in the morning and afternoon peak hours respectively. As noted, ITE rates were used for all land use types except for single family residential. If the "fitted" ITE rate for the proposed number of singles had been used, a peak hour decrease of approximately 63 vph two-way total would occur. This difference is considered of no consequence in assessing the traffic impacts adjacent to the project.

Total Projected Traffic Conditions at Full Mahogany

Traffic Distribution: Site-generated traffic was distributed to area roads based on a combination of the location of city-wide employment zones, arterial road connectivity and existing turn movements at key Village intersections. The resultant distribution is depicted below, along with the projected net increase (two-way totals) of site traffic on area roads.

Bridge Street	± 330 veh/h
Rideau Valley Drive (north of Bankfield)	± 195 veh/h
Manotick Main Street	± 570 veh/h
First Line Road	± 640 veh/h
Bankfield Road (Prince of Wales to First Line)	± 635 veh/h
Bankfield Road west of Prince of Wales	± 390 veh/h
Prince of Wales north of Bankfield Road	± 295 veh/h

Required Road Network Modifications

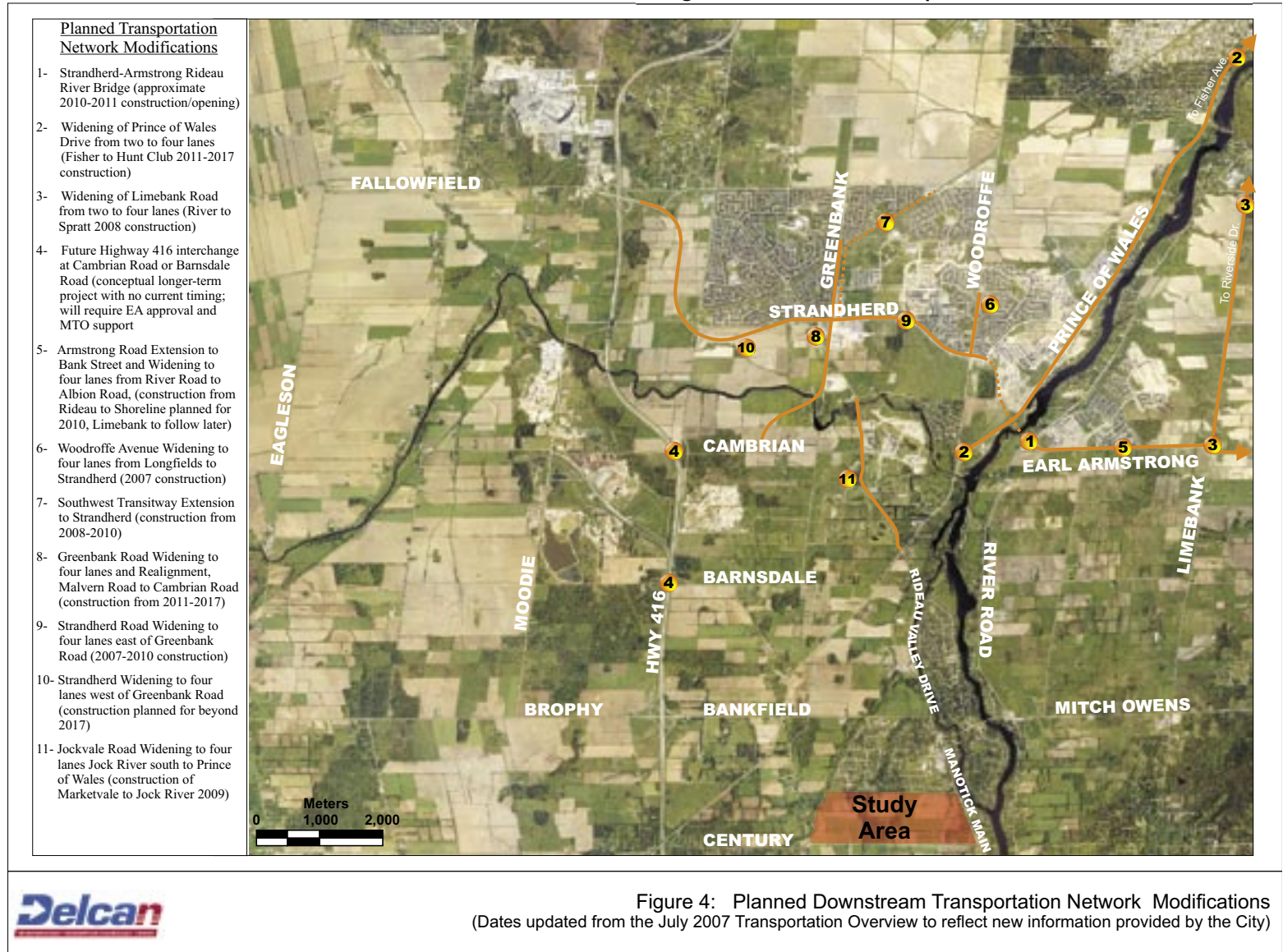
As noted previously, the City has plans to provide sufficient downstream road capacity north of Manotick, that if implemented in a timely manner, will adequately accommodate downstream traffic from the Mahogany Community by its projected build-out period of 2025 at the earliest.

However, the transportation challenge for this development is not downstream, but more local within the Village due to the current at-capacity conditions of a number of Village intersections during peak periods.

To alleviate these current congested conditions in order to accommodate traffic from continued Village growth will require a combination of “freeing-up” existing road capacity and “providing new” road capacity. The estimated travel desire lines for the Mahogany Community’s peak hour traffic are approximately 40% through the Manotick Core area (east and north) and 60% elsewhere. Of the 60%, approximately 53% is estimated to travel through the Bankfield/First Line and Bankfield/Prince of Wales intersection located to/from the north and west.

As there are limited options to provide additional road capacity within the Village, the primary solution in this area is to ‘free up’

Figure 3-6 - Planned Transportation Network Modifications



current road capacity. This will be accomplished with the provision of the Strandherd-Armstrong Bridge across the Rideau River, which is currently planned for approximately 2011. For other locations in the vicinity of the Mahogany Community there are opportunities to provide “new capacity”. This can be done at the site’s access points to adjacent roads and at the aforementioned Bankfield/First Line and Bankfield/Prince of Wales intersections.

From review of the traffic currently using Bridge Street in peak periods and of the turn movements at either end of Bridge Street, it is estimated that the Strandherd-Armstrong Bridge could conservatively remove 25%, or 500 vph two-way total (2000 vph x 0.25) from Bridge Street during peak periods. Removal of this existing traffic from Village Core intersections would result in acceptable levels of service at ±2011 with some spare capacity to accommodate new traffic from area development.

With regard to the proposed site access/egress points to Manotick Main Street, Century Road and First Line Road, turn lanes and signalization can be provided where and when necessary to provide the necessary capacity at these locations to accommodate total site traffic.

With regard to the Bankfield/First Line and Bankfield/Prince of Wales intersections, which are projected to accommodate the majority of site-generated traffic, the following modifications have been reviewed with City staff and are recommended.

Table 3-4 - Transportation Projects

Project	Status
Transit	
<ul style="list-style-type: none"> Southwest Transitway Extension from Fallowfield to Barrhaven Town Centre at Strandherd 	<ul style="list-style-type: none"> EA complete Construction 2008-2010
<ul style="list-style-type: none"> Rapid Transit Extension to Riverside South from South Keys 	<ul style="list-style-type: none"> With cancellation of the North-South LRT study, City currently studying O-Train extension south to Leitrim Road and possibly beyond subject to Transportation Master Plan
Village Intersections	
<ul style="list-style-type: none"> Bankfield/Manotick/Main modifications and signal system 	<ul style="list-style-type: none"> Property acquisition being finalized. Fall 2007 installation
<ul style="list-style-type: none"> Bridge Street/South River Drive and Bridge Street/Long Island Road 	<ul style="list-style-type: none"> Operational study done in 2006. City reviewing/considering options
Roadway Modifications	
<ul style="list-style-type: none"> Strandherd-Armstrong Bridge 	<ul style="list-style-type: none"> EA complete Design underway Construction complete in 2010-2011
<ul style="list-style-type: none"> Earl Armstrong Road widening from River Road to Albion Road 	<ul style="list-style-type: none"> EA complete Construction planned for 2010 Rideau to Shoreline – to Limebank later
<ul style="list-style-type: none"> Limebank Road widening from River Road south to Earl Armstrong Road 	<ul style="list-style-type: none"> EA complete Construction planned for 2008 River to Spratt
<ul style="list-style-type: none"> Prince of Wales Drive widening from Fisher Avenue south to Woodroffe Avenue 	<ul style="list-style-type: none"> EA underway in 2007 Construction planned for Fisher to Hunt Club 2011-2017
<ul style="list-style-type: none"> Strandherd Road Extension and widening to four lanes <ul style="list-style-type: none"> - Greenbank Road to Prince of Wales - Highway 416 to Greenbank Road 	<ul style="list-style-type: none"> EA complete and design underway <ul style="list-style-type: none"> - Construction planned for 2007 to 2010 - Construction planned for beyond 2017
<ul style="list-style-type: none"> Woodroffe Avenue widening from Longfields Drive to Strandherd Road 	<ul style="list-style-type: none"> EA and design complete 2007 construction
<ul style="list-style-type: none"> Greenbank Road widening and Re-alignment, Malvern Drive south to Cambrian Road 	<ul style="list-style-type: none"> EA complete Construction Malvern to Strandherd 2011-2017
<ul style="list-style-type: none"> Jockvale Road widening to four lanes, Jock River south to Prince of Wales Drive 	<ul style="list-style-type: none"> EA underway Jockvale -Longfields Link; Marketvale to Jock River 2009
<ul style="list-style-type: none"> Highway 416 interchange at Cambrian Road or Barnsdale Road 	<ul style="list-style-type: none"> Conceptual longer-term project with no current timing, will require Environmental Assessment approval and MTO support

- Bankfield Road
 - widen to four lanes for the 400 m between Prince of Wales and First Line Road
- Bankfield/First Line Intersection
 - signalize intersection
 - provide double northbound left-turn lanes on First Line Road
 - add an eastbound right-turn lane on Bankfield Road
 - add a westbound left-turn lane and a second westbound through lane on Bankfield Road for a short length east of First Line Road
- Bankfield/Prince of Wales
 - add a second southbound left-turn lane on Prince of Wales Drive
 - add a westbound right and left-turn lanes on Bankfield Road
 - add a northbound left-turn lane on Prince of Wales Drive
 - add a second eastbound left-turn lane on Bankfield Road

Transportation Conclusions and Recommendations

The foregoing outlines the range of roadway and intersection modifications required or available to accommodate peak hour for the Mahogany Community. The development in total will generate significant traffic volumes, which the existing network cannot absorb in its current form.

Assuming all assumptions herein prove to be relatively accurate, intersection capacity analysis of the total projected traffic conditions indicates that key Subject Area intersections will not be able to adequately accommodate the total projected peak hour volumes estimated at build-out (1823 units). Accordingly, alternative levels of site development were assessed to determine the level of development that these key intersections can accommodate. Using this approach, it is estimated with a reasonable degree of confidence that the peak hour traffic from 1300 to 1400 units within Mahogany Community can be adequately accommodated.

Whether peak hour traffic from the remaining approximately 300 to 400 units (based on updated 1700-unit DCP) can also be adequately accommodated, depends on how closely future conditions mirror the traffic-related assumptions made herein. The variables key to this assessment are:

- the accuracy of the community’s assumed peak hour vehicle trip rate;
- the accuracy of the community’s site-generated traffic distribution assumptions;
- the actual redistribution of existing Bridge Street traffic due to the opening of the Strandherd-Armstrong Bridge; and
- the rate of background traffic growth on area roads unrelated to either the Special Design Area or Mahogany Community developments.

Based on the foregoing, it is recommended that 1300 to 1400 units be approved subject to the aforementioned road network improvements being in place in a timely manner and the related traffic assumptions being realized. Ongoing monitoring will be required to determine if this is the case, and to assess intersection operations to ensure the proper balance between the provision of transportation capacity and site development. With regard to the remaining 300 to 400 units (based on updated 1700-unit DCP), their status is best assessed following future monitoring to determine the accuracy of the assumptions made herein. At that time, a more accurate estimate can be made of the remaining amount of site development that the area road network of the day can actually accommodate, and what additional transportation network modifications, if any, are required. It may be that there is not an acceptable or affordable transportation solution at that time for approximately 1,700 units now proposed for the Mahogany Community.

It is important to note that the Transportation Overview for the Mahogany Community is a higher-level study to assess, at a macro-level, the transportation impacts and requirements of the development proposal. In whatever form or size the development proceeds, there will be a need for further more detailed studies at the appropriate time that are beyond the scope of the current analysis.

The phasing of the Mahogany Community will be dependent on the provision of infrastructure. The Transportation Overview has projected that capacity will be created in the future to support the development. The developer will be required to demonstrate this capacity and how to provide the level of service as required by the City of Ottawa for approval. The release of phases and units is reliant on the demonstration of capacity to support it. The phasing policies are found in Section 5 of this document and in Section 3.7.2.5 of the Manotick Secondary Plan (2008).

3.5 THE MASTER SERVICING PLAN

The Mahogany Community lands are situated within the current Village of Manotick boundaries and as such are subject to the provisions of the Official Plan with respect to the provision of public services to the entire community. The Village currently has a looped watermain system on a single watermain feed from the Barrhaven South Community. The City is currently planning for the provision of a gravity sanitary sewer system within the Village, which will flow to a proposed sanitary pumping station and will provide service to the entire Village. This new sanitary pumping station will then pump sanitary flows northerly through a forcemain to an existing gravity sewer in the Barrhaven South Community. Sanitary flows will ultimately be treated at the R. O. Pickard Sanitary Treatment Plant. The Village is currently serviced

with a combination of open ditch storm drainage systems and storm sewer systems in depending upon the location in the Village and the age of the developments.

The proposed Mahogany Community is planned to be developed in a manner which will incorporate the use of standard subdivision public services, namely watermain, sanitary sewer and storm sewer systems. The new community will make connections to the existing watermain system in the Village at different locations in order to provide adequate looping of the water system, as illustrated in Figure 3-7. Particular to the sanitary system, the Mahogany Community sanitary flows will be directed to the proposed sanitary pumping station to be located in the northeastern corner of the community, as illustrated in Figure 3-8. The sanitary flows will then be pumped to the proposed sewers that are to be installed in the Village. The storm drainage from the lands will be accommodated by the use of a gravity storm sewer system which will eventually discharge to the existing drainage outlets, namely Mud Creek, the Unnamed Drain, and the Wilson Cowan Drain. Stormwater management measures will be utilized to provide the water quality requirements of the storm drainage for the particular receiving watercourse. Water quantity control is not required except for the pond outletting to the Wilson Cowan Drain tributary where the water quantity control may be required. The watermain system, the sanitary system and the storm sewer/stormwater management system will be designed in accordance with the City's approved design guidelines and standards in addition to all other agency regulatory requirements.

In support of the application for the Mahogany Development a Master Serviceability Study and Stormwater Management Servicing Report was submitted. The City reviewed this background information and is satisfied that there are no local servicing impediments to conventional servicing of the development lands. Details of the proposed Mahogany Community servicing can be

found within the following two reports (located under separate cover):

- Master Serviceability Study, dated July 2007, prepared by David McManus Engineering Ltd.
- Mahogany Community Stormwater Management Servicing Report, dated July 2007, prepared by IBI Group

There are, however, off-site issues which are either presently being addressed by the City or which will, over time, be addressed by the City. These include the timing and capacity of a proposed sanitary sewer system to service the Village, the capacity of the existing watermain and the timing of future watermain system improvements. As the Mahogany Community lands are designated for development, there are no specific servicing impediments for approval of the Official Plan Amendment and the Development Concept Plan. Off-site issues may have some impact on the phasing and implementation of the Development Concept Plan. Further studies following approval of the Official Plan Amendment will address off-site issues and timing and phasing of the Development Concept Plan. In fact, as the proposed sanitary service to the Village and improvement to the watermain systems has not yet been completed, any required adjustments to service planning arising out of the Mahogany Community Development Concept Plan can easily be addressed through detailed design.

The development of the Mahogany Community lands is dependent upon the provision of the servicing requirements within the Village in accordance with the Master Plan. The ability of an initial development to proceed will require the provision of adequate water and wastewater servicing to the development lands in addition to provision of water, sanitary and stormwater measures internal to the development lands. The order of magnitude of the initial development and subsequent phasing from a servicing perspective will be determined through the provision and approval of further water, wastewater and storm water studies as per the

Figure 3-7 - Water Services



Figure 3-8 - Sanitary Services



City's Official Plan requirements listed in Section 4.4.1 Servicing in Public Service Areas, described below:

Policy

1. The City will require development applications in Public Service Areas to be supported by an assessment of the adequacy of public services. Where services are found to be limited, the proponent will be required to submit a water, wastewater and storm water impact study detailing how public services will be provided to support the development. The study will:

- a) Determine the extent to which the area will support development without further, unplanned upgrading of the networks in addition to the assessment of specific network improvements;
- b) Determine the method and means by which the area as well as adjacent areas can best be serviced by the networks, taking into consideration the City's functional planning guidelines;
- c) Identify specific network improvements deemed necessary and timing or staging of such improvements;
- d) Assess any social, economic and physical environmental impact on the local neighbourhood and adjacent areas resulting from anticipated network improvements;
- e) Take into account the effect of known development potential of other lands, which will utilize the networks;
- f) Indicate the proposed location for connection to central services, if more than one option exists.

CHAPTER 4 – COMMUNITY DESIGN GUIDELINES

4.1 INTRODUCTION

The cornerstone of the Community Design approach is the desire to understand and apply Manotick’s village character to the design of the Mahogany Community. “Village character” can have various meanings for different people and therefore is not prescriptive in its explanation or description. Much of the explanation can be described based on visual characteristics and/or from personal experiences in an area. However there are several physical aspects in the following paragraphs that attempt to describe Manotick’s cultural landscape character which engenders a unique sense of place and sense of village scale. An analysis of Manotick’s cultural landscape is included in the January 2008 Background Report. The aspects of village character are tightly intertwined, however they can be loosely categorized as: village structure, built form and



Commercial and institutional buildings along Main Street
Photo Courtesy of CSW

heritage. There are, of course, related social conditions which create a distinctive sense of community, however Manotick’s village image is largely its physical character. The following paragraphs describe how these physical characteristics contribute to the sense of being a village scale community.

Village Structure

Manotick has very clear exterior boundaries and internal separation of neighbourhoods and enclaves. The Village is set within an agrarian landscape on its west side while the Rideau River clearly defines Long Island to the east. Upon entering the Village there is a clear sense of passing from the farm fields or over Rideau River into a settlement. There is an equally clear sense that Bridge and Main Streets are a key intersection and that Manotick Main Street is just that – a traditional mixed use Main Street. The Core is compact and walkable, even cars are well distributed with the exception of a few large parking lots at the mall west of Main Street. Contrast this experience to the blurred edges and transition of density when entering a larger town or city or to the vague sense, or absence, of centrality conveyed by suburban plaza and commercial strips. The road configuration also supports this navigational clarity. The simplicity and hierarchy of roads make it intuitively obvious



Watson’s Mill
Photo Courtesy of FoTenn

that one is entering or exiting the Village Core, or individual neighbourhoods.

Similarly most neighbourhoods within the Village are defined by natural buffers, such as the Rideau River and significant green spaces so that they are perceived as distinct areas or enclaves rather than as a large uniform settlement. Some of these neighbourhoods are actually physically large, as illustrated in Figure 4-1, but convey a sense of neighbourhood scale due to their clear physical containment. These landscape buffers are generally informal and mature, with many large native, deciduous and coniferous trees in copses and small woodlots.

Figure 4-1 - Village Neighbourhoods



Topographic features also define the Village. The most dramatic sense of topography is experienced along the steep banks of the Rideau River or from the Long Island Bridges. These views along the River in combination with the mature trees restrict long vistas.

The key views are to the Rideau River or of key heritage buildings such as Watson’s Mill, and the spires of Manotick United and St. James Anglican Churches.

Built Form

Within the very clear structure of the village the pattern, size and architectural fabric also contribute to the sense of village character. This pattern is as much about the spaces between buildings and their relationship with the streets as the buildings themselves. The few large buildings convey their functions in an iconic manner which also gives a sense of scale and create clear landmarks. Along Manotick Main Street and several side streets in the Village Core, buildings are set close to the sidewalk in a traditional commercial pattern and on short narrow streets in a grid pattern. While these buildings clearly define the street edge there is a pattern or ratio of separation between buildings. Small buildings on small lots, large buildings on large lots, this side yard separation is remarkably consistent not only in the Core, but in the various neighbourhoods. Again, contrast this sideyard separation with urban main streets – even heritage districts composed of 2 to 3 storeys abut each other along the ‘main streets’ of larger towns and cities, and are considerably more compressed in residential areas.

In addition to the street relationship, the size and architectural detail of the buildings in the Core are a comfortable human scale, which conveys both a sense of scale and their authentic functions and heritage within a rural village. The variety of building design throughout the Village provides a sense of individuality and communicates the eras in which the waves of expansion occurred.

Heritage

One only needs to visit the Village of Manotick to see the integration of the past with the present in the village. There are several high quality heritage buildings, such as Watson’s Mill, St. James Anglican Church and Manotick United Church. The location



Historic Millstone
Photo Courtesy of CSW

of Watson’s Mill on the Rideau River serves as a key landmark and a reminder that many villages were settled along waterways which served for many years as the main mode of travel and connectivity to other settlements.

There are several artifacts and memorials in the Village that speak to the high value the community places on its heritage. These include the stone entrance walls with the Manotick name and a millstone at Main and Bridge Streets, a monument on Mill Street, the Cenotaph by the River on Mill Street and the lookout at A.Y. Jackson Park. The navigational aids and views of docks and boats on the Rideau River are reminders of the Village’s location on this heritage Rideau waterway system and Canal, which have been recognized as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site.

Implications for Design of the Mahogany Community

Many of the development patterns of Manotick’s cultural landscape can be applied to the design of the Mahogany Community as a natural extension of the village. The Community Design Guidelines stemmed from an analysis of the scale, form and character of Manotick as well as the policies set out in the City of Ottawa Official Plan (Section 2.5.1 and Annex 3), Urban Design for Greenfield

Developments and Draft Design Guidelines for Urban Collector and Rural Road Corridors. While the densities of housing are more similar to the original core area of the village, other patterns and character elements have been incorporated into the community design.

Compatibility and Community Design (Section 2.5.1)

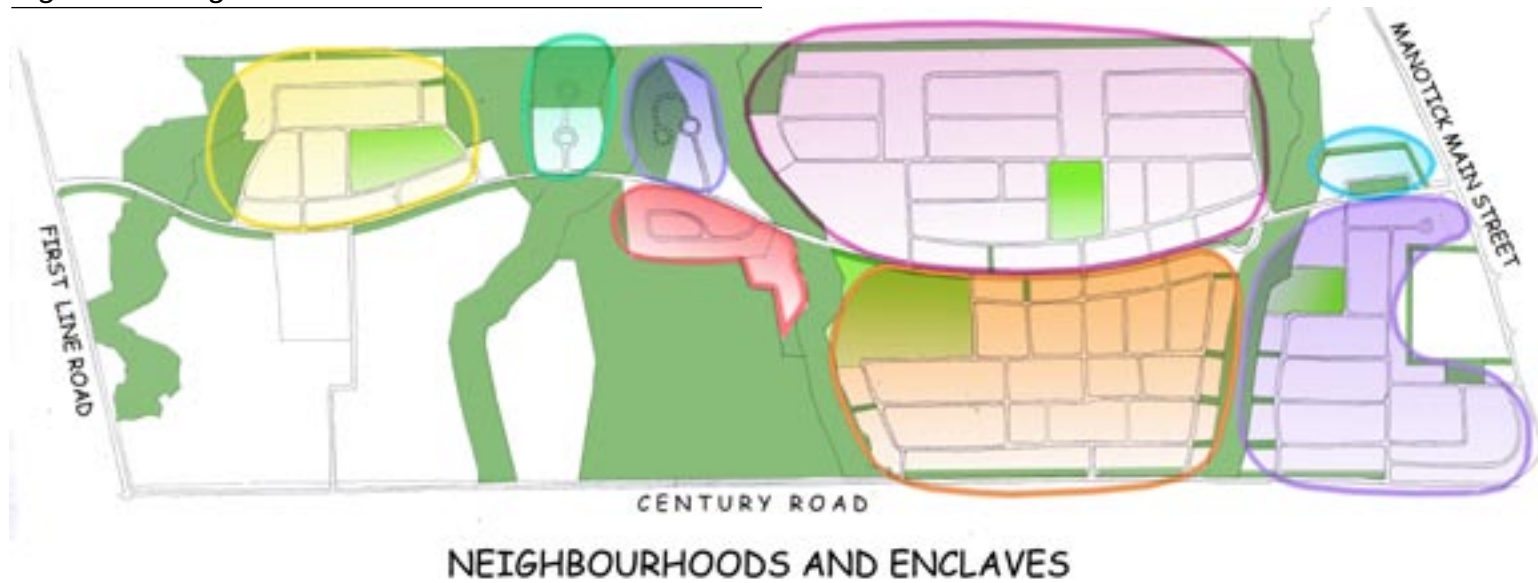
The Official Plan proposes to create more liveable communities by focusing more on community design. An important ingredient in building liveable communities is the creation of quality places for people. The following Design Objectives are qualitative statements of how the City wants to influence the built environment as the city matures and evolves:

- To enhance the sense of community by creating and maintaining places with their own distinct identity
- To define quality public and private spaces through development
- To create places that are safe, accessible and are easy to get to and move through
- To ensure that new development respects the character of existing areas
- To consider adaptability and diversity by creating places that can adapt and evolve easily over time and that are characterized by variety and choice
- To understand and respect natural processes and features, and promote environmental sustainability in development

The key principles in this plan to achieve these objectives include:

- well-defined and varying sizes of neighbourhoods and enclaves (Figure 4-2)
- green entries to neighbourhoods
- mature informal landscape
- block pattern reflective of original village core
- green views (“T” intersections, open space linkages)
- neighbourhood connectivity

Figure 4-2 - Neighbourhoods and Enclaves



- space between houses, particularly sideyards
- variety of lot size and architectural form
- use of natural buffers
- landmark buildings at the main entrances to Mahogany Community

These principles have been expanded into design guidelines, which when applied would result in a community similar to the Demonstration Plan illustrated later in Figure 4-8. One of the most important elements demonstrated in this plan is the use of green space and a central 'rural lane' to separate the community into separate neighbourhoods and enclaves. The other critical element is generous and full planting, not only of the 'rural lane' by all streets. It is critical that the mature northern landscape palette of the existing Village be extended throughout the Mahogany Community. Street trees need to be varied in spacing, species and planted close to the curb. This traditional pattern of street tree

planting will provide visual narrowing of the streets to reduce driving speeds, improve the walking and cycling experience and provide shade. While seeming to be the simplest recommendation, this will likely be the most difficult to achieve, but the most worthwhile in instilling a village-like character to the new community.

4.2 PARKS AND OPEN SPACE

The woodlots and creek corridors provide the major structuring elements of the community. With the addition of the stormwater pond areas and parks, these open spaces separate the overall community into smaller neighbourhood cells while providing recreational connections between neighbourhoods and through the community as illustrated in Figure 4-3. Parks have been located to enhance this open space structure of the community by contributing to natural corridors, in some instances, and providing



Provide an array of active and passive recreational facilities/opportunities in the Community Park

community focus in others. The woodlots are being preserved in recognition of their natural value, so that while these areas should be kept open to the community as much as possible, a balance may have to be made to limit access to sensitive areas.

4.2.1 Parks Hierarchy

The parks in the Mahogany Community are intended to serve the needs of the new residents on both a neighbourhood and community scale. There are several neighbourhood parks that are located centrally to optimize access, and provide focus and identity to those larger neighbourhoods. The one community park should be located close to the Candidate ANSI to consolidate open space in this central location within the community. This community park will contribute to the identity and character of the community as well as provide active recreational facilities (sports fields) not found in the neighbourhood parks. Park designs are to be approved by the City of Ottawa using standard details, but have a distinct Manotick Mahogany character.

Neighbourhood Parks

- Locate centrally within large neighbourhood cells.
- Minimum 1 ha area.
- Park to face onto streets as independent blocks (no flanking or rear lots).



Neighbourhood park

Figure 4-3 - Open Space



Community Parks

- Minimum 3.5 ha area.
- One side of park to be on the Village Spine Road, with direct access to parking.
- Parking to be provided within park.
- The City will develop guidelines for the design of the community park taking into account park/community needs and design with nature for the site design. During Phase 2 (community park conveyance would be Phase 3) Minto will retain the services of a landscape architect to work with the City and community to develop a final concept plan for the community park. With the plan in place, Minto will remove any existing vegetation (trees and lesser vegetation) and rough grade the site, prior to the conveyance of the community park, to conform to the future development of park facilities as per the final park plan.

Natural Environment Area

- Development near or adjacent to the woodlot should be sensitive to the features and functions of the woods when designing the orientation and layout of roadways and residential lots.
- Schools, parks, and creeks abut woodlots. In the residential areas, a target of 50% single-loaded roads to buffer the woodlot is encouraged.

Stream Corridors and Stormwater Facilities

The stream corridors and stormwater facilities provide the major open-space structure of the community. Mud Creek and the Wilson-Cowan Drain and its tributary, and the Unnamed Tributary to the Rideau River are open space corridors, which could be improved with planting of native trees and shrubs to provide shade along the banks and cover for wildlife. Similarly stormwater management must manage water flow and slow run-off into the Rideau River, and the design should utilize appropriate plants to

retain soil, provide shade and riparian habitat.

- Enhancement of vegetation cover (for mitigation of tree removal) within watercourse corridors with native tree and shrub plantings as recommended in EcoTec (2007). Interplant any early succession species (i.e. poplar, birch) with native hardwoods and conifers to accelerate natural succession to a northern climate association.
- Promote openness and visibility to the stream corridors and stormwater facilities to promote accessibility to the associated pathway system, as well as to minimize encroachments from adjacent residential development.

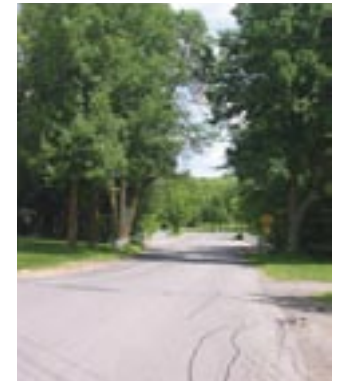
4.3 STREETS

There are two categories of streets in the Mahogany Community; Village Spine Road and local, as illustrated in Figure 4-4. The Village Spine Road system provides the major access to and from the overall community and is anticipated to accommodate bus routes. The Village Spine roads are intended to have characteristics of rural laneways, such as existing Century Road, First Line Road at Bankfield and Barnsdale Road. That is to say mainly two lanes, lined with hedgerows of mixed vegetation and relatively few driveways or homes along the corridor. The local road network connections to the Village Spine Road will pass through this hedgerowed corridor as gateways into the various neighbourhood cells.

The local streets will provide the utility and transportation access to all the homes in the community. While it will be possible to pass through individual neighbourhoods on these streets, the routes are intentionally discontinuous to reduce shortcutting and discourage speeding. Street trees, planted close to the curb line are an essential part of the creating a 'village' character on these streets similar to the original core of Manotick, or as seen in Rockcliffe Village or Westboro.



Village Spine Road



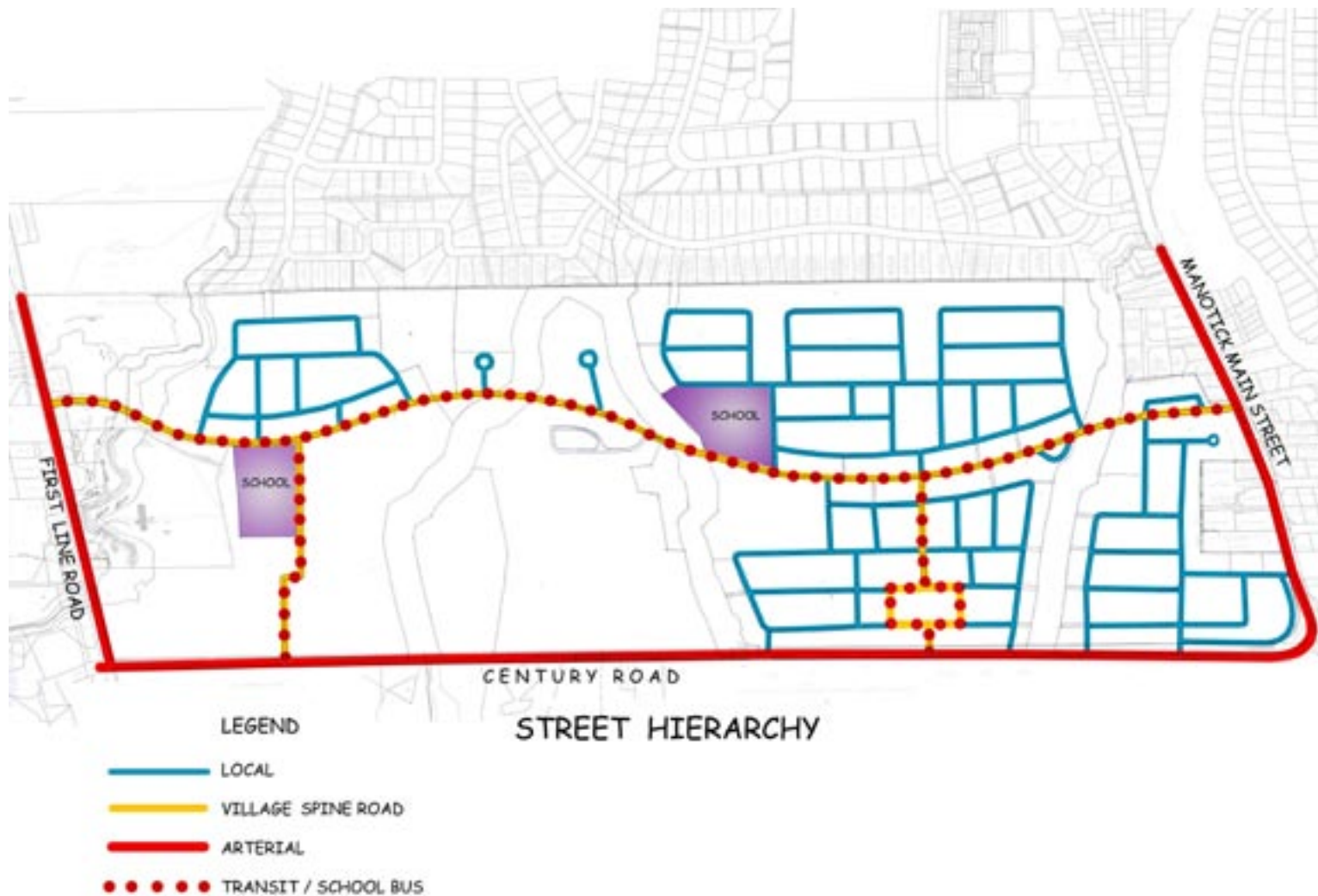
Green entry



Plant trees close to roadway

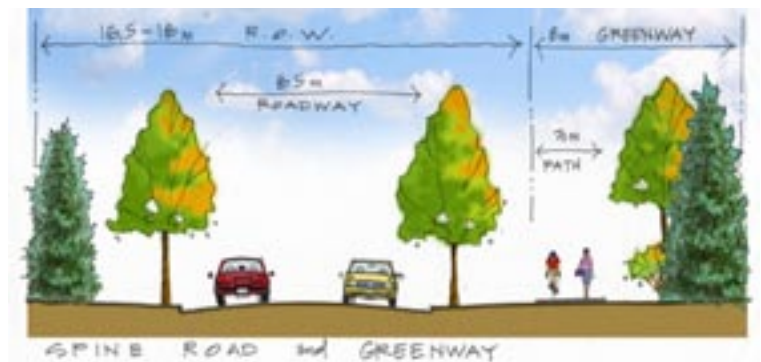


Figure 4-4 - Street Hierarchy



Village Spine Road

- Village Spine Road to have continuous hedgerows along right-of-way. Plant species to be native trees and shrubs, with minimum 40% coniferous content. Vary sizes and mix of plants. The hedgerow should be interrupted at natural areas, streams, parks and schools.
- Provide a continuous wide greenway along the north side of the Village Spine Road consistent with the Draft Design Guidelines for Urban Collector and Rural Road Corridors, adjacent to the right-of-way within a 26 m wide corridor.
- Provide continuous 4 m wide x 80 cm loosened and cultivated trench for both hedgerow and boulevard trees.
- Village Spine Road to be lined with street trees in the boulevard. Boulevard trees to be minimum 6 m on centre and continuous to be determined at detailed design.
- Provide a 3 m wide asphalt pathway along the north (sunny) side Village Spine Road set inside the boulevard and street trees.



Local Streets

- Local streets will be 16.5 m to 18 m wide and where transit is proposed the minimum right-of-way will be 18 m to 22 m.
- Local streets to be lined with deciduous street trees in boulevard. Minimum one tree per lot, three along exposed sideyards.

Provide one tree per townhouse unit by clustering between, and at ends of blocks. Provide minimum 20% coniferous content. Vary species along each street.

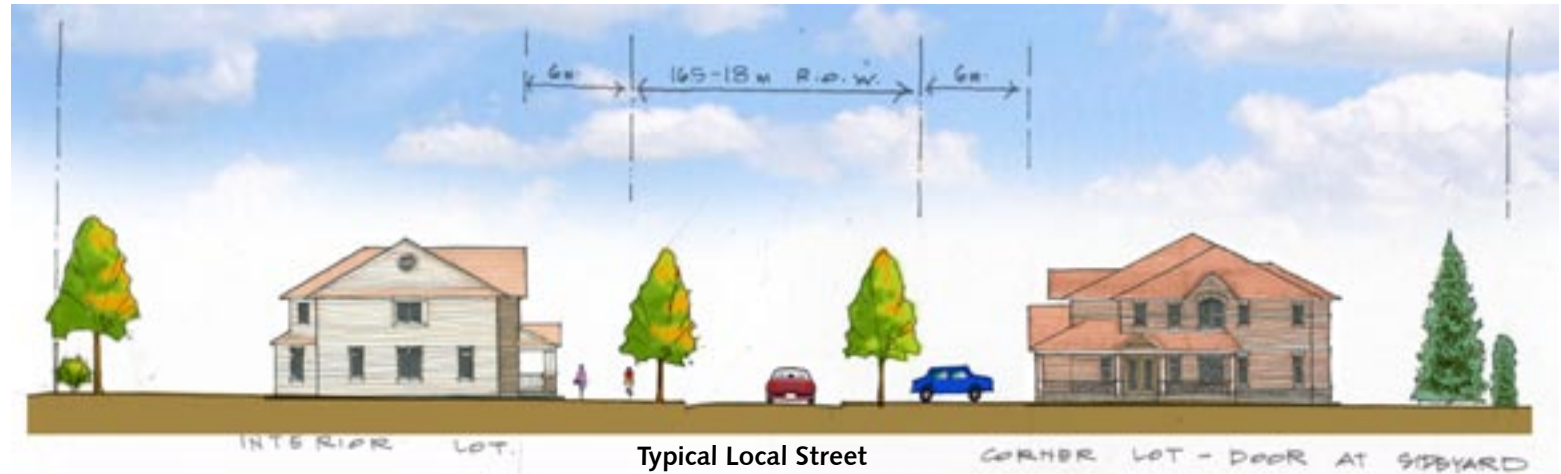
- Selected local streets to have a minimum 2 m wide concrete sidewalk on one side (see 'Trails, Paths and Sidewalks').
- Offset local streets each side of the Village Spine Road where appropriate to minimize shortcutting through adjacent neighbourhoods.
- Provide coniferous trees at ends of 'T' intersections.
- Provide planted islands in cul-de-sacs.



Green entry to neighbourhood from Village Spine Road

4.4 BLOCK PATTERN

The traditional grid block pattern is reflective of the original settlement pattern of Manotick. Additionally this grid pattern, while not on the optimum east-west orientation, provides the best opportunity for solar access, while minimizing shadowing for the future homes. The grid pattern assists navigation and provides a clearly understood block structure, however care must be taken to avoid overly long, streets which are not only visually static, but encourage speeding. Several devices, as found in the Core of



Manotick, have been used to provide visual interest and limit length of straight stretches. These arrangements include 'T' intersections, offset blocks and green terminus such as parks and through-block between homes to open space.

- Blocks to follow orientation set by Manotick Main Street, Century Road and First Line Road with long dimension along the NW-SE (Century Road) axis.
- Limit straight streets to maximum three blocks by offsetting or 'T' intersections.
- Provide through-block connections open space aligned at all perpendicular streets.
- Face lots onto Manotick Main Street and north and south of the Spine Road intersection.
- Consider providing local streets so that units can face outwards along the south portion of Manotick Main Street and cornering Century Road.
- Provide deeper lots backing onto north limit of community with a 6 m deep planted buffer. Provide a 3 m deep planted buffer at the back of the new lots adjacent to existing homes along Manotick Main Street, adjacent to existing homes and along Century Road. The planting strip may be part of the

road allowance if there is sufficient room. Planting to be mixed native trees, with minimum 40% coniferous content.

- Vary lot sizes within block, both along length and as mid-block lots (refer to Architectural Guidelines for dimensions).

4.5 TRAILS, PATHS AND SIDEWALKS

The network of trails, paths and sidewalks is layered over both the parks and open space system and street pattern of the community, as illustrated in Figure 4-5. This network is to provide functional and recreational pedestrian and bicycling connections within and through the community, as a safe and direct augmentation to local streets and collector roads.

These different types of linkages serve different purposes, and as such make specific connections and have different dimensional and material standards.

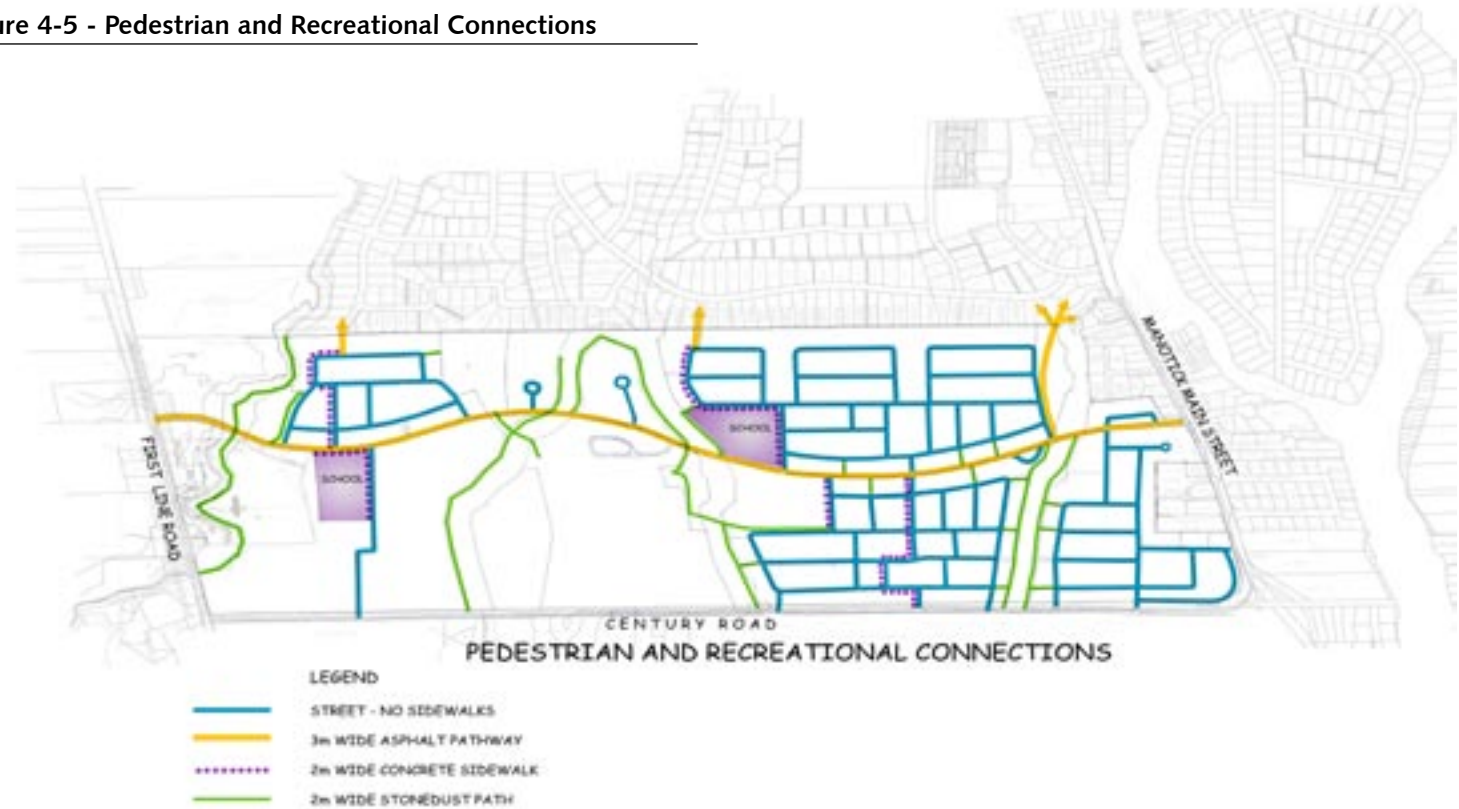
Trails

Trails are intended to be informal, and are often indirect routes intended primarily for walking through natural areas. Typically trails have minimal impact on the natural area, and are auxiliary to more direct pathways or sidewalks. This network would not be ploughed, and might serve as a cross-country ski or snowshoeing route in winter. The location and design of all trails will need to be reviewed and approved by the City of Ottawa and the RVCA.

- Construct 2 m wide stonedust surface, anticipating natural encroachment on sides to pinch walking surface to approximately 1.5 m wide.
- Provide boardwalk, or culvert to cross wet areas and protect both users footwear and natural flow of water.
- Wind trail alignment and vary width as necessary to preserve existing trees. Attempt to keep slope less than 5%. Strike a balance between sinuous alignment to provide visual interest and rhythm of closed/open views with reasonable line-of-sight to prevent (mountain-bike) collisions.
- Provide trails each side of watercourses using street bridges as crossing points. Link these trails to through-block connections and sidewalks. Provide 6 m long segments of asphalt pavement as a material transition between trails and sidewalks, paths and local streets.



Figure 4-5 - Pedestrian and Recreational Connections



Paths

Paths are to provide direct connections through the open spaces and along the east-west Spine Road. These should be paved, and portions may be snow ploughed if they lead to schools or bus stops. Paths are to be shared by pedestrians and cyclists, and may require a painted centre line.

- 3 m wide asphalt surface with maximum longitudinal 5% slope.
- Provide textured warning strip, such as ribbed concrete or upset precast pavers, 4 m from intersection.



Boardwalk



Interpretation signage

Sidewalks

Sidewalks are year-round pedestrian routes providing access to schools, bus-stops and towards Manotick’s commercial core.

- Minimum 2 m wide concrete surface, maximum 2% cross-slope, located inside boulevard.



Planted island in cul-de-sac



Sidewalks on local streets

4.6 COMMUNITY ELEMENTS

The design and palette of materials for community elements, such as signage and post box locations, are key elements to establishing a distinctive community character. These elements should be designed in conjunction with the parks and be consistent with the architectural colours and palettes. This vernacular need not be elaborate, so much as consistent, so it will provide continuity throughout the community.

- Enhance local collector street entries from the arterial and collector streets with fencing (on private lots) and identity signage to create gateways into neighbourhood cells.
- Provide way finding and interpretive signs strategically located at trail and path entry points. These signs should include a map of the system within the community and interpretation of natural features and processes.
- Provide fencing, a community notice board and garbage receptacle at post box locations.
- Posts for street signs to be square and black colour. These can be steel or composite.

- Street light fixtures to be the City of Ottawa Surface Operations Department approved ‘coach lamp’ style on black coloured precast or metal poles.
- Should emergency address number plaques be required on front lawns (rather than on houses) mount green plaque on a ‘6x6’ wooden post, painted white colour.
- Provide sidewalk or recreation path connection to bus stops along Spine Road. Ensure pavement extends from sidewalk/path to curb. Paint bus shelters white colour.
- Provide pavement to curb at post box locations. Define a ‘compound’ at post boxes with low fencing and provide waste receptacle and community notice board.

4.7 ARCHITECTURAL GUIDELINES

4.7.1 Manotick Architectural Vernacular

On first impression, there is a tremendous variety of domestic architecture in Manotick, although various neighbourhoods do reflect the decade in which they were built. On closer examination, there are several categories of house types. These categories are



Cottage (Village Arts and Crafts)



Neo-traditional



Urban contemporary



Reflect Rideau Canal community

Vernacular in elements



Ranch

Figure 4-6 - Special Lots



largely similarities in form, and to a lesser extent the character of proportion and materials. The accompanying groups of photographs typify the main housing types in the village.

4.7.2 Setbacks and Streetscapes

Another key parameter is the space between buildings, and position of the houses on their lots. While the more recent larger homes on large 'estate' lots have reasonably generous side yard separation between buildings, so do the smaller houses on smaller lots, both in the Core and elsewhere in areas constructed in the 1960's - 1980's. There is a fairly direct relationship between building and lot sizes in the village today. This will be reflected in a variety of lot sizes in the Mahogany Community.

Front

- House - 6 m minimum setback
- Porch - 2 m maximum projection from line of house

- Garage - 5 m minimum setbacks (local streets, 16.5 m to 18 m ROW, 4 m road allowance each side of 8.5 m pavement)

Rear

- One storey – 6 m minimum
- Two storey 7.5 m minimum

Side

- 2 m minimum
- Corner Lots – 4 m minimum

4.7.3 Lot Size Mix

There will be five groups of lot sizes in Mahogany. The largest, located as transition properties along the boundary will be 22 m x 50 m (72' x 164'). Nearly half of the lots will be 15 m x 32 m (49' x 104'), with another 20% of lots at 13.5 m x 32 m (44' x 104'),

and a few at 18 m x 32 m (59' x 104'). One quarter of the units will be small lot singles, townhomes, linked bungalows, and semi-detached. These higher density units will be dispersed, usually as cores or ends of street blocks.

4.7.4 Unit Variety

The community design concept is to break the development parcel into a series of smaller neighbourhoods. The rural spine road, open space system and neighbourhood parks will provide the structure and definition of these neighbourhoods. Several of the smaller neighbourhoods, or enclosures, would be even especially distinctive if the home were a co-ordinated form of architecture, with variety of plan, siting, and colour palette. The larger neighbourhoods should be more eclectic, and have a mix of architectural forms, siting, materials, and colour. The following guidelines will prescribe a variety of siting and house types, while leaving reasonable flexibility for floor plan grid style preferences and marketability.

- Minimum 3 lots separating the same house model

4.7.5 Neighbourhood entry lots (corners)

Houses on corner lots at neighbourhood entries should respond to this opportunity by locating the garage on the narrow width (front) of the lot and the front door along the long (side) length of the lot. A walkway should connect directly from the entrance to the curb, as well as around the corner to the driveway.

4.7.6 'T' Intersections

Houses that are located on lots at the terminus of streets have both a high visual profile, and exposure to on-coming vehicles, headlight glare, and the like. House at these locations should have 'L' shaped floor plans to minimize the visibility of the garage doors and maximize planting area at the 'T', as illustrated in Figure 4-6.

4.8 ARCHITECTURAL FORMS

The various architectural forms are illustrated in Figure 4-7.

4.8.1 Single Family Dwellings

Neo-Traditional

Neo-traditional design borrows or makes architectural reference to houses built in the first half of the 20th century. Usually has decorative elements such as king posts at roof gables, decorative window shapes, muntin bars in windows and the like.



Urban Contemporary

Typically large windows, no ornamentation, and use of contemporary materials used as planes, such as acrylic stucco and brick with matching mortar colour.



Ranch

This form is an 'L' shaped floor plan with the garage door at right angles, rather than facing the street. This form optimizes the planting space in front of the house and creates a court like space at the entrance. They can be book matched inward, to share a courtyard, or back to back, to create a consolidated green area. These pairs are particularly appropriate at 'T' intersections, to present a visual terminus of a house and planting, rather than a garage door.

Solar

Solar homes might have design characteristics of urban contemporary, neo-traditional or Cottage forms with distinctive addition of a large steeply sloped roof, oriented for solar gain.



Figure 4-7 - Streetscape Concept





Cottage (Village Arts and Crafts)

There are several cottage style houses in the core of Manotick. The architectural characteristics include, roofs pitching towards the front of the house, and broad porches behind built up, tapered columns.



Bungalow

Bungalows are single level dwellings, which may reflect any of the architectural forms described above.

3.8.2 Mixed Residential

Multiple dwellings have been classed as 'Mixed Residential' in the land use plan for the community, which will include small singles, semi-detached 2 storey townhouses and linked bungalow townhouses.

Two storey townhouses

Townhouses are several dwellings sharing a common wall and may reflect any of the architectural forms described above. Rather than as one unit repeated, townhouse blocks should be designed as one building. This design approach would allow for more compound roof forms, varied facades and cornering of end units.



Linked Bungalows

Linked bungalows are several single storey dwellings sharing a common wall and may reflect any of the architectural forms described above. Rather than as one unit repeated, these blocks should be designed as one building. This design approach would allow for more compound roof forms, varied facades and cornering of end units.



4.9 MATERIALS AND COLOURS

Roofs

Guidelines:

- Asphalt shingles in a variety of colours.
- Roof forms should be compound. Break up simple roof planes with gables and or dormers. Minimum pitch of 6 in 12.

Exterior Cladding

Guidelines:

- Maximum 3 types of cladding on one building.
- Cladding to wrap building, at corners by 2 m as a vertical expression, or wainscot or first storey height of the façade rather than restricted to one side (i.e. brick face with siding on flanks and rear)

Doors

Guidelines:

- Front Entrance: single door or double with glass inserts with sidelights or transoms – mixed styles and sizes
- Garage Doors – mixed styles and sizes: double door (4.9 m wide) or two single doors.

4.10 DEMONSTRATION OF GUIDELINES

The adjacent plan drawings are enlargements of the overall demonstration plan and illustrate the key principles set out in the architectural design guidelines, such as variety of lot sizes and architectural type, setbacks and special lot locations. ('T' intersections and neighbourhood entries).



Variety of lot sizes, with townhouses mid block



Townhouses as middle of block with singles at ends - pair of Ranch ("L") houses at "T" intersection



Residential open space on Village Spine Road could accommodate community mail boxes

Figure 4-8 - Demonstration of Community Design Guidelines





4.11 ENERGY EFFICIENT HOMES AND COMMUNITIES

Minto regards the Mahogany Community as a unique development.

Among other considerations, the distinct rural character of the Village of Manotick calls for a community that integrates with the natural environment. In addition to being carefully situated among the creeks and woodlots on the site via parks, ponds, extensive plantings and new pathway networks, it is important for Mahogany to go beyond cosmetic integration with the environment.

In 2007, Minto was selected by CMHC as one of the 12 proposals out of 72 entries as a winner in their EQuilibrium Housing Initiative to create a healthy, energy-efficient home. The goal of the program

is to build a house that produces as much energy as it consumes in one year; a “net of zero” units of yearly power consumption. Heating, hot water, ventilation, air conditioning and all electrical baseloads can be provided by renewable energy sources such as solar panels. Combined with smart design and planning practices, (i.e. orientating the house to make maximum use of natural solar heating/cooling) a Net Zero energy home, at a minimum, will produce an annual energy output that is equal to the amount of energy it consumes.

Minto’s EQuilibrium Home will feature a host of cutting-edge innovations such as a high level of insulation, triple pane windows, a ducted-filtered solar ventilation system, solar thermal and photovoltaic power sources, and “all-off” switches to reduce unnecessary energy consumption and make for healthier air quality. The home is still connected to the Hydro One energy grid on a two-way system; the contribution of electricity will be monitored through a net metering process to prove that the house is indeed producing as much or more energy than it is consuming on an annual basis.

The Minto Energy Management (MEM) group, which is responsible for ‘greening’ Minto, has been involved in the EQuilibrium project and will continue to work to explore sustainable practices throughout the Mahogany Community. Minto plans to further pursue ideas for water conservation and alternative stormwater design with the City of Ottawa.

Since Mahogany will be one of the largest energy efficient and environmentally sustainable communities in Canada, with all houses ENERGY STAR rated as a minimum and oriented for natural solar heating, we felt that this community would be the perfect place for “Inspiration – The Minto EcoHome”. As its name implies, the EcoHome and its technologies will serve as an inspiration for the rest of the community. It is planned that many of its energy

saving features and sustainable systems will be made available to future Mahogany homeowners.

In addition to employing responsible housing technology, Minto is also conscientiously designing the new Mahogany community with an eye towards the LEED-ND pilot guidelines for environmentally sustainable community-level development. The LEED Neighborhood Development Rating System integrates the principles of smart growth, community level urbanism and green building for neighbourhood design. The program assesses new developments according to criteria divided into four categories, smart location and linkage; neighbourhood pattern and design; green construction and technology; and innovation and design process. Currently, LEED for Neighbourhood Development is in its pilot period, with a limited number of Canadian projects involved in the US trial program. While the Mahogany Community is not a registered participant in this program, the principles that define a LEED community have been and will be considered and integrated into the project wherever possible.

It is very likely that the new Mahogany Community would fulfill a significant portion of the goals outlined by the section on Neighbourhood Pattern & Design. Concepts such as compact development, diversity of uses, affordable for sale housing, walkable streets that tie into the pathway systems, efficient street network, provision of transit facilities, access to surrounding vicinity and public spaces, (i.e. access to the Village Core, schools and parks for the existing Village of Manotick), as well as community outreach and involvement will be integrated as much as possible. Preservation of some of the existing woodlots and all 3 of the creeks running through the land will, as integral parts of the community, as also major factors in the design.

As this stage in the project, many of the details and innovations that would be used towards Green Construction and Technology

category are not yet determined, however the Inspiration Home is certainly a good start. So far, Minto has made a commitment to providing ENERGY STAR as a minimum throughout the community with plans to include components of the Inspiration Home as options (or standards) on the homes through the Mahogany Community.

As the design process continues, Minto will have the opportunity to explore other ways Minto can work with Manotick to build on some the existing sustainable features of the village, that make it such a unique place to live. Minto has been very encouraged in discussions with the community that there is a strong interest, understanding and desire among residents to pursue these ideas.

CHAPTER 5 – IMPLEMENTATION

5.1 INTERPRETATION

The Development Concept Plan (DCP) for the Serviced Development Area lands is a requirement of the Village of Manotick Secondary Plan (2008) Policy 3.7.2.5 (2)(g)(ii). This section describes how the DCP is to be interpreted and implemented through the zoning and subdivision application process; and outlines the phasing and monitoring of the development. While details of the DCP are typically addressed during the plan of subdivision stage, it is intended that future development of the area will follow this framework, which is consistent with the policies and guidelines that are described in this DCP.

5.2 DEVELOPMENT CONCEPT PLAN AMENDMENT

Where substantive changes to the Land Use Concept Plan are proposed prior to a zoning by-law amendment or plan of subdivision approval, an amendment to the Development Concept Plan (DCP) will be required. Substantive changes include:

- the number of lots related to infrastructure improvements;
- the location of collector roads;
- the removal of park blocks or changes to the natural environment areas; or
- changes that could jeopardize the area’s ability to achieve the Official Plan’s strategic direction.

The proposed change(s) will be subject to approval by Agricultural and Rural Affairs Committee and City Council.

5.3 IMPLEMENTATION STRATEGY

The implementation strategy for future development of the Mahogany Community establishes the required planning approvals and the City’s role in monitoring the development as listed below:

1. Official Plan Amendment to the Village of Manotick Secondary Plan
2. Development Applications for Re-zoning and Plans of Subdivision
3. Phasing of development
4. Monitoring

5.4 DEVELOPMENT APPLICATIONS

In order to implement the approved Development Concept Plan and the approved Official Plan Amendment, other development applications will be required. These applications include Zoning By-law Amendments and Plans of Subdivision, which are typically submitted concurrently to the City of Ottawa. Prior to the approval of the development applications, the public will be consulted, as legislated under the [Planning Act](#).

The following sections identify the policies and/or elements that should be carried forward to future development applications.

5.4.1 Zoning By-law Amendment

Overall, the zoning for the lands will reflect the lot sizes and land use designations as illustrated in the Development Concept Plan. In addition, many of the Community and Architectural Design Guidelines will be implemented through zoning.

1. The permitted uses in the zoning for the Subject Area will reflect the land use designations as illustrated in Figure 3-1 of the Development Concept Plan.

2. No more than 25% of the residential units for the total land area will be Mixed Residential housing types. These will include small lot singles, semi-detached, linked bungalows, and townhouses.
3. The performance standards will reflect the various forms of housing types for the Mahogany Community as follows:

Lot Frontage	Lot Depth	Lot Area
22 m	50 m	1,100 m ²
18 m	32 m	576 m ²
15 m	32 m	480 m ²
13.5 m	32 m	432 m ²

Setbacks	
Front Yard (from house)	Minimum 6 m
Front Yard (from porch)	Maximum 2 m projection from line of house
Front Yard (from garage)	Minimum 5 m
Rear Yard (one-storey)	Minimum 6 m
Rear Yard (two-storey)	Minimum 7.5 m
Side Yard	Minimum 2 m
Corner Lots	Minimum 4 m

4. Existing residential/commercial/retail uses shall continue along Manotick Main Street through the Subject Area based on the existing zoning.
5. Employment opportunities exist for job creation through new home-based businesses in the Mahogany Community. Home-based business should be permitted uses in the zoning for the area.

5.4.2 Plans of Subdivision

Development applications filed after Council approval of this Plan will be subject to the policies of the City of Ottawa Official Plan. In addition to the mitigation measures described in Section 3 of this report, the following will apply to subdivision/site plan applications:

1. Development or site alteration within 30 m of NESS 506 will not be approved unless it has been demonstrated that there will be no negative impacts on the feature or its ecological functions, as determined through an Environmental Impact Statement (EIS). Among other matters, the EIS will identify the depth of the buffer to be provided and the impact of including a pedestrian pathway within this area. In cases where large-scale alterations to the landscape are proposed, such as for general site grading or pre-loading, this requirement for an EIS may extend beyond the 30 m adjacent lands.
2. A detailed tree preservation and planting plan will be completed for each phase of development prior to grading, and will include:
 - Measures to preserve and enhance wildlife habitat, wildlife corridors and the aquatic environment, including locations for the planting of mixed hedgerows and copses of trees
 - A protocol to preserve or compensate for impacts on butternut as per the direction of the Ministry of Natural Resources (MNR)
 - Identification of individual trees to be protected
 - A planting plan for lands within required setback adjacent to the Unnamed tributary, the Wilson Cowan Drain tributary, the Wilson Cowan Drain, and Mud Creek, including compensation for removal of other vegetation. The plan should be comprised of native species appropriate to this site, and should be consistent with the recommendations for enhancement provided by EcoTec (2008).

3. Setbacks from watercourses are subject to confirmation through erosion control studies, while retaining the minimum setbacks described in this Plan.
4. An Owner Awareness Package will be provided to all residents and will include such topics as:
 - living with wildlife
 - significant natural features and sensitivities
 - ecofriendly home ownership (water conservation, chemical free lawns)
 - responsible pet ownership
 - native plantings
 - stormwater management (e.g., maintenance of swales)
5. Development in Phase 5 will enhance the depth of the wildlife corridor connecting NESS 506 and the Mud Creek valley by ensuring adjacent development provides deep and well-treed rear yards.
6. Over-sized culverts or bridges should be considered at all watercourse crossings to allow for the passage of wildlife. A clear-span bridge over Mud Creek in particular would avoid potential impacts to fish.
7. Works within or adjacent to the watercourses will need to be reviewed and approved by the Rideau Valley Conservation Authority (RVCA), and may also require approval from the MNR or Department of Fisheries and Oceans (DFO). Additional information on fish habitat, including habitat mapping, will be provided as necessary to allow for the assessment of potential fisheries impacts resulting from these works. No in-water works will occur between March 15 and July 1.

Parks and Open Space

- The park and open space system should include focal Neighbourhood and Community parks. Any focal parks which may contain sports fields shall not be situated immediately adjacent to a school site, however, they may be situated across the street.
- The sites on which stormwater management facilities are situated shall not form part of the dedicated public parks / open spaces.
- The Natural Environment Area will not be included as part of the required 5% parkland dedication.
- Mahogany Community should pursue the target of at least 16% of gross land area for greenspace.
- Mahogany should meet the Planning Act requirement for 5% parkland dedication, and will target to exceed this number.
- “Rural Pathways Plan”, March 2006, provide a vision for “walkable villages”, rural destination connections, and build city-wide connections. It is intended to guide community planning exercises and proposed subdivision plans and has been considered through the DCP, and should be consulted at the Subdivision stage.

Archaeological

- A Stage 1 Archaeological Assessment for the Subject Area was completed in February 2007, which recommended a Stage 2 Archaeological Assessment to be completed.

Geotechnical

- A preliminary Geotechnical Investigation has been completed. A more detailed Geotechnical Report will be submitted to support the plan of subdivision.

Phase 1 ESA

- The Phase 1 Environmental Site Assessment (ESA) concluded that there are no concerns regarding the past uses of the

Subject Area or the adjacent properties. Based on the results, a Phase 2 ESA will not be required for the Subject Area.

Hydrogeological

- It appears likely that there are no groundwater discharge areas present. This is consistent with the overburden thickness of the surficial soils and relatively shallow depth of Mud Creek. Any impacts on existing wells from the temporary or permanent dewatering of the perched groundwater at the Subject Area, resulting from the installation of municipal services, is likely to be negligible.

Schools

- Location and size of school sites have been provided to accommodate the identified interests of the school boards. However, the sites have not been allocated to the interested school boards – this should be determined at subdivision stage. Under the [Planning Act](#), school boards have seven (7) years to hold the lands for a future school site.
- Schools and associated uses such as day care centres are permitted uses in the School land use category. If identified school sites are not required by any of the school boards, consideration should be given to using the sites for other institutional uses or residential purposes.

Transportation

- According to Map 2 of the Transportation Master Plan (TMP), recreational pathways will be located on both sides of the Rideau River through the Village, with crossings located at Bridge Street (Village core) and Nicholl's Island (just north of Rideau Rd).
- Map 3 of TMP identifies Rideau Valley Drive North, Bridge Street and River Road are identified as on-road cycling routes. Cycling Plan shows off-road pathways linking the Potter Drive area to Century Road. This has been conceptually shown

through the DCP.

- The east-west spine road will be bounded on one side with a 3m wide asphalt recreational pathway.
- The two primary north-south road connections to Century Road will have a concrete sidewalk on one side, as will the north-south route from the Potter Drive connection to the School site.
- The creek and open space corridors should include 2 m wide stone dust pathways which will extend through the adjacent communities to the north. The design and location of these paths shall be determined in consultation with the City of Ottawa and the RVCA.
- Sidewalks are not proposed on local streets. Consistent with existing village.
- Transportation Impact Assessments (TIAs) plus additional requirements for the various phases of development will be a requirement of the subdivision process. The TIA would emphasize the transportation requirements and impacts of the proposed phase, reflective of the plan and transportation network at that time.
- OC Transpo has advised that both Regular Route 186 and Express Route 45 can be efficiently re-routed to serve the Mahogany Community. As the community develops, route frequency can be adjusted to reflect the demand. Route 186 connects to the Barrhaven Town Centre and to the Southwest Transitway at Fallowfield Rd, and Route 45 connects to the Southeast Transitway at South Keys.

The phasing of Mahogany Community will be dependent on the provision of infrastructure. The Transportation Overview has projected that capacity will be created in the future to support the development. The developer will be required to demonstrate this capacity and how to provide a level of service, as accepted and approved by the City. The release of phases and units is reliant on the demonstration of capacity to support it. The phasing policies

are found in Section 5 of this document and in Section 3.7.2.5 2(g) of the Manotick Secondary Plan (2008).

Municipal Services

- Water services are expected to follow alignment via Potter Drive and Manotick Main Street.
- The proposed development will require a sanitary sewage pumping station. Final location of pump station and detailed design of force-main routing will be confirmed through the Master Servicing Plan for the Subject Area.
- The Wilson Cowan Drain and Mud Creek are Municipal Drains, under the [Drainage Act](#).
- Four end-of-pipe stormwater management facilities are proposed to service the Subject Area. Two discharge to Un-named Tributary, one to Wilson Cowan Drain tributary, and one to Mud Creek. Water quality control is required on each of these three watercourses, with temperature controls required on Mud Creek. The need for temperature controls on the Wilson Cowan Drain tributary will be determined through monitoring at the time of detailed design. Water quantity control may be required for the SWM facility adjacent to the Wilson Cowan Drain Tributary. The rest of the SWM facilities do not require water quantity control.
- Potential alternative stormwater measure may be implemented to optimize the system, such as stormwater management treatment train. This alternative provides an opportunity to incorporate a series of natural features, such as wetlands filtration and infiltration strips. There are two areas, adjacent Wilson Cowan Drain that are particularly suitable to this alternative implementation.

Community Design

The Community Design Guidelines found in Chapter 4 of the Development Concept Plan should be considered in reviewing Zoning and Plans of Subdivision applications.

5.5 PHASING OF DEVELOPMENT

The following provides list of the expected infrastructure requirements for projected phase of development. This list is preliminary and is subject to revision during the detailed study of each phase.

Phase 1 (~250 units)

Off-site infrastructure

- External Watermain (upgrades on Potter/Eastman and Manotick Main St)
- External Sanitary Trunk extended from Stonebridge to Manotick Core
- External Pump Station constructed in Manotick Core
- Traffic Impact Study to assess current opportunities, constraints and requirements
- Extension of Sanitary trunk to Subject Area
- Strandherd/Armstrong Bridge
- Assess potential to eliminate truck traffic on Bridge Street

On-site infrastructure

- SWM pond #1
- Internal construction of the pump station (in Subject Area)
- Internal construction of sanitary and storm trunk and watermain
- 2 connections provided to Century Road, 2 connections provided to Manotick Main Street
- Neighbourhood park

Phase 2 (~360 units)

Off-site infrastructure

- Traffic Impact Study to assess current opportunities, constraints and requirements including:
 - Bankfield / Prince of Wales modifications
 - Bankfield / First Line signalization
 - Confirm effect of Strandherd/Armstrong Bridge on removing Bridge Street traffic

On-site infrastructure

- SWM pond #2
- Extend internal sanitary trunk, storm trunk and watermain
- Upgrade Pump Station
- 2 new connections to Century Road
- Pedestrian link to core (via Mahogany Harbour)
- Neighbourhood park

Phase 3 (~400 units)

Off-Site infrastructure

- Traffic Impact Study to assess current opportunities, constraints and requirements including:
 - Bankfield / First Line double left-turns northbound
 - Bankfield widening (First Line to Prince of Wales)
 - Intersection modifications at Bankfield / Prince of Wales

On-Site infrastructure

- No new SWM pond (all drainage to SWM pond #2)
- Extend internal sanitary trunk, storm trunk and watermain
- Upgrade Pump Station
- No new external road connections
- Community Park

Figure 5-1 - Phasing



Phase 4 (~130 units)

Off-site infrastructure

- Extend external watermain (proposed from Riverside South)
- Traffic Impact Study to assess current opportunities, constraints and requirements

On-site infrastructure

- SWM pond #3 (explore alternative SWM solutions)
- Upgrade Pump Station
- Extend internal sanitary trunk, storm trunk and watermain
- School Site #1
- Link north (pedestrian) to Potter Drive
- Pedestrians pathways along Wilson Cowan Drain

Phase 5 (~170 units)

Off-site infrastructure

- Link to First Line Road (crossing of Mud Creek)
- Traffic Impact Study to assess current opportunities, constraints and requirements

On-site infrastructure

- SWM pond #4
- Extend internal sanitary trunk, storm trunk and watermain
- Upgrade Pump Station
- Connection north (pedestrian) to Carrison Drive
- School Site #2

FUTURE DEVELOPMENT AREA

Phases 6 and 7. No development in Phases 6 and 7 will be permitted until traffic monitoring has been completed and additional transportation network solutions have been found to the satisfaction of the City of Ottawa.

Phase 6 (~170 units)

Off-site infrastructure

- Traffic Impact Study to assess current opportunities, constraints and requirements

On-site infrastructure

- No new storm ponds (some to SWM pond #3, some to SWM pond #4)
- Extend internal sanitary trunk, storm trunk and watermain.
- Upgrade Pump Station
- No new external road connections
- Neighbourhood Park

Phase 7 (~180 units)

On-site infrastructure

- SWM to Pond #4 (or individual solutions contained to property owners)
- Extend internal sanitary trunk, storm trunk and watermain
- Upgrade Pump Station
- Potential for 2 road connections at Century Rd.
- School Site #2
- Traffic Impact Study to assess current opportunities, constraints and requirements

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