CITY OF HAMILTON

Mountain Brow Vista Study & Management Plan

FINAL REPORT

SEPTEMBER 2016

DILLON CONSULTING LIMITED

ACKNOWLEDGEMENTS

We would like to acknowledge and express our thanks to the following agencies, organizations, elected municipal staff and Hamilton residents who contributed to the development of this Mountain Brow Vista Study and Management Plan:

City of Hamilton Staff
Hamilton Ward 6 Councillor - Tom Jackson
Hamilton Ward 7 Councillor – Donna Skelly
Hamilton Ward 8 Councillor – Terry Whitehead
Niagara Escarpment Commission
Ministry of Natural Resources and Forestry
NEPOSS Council
Bruce Trail Conservancy
Hamilton Residents

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT'D)

WARD 8 - VISTA OPENING

EXECUTIVE SUMMARY

INTRODUCTION

The purpose of the **Mountain Brow Vista Study and Management Plan** (the Plan) is to develop an overall strategy for the selection and maintenance of vista locations on public lands along the Escarpment brow in Wards 6, 7 and 8 in Hamilton. The selected vista locations need to play a dual role of strengthening the natural environment interface along the Niagara Escarpment Plan's Urban Area and Natural Area, and address the quality of the urban forest while promoting safe access and enjoyment of the scenic views from the Escarpment. Forest management is one of the permitted uses, and a Niagara Escarpment Development Permit is generally not needed for sustainable forestry or forest management practices within the NEP.

The following opportunities for new vistas were identified through the site condition analysis:

- Develop and enforce sustainable forest management along public lands on the brow. This entails very strategic 'one at a time' removals of invasive, non-native and hazard trees to improve the integrity and quality of the natural environment along the interface between the natural and urban areas;
- Identify steep slopes along the Escarpment brow as natural and ideal openings for vistas, as medium to gentle slopes require deeper and more intrusive intervention to create vista openings;
- Use sustainable forest management techniques to strengthen the slopes along the brow, including planting of low-lying native shrubs and groundcover with deep stabilizing root systems;
- Maximize urban forest contributions on public lands along the brow to offset any lost canopy cover and to minimize visual impacts from the valley. Extend this knowledge to private land-owners to improve the natural environment quality along the Niagara Escarpment; and
- Introduce continuous and safe trail experience along the Escarpment brow with strategic vista openings.

Challenges in the creation of new vistas along the Escarpment brow in Wards 6, 7 and 8 include:

- Timely approval for a NEC development permit for any built infrastructure supporting the creation of vista openings, including a potential lookout, fence and lighting;
- City policy limitations and process for tree removals on public lands;
- Gentle slopes along the Escarpment brow are a natural barrier for vistas and would require more intrusive tree removal;
- New vista openings on steep slopes may impact the visual quality of the Niagara Escarpment character from the valley;
- Management of steep slope conditions of the Escarpment with the creation of new vistas and increased erosion potential with significant plant removal;
- Safety concerns for City staff in the maintenance of vistas; and
- City's financial capacity for capital and ongoing operational costs.

VISION

The Vision for this Plan is to become a foundation and inspiration in the celebration and protection of the natural environment along the Escarpment brow, while providing continuous access for a range of panoramic views that reflect the natural beauty of and beyond the Niagara Escarpment.

The four guiding management principles established in consultation with the community are to:

1. Protect and enhance the existing natural features (i.e., slopes, forest and habitats) along the Escarpment brow, at the interface of City open space and the protected Natural Areas of the Niagara Escarpment Plan;
2. Improve the urban forest quality within the Urban Area of the Niagara Escarpment Plan;
3. Minimize the negative impacts and further visual encroachment of urban development on the Escarpment environment; and
4. Minimize the visual intrusion of the Urban Area into the Natural Area of the Niagara Escarpment.

The Vista Concept illustrates the location and distribution of the 46 carefully selected and recommended vista openings and their viewsheds into the natural, cultural and urbanized valley of the city. The recreational trail network along the brow in Wards 6, 7 and 8, and its supporting infrastructure continuously foster a unique experience and breathtaking vistas atop a UNESCO World Biosphere Reserve. Through the management and maintenance of these vista openings, the quality of the edge landscape along the Escarpment brow will be improved using site-specific measures that strengthen the native natural cover and slope stability. The vistas provide another viewing platform to the special ecological

and geological features of the Niagara Escarpment, while enabling a continuous connection between the three wards along the enhanced recreational trail infrastructure.

PROCESS

The development of the **Mountain Brow Vista Study and Management Plan** employed a two-tier methodology that included technical work and consultation with the community, NEC and City staff. The technical work consisted of policy overview, natural environment assessments, on-site vista and amenity site assessments, GIS data assessments and City Engine 3D model, visual impact analysis and management approaches.

The vista selection process was broken down into three parts. ***Part 1*** of the vista evaluation was conducted in tandem with the Fall natural environment assessment, where 87 initial existing and potential vista sites were identified along the Escarpment brow.

Part 2 consisted of a more detailed desktop evaluation of the existing and potential vistas, using the following criteria: *Natural Heritage Quality Assessment*, *Slope Analysis*, *Cultural Heritage Features*, *Tree Offset Planting Potential*, *Scenic Views* and *Community Comments*. The criteria reflects community values as observed through stakeholder sessions and online surveys, and is well-aligned with many of Niagara Escarpment Plan's (NEP) objectives, as following:

- Protect the unique ecological and historic areas while undertaking sustainable forest management – *aligned with NEP Objective 1*;
- Provide adequate opportunities for enjoying the scenic views afforded by the elevated brow of the Escarpment – *aligned with NEP Objective 3*;
- Carefully select new vista locations to ensure that the open landscape character of the Niagara Escarpment is preserved – *aligned with NEP Objective 4*; and
- Provide safe public access to the Niagara Escarpment brow – *aligned with NEP Objective 6*.

Additional Spring/Summer natural environment assessment was conducted to identify the dominant vegetation community, densities of non-native species, site disturbance, wildlife habitat and presence of species at risk. Fifty-one vista locations were selected at this stage, of which 20 were marked as potential vista openings.

Of the selected potential vista locations, seven (7) were classified as having poor natural heritage characteristics. The defining characteristic of these areas was the poor overall quality of the existing vegetation community. Non-native species composed the majority of the vegetation present, with native species being entirely absent or sparsely distributed. Overall vista creation at these locations would be ideal due to the poor quality of vegetation species present and higher levels of existing disturbance. Nine (9) additional sites were characterized as having a fair natural heritage value. The features of these areas were defined as having a mixture of non-native and native tree and shrub species roughly present in equal abundance. Impacts to native species would potentially involve removal or pruning to reduce crown densities or height. Compensation at or adjacent to the new vista would be recommended to ensure the natural heritage characteristics of the areas are being maintained. Finally, four (4) sites were classified as having good natural heritage characteristics. These areas were dominated by native deciduous tree and shrub species with non-native being entirely absent or only present in low densities.

Further, the Visual Impact Assessment concluded that although there were a number of locations where there was new visibility of the lands beyond the brow of the Escarpment, these locations were isolated and obscured by the urban fabric of the neighbourhood. Additionally, the tree canopy in the urban area beyond the brow provided additional screening, making it difficult to discern the vegetation on the face of the Escarpment from that in the background urban area. Views will differ in the winter when the surrounding woodlands are leafless; however the density of the vegetation and localized landscaping will continue to provide a visual screen.

The management plan for the study area includes a strategy to replace the non-native trees that are removed to enhance views with native replacements in locations where the new trees can grow without impacting scenic views. The analysis illustrated that there would be very limited visual impact and the associated replanting activity will benefit the ecological qualities of the Escarpment forest.

In ***Part 3*** of the evaluation process, two additional criteria were added: *Management* of new and existing vistas and *Final Site Confirmation/Review* reflecting the on-site discussions with City staff for each vista location identified in Part 2. At this point, the specific management approach for each new vista location was confirmed, as well as its suitability as a safe, accessible and managed opening.

It was concluded that 46 vista locations are recommended for routine management, of which 29 are existing vistas and 17 are new vistas. The breakdown of all vista locations by City Ward and open space is detailed below.

Ward 6

- Matt Broman Park (1 existing, 1 new)
- Armes Lookout (1 existing, 2 new)
- Bill Foley Parkette (1 new)
- Mountain Drive Park (1 new)
- Mountain Brow West Park (5 existing, 2 new)
- Other Public Lands (2 existing, 3 new)

Ward 7

- Mountain Brow West Park (8 existing, 2 new)
- Sam Lawrence Park (4 existing)

Ward 8

- Southam Park (N/A)
- Balfour Park (1 new)
- Cliffview Park (1 existing, 1 new)
- Scenic Park (N/A)
- Other Public Lands (7 existing, 3 new)

RECOMMENDATIONS

A total of 87 vista sites are identified and organized into three categories :

- 41 locations where there are currently views and no actions are needed to maintain them now and in the future;
- 29 locations where there are existing views that are obscured with overgrown shrubs and invasive species that can be maintained by the City's Vista Management Maintenance Crew;
- 17 new locations where new views are possible with the removal of non-native trees and groundcovers, that require the removal by skilled forestry professionals, and the installation of new low-growing native groundcovers. These locations are organized into three management zones, each with its own maintenance requirements.

The near-term recommendations of the plan are:

1. Continue to monitor the 41 locations where there are existing views.
2. Extend the work undertaken by the Vista Management Crew to include the 29 locations where some remedial pruning and shrub clearing is needed to maintain the views. Identify locations where replacing non-native ground covers with low growing native plants could reduce the long term maintenance effort. Review the location of benches and waste receptacles and whenever possible (along formal trails) co-locate the amenities where there are views.
3. Undertake tree and shrub removal in 17 locations where non-native trees can be removed to open new vistas.
4. Allow natural succession in non-managed locations.
5. Set highest priority for landscape management in parks where viewsheds contribute to the cultural heritage significance of the sites. These include Sam Lawrence Park, Balfour Park and Cliffview Park.
6. Set highest priority for managing the landscapes in the vicinity of the Juravinski Hospital and Cancer Care Center and Mountain Brow West Park because of the long standing access to vistas.

Recommendations for the Future:

7. Continue to improve the recreational infrastructure along the brow (i.e., trails, lighting, fencing and parking, etc.) to support the resident and visitor needs consistent with the City's Recreational Trails Master Plan
8. Undertake detailed design and engineering to implement a more formal lookout at vista location 82 to improve public safety and discourage informal access to a highly scenic viewing area
9. Enhance the experience along the Escarpment brow with interpretative signage, trailheads with trail maps and UNESCO World Biosphere Reserve information.
10. Evaluate undertaking a Niagara Escarpment Parks and Open Space System (NEPOSS) management plan that includes all of the public recreation facilities in the Niagara Escarpment Plan Area in Wards 6, 7 and 8.

Maintenance and monitoring to support the implementation of the plan will be needed, and recommendations towards these activities include:

- A detailed risk assessment should be undertaken by an ISA certified arborist/or City forester for trees that have been identified as being potential hazards to determine if any of the native trees can be retained.
- A program of invasive species management should be implemented on an annual basis involving the identification of locations where a combination of invasive species removal and replacement with native groundcovers will reduce long term maintenance effort.
- Periodic monitoring mature ash trees located in the deciduous forests adjacent to Scenic Drive should be undertaken due to the presence of Emerald Ash Borer (Agrilus planipennis). These trees may have reduced structural capacities; however, the extent of decline/internal decay was not assessed as part of this study.
- In the vicinity of public trails, an assessment and monitoring of erosion of the brow of the Escarpment should be undertaken where localized drainage is impacting the integrity of the face of the Escarpment. Impact to native vegetation and trail user safety should be evaluated. Site-specific recommendations for remediation should be documented and implemented.
- Develop a maintenance schedule with corresponding budget, giving highest priority to vistas in public parks and lookouts (i.e., Sam Lawrence Park, Balfour Park, Cliffview Park, Juravinski Hospital and Cancer Care Center, Mountain Brow West Park). Review the schedule every two years and adjust as required.

The financial implications for implementing the vista management plan have two phases. Phase One is the initial cost for clearing and opening the viewsheds: ***$112,750***. This includes ***$83,250*** for pruning and cleaning of 29 existing vista locations and the site-specific non-native tree removals and pruning of 17 new vista locations; ***$21,000*** for replacement native trees; and ***$7,500*** for native ground covers. Phase Two is the ongoing operational cost of managing the vista locations, which is estimated at ***$15,000*** annually, based on semi-annual pruning at current labour and equipment fates.


WARD 6 - WEST VISTA

1.0 BACKGROUND

The Niagara Escarpment (Escarpment) meanders through the City of Hamilton providing a natural backdrop to the Downtown business and neighbourhoods, access to a unique natural environment with recreational trails and a home to a diverse ecosystem of international significance – a UNESCO World Biosphere Reserve. Inherently, people are drawn to locations on the brow that offer prominent views and vistas. The Escarpment edge along sections of Wards 6, 7 and 8 enables long views into the valley, the Downtown and Lake Ontario.

Public lands on the Escarpment brow are clustered along the 17-kilometre stretch, forming a necklace of parks and recreational trails. New multi-use recreational trail improvements in Ward 6, Cliffview Park Lookout in Ward 8 and other recreation infrastructure investments made by the City in recent years are attracting more users to these public places. Open views from parks and along the recreational trails provide beautiful vistas and visual experiences along the Escarpment brow. Currently, the City does not have a long-term management plan to address maintaining existing views and protecting the natural edge of this significant ecosystem. Therefore, vegetation overgrowth, unauthorized tree cutting and ad hoc maintenance has prevailed. Further, Ward Councillors within the study area have had ongoing discussions with the community to better understand their concerns in establishing managed vistas at the brow of the Escarpment.

The purpose of the **Mountain Brow Vista Study and Management Plan** (the Plan) is to develop an overall strategy for the selection and maintenance of vista locations. These locations are based on criteria that strengthen the natural environment interface along the Escarpment Urban Area and Natural Area and address the quality of the urban forest while promoting safe access and enjoyment of the scenic views from the Escarpment.

1.1 MOUNTAIN BROW VISTA STUDY AREA

The **Mountain Brow Vista Study and Management Plan** focuses on the maintenance of vistas on public lands along the Escarpment brow in City Wards 6, 7 and 8 (see ***Figure 1***). Mohawk Road at Scenic Drive marks the eastern boundary of the 17-kilometre study area along the Escarpment edge. The linear open space system along the Escarpment brow is unique in its spatial and programming features, accessibility and connectivity to the recreational trails network, as well in its ability to provide open views to the Downtown and Lake Ontario.

Parks located directly at the interface of the Escarpment include: Armes Lookouts, Matt Broman Park, Mountain Drive Park, Sam Lawrence Park, Southam Park, Balfour Park, Cliffview Park and Scenic Park. The study area is also dissected by vehicular roads adjacent to public spaces along the Escarpment, including the Jolley Cut and Claremont Access. In Ward 7, lands under private ownership along the Escarpment brow are not included in the scope of this study.

It is important to also note that the study area falls within the Niagara Escarpment Plan area, which is regulated by the Niagara Escarpment Commission (NEC) with strict restrictions on development to minimize impacts and further encroachment on the Escarpment, protecting any adverse visual or environmental effect.


Chedoke Golf Course
Scenic Park
Langs Park
Scenic Parkette
Cliffview Park
Balfour Park
Colquhoun Park
St. Joseph's Hospital
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Gage Park
Mountain Drive Park
Bill Foley Parkette
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
SCENIC DR
FENNELL AVE
WARD 8
WARD 7
WARD 6
PARADISE RD
GARTH ST
WEST 5TH ST
UPPER JAMES ST
MOHAWK RD
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
LINCOLN M. ALEXANDER PY WB
FIGURE 1 - Mountain Brow Vista Study Area
LEGEND
Bruce Trail
Public Lands
Private Lands
Ward Boundary
Parks
Buildings
Niagara Escarpment Plan Designations
Natural Area
Urban Area
0
0.25
0.5
1 km
Hamilton
DILLON

WARD 7 - SAM LAWRENCE PARK

2.0 MANAGEMENT PLANNING REQUIREMENTS/ PLANNING & DEVELOPMENT CONTROLS

The Plan study area is regulated by multiple layers of government policy including the provincial Greenbelt Plan, Niagara Escarpment Plan (NEP), and municipal policies in the City of Hamilton Official Plan and by-laws. This section examines the regulations that guide the forest and tree management practices in the Niagara Escarpment Plan Area and within the City of Hamilton. As a UNESCO World Biosphere Reserve, the Escarpment is also governed by high-level policies for the protection of its internationally significant ecosystem.

2.1 INTERNATIONAL LEGISLATION

2.1.1 UNESCO World Biosphere Reserve

The Niagara Escarpment was designated a UNESCO World Biosphere Reserve in 1990 for the important ecological and cultural values in the area. It is a forested corridor crossing two major biomes: boreal needle leaf forests in the north and temperate broadleaf forests in the south, along with wetland complexes, cliff faces, slopes and aquatic ecosystems (Ontario's Niagara Escarpment, 2016). The southern section of the Escarpment overlooking Lake Ontario meanders through urbanized Hamilton, encompassing the study area.

2.2 PROVINCIAL LEGISLATION

2.2.1 Niagara Escarpment Plan

The Niagara Escarpment is comprised of natural topographic features and associated areas which extend from the Niagara River north to Tobermory. Since 1973, after the enactment of the Niagara Escarpment Planning and Development Act (NEPDA), development of land in the Niagara Escarpment Area has been governed and guided by the policies of the NEP. The objectives of the NEP are to protect unique ecologic and historic areas, maintain and enhance the Escarpment's watercourses, provide outdoor recreation opportunities, maintain and enhance the Escarpment's open landscape character, ensure compatible developments, provide public access, and support municipalities in their planning functions (NEC, 2005). The NEP outlines policies on land use and criteria for development within the following designations: Escarpment Natural Area, Escarpment Protection Area, Escarpment Rural Area, Mineral Resource Extraction, Escarpment Recreation Area and Urban Area.

This vista study area extends along the top of the Niagara Escarpment in Wards 6, 7 and 8, and falls within two of the NEP designations: Natural Area and Urban Area (see ***Figure 2***).

Escarpment Natural Areas

Areas found within the Escarpment Natural Areas designation are in a relatively natural state and largely undisturbed. It contains species and features that are the most significant and scenic within the length of the Escarpment. Maintaining these natural areas is the goal, as outlined in *NEP Policy 1.3*, with objectives to:

- maintain the most natural Escarpment features, stream valleys, wetlands and related significant natural areas and associated cultural heritage features;
- encourage compatible recreation, conservation and educational activities; and
- maintain and enhance the landscape quality of Escarpment features.

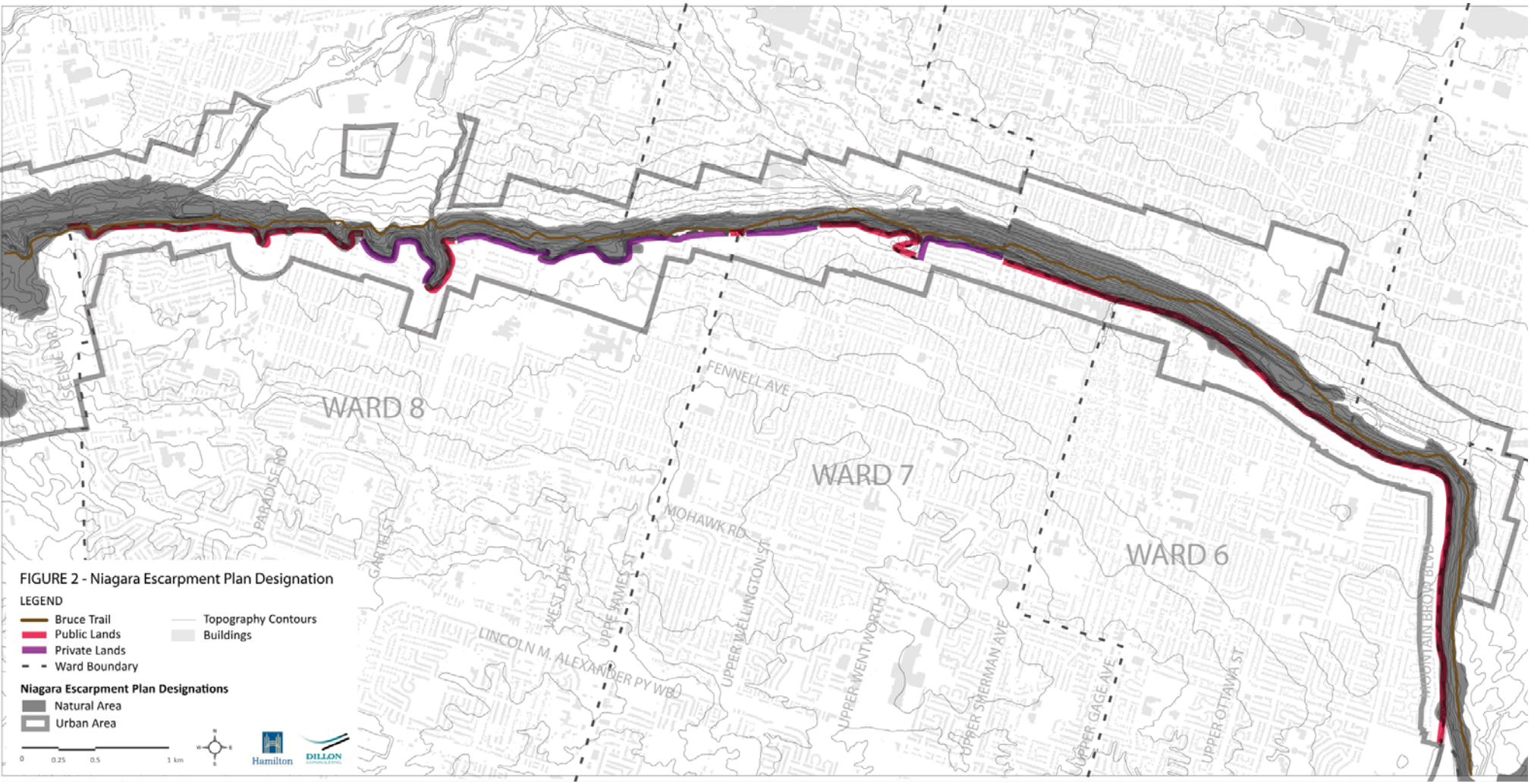
Some of the **permitted uses** in this area include: existing uses, single residential units, non-intensive recreation activities such as nature viewing and hiking, and **forest management** (NEC, 2005).

Escarpment Urban Areas

Escarpment Urban Areas designation outlines the lands that have already encroached within the NEP boundary (*NEP Policy 1.7*). The objective of the policy for this designation is to minimize the impact and further encroachment of urban growth on the Escarpment environment. The boundary generally aligns with the lands designated for urban development within neighbouring municipalities, including the City of Hamilton. Development objectives state that the design of all development should not adversely affect the Escarpment visual and natural environment. Setbacks and screening are required to minimize visual intrusion of urban areas.

Development Criteria

Although the creation of new vistas through sustainable management practices does not require Development Permits from the NEC, it is important to highlight the criteria set in Part 2 of the NEP should the City require additional infrastructure and amenities (i.e., fence, viewing deck, lighting, etc.) to support these new features along the Escarpment brow.


WARD 8
WARD 7
WARD 6
FENNELL AVE
MOHAWK RD
LINCOLN M. ALEXANDER PY WBD
PARADISE RD
GARTH ST
WESTPARK ST
UPPER JAMES ST
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
FIGURE 2 - Niagara Escarpment Plan Designation
LEGEND
Bruce Trail
Public Lands
Private Lands
Ward Boundary
Topography Contours
Buildings
Niagara Escarpment Plan Designations
Natural Area
Urban Area
0
0.25
0.5
1 km
Hamilton
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Generally, development is permitted if: there is no substantial negative impact to the Escarpment environmental features (contours, water, vegetation, wildlife, and visual attractiveness), and it preserves the natural, visual, and cultural characteristics of the Escarpment. More specific criteria relate to issues such as steep slopes and ravines, water sources, wildlife habitat and forest management.

NEP Policy 2.5 states that any development that may affect steep slopes and ravines needs to protect the brow and toe of the slope. The City, by way of site inspection, would need to establish brow/toe of slope lines and establish a minimum setback from the brow, and no disturbance of grades or vegetation below that line is to occur. In terms of watercourses, *NEP Policy 2.6* states that changes to natural drainage should be avoided. Setbacks from watercourses are outlined by the implementing authority, in this case the City of Hamilton, to maintain existing water quality. No changes to the grade or drainage shall occur within this setback and the cutting of trees within the setback is regulated by *NEP Policy 2.7 New Development within Wooded Areas* and *NEP Policy 2.0 Forest Management*.

For wooded areas (*NEP Policy 2.7*), new development should aim to preserve as much of the treed areas as possible. Disturbance should be minimal and developments in wooded areas shall have site plan agreements containing specific management details regarding the protection of the existing tree canopy. Trees and other vegetation shall be maintained if the slopes are greater than 25%.

NEP Policy 2.8 discusses the protection of wildlife habitat. The Policy states that development will not be permitted in identified habitat of endangered plant or animal species and impacts on wildlife and plants shall be minimized, corridors for wildlife maintained, and habitats enhanced wherever possible. The objective for forest management (*NEP Policy 2.9*) is to maintain and enhance the forests and subsequent animal and plant habitats. If trees are to be cut, there are required approvals from the implementing authority. The City of Hamilton is the implementing authority for the study area. Approval to cut is conditional upon using minimally invasive cutting methods, sustainable forestry management practices (to natural environment, drainage, groundwater, habitats), and the diversity of tree species is retained. Refrain from cutting in areas that are highly sensitive such as steep slopes, and unstable areas. The long-term quality, appearance and viability of the forest should be enhanced.

Niagara Escarpment Development Permit

A Niagara Escarpment Development Permit is generally not needed for sustainable forestry or forest management practices within the NEP. According to the Ontario Regulation, permits are not needed for removals using good forestry practices of no more than 10% of the trees within 10 years on a lot larger than 0.8 hectares, only where it is necessary to maintain the value for which the area was acquired or to implement uses permitted in the NEP, such as forest management. The NEC verifies if permitting is needed.

2.2.2 Greenbelt Plan (2005)

The Greenbelt is a vast expanse of permanently protected land which extends from Niagara west following Lake Ontario through Halton, York and Durham north to Lake Simcoe, and east as far as Northumberland County. The Greenbelt Plan contains policies protecting the land and stems from the *Greenbelt Act, 2005*. It identifies and designates lands which become part of the Greenbelt Area. The Greenbelt Plan describes how lands within the Niagara Escarpment Plan Area, the Oak Ridges Moraine Area, and the Parkway Belt West Plan Area are affected and governed. It also identifies where urban development can and cannot occur within its boundaries (Ministry of Municipal Affairs and Housing (MMAH), 2005). It is in place to provide permanent protection to Ontario's ecological areas and natural heritage system, as well as its agricultural lands base within its boundaries, with goals *"to enhance our urban and rural areas and overall quality of life by promoting"* agricultural protection, environmental protection, sustainable culture, recreation and tourism development, sustaining the character of existing settlement areas and supporting infrastructure and natural resources (MMAH, 2005).

The Niagara Escarpment runs from Niagara through the City of Hamilton. According to the *Greenbelt Plan Section 2.2*, the **Mountain Brow Vista Study and Management Plan** study area is located within the Niagara Escarpment Plan Area and is governed by the policies of the NEP.

2.3 CITY OF HAMILTON

The City's policies regarding the Niagara Escarpment generally echo the policies of the NEP; however, there are some instances where the City felt that more restrictive policies would be better suited. Typically, whichever policies are more restrictive are those that prevail (City of Hamilton, 2014).

2.3.1 Urban Official Plan

The study area falls within areas of the Urban Hamilton Official Plan's Open Space designation (*Schedule E-1*) and Natural Heritage System Core Areas System (*Schedule B*). The City's policy regarding Core Areas states that vegetation removal and encroachment into Core Areas shall generally not be permitted and appropriate vegetation protection zones be applied to Core Areas. The Official Plan also states that a vegetation protection zone be placed around Significant Woodlands, which also mirror the boundaries of the NEP Natural Area. A 15-metre buffer around the drip line of the woodland is required. Permitted uses within the vegetation protection zone are dependent on the nature of the feature and its sensitive nature, and would be determined through approved studies.

2.3.2 City Bylaws and Policies

Public Tree Protection By-law (No. 15-125)

It is stated that no person shall injure, destroy, permit the injury or destruction of a tree on public lands. Injuring a public tree may include, but is not limited to: pruning/altering/altering efficiency of root system/working within the drip line/fastening anything to the tree/allowing a substance to come into contact with the tree/setting fire to the tree/altering tree protection/altering soil levels/ climbing a public tree. Despite this prohibition, a person may remove any part of a public tree if a permit is obtained from the Director of Forestry aligning with the applicable policy, the work is done in accordance with the permit, and the work aligns with all applicable by-laws and policies.

Public Tree Preservation and Sustainability Policy

This Policy's purpose is to support the growth and development of Hamilton's urban forest canopy, and is applied concurrently with the City of Hamilton Public Tree By-law 15-125 (Forestry & Horticulture Section, 2015). The Policy describes requirements for work on, in, or around a public tree, permitting for the work and assessment criteria which the Director will use with respect to the condition of a tree. This policy is applied concurrently with removals of public trees should be avoided; however if the removals are necessary, a permit application for the removals is required. The application shall include the following information: reasons for removal, the species, the diameter at breast height measurement, and photographs of the trees. Also, the applicant is required to pay the replacement cost for the removal of the public trees prior to the permit being issued (Forestry & Horticulture Section, 2015).

The Director will consider permit applications based on species, size and location of trees, tree health, and impact on the surrounding environment, and may choose to issue the permit with conditions or to refuse to issue the permit. Conditions may include protection plans for trees being retained and replacement of physical tree with similar species instead of paying fee (Forestry & Horticulture Section, 2015). Trees to be retained should be done in accordance with '*Schedule A*' of the Policy including tagging trees and protecting with fences as set out in the permit, and development and enforcement of a tree protection zone which protects all within the boundary. '*Schedule B*' outlines the criteria by which the Director will assess the public trees under review.

Reforestation Policy

The Reforestation Policy forms part of the City's Forestry Management Plan and applies to all public trees on public property within the City of Hamilton. It is the intent of this policy to support the growth and development of the City's urban forest by providing funds for the removal, repair and replacement of trees where applicable. The City shall ensure that the required permission is sought before removing any public trees. The requester is responsible for paying the total removal and replacement cost (if applicable), unless there is an approved landscaping budget for tree planting that is greater than or equal to the cost for tree replacement as per the Tree Removal/Replacement Estimation equation found in the policy. In such a case, the requester would pay for the removal only. All funding received for removal/replacement shall be deposited into a tree planting reserve fund. Where possible, the total number of trees removed should equal the number of trees replaced.

WARD 8 - EDGE CONDITION

3.0 SITE CONTEXT & ANALYSIS

The **Mountain Brow Vista Study and Management Plan** study area is nestled along the brow of the Niagara Escarpment, which provides the largest forested natural area within the city. The city's open spaces, parks and urban forest cover contributions provide important synergies that protect the ecological integrity and diversity within the Escarpment (see ***Figure 3***). Its constricting interface with development over the last two centuries is evident, as the urban footprint encroaches along the brow and toe of the Escarpment.

The vistas along the Escarpment brow in City Wards 6, 7 and 8 are unique to Hamilton. NEC's *Landscape Evaluation Study: Niagara Escarpment Planning Area (1976)* recognized the study area as 'attractive' for scenic views under the evaluation categories of vegetative cover, landform, land use, special features and views (see ***Figure 4***). In collaboration with the Ministry of Resources and Forestry, the NEC identified landscapes in this study, including significant views and vistas, as important elements in resource planning to maintain and enhance the Escarpment's open landscape character.

The consideration for views within the Downtown and to the Escarpment is also evident in the City's *Downtown Hamilton Tall Buildings Study (2015)*. This framework was developed to guide the location, height and design for future tall buildings in the Downtown. The study envisions heights up to and over 30 storeys in the central core. Sam Lawrence Park was noted as one of the key locations providing views towards the Downtown. Further, the study also recognizes the importance of the views from the Downtown towards the Escarpment, and James Street was identified as a major view corridor.

The following sections expand on the open space and parks, natural heritage features, cultural heritage features, recreational features and amenities within the study area along the Escarpment brow.

3.1 OPEN SPACE & PARKS

Approximately two thirds of the Escarpment brow lands in Wards 6, 7 and 8 are public lands. The study area encompasses public road right-of-ways, open spaces and parks. In total, there are eleven parks that connect to multi-use trails, cycling networks and five City-managed staircases across the slope of the Escarpment. The following section describes amenities by park and city ward.

3.1.1 Ward 6 Amenities

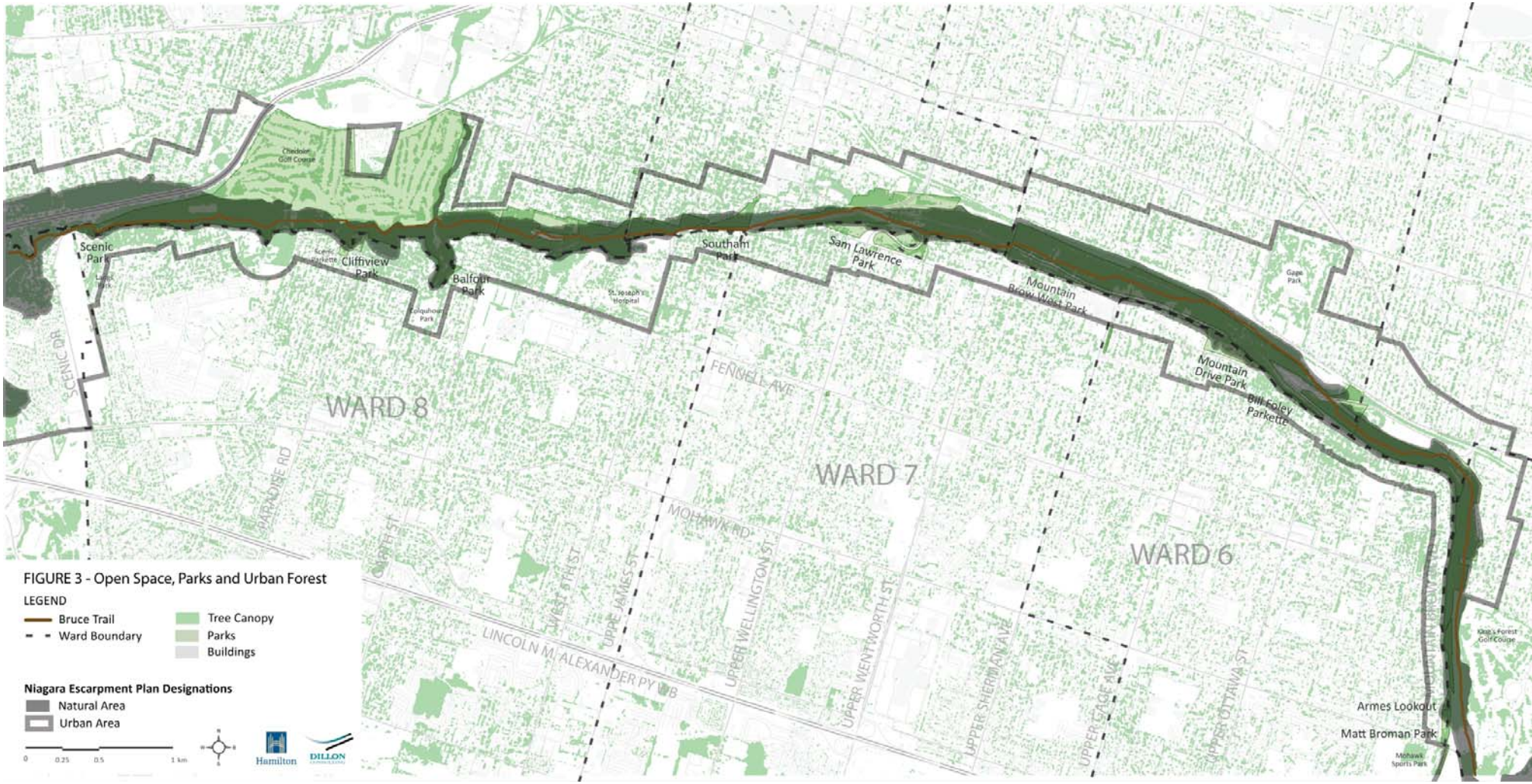
There are five parks within the study area in Ward 6 (see ***Figure 3***). In the south end, Matt Broman Park overlooks the east side of the Escarpment and Armes Lookout has long views to the King's Forest Golf Course. A small parking area is available, along with benches and waste receptacles. The new multipurpose trail connects from Mohawk Road to Oakcrest Drive, with solar-charged street lighting, benches, lay-by parking and decorative fencing along the Escarpment brow. Moving westward, Bill Foley Parkette offers opportunities for seating, parking and long views of Hamilton's central east area. Mountain Drive Park has play equipment, a shelter, parking and open space with seating areas. It also has a lookout area with excellent views of the Downtown. The remainder of the multi-use trail along the brow has parking lay-bys and seating, with waste receptacles.

3.1.2 Ward 7 Amenities

The two main parks within the study area in Ward 7 are Mountain Brow West Park and Sam Lawrence Park (see ***Figure 3***). Mountain Brow West extends from Upper Wentworth Street to Upper Sherman and has two lookout areas and staircase access. This park has two integrated bike parking and share stations, as well as seating. In addition to the amenities, this site was home to the East End Incline Railway and the Summer Theatre, making the lands historically significant. Sam Lawrence Park is beautifully landscaped, featuring a rock garden, wildflowers and prairie grasses. Panoramic views of the harbour and the lower city can be viewed from a number of seating areas. Accessible walkways, lighting and interpretive signage all add to the enjoyment of this exquisite park at the top of Jolley Cut.

3.1.3 Ward 8 Amenities

There are four parks in the study area in Ward 8 (see ***Figure 3***). Southam Park, the most easterly of the four, is the location of a staircase access. While there is no formal seating at the park, it features a diverse range of vegetation, as well as a stone and wood plaza. Balfour Park is a narrow grassy area with a walkway, bordering Scenic Drive. Cliffview Park serves as a connection point between trails and stairs leading to the Chedoke Radial Trail and the Chedoke Golf Course. The park itself features spectacular views of Dundas and the west end of the city. Cliffview Park has bench and waste receptacle facilities. The most westerly park within the study site is Scenic Park. The lower city and long views to the northwest can be seen from this narrow greenspace. Waste receptacles, seating areas and parking space are available.


Scenic Park
Cliffview Park
Balfour Park
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Mountain Drive Park
Bill Foley Parkette
Armes Lookout
Matt Broman Park
WARD 8
WARD 7
WARD 6
SCENIC DR
PARADISE RD
FENNELL AVE
MOHAWK RD
LINCOLN M. ALEXANDER PY WB
WEST 5TH ST
UPPER JAMES ST
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
FIGURE 3 - Open Space, Parks and Urban Forest
LEGEND
Bruce Trail
Ward Boundary
Tree Canopy
Parks
Buildings
Niagara Escarpment Plan Designations
Natural Area
Urban Area
0
0.25
0.5
1 km
Hamilton
DILLON

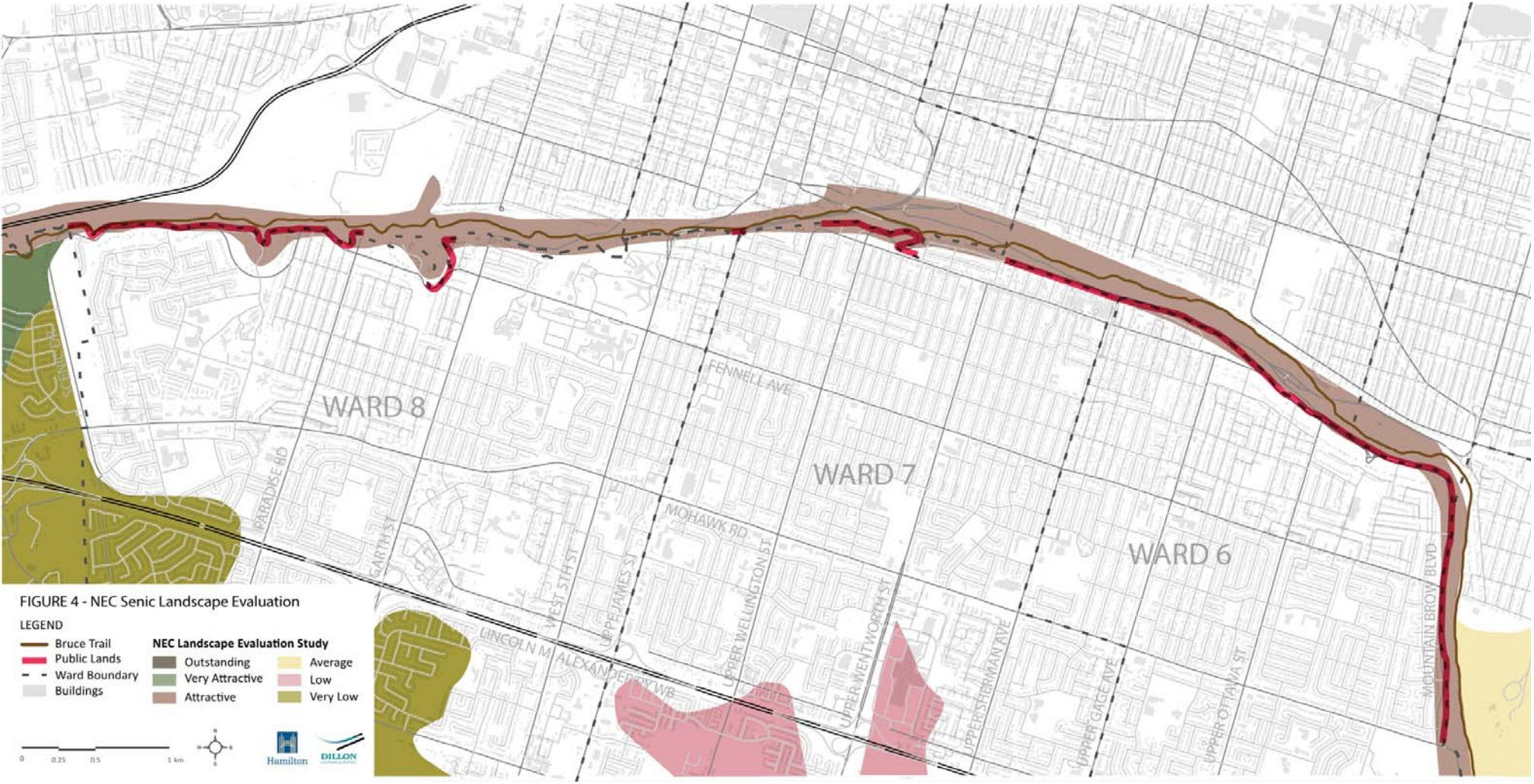


FIGURE 4 - NEC Senic Landscape Evaluation

3.2 NATURAL ENVIRONMENT

Fall and spring/summer field assessments were completed by a qualified biologist within the publicly accessible areas along the Escarpment brow, between Mohawk Road to the east and Scenic Drive to the west (see ***Appendix A***). Below is a summary of the initial fall assessment of vegetation communities and natural heritage features. Field work comprised an assessment of the terrestrial vegetation to document existing site conditions and consisted of:

- A high level assessment of the vegetation communities present along the Escarpment brow and slope;
- A basic vegetation and tree health assessment;
- Documentation of the dominant species present;
- Highlighting any additional natural features present; and
- Documenting the presence of non-native and invasive species.

The spring/summer natural environment assessments were conducted on pre-identified areas for potential vista enhancements along the Escarpment, informing the vista evaluation process. The results of the detailed natural heritage assessment of the potential vistas are presented in *Section 5.2.2*.

3.2.1 Ward 6 Character

Much of the Escarpment brow in Ward 6 was accessible to the public with several official pedestrian walking/biking trails, parks and other public areas being present. A new multi-use pedestrian trail was located along the Escarpment from Armes Lookout Park to the Kenilworth Access. Pedestrian access between Oakcrest Drive and Upper Ottawa Street was not present due to the municipal roadway. A new pedestrian trail begins west of Upper Ottawa Street, continuing west through the Bill Foley Parkette and Mountain Drive Park until the border with Ward 7. Overall, most of the Escarpment brow is accessible to viewing by the public from multi-use pathways, sidewalks or vehicles from Mountain Brow Boulevard and Mountain Park Avenue.

The vegetation communities present in Ward 6 along the Escarpment brow and slope consisted of deciduous forests, woodlands and thickets. The overall vegetation community composition is fairly consistent, varying in densities based on local site conditions and level of human disturbance (i.e., pruning, etc.). Dominant tree and shrub species observed consist of Norway Maple (*Acer platanoides*), Box Elder (*Acer negundo*), European Buckthorn (*Rhamnus cathartica*), Siberian Elm (*Ulmus pumila*), Black Locust (*Robinia pseudoacacia*), Red Oak (*Quercus rubra*), American Basswood (*Tilia americana*), Black Walnut (*Juglans nigra*), and Staghorn Sumac (*Rhus typhina*). Groundcover varied in density based on amount of forest canopy present, with commonly observed species across the site consisting of: Riverbank Grape (*Vitis riparia*), Common Blackberry (*Rubus allegheniensis*), Raspberry Species (*Rubus sp.*), Aster species (*aster sp.*), Grass species (*Agrostis sp.*, *Poa Sp.*, *Bromus Sp.*) and Goldenrod species (*Solidago sp.*).

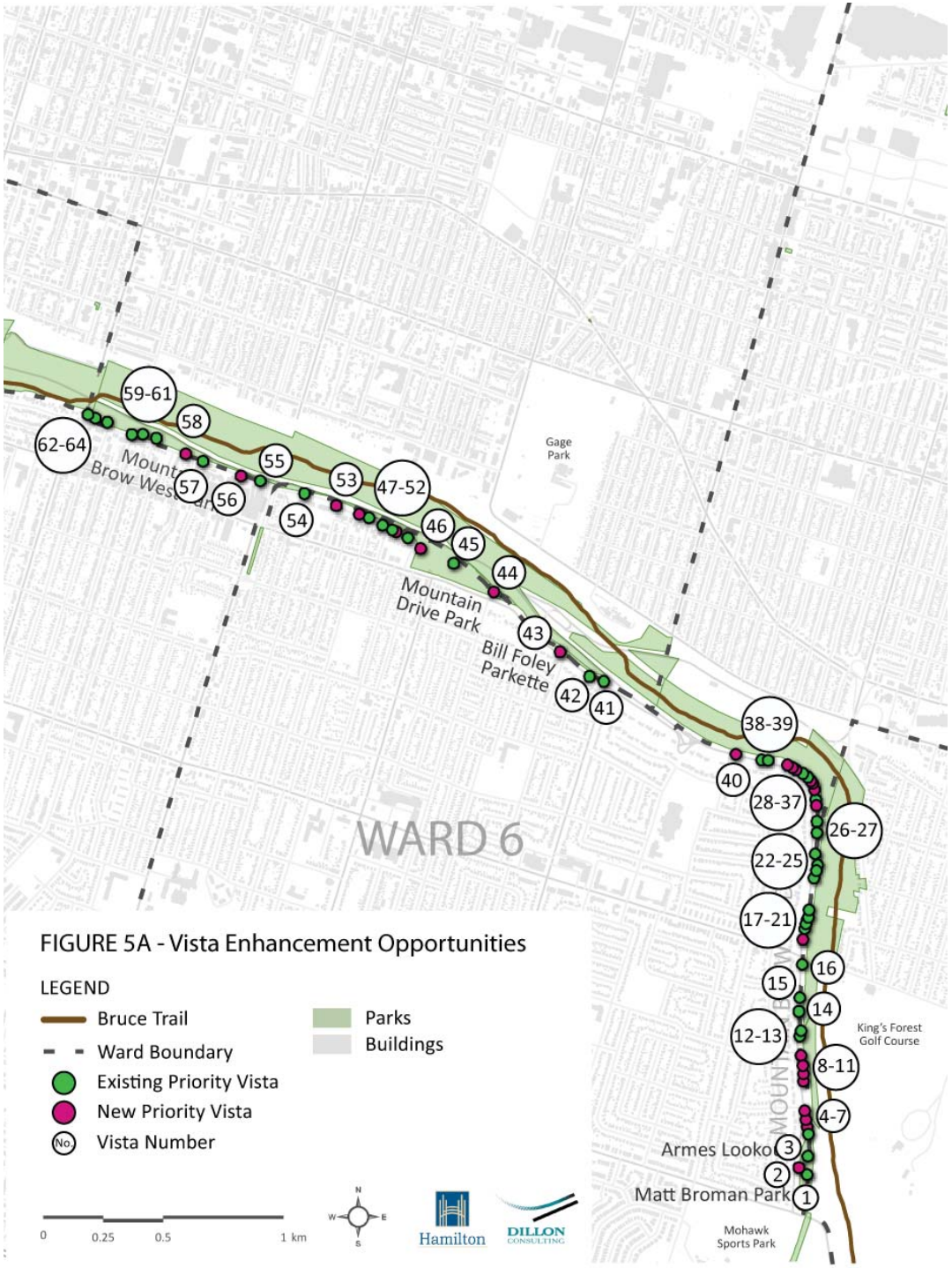
Overall, the condition of trees along the Escarpment ranged from poor to good, with the majority being healthy. Observed deficiencies and defects were minor and generally consisted of frost cracks and seams, poor growth forms or damage to scaffold and secondary branches or central leaders. Several non-native species were observed, with the highest abundances being located in the Mountain Drive Park area. Several trees were also flagged as being potential hazards due to signs and symptoms of decay such as hollow cavities, cracks, dead wood, and signs of past branch failure. It is recommended that an ISA certified arborist or city forester conduct a detailed tree risk assessment to determine if these trees can be retained.

Based on the results of the initial field surveys, opportunities for vistas creation and enhancement were identified. In total, 25 existing vistas and 18 enhancement areas were present mainly located east of Mountain Brow Boulevard, north of Mountain Park Avenue and within Mountain Drive Park and the Bill Foley Parkette (see ***Figure 5A***). These areas could be enhanced and maintained with the removal of non-native species, pruning existing vegetation and planting of low growing native vegetation such as raspberry (*R. alleghaniensis*, *R. idaeus*, *R. occidentalis*), Roses (R. acicularis, Rosa blanda), Sumac (*R. aromatic*) and currants (*R. americanum, R. cynobati*). Creation of new vistas outside of these areas would be limited by a number of factors including the amount of vegetation required to be cleared, size of tree requiring removal (>20cm DBH), slope stability concerns and view obstructions from trees on the lower slope.

3.2.2 Ward 7 Character

Public access to the Escarpment brow is restricted in several areas due to private residential dwellings and other land uses. Public access is present along Mountain Park Avenue between Upper Sherman Avenue and Upper Wentworth Street, in addition to Sam Lawrence Park. Where access was available, good infrastructure consisting of sidewalks and maintained pathways is present.

Vegetation communities within the areas were mainly composed of thickets of tall shrubs and low trees and several small meadow areas. Overall, the community composition is consistent across the site with natural environment features being limited due to the steep Escarpment slope, thin soil, high densities of non-native species and the highly urbanized nature of the surrounding area. The dominant vegetation consists of low tree and shrubs


59-61
58
62-64
55
57
56
53
47-52
54
46
45
44
43
42
41
38-39
40
28-37
26-27
22-25
17-21
16
15
14
12-13
8-11
4-7
3
2
1
Gage Park
Mountain Drive Park
Bill Foley Parkette
WARD 6
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
FIGURE 5A - Vista Enhancement Opportunities
LEGEND
Bruce Trail
Ward Boundary
Existing Priority Vista
New Priority Vista
Vista Number
Parks
Buildings
0
0.25
0.5
1 km
Hamilton
DILLON CONSULTING

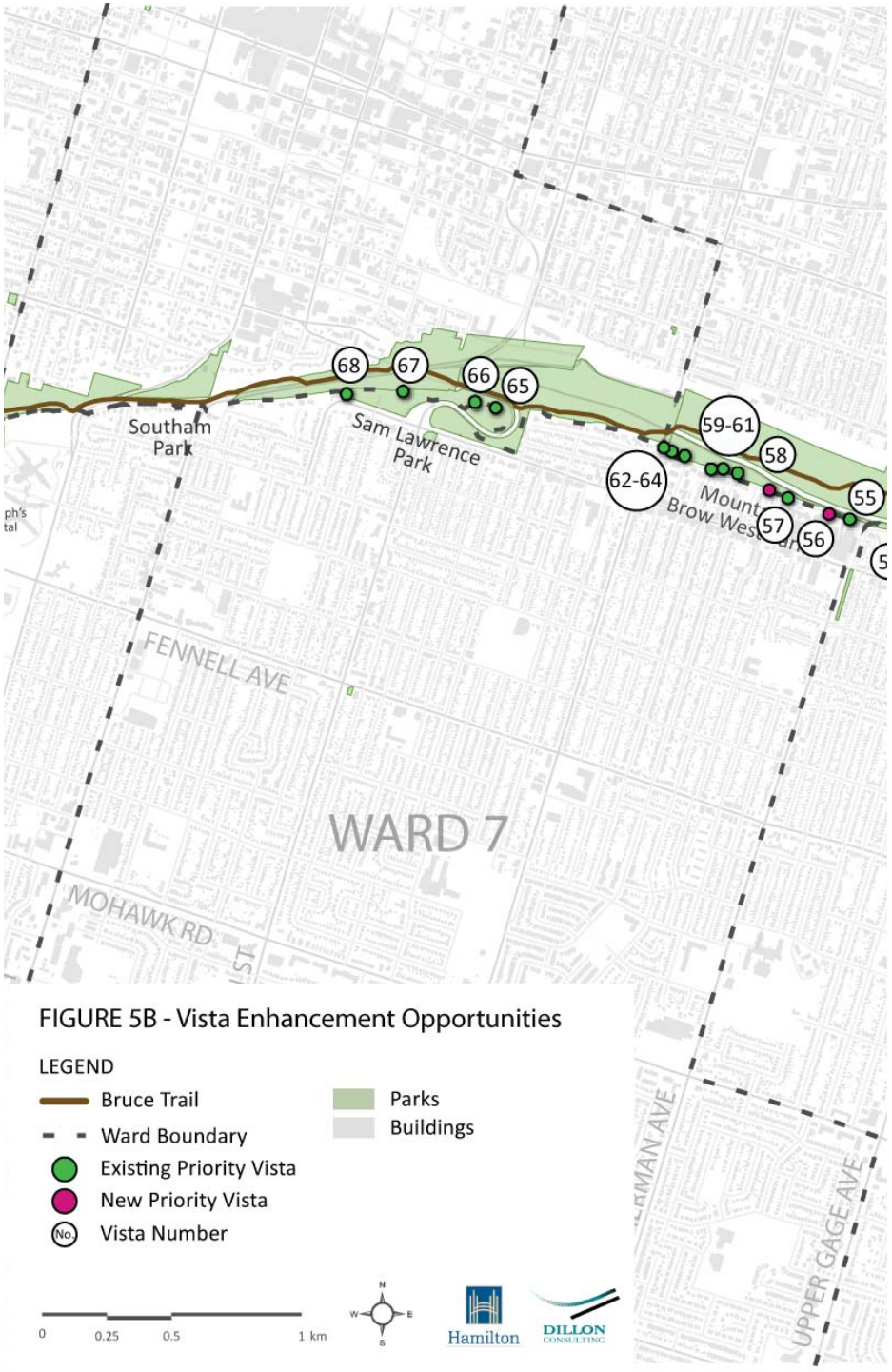
composed of Norway Maple, Black Locust, Siberian Elm, Box Elder, European Buckthorn, Staghorn Sumac, Black Walnut, European privet (*Ligustrum vulgare*), Tartarian Honeysuckle (*Lonicera tatarica*) and Green Ash (*Fraxinus pennsylvanica*). Groundcovers vary in overall density with commonly observed species across the site consisting of: Riverbank Grape, Raspberry species, Aster species (*aster sp.*), Tall Goldenrod (*Solidago altissima*), Grass species, Common Burdock (*Arctium minus*) and Japanese Barberry (*Berberis thunbergii*). Most woody vegetation observed is non-native and showed evidence of past pruning or topping especially along Mountain Park Avenue. Large trees are mostly absent from the Escarpment brow and, if present, were confined to adjacent parklands or boulevards.

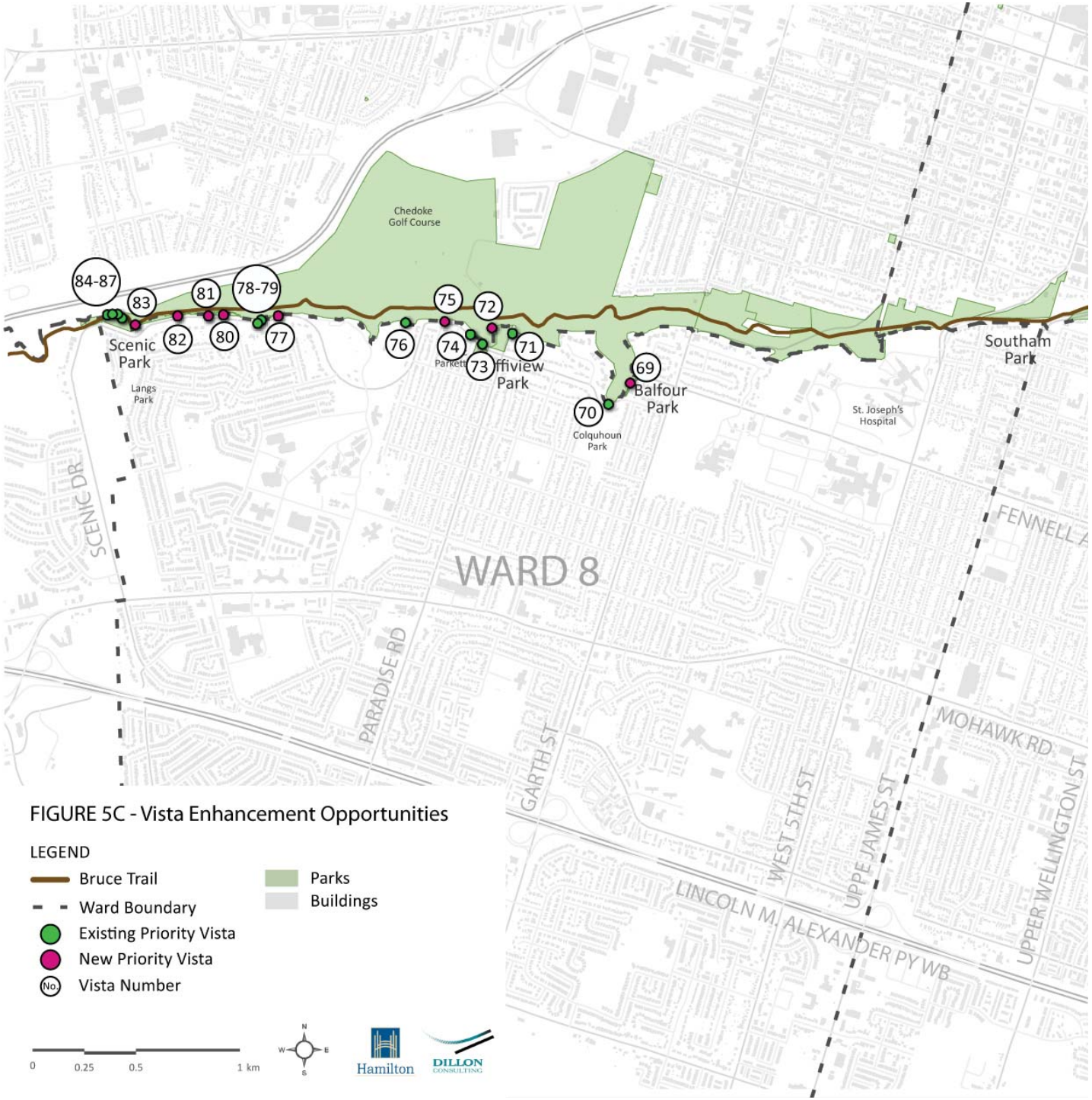
Existing vistas are abundant along Mountain Park Avenue and Sam Lawrence Park with 12 existing vistas and two enhancement areas being observed (see ***Figure 5B***). Sam Lawrence Park specifically has large viewing areas with benches, paved walkways and interpretive signage. The overall area contained moderate potential for the creation of new vistas. Efforts to improve these areas, especially near Juravinski Hospital and Cancer Centre, are recommended. Improvements to these areas include removal of non-native vegetation, pruning of existing vegetation to improve sightlines, and planting low growing native vegetation.

3.2.3 Ward 8 Character

The distribution of public access within Ward 8 is limited to private residential properties along the brow. Public lands with the best overall access are located from Cliffview Park west along Sanatorium Road to Scenic Park. These sites have both formal and informal walking trails and sidewalks along the Escarpment brow. Several informal trails down the Escarpment face and signs of ad hoc gatherings (campfires, litter) were observed near the Scenic Park area. The lack of a fence along the Escarpment brow adjacent to Scenic Park and Sanatorium Road makes it difficult to discourage access to locations that are unsafe.

Vegetation communities present consist of several deciduous forests, woodlands and thicket communities along the Escarpment brow and slope. One area of note was a high quality remnant sugar maple, oak dominated forest located northeast of Sanatorium Road. Tree species observed along the Escarpment brow consist of Bitternut Hickory (*Carya cordiformis*), Black Cherry (*Prunus serotina*), Eastern Hemlock (*Tsuga canadensis*), Red Oak, Norway Maple, Sugar Maple (*Acer saccharum*), Siberian Elm, Black Walnut and Green Ash. Understory vegetation consists of saplings of the tree species in addition to European Buckthorn, Staghorn Sumac, Tartarian Honeysuckle and Multiflora Rose (*Rosa multiflora*). Groundcover observed consisted of multiple goldenrod species, asters, and grasses.




Chedoke
Golf Course
84-87
83
81
78-79
75
72
82
80
77
76
74
73
71
69
70
Scenic
Park
Langs
Park
Parkett
ffiview
Park
Balfour
Park
Colquhoun
Park
St. Joseph's
Hospital
Southam
Park
SCENIC DR
PARADISE RD
WARD 8
FENNELL A
MOHAWK RD
GARTH ST
WEST 5TH ST
UPPE JAMES ST
UPPER WELLINGTON ST
LINCOLN M. ALEXANDER PY WB
FIGURE 5C - Vista Enhancement Opportunities
LEGEND
Bruce Trail
Ward Boundary
Existing Priority Vista
New Priority Vista
Vista Number
Parks
Buildings
0
0.25
0.5
1 km
N
W
E
S
Hamilton
DILLON
CONSULTING

Overall, the condition of trees ranged from poor to good, with the majority being healthy. Observed deficiencies and defects were minor and generally consist of frost cracks and seams, poor growth forms or damage to scaffold and secondary branches or central leaders. Several trees were also identified as being potential hazards due to signs and symptoms of decay including hollow cavities, cracks, dead wood, signs of past branch failure and proximity to adjacent targets (i.e., roadways, pedestrian pathways). It is recommended that an ISA certified arborist or city forester conduct a detailed tree risk assessment to determine if these trees can be retained. Evidence of Emerald Ash Borer (Agrilus planipennis) was also documented in most mature ash trees located in the deciduous forests adjacent to Scenic Drive. These trees may have reduced structural capacities; however, the extent of decline/internal decay was not assessed and periodic monitoring of the ash trees is recommended to track the decline over time and determine the tree hazard potential.

Based on the observations made in the field, 13 existing vistas and 8 potential enhancement areas were identified within the area (see ***Figure 5C***). Cliffview Park offers the best areas for potential enhancements to existing vistas and creation of new areas. The recommended approach is to remove invasive species, plant low growing native vegetation and prune existing vegetation. Scenic Park also offers potential enhancements to vista areas, but a limiting factor is the lack of adequate pedestrian guard rails adjacent to the Escarpment brow and the lack of formal trails. The existing trails are informal (worn, unmarked dirt trails). The potential new vistas ranged from limited to moderate, mainly due to the large amount of vegetation and mature trees present on the slope ridge. Opportunities outside the parks are limited by a number factors such as amount of vegetation required to be cleared, size of tree requiring removal (>20cm DBH), and trees located on the Escarpment slope requiring removal or reduction. This area also contained higher quality vegetation communities increasing the potential for species of conservation concern to be present.

3.3 CULTURAL HERITAGE

Cultural heritage resources are protected through the framework set out in the Ontario Heritage Act, defining the municipal and provincial roles in heritage conservation. Designated properties of cultural value or interest can be individual buildings, monuments, structures or remains of significant architectural, cultural, social, political, economic or military history, or a larger group of properties forming a Heritage Conservation District (Ontario Ministry of Culture, 2005). Further, a Cultural Heritage Landscape is defined as "*a property or defined geographical area of cultural heritage significance that has been modified by human activities and is valued by a community*" (Ontario Heritage Trust, 2012).

There are many cultural heritage features within and adjacent to the Niagara Escarpment in Hamilton (see ***Figure 6***). Significant cultural heritage features include the Hamilton Psychiatric Hospital Lands, Chedoke Brow Lands, Gage Park, Sam Lawrence Park, Colquhoun Park, Cliffview Park and Scenic Park. Heritage Conservation Districts are located north of the study area including St. Clair Avenue, St. Clair Boulevard and Durand/Markland.

3.3.1 Ward 6 Character

In Ward 6 specifically, there is a designated property near Mountain Drive Park on Concession Street and vista openings looking into the Cultural Heritage Landscape (CHL) of Gage Park (see ***Figure 6***).

3.3.2 Ward 7 Character

Ward 7's primary cultural heritage features along the Escarpment brow are Sam Lawrence Park and Southam Park, which are CHLs (see ***Figure 6***).

3.3.3 Ward 8 Character

Ward 8 has a rich cultural heritage along the Escarpment brow (see ***Figure 6***), including Ontario Heritage Trust Easement for Balfour Park and CHLs of Colquhoun Park, Cliffview Park and Scenic Park. The Cross of Lorraine, a non-designated property, is also located within the study area, with vista openings looking into the Chedoke Brow Lands. Perhaps the most significant cultural heritage feature in Ward 8 is the Hamilton Psychiatric Hospital Lands, also known as Century Manor and St. Joseph's Hospital, which are not within the study area, but adjacent to the Escarpment public access.


Ainslie Wood East Neighbourhood
Alexander Park
Chedoke Crossway
Chedoke Golf Course
Chedoke Brow Lands
Hamilton Amateur Athletic Assoc
Durand Park
Durand/ Marklabd HCD
Beulah Park
St. Clair Ave. HCD
St. Clair Blvd. HCD
Scenic Park
Cross of Lorraine
Scenic Parkette
Cliffview Park
1 Balfour Dr
Balfour Park
Hamilton Psychiatric Hospital Lands (Century Manor)
St. Joseph's Hospital
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Gage Park
88 Fennell Ave W.
Col Quhhoun Park
Hamilton Health Sciences
SCENIC DR
FENNELL AVE
Mountain Drive Park
988 Concession St.
Bill Foley Parkette
111 Kenilworth Access (Barton Resevoir)
WARD 8
WARD 7
WARD 6
PARADISE RD
MOHAWK RD
WEST 5TH ST
UPPER JAMES ST
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
LINCOLN M. ALEXANDER PY WB
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
FIGURE 6 - Cultural Heritage Features
LEGEND
Bruce Trail
Ward Boundary
Parks
Buildings
Cultural Heritage Landscape
Designated Properties
Non-Designated Properties
Ontario Heritage Trust Easement
Heritage Conservation District
Municipal Easement
0
0.25
0.5
1 km
Hamilton
DILLON CONSULTING

3.4 PHYSICAL CONDITIONS

Niagara Escarpment's physical characteristics frame the beauty and uniqueness of this geological landform as a vast contrast to Hamilton's urbanized landscape. A slope analysis was completed for the study area, showing generally steeper slopes (greater than 33 percent) at the brow to mid-section of the Escarpment, transition to more gentle slopes (less than 33 percent) towards the toe (see ***Figure 7***). Recent geotechnical reports identify the need for regular scaling of the face of the Escarpment adjacent to the roads, where rock is destabilized because of local drainage (Golder Associates, 2014/2015). This is a regular and ongoing maintenance procedure.

The Escarpment itself offers beautiful waterfall views, which are primarily located in close proximity to Ward 8 and along the Bruce Trail (see ***Figure 8***), Canada's oldest and longest marked footpath running 890 kilometres along the Niagara Escarpment from Niagara to Tobermory (Bruce Trail Conservancy, 2016).

3.5 RECREATIONAL TRAIL FEATURES

The City's Recreational Trails Master Plan (RTMP), completed in May 2016, set out objectives for planned, connected, diverse, inspiring, accessible, safe and sustainable trails across the city. Many of these trails and recreational pathways traverse the Niagara Escarpment, affording residents and visitors a healthy and active lifestyle. The Bruce Trail runs at various elevations along the natural cover of the Escarpment, providing direct linkages to secondary trails and climbs from the valley towards the brow.

3.5.1 Ward 6 Features

The multi-use recreational trail in Ward 6, completed in early 2016, links to a multi-purpose trail towards Mohawk Sports Park and Albion Falls to the south and ends at Oakcrest Drive to the north (see ***Figure 9***). One proposed initiative from the RTMP suggests an improved connection between Matt Broman Park and Oak Knoll Park via a multi-use Mountain Brow Boulevard Trail. Further, expansions of on-road bike routes were proposed along Concession Street west of the Kenilworth Access, and along Upper Ottawa Street. There are two staircases on the Escarpment in Ward 6: Kenilworth stairs connecting Margate Avenue with bike access, and the privately built Uli Stairs at Fennel Avenue. There are no trailheads within the study area in Ward 6.

3.5.2 Ward 7 Features

In Ward 7, the multi-use recreational trail runs from Ward 6 terminating at the privately-owned lands along Mountain Park Avenue and Mountain Brow Park West, which intersect with the Wentworth stairs and bike access (see ***Figure 10***). The half-way point along the stairs connects to the Bruce Trail with continuous trail access to Sam Lawrence Park trails and the Jolley Cut loop. There is also an on-road bike route connecting Mountain Brow West Park with Sam Lawrence Park that feeds into other north-south street routes. The RTMP proposes a new on-road bike route at Upper James Street linking to a proposed multi-use trail along the Bruce Trail and James stairs going south, and extended connectivity with Ward 8 to the north. There are no trailheads within the study area in Ward 7.

3.5.3 Ward 8 Features

Currently, Ward 8 has no multi-use recreational trails along the Escarpment and one on-road bike route along Scenic Drive connecting to Upper Paradise Road and other inner-ward cycling networks (see ***Figure 11***). There are two stairs up the Escarpment in Ward 8: Dundurn stairs off of Garth Street and Chedoke stairs with bike access. Although not within the study area, the proposed initiatives from the RTMP include an Upper James Street-William Connell Park link, as well as an upgrade to the Fennell Avenue West boulevard trail, which also features proposed on-road bike routes, providing continuous recreational access between Wards 7 and 8. An on-road bike route is also proposed along Scenic Drive from Scenic Park to Angela Avenue, and a multi-use trail is proposed along the hydro corridor to M.A.G. Olympic Park. One of the two staircases has bike access at Cliffview Park.


Chedoke Golf Course
Scenic Park
Langs Park
Scenic Parkette
Cliffview Park
Balfour Park
Colquhoun Park
St. Joseph's Hospital
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Gage Park
Mountain Drive Park
Bill Foley Parkette
SCENIC DR
PARADISE RD
GARTH ST
WEST 5TH ST
FENNELL AVE
MOHAWK RD
UPPER JAMES ST
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
LINCOLN M. ALEXANDER PKWY WB
WARD 8
WARD 7
WARD 6
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
FIGURE 7 - Slope Analysis
LEGEND
Bruce Trail
Ward Boundary
Buildings
10 - 20 % slope
20 - 33 % slope
> 33 % slope
0
0.25
0.5
1 km
Hamilton
DILLON


Chedoke Golf Course
Scenic Park
Langs Park
Scenic Parkette
Cliffview Park
Balfour Park
Colquhoun Park
St. Joseph's Hospital
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Mountain Drive Park
Bill Foley Parkette
Gage Park
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
SCENIC DR
PARADISE RD
FENNELL AVE
MOHAWK RD
LINCOLN M ALEXANDER PKWY
WEST 5TH ST
UPPER JAMES ST
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER FIFTH AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
WARD 8
WARD 7
WARD 6
FIGURE 8 - Waterfall Locations
LEGEND
Bruce Trail
Ward Boundary
Public Lands
Buildings
Parks
Waterfalls
0
0.25
0.5
1 km
Hamilton
DILLON

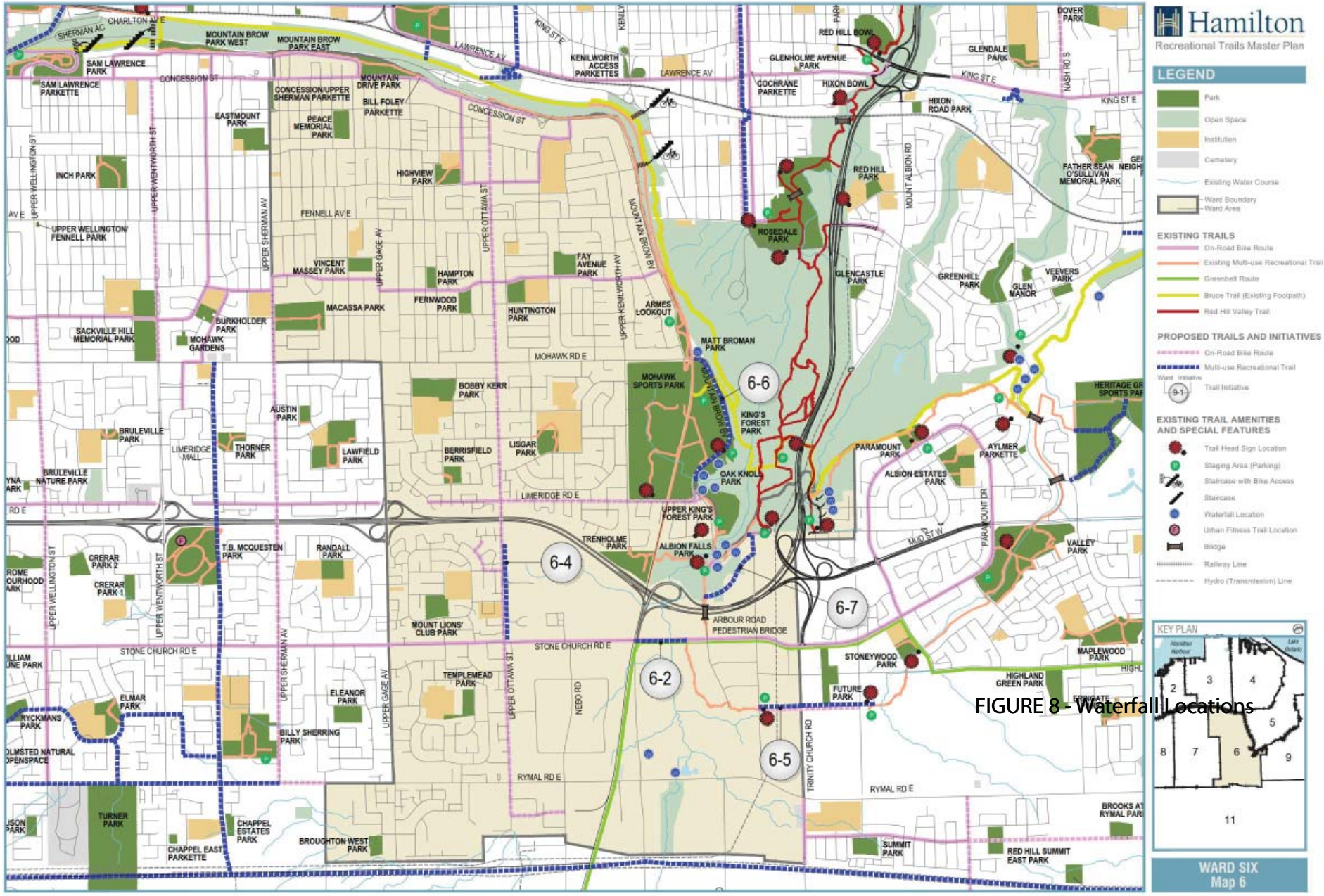


FIGURE 8 - Waterfall Locations

FIGURE 9 - Hamilton Recreation Trails Master Plan (2016) - Ward 6

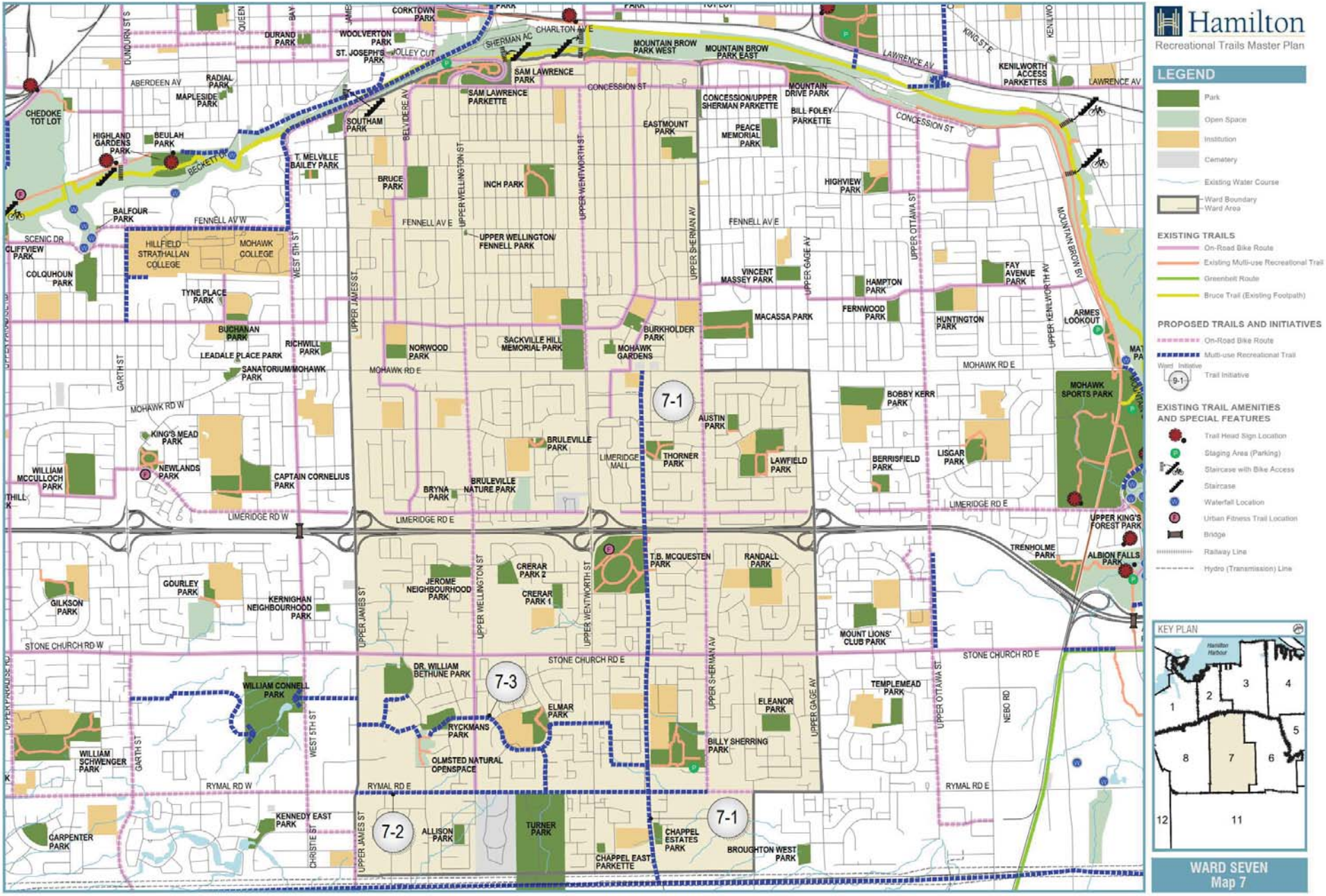


FIGURE 10 - Hamilton Recreation Trails Master Plan (2016) - Ward 7

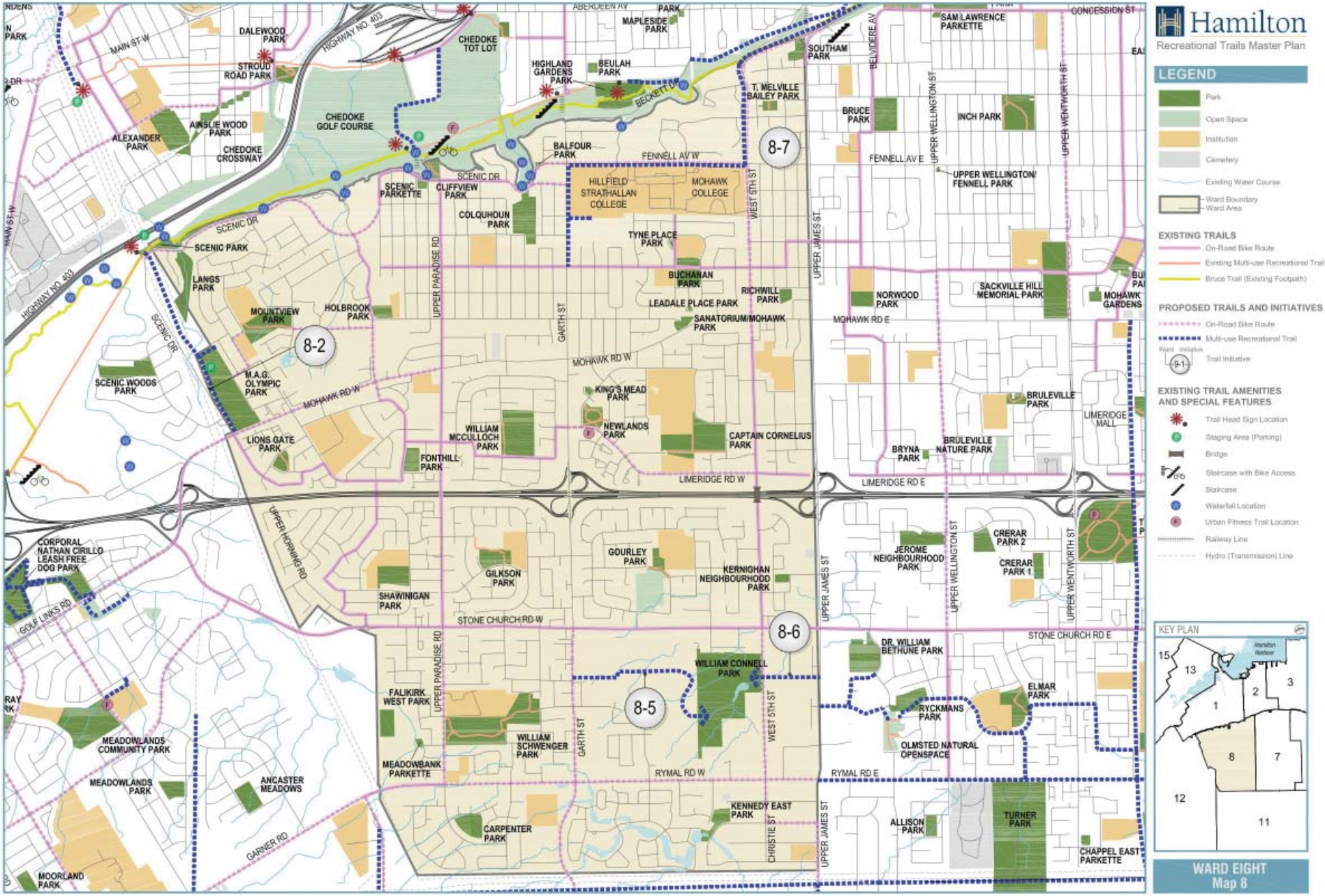


FIGURE 11 - Hamilton Recreation Trails Master Plan (2016) - Ward 8

WARD 6 - KENILWORTH STAIRS

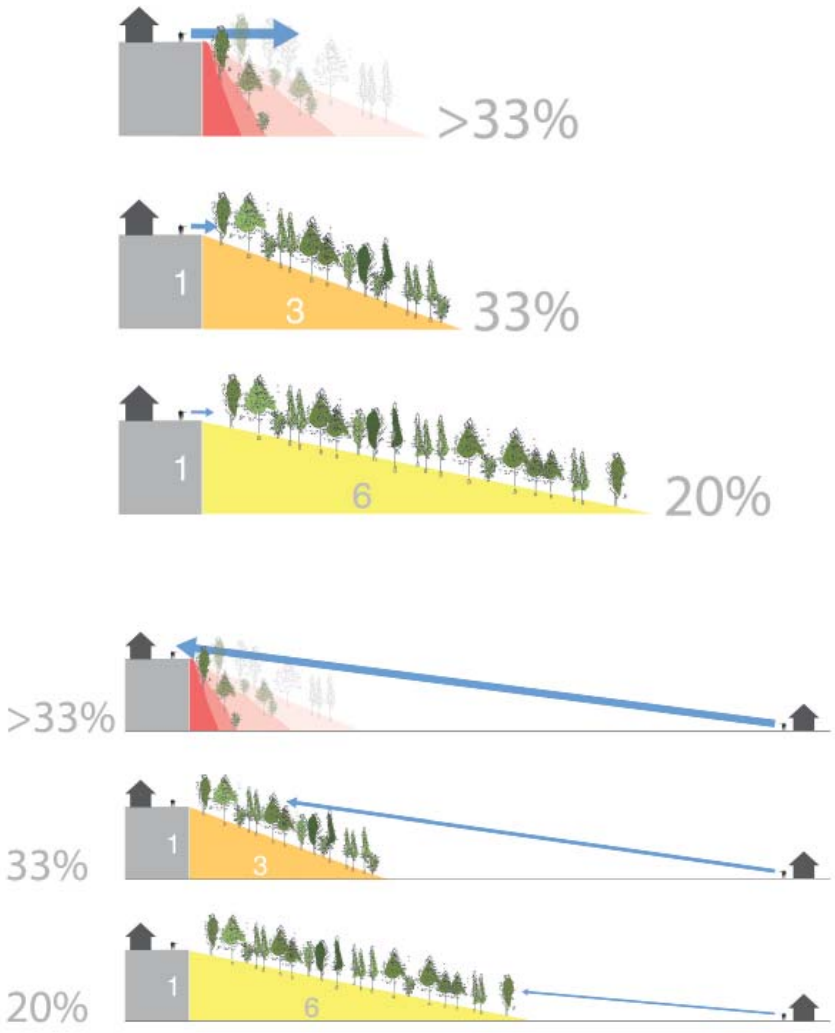


FIGURE 12 - Slope, Vegetation Growth and Natural Vista Clearance

4.0 OPPORTUNITIES & CHALLENGES

In assessing the relevant policies, open space and parks, natural and cultural heritage features, physical conditions and the recreational trail features, opportunities and constraints emerged in the context of vista management – whether existing or new vistas. The creation and maintenance of new vistas requires a careful consideration of compatibility with the Escarpment's natural environment and the Niagara Escarpment Plan (NEP) policies and objectives. Criteria in selecting new vistas were developed with the input from community, as following:

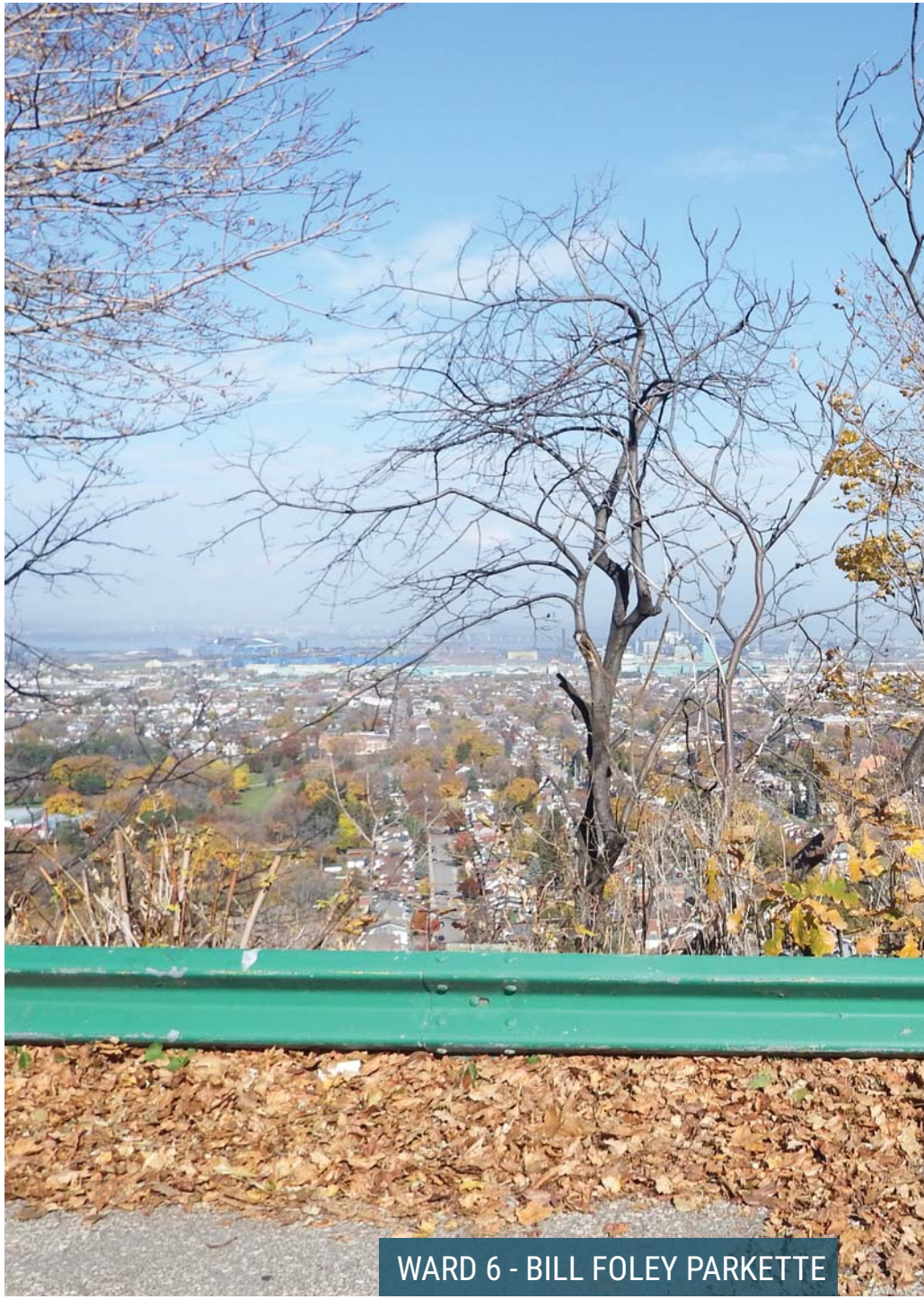
- Protect the unique ecological and historic areas while undertaking sustainable forest management – *aligned with NEP Objective 1*;
- Provide adequate opportunities for enjoying the scenic views afforded by the elevated brow of the Escarpment – *aligned with NEP Objective 3*;
- Carefully select new vista locations to ensure that the open landscape character of the Niagara Escarpment is preserved – *aligned with NEP Objective 4*; and
- Provide safe public access to the Niagara Escarpment brow – *aligned with NEP Objective 6*.

The following opportunities for new vistas were identified through the site condition analysis:

- Develop and enforce sustainable forest management along public lands on the brow. This entails very strategic 'one at a time' removals of invasive, non-native and hazard trees to improve the integrity and quality of the natural environment along the interface between the natural and urban areas;
- Identify steep slopes along the Escarpment brow as natural and ideal openings for vistas (see ***Figure 12***), as medium to gentle slopes require deeper and more intrusive intervention to create vista openings;
- Use sustainable forest management techniques to strengthen the slopes along the brow, including planting of low-lying native shrubs and groundcover with deep stabilizing root systems;
- Maximize urban forest contributions on public lands along the brow to offset any lost canopy cover and to minimize visual impacts from the valley. Extend this knowledge to private land-owners to improve the natural environment quality along the Niagara Escarpment; and
- Introduce continuous and safe trail experience along the Escarpment brow with strategic vista openings.

Challenges in the creation of new vistas along the Escarpment brow in Wards 6, 7 and 8 include:

- Timely approval for a NEC development permit for any built infrastructure supporting the creation of vista openings, including a potential lookout, fence and lighting;
- City policy limitations and process for tree removals on public lands;
- Gentle slopes along the Escarpment brow are a natural barrier for vistas (see ***Figure 12***) and would require more intrusive tree removal;
- New vista openings on steep slopes may impact the visual quality of the Niagara Escarpment character from the valley (see ***Figure 12***);
- Management of steep slope conditions of the Escarpment with the creation of new vistas and increased erosion potential with significant plant removal;
- Safety concerns for City staff in the maintenance of vistas; and
- •City's financial capacity for capital and ongoing operational costs.



WARD 6 - BILL FOLEY PARKETTE

WARD 7 - SAM LAWRENCE PARK

5.0 METHODOLOGY

The **Mountain Brow Vista Study and Management Plan** had a continuous and intertwined two-tier methodology that included technical work and consultation with the community, NEC and City staff (see ***Figure 13***). The technical work consisted of policy overview, fall natural environment assessment, on-site vista and amenity site assessments, GIS data assessments and City Engine 3D model, informing the preliminary findings of the management plan. The preliminary findings were presented and discussed with the community at Stakeholder Workshop events, as well as the NEC and City staff. An online survey was also available to the community to provide feedback. Evaluation criteria were set to assess the existing and preliminary vista enhancement locations' ranking in having the maximum opportunities and minimum challenges in maintaining or establishing a new vista. This high-level assessment eliminated existing and potential vista locations that had good quality natural heritage features (i.e., large native trees), gentle slopes requiring more intrusive management, minimal association with cultural heritage features, limited space on adjacent lands for tree planting to offset canopy loss, and obscured views into the distance. Additional spring/summer natural environment assessment was conducted to further investigate the specific potential vista locations and the degree of management requirements in creation of those vista openings.

The existing and potential vista locations, along with the visual impact assessment results and a Draft Mountain Brow Concept, were presented to the community and the NEC for comments. An online survey was also available to the community to provide feedback. Following an additional presentation to City staff, the existing and potential vista openings and management requirements were confirmed on-site with City staff, allowing for a further refined set of existing and new vista locations. The Final Draft Mountain Brow Concept was presented at a final public meeting, and submitted to the NEC and City staff for final comments.

A detailed overview of community consultation process, natural environment assessment, vista evaluation and the Visual Impact Assessment (VIA) is presented below. Meeting minutes from NEC meetings can be found in ***Appendix B.***

5.1 COMMUNITY CONSULTATION

As per ***Figure 13***, two stakeholder meetings were held with the community residents, two online surveys were conducted and the final concept and recommendations were presented at the final public meeting. Some community residents also provided their comments via email, which were included in the community consultation summaries. The following sections provide the meeting purpose, summary and online survey results.

5.1.1 Stakeholder Meeting 1

The purpose of this workshop was to introduce the consulting team, project scope and outcomes, and the consultation process. An overview was provided of the site conditions and the emerging opportunities for open views along the Mountain Brow Road right of ways. The workshop was structured for group brainstorming, diagramming and discussions, to obtain detailed comments and initial thoughts on the criteria and locations for the open views.

A stakeholder meeting was held on December 10, 2015, for Wards 6 and 7 at the Sherwood Library (467 Upper Ottawa Street) between 6:30 and 8:30 in the evening. Sixty to eighty people attended the event.

The participants expressed that the protection of the Escarpment and existing urban forest were of greatest value to the community, and that the protection of the local ecology and greater ecosystem should be of greatest concern and not the provision for additional vistas. The number of existing vistas was just adequate and the focus should be on the maintenance of the existing vistas, including trimming and native species selection. The most important selection criteria for new vistas identified by the participants included protection of ecological integrity and Escarpment's slope stability. Other concerns were regarding parking, accessibility, connectivity, lighting, waterfall views and effects of climate change.

Figure 14 summarizes the group brainstorm ideas on the most important views to be protected and opportunities for new views.

An **online survey** was posted on the City's project website, running from December 10 to 24, 2015. Twenty-one survey responses were received and approximately half of the survey respondents live in Wards 6 and 7, and the other half live in Wards 2, 3, 4 and 5.

The respondents value the Escarpment's urban forest and its seasonal changes that should be celebrated and not destroyed by cutting down trees to improve and add views. Some respondents expressed less concern over views, but more over protecting the health and vitality of the ecosystem and the state

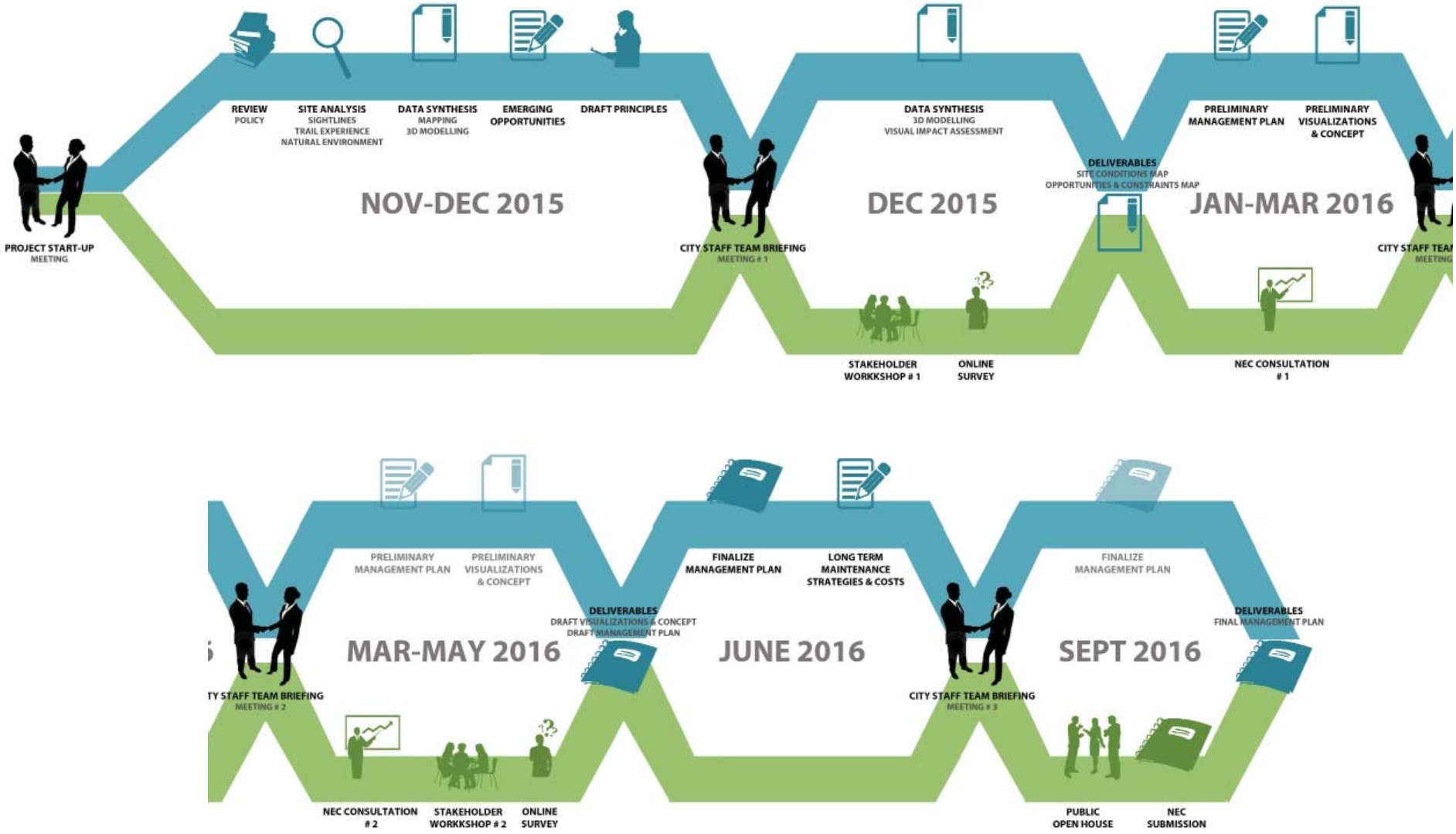


FIGURE 13 - Mountain Brow Study and Managemetn Plan - Methodology

of the Escarpment face. Creating natural lookouts, pollinator gardens, and addressing safety and signage were important considerations. Taking great care in selecting new native trees and plants with plaques, heritage information and period maintenance of vistas were suggestions for improvements by some respondents.

When asked what elements should be considered in selecting views along the mountain brow right-of-way, the top considerations included the protection of ecological integrity of the Escarpment and the slope stability of the brow. Other strong considerations included the protection of trees that make up the urban forest and the reduction of residential property intrusion along the brow. When asked to select the most critical elements in selecting views along the mountain brow right-of-way, the top consideration agreed amongst all respondents was the slope stability protection on the brow. The other two strong responses included the protection of ecological integrity of the Escarpment and the protection of trees that make up the urban forest.

Respondents felt that keeping any remaining open spaces protected as natural areas is important for habitat, natural erosion control, urban forest, climate change. Some specific areas mentioned in the survey included the areas near the golf courses, Mountain Brow along Concession Street and Jolley Cut area, Claremont and Sherman accesses, Oak Knoll Mark, Mount Albion, Mountain Park Boulevard from Summit to Mohawk Road, the Bruce Trail, Sam Lawrence Park, Mountain Drive Park, Cliffview Park, Mountain Drive Park, and the Wentworth stairs.

A stakeholder meeting was held on January 28, 2016, for Ward 8 at the Chedoke Arena (91 Chedmac Drive) between 6:30 and 8:30 in the evening. Forty to sixty people attended the event.

The participants expressed that the protection of the local ecology was important, especially given its urban context. Certain views would be desirable, such as of the falls, fireworks, harbour and Dundas valley; however, they are currently overgrown and without fencing. There was concern over the costs in establishing new vistas and how this may impact the maintenance commitment, pedestrian-related erosion, need for parking and protection of woodlots.

An **online survey** was posted on the City's project website, running from January 28 to February 5, 2016. No responses were received.

5.1.2 Stakeholder Meeting 2

The purpose of this workshop was to present the technical analysis, preliminary vista findings, visual impact assessment results and draft recommendations.

A stakeholder meeting was held on June 13, 2016, for Wards 6 and 7 at the Sherwood Library (467 Upper Ottawa Street) between 6:30 and 8:30 in the evening. Sixty to eighty people attended the event.

Overall, the response from attendees was positive and the proposed changes were welcomed. Although a few residents expressed opposition for the creation of new vistas, recommendations were generally well-received, with attendees expressing their support and excitement for the project. Good discussion about the vista study was generated, and questions and comments from the public encompassed themes of: safety, parking, amenities, and environmental protection.

Safety concerns ranged from maintenance of tall grass, sightlines to increase visibility of children playing, and better lighting. Residents felt parking may be an issue and that striking a balance between creating a visitor destination and providing parking for local residents should be taken into consideration. Ensuring that there were locations where trail users could rest on benches and out of the sun was of some importance to the attendees, as was etiquette of sharing the trails respectfully between cyclists and walkers. Slope erosion, vegetation maintenance and the preservation of mature native trees generated significant discussion. A couple of attendees felt that creating new vistas was unnecessary and not the best allocation of City resources, and that money should rather be spent of enhancing the existing vista locations.

Overall, while some members of the community expressed hesitation on the number of proposed new vistas, the general tone expressed positivity towards the maintenance of existing and new vistas.

An **online survey** was posted on the City's project website, running from June 13 to 27, 2016. Twenty-one survey responses were received, and 29% of the responses were from Ward 7, 19% came from Ward 6 and the remainder of the responses came from Wards 3, 5, 12 and 14. Seven out of the 21 respondents declined to provide a ward number online.

The majority of responses, approximately two-thirds, expressed support and enthusiasm for the vista study. When asked if residents had any concerns with the location, frequency and distribution of the proposed vista locations, it was established that the middle of Ward 6 appeared to have too few vista points. Some respondents also expressed a desire to focus more on enhancing existing vistas rather than prioritizing the creation of new vistas. Specific areas highlighted for intervention were Juravinski Hospital and Southam Park.


Chedoke Golf Course
Scenic Park
Langs Park
Cliffview Park
Balfour Park
Colquhoun Park
St. Joseph's Hospital
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Gage Park
Mountain Drive Park
Bill Foley Parkette
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
SCENIC DR
PARADISE RD
GARTH ST
WEST 5TH ST
UPPER JAMES ST
MOHAWK RD
FENNELL AVE
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
LINCOLN M. ALEXANDER PY WB
WARD 8
WARD 7
WARD 6
FIGURE 14 - Community Vista Location Input
LEGEND
Bruce Trail
Ward Boundary
Parks
Buildings
Stairs
Important Vista Locations
Desired New Vista Locations
0
0.25
0.5
1 km
Hamilton
DILLON

When asked if residents agreed with the management approach being taken, the majority said yes. Concerns with the management approach focused primarily on the planting of saplings, chiefly the potential of saplings to obstruct views. Some responses touched on the increased demand on local parking, and that local residents' parking needs should be balanced with providing parking for visitors.

There were a variety of ideas shared when asked to provide additional feedback. They ranged from maintenance and upkeep of the stairs, making the roads more bicycle and pedestrian-friendly with road geometry changes, better lighting, more garbage facilities, free parking, and also bettering citizen participation incorporating more city wards. 62% of the respondents chose to provide additional feedback for this question.

The survey respondents, although a relatively small population sample, demonstrated support for managing existing and new views. Comments and concerns noted in the survey will inform the number and location of the new vista locations, as well as the final report recommendations.

5.1.3 Final Public Meeting

The purpose of the Final Public Meeting was to present and receive community feedback on the final locations for the establishment of new vistas, management recommendations, maintenance and phasing, and the Final Draft Mountain Brow Vista Concept.

The Final Public Meeting was held on September 15, 2016, at the Sherwood Library (467 Upper Ottawa Street) between 6:30 and 8:30 in the evening. Approximately 60 people attended the event.

The community residents attending this meeting supported the Plan and final recommendations. Very positive feedback was received on the comprehensive, yet sensitive, process to evaluate the vistas and the sound ecological approaches to the management and future maintenance requirements. Additional questions and discussions were based on the following: need for additional parking to support the growing trail-user demands, visual accessibility of vistas at rock-built fences along Mountain Brow Drive, adequacy of recommended 3 to 5 metre opening for distinguished views, costing implications, NEC development permit requirements, sustainable forest management approaches, and lower-city community engagement.

5.2 NATURAL ENVIRONMENT ASSESSMENT

5.2.1 Fall Assessment

An assessment of vegetation communities and natural heritage features was conducted on November 9th and 11th, 2015. Field studies were completed within the publicly accessible areas along the escarpment from Mohawk Road to the east and Scenic Drive to the west. Field work comprised an assessment of the terrestrial vegetation to document existing site conditions and consisted of:

- A high level assessment of the vegetation communities present along the escarpment brow and slope;
- A basic vegetation and tree health assessment;
- Documentation of the dominant species present;
- Highlighting any additional natural features present; and
- Documenting the presence of non-native and invasive species.

In tandem with the vegetation assessment, all existing vistas were documented and areas for potential vista creation or enhancement were evaluated. Areas were classified as current vistas, potential vista enhancement areas or having a limited, moderate or high potential for the creation of a new vista (***Appendix A***). The rationale in determining site classifications can be found below.

Areas with no existing or obstructed views, or those containing high densities of vegetation were assigned a rating of high, moderate or limited based on the potential for new vista creation. High potential areas would require limited effort consisting of pruning existing vegetation, removal of invasive species or limited removal of native low shrubs and small trees. Natural features present in high potential areas typically were poor, usually containing high densities of non-native species or were highly disturbed sites.

Moderate potential areas would require more extensive vegetation clearing, removal of larger trees (>10 cm DBH) or more extensive pruning of adjacent vegetation. Due to the amount of vegetation removal, compensation planting of low growing plant species may also be required and slope stability would be an additional concern.

Areas classified as limited for vista creation typically consisted of forests and woodlands along the Escarpment brow that contain mature trees and dense understory or shrub cover. Vista creation in these areas would be limited by several factors, including removal of large trees on the Escarpment brow and slope, extensive pruning requirements, concern over slope stability, and need for regulatory approval and off-set planting.

Areas classified as existing vistas are currently or were actively maintained in the past to promote viewing opportunities. Characteristics of these areas included existing viewing platforms, sparse vegetation and limited or no tree canopy and, when present, trees would not obstruct the overall view. Limited or no effort would be required to improve these locations, with maintenance consisting of minor annual pruning or the addition of low growing native ground covers to maintain existing sightlines and slope stability.

Vista enhancement areas typically have existing obstructed views or modest vegetation that can be cleared or selectively reduced with little disturbance or loss of natural environmental features. Measures include selective removal of individual trees, cleaning of dead, diseased or broken branches, pruning of lower branches that interfere with pedestrian views, thinning of live branches to reduce branch density, and planting low growing, native groundcovers to maintain sightlines and slope stability.

5.2.2 Spring/Summer Assessment

On June 4th, 5th and 10th a qualified biologist assessed pre-identified areas for potential vista enhancement along the Niagara Escarpment brow in Wards 6, 7 and 8. The objective of this assessment was to document the existing natural heritage conditions. This involved documenting dominant vegetation, densities of invasive species, potential for adjacent offset plantings, vegetation augmentation and management recommendations. This information will then be factored into the development of vegetation management objectives with an emphasis on the creation and maintenance of existing vista views. Areas where existing vistas were present were also assessed and are to be maintained to promote existing sightlines.

Of the assessed potential locations, twenty (20) were selected as management areas where the creation of viewing vistas is recommended. Each site was assigned a condition rating of poor, fair or good based on its natural heritage attributes. Features assessed in these areas consisted of identifying the dominant vegetation community, densities of non-native species, site disturbance, wildlife habitat and presence of species at risk. A detailed description of each of these communities is provided in ***Appendix A***.

Of the selected potential vista locations, seven (7) were classified as having poor natural heritage characteristics. The defining characteristic of these areas was the poor overall quality of the existing vegetation community. Non-native species composed the majority of the vegetation present, with native species being entirely absent or sparsely distributed. Commonly encountered species across sites were European Buckthorn (*Rhamnus cathartica*) Norway Maple (*Acer platanoides*), Siberian Elm (*Ulmus pumila*), Tartarian Honeysuckle (*Lonicera tatarica*) and Garlic Mustard (*Alliaria petiolata*) among others. Any larger trees >10 cm DBH (diameter at breast height) requiring removal were also non-native species. These areas would also be candidates for vegetation augmentation to improve the natural heritage characteristics by planting low growing native alternatives such as Northern Bush Honeysuckle (*Diervilla lonicera*), Raspberry Species (*Rubus spp*.) or Rose Species (*Rosa sp*). Vegetation augmentation would also limit reestablishment of non-native species or reduce their overall abundance. Overall vista creation at these locations would be ideal due to the poor quality of vegetation species present and higher levels of existing disturbance.

Nine (9) additional sites were characterized as having a fair natural heritage value. The features of these areas were defined as having a mixture of non-native and native tree and shrub species roughly present in equal abundance. In addition to the common non-native species noted above, native trees species such as American Basswood (*Tilia americana*), Staghorn Sumac (*Rhus typhina*), Black Walnut (*Juglans nigra*) and Green Ash (*Fraxinus pennsylvanica*) were present. It was noted that most mature green ash ±15 DBH in or adjacent to the proposed vista locations have been impacted by the Emerald Ash Borer (Agrilus planipennis). Vegetation removal to facilitate vista creation would be primarily confined to the remove of non-native shrubs and tree species; however, pruning or removal of native species may be required. Impacts to native species would potentially involve removal or pruning to reduce crown densities or height. Compensation at or adjacent to the new vista would be recommended to ensure the natural heritage characteristics of the areas are being maintained.

Finally, four (4) sites were classified as having good natural heritage characteristics. These areas were dominated by native deciduous tree and shrub species with non-native being entirely absent or only present in low densities. Commonly encounter species were Sugar Maple (*Acer saccharum*), Oaks (*Quercus rubra*, *Quercus macrocarpa*), Eastern Hop Hornbeam (*Ostrya virginiana*), Dogwood Species (*Cornus racemosa*, *Cornus macrophylla*) and Chokecherry (*Prunus virginiana*). They also contained several native tree >10 cm DBH that would be impacted to facilitate vista creation. Large scale removal of native trees and shrubs would not be recommended as it would impact the natural heritage quality of the area. Activities such as pruning to raise overall crown height on larger trees and to reduce branche densities would be potential management options provided good arboriculture practices are adhered to.

5.3 VISTA EVALUATION

Vista evaluation was conducted in three parts. Part 1 was the initial preliminary identification of the vista sites in tandem with the study area site-walk and Fall natural environment assessment. Part 2 consisted of a more detailed desktop evaluation of the existing and potential vistas, using criteria informed by the community, City staff and the NEC, along with location-specific natural cover confirmation informed by the Spring/Summer natural environment assessment. In Part 3, the vista locations were further refined to form the existing and new vista openings based on detailed review of the management approach, community input and on-site confirmation of each site with City staff. Further information is provided in each sub-section.

5.3.1 Part 1 – Preliminary Vista Identification

The vista evaluation process commenced after a thorough site and data analysis, and a Fall natural environment assessment of the Escarpment brow. In Part 1 of the vista evaluation, the completed on-site visual identification of preliminary existing and potential vista sites for enhancement was combined with community input on important vista locations, a resulting in 87 distinct vista locations within public lands in Wards 6, 7 and 8 (see ***Figure 5*** and ***Appendix A***), of which 55 were existing and 32 potential vistas. The methodology in selecting the existing and potential vistas is described in *Section 5.2.1*.

5.3.2 Part 2 – Defined Existing & Potential Vistas

The physical opportunities and challenges of each of the 87 vista openings required further detailed evaluation to better understand its suitability in meeting the vista selection criteria informed by the community, City staff and the NEC (see *Section 4.0*), as well as the four management principles presented in *Section 6*. The evaluation of vista locations was based on the following criteria:

1. **Natural Heritage Quality Assessment** identified the natural environment quality (i.e., good, average, and poor) along the Escarpment brow based on Fall site surveys. It is important to recognize the management requirements in maintaining or creating a high quality natural cover for each location. For example, vista locations with the poorest natural environment quality hold the highest ranking of 3 because it has the greatest potential for ecological improvements and maintenance of a future vista opening. A vista location with native species and large stature trees will rank at a lower number because it is important to protect this high quality landscape and limit any management intrusions.

2. **Slope Analysis** identified slopes that were steep (33 percent or greater), moderate (20 to 33 percent) or gentle (10 to 20 percent) along the Escarpment brow. The highest ranking of 3 was assigned to vista locations with steep slopes as they would naturally provide vista openings and/or require the least amount of vegetation removal for vista openings. Similarly, vista locations along gentle slopes were ranked as 1, recognizing that these slopes are not ideal for vista creation given the highly vegetated profile (see ***Figure 12***).

3. **Cultural Heritage Feature** identified the value added in the proximity of cultural heritage features to the vista locations within the study area. The highest ranking of 3 was assigned to vista locations that were within or adjacent to cultural heritage features, or with direct views of the heritage properties. The lowest ranking of 1 was assigned to those vista locations that had no cultural heritage feature references within its context.

4. **Tree Offset Planting Potential** assessed the suitability of public lands adjacent to the vista location to support additional tree planting that offset any canopy loss from the removal of invasive and non-native trees along the Escarpment brow. The highest ranking of 3 was assigned to vista locations that had optimal planting space adjacent to the vista opening. Similarly, a ranking of 1 was assigned to those areas that had restricted space for additional tree planting.

5. **Scenic View** assessed the openness of the vistas in the establishment of most desired long views. Even if the immediate steep slope of the brow offered a potential vista opening, the view may still be obscured by vegetation further down the Escarpment slope; therefore, this vista location would be assigned a low ranking of 1. In contrast, if vegetation management along the brow offered long panoramic views down the Escarpment face it would hold the ranking value of 3, as the preferred vista location for scenic views.

Community Comments were not ranked; however, they contributed additional value to the decision-making process on the desired vista openings.

The ideal vista locations received a total score of 15; however, it was recognized that the 80th percentile (minimum score of 12 out of 15) vista location group had tremendous vista potential and that its slight deficiencies might be carefully managed (i.e., minimal tree offset planting space may result in planting of smaller tree species, or planting in an adjacent public space) or assessed as exceptions (i.e., no cultural heritage vista or adjacency). The potential vistas were further evaluated during the Spring/Summer natural environment assessment, confirming the site-specific vista creation management approaches

(see ***Appendix C*** and ***Table 1***). As a result, the 87 preliminary vista locations were narrowed down to 52 vista locations, of which 32 were existing and 20 potential vistas.

5.3.3 Part 3 – Refined Existing & New Vistas

With additional input from the community and technical analysis, two additional criteria were added to the evaluation matrix to refine the vista locations:

6. **Management** outlined the detailed approach in either maintaining an existing vista or the sustainable forest management requirements in the establishment of new vistas, providing a transparent list of species and techniques in planting removals and/or additional planting.

7. **Final Site Confirmation/Review** reflects the on-site discussions with City staff for each vista location identified in Part 2, confirming the management approach and the suitability of the potential vista location as a safe, accessible and managed opening.

In conclusion, 46 vista locations are being recommended for routine management, of which 29 are existing vistas and 17 are new vistas (see ***Table 1)***.

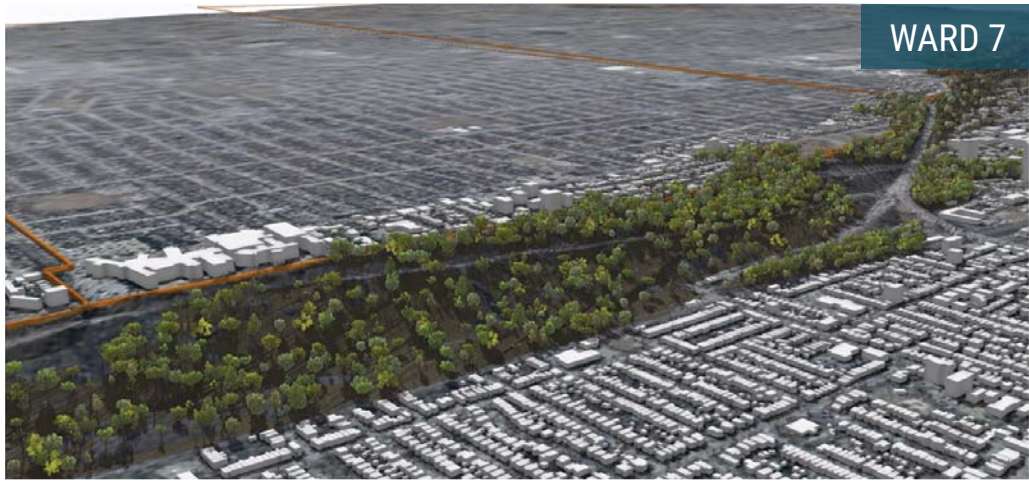


TABLE 1: MOUNTAIN BROW VISTA EVALUATION

WARD 6 VISTA EVALUATION

Ward 6 Vista #	PART 1 - Preliminary Vista Identification				PART 2 - Defined Existing & Potential Vistas								PART 3 - Refined Existing & New Vistas	
	Vista Type	Coordinates (Decimal Degrees)		Natural Heritage Quality Assessment	Slope Analysis*	Slope Percentage	Cultural Heritage Feature	Tree Offset Planting Potential	Scenic View		Overall Score (15 max)	Community Comments	Management	Final Site Confirmation/ Review
		Point Y	Point X	1. Good - to be protected 2. Average- some removal potential 3. Poor - removal potential	1. 10-20% (gentle) 2. 20-33% (moderate) 3. 33% (steep)		1. No Featues 2. Adjacent to Feature 3. Feature	1. No Adjacent Planting Space 2. Minimal Adjacent Planting Space 3. Optimal Adjacent Planting Space	1. Obscured 2. Average 3. Excellent	Observations				
1	EXISTING	-79.81632	43.2144	2	3	38%	1	3	3	Existing long vista into the valley, unique opening with bench.	12	-	-	✓
2	POTENTIAL	-79.81672	43.21465	2	3	47%	1	3	3	Evidence of brushing, long views of the City and lake.	12	-	Maintain existing sightlines through periodic cutting of Staghorn sumac or supplementing plant communities with low growing native vegetation.	✓
4	EXISTING	-79.81623	43.21599	2	3	68%	1	3	3	Existing vista with bench.	12	-	-	✓
5	POTENTIAL	-79.81631	43.2162	3	3	60%	1	3	3	View to the trail below.	13	-	Remove one (1) non-native tree species consisting of a Norway maple in poor condition on the slope, and pruning one (1) Norway maple to raise crown height along escarpment brow. Prune one (1) American basswood on escarpment slope to remove lower secondary branches.	✓
6	POTENTIAL	-79.81636	43.21637	2	3	51%	1	3	3	Evidence of brushing, long views of the valley.	12	-	Vista creation would require the removal of up to five (5) Trees consisting of the following: two (2) black walnut (18 dbh), one (1) American basswood (20 dbh), and two (2) Norway maple (18 dbh). Ongoing maintenance of staghorn sumac and non-native shrubs along the escarpment brow to maintain sightlines will be required.	✓

TABLE 1: MOUNTAIN BROW VISTA EVALUATION

WARD 6 VISTA EVALUATION

Ward 6 Vista #	PART 1 - Preliminary Vista Identification				PART 2 - Defined Existing & Potential Vistas								PART 3 - Refined Existing & New Vistas	
	Vista Type	Coordinates (Decimal Degrees)		Natural Heritage Quality Assessment	Slope Analysis*	Slope Percentage	Cultural Heritage Feature	Tree Offset Planting Potential	Scenic View		Overall Score (15 max)	Community Comments	Management	Final Site Confirmation/ Review
		Point Y	Point X	1. Good - to be protected 2. Average- some removal potential	1. 10-20% (gentle) 2. 20-33% (moderate)		1. No Featues 2. Adjacent to Feature	1. No Adjacent Planting Space 2. Minimal Adjacent Planting Space	1. Obscured 2. Average	Observations				
8	POTENTIAL	-79.81644	43.2179	2	3	79%	1	3	3	Long vista into the valley and lake, unique opening with bench.	12	-	To facilitate vista creation the removal of several non-native trees consisting Norway maple (± 12, 6, 18, 5, 5, 15, 8 and 5 DBH) along brow and escarpment slope would be required. Pruning consisting of crown reduction may be required on one (1) additional Norway maple. The mature bur oak would not be impacted.	✓
9	POTENTIAL	-79.81644	43.21817	3	3	81%	1	3	3	Long vista into the valley and lake, unique opening with bench.	13	-	Vista creations would require the removal of three (3) non-native tree species consisting of Norway maple (± 10, 14, 15 DBH) along escarpment brow in addition to the removal of patches of non-native woody shrubs. Replace non-native shrubs with low-growing native alternatives to prevent re-establishment.	✓
13	EXISTING	-79.81655	43.21978	3	3	73%	1	2	3	Existing view.	12	-	-	✓
29	EXISTING	-79.81559	43.22824	2	3	58%	1	3	3	Existing view.	12	Important vista.	-	✓
30	POTENTIAL	-79.81561	43.22845	2	3	52%	1	3	3	Long vistas into the valley, green space in behind.	12	Potential vista.	Vista creation would require the removal of one (1) non-native tree species consisting of Norway maple (± 12 DBH) in addition to the removal of several native shrub/low trees consisting of, twelve (12) Staghorn sumac (±8 cm) and one hawthorn (± 6 DBH) Removal and replacement of the non-native honeysuckle with a low-growing native alternative is also recommended to prevent reestablishment of non-natives.	✓

TABLE 1: MOUNTAIN BROW VISTA EVALUATION

WARD 6 VISTA EVALUATION

Ward 6 Vista #	PART 1 - Preliminary Vista Identification				PART 2 - Defined Existing & Potential Vistas								PART 3 - Refined Existing & New Vistas	
	Vista Type	Coordinates (Decimal Degrees)		Natural Heritage Quality Assessment	Slope Analysis*	Slope Percentage	Cultural Heritage Feature	Tree Offset Planting Potential	Scenic View		Overall Score (15 max)	Community Comments	Management	Final Site Confirmation/ Review
		Point Y	Point X	1. Good - to be protected 2. Average- some removal potential	1. 10-20% (gentle) 2. 20-33% (moderate)		1. No Featues 2. Adjacent to Feature	1. No Adjacent Planting Space 2. Minimal Adjacent Planting Space	1. Obscured 2. Average	Observations				
43	POTENTIAL	-79.82863	43.23415	3	2	32%	2	3	2	Long vista into the valley and city, unique view adjacent to parking lot, at Bill Foley Parkette.	12	-	Vista creations would require the removal of several non-native tree species consisting of two (2) black locust (± 8 DBH), one (1) Norway maple (± 3 DBH) and one (1) Siberian elm in addition to a small stand of non-native honeysuckle along escarpment brow. One dead tree on escarpment slope will also be require removal Replace with low growing native species to prevent non-native re-establishment.	✓
46	POTENTIAL	-79.8357	43.23809	1	3	40%	2	3	3	Long vista into the city and lake, unique view from park, stone wall fencing with bench.	12	Potential vista.	Vista creations would require the removal of two (2), non-native tree species consisting of two Norway maples (>10DBH) and one native species consisting of one black walnut >10DBH. In addition, up to twenty (20) stems of Staghorn sumac would also require removal or reduction pruning.	✓ ✓
47	EXISTING	-79.83635	43.23849	3	3	98%	1	3	3	Existing view.	13	Important vista.	-	✓
49	EXISTING	-79.83709	43.23876	3	3	61%	1	3	3	Existing view.	13	-	-	✓
50	EXISTING	-79.83765	43.23899	3	3	64%	1	3	3	Potential view with bench.	13	-	-	✓
51	EXISTING	-79.83834	43.23928	3	3	115%	1	3	3	Existing view.	13	-	-	✓
52	POTENTIAL	-79.83885	43.2394	3	3	105%	1	3	2	Long vista into the city and lake, unique opening, stone wall may block view if seated at bench.	12	-	Removal of seven (7) stems of green ash measuring >10cm DBH in addition to a stand of non-native privet species.	✓
53	POTENTIAL	-79.84	43.23975	3	3	105%	1	3	2	Long vista into the city and lake, has a bench.	12	-	Removal of two (2) non-native trees consisting of Siberian elm (± 30, 23 DBH) in addition to low non-native shrubs consisting mainly of European buckthorn. Recommend augmenting vegetation community with low growing native shrubs to prevent non-native reestablishment.	✓

WARD 7 VISTA EVALUATION

Ward 7 Vista #	PART 1 - Preliminary Vista Identification				PART 2 - Defined Existing & Potential Vistas								PART 3 - Refined Existing & New Vistas	
	Vista Type	Coordinates (Decimal Degrees)		Natural Heritage Quality Assessment	Slope Analysis*	Slope Percentage	Cultural Heritage Feature	Tree Offset Planting Potential	Scenic View		Overall Score (15 max)	Community Comments	Management	Final Site Confirmation/ Review
		Point Y	Point X	1. Good - to be protected 2. Average- some removal potential 3. Poor - removal potential	1. 10-20% (gentle) 2. 20-33% (moderate) 3. 33% (steep)		1. No Featues 2. Adjacent to Feature 3. Feature	1. No Adjacent Planting Space 2. Minimal Adjacent Planting Space 3. Optimal Adjacent Planting Space	1. Obscured 2. Average 3. Excellent	Observations				
54	EXISTING	-79.84388	43.2407	3	3	87%	1	3	3	Existing view.	13	-	-	✓
55	EXISTING	-79.84487	43.24091	3	3	97%	1	3	3	Existing view.	13	Important vista.	-	✓
56	POTENTIAL	-79.84165	43.24021	3	3	96%	1	3	2	Long vista into the city and lake.	12	**Potential vista.**	Removal of two (2) non-native trees (Siberian elm) measuring 24 and 22 DBH in addition to the removal of non-native low growing shrubs. Recommend augmenting vegetation community with low growing native shrubs to prevent non-native reestablishment and to improve natural heritage characteristics of the area.	✓
57	EXISTING	-79.8468	43.24147	3	3	106%	1	3	3	Potential view with bench	13	Important vista.	-	✓
58	POTENTIAL	-79.84769	43.24176	3	3	61%	1	3	2	Beautiful vista into the valley, unique location.	12	-	Vista enhancement would require the removal of eight (8) stems (± 10cm DBH) of non-native woody vegetation consisting of privet.	✓ ✓
59	EXISTING	-79.84921	43.24236	3	3	97%	1	3	3	Existing view.	13	-	-	✓
60	EXISTING	-79.84989	43.24252	3	3	94%	1	3	3	Existing view.	13	-	-	✓
61	EXISTING	-79.85045	43.24249	3	3	44%	1	3	3	Existing view with a bench.	13	Important vista.	-	✓
62	EXISTING	-79.8517	43.24299	3	3	76%	1	3	3	Existing view.	13	Important vista.	-	✓
63	EXISTING	-79.8523	43.24315	3	3	76%	1	3	3	Existing view.	13	Important vista.	-	✓
64	EXISTING	-79.85267	43.24328	3	3	52%	1	3	3	Existing view.	13	Important vista.	-	✓
65	EXISTING	-79.86065	43.24476	3	3	55%	3	3	3	Existing view.	15	-	-	✓
66	EXISTING	-79.86165	43.24497	3	3	82%	3	3	3	Existing view.	15	-	-	✓
67	EXISTING	-79.86506	43.24537	3	3	76%	3	3	3	Existing view.	15	Important vista.	-	✓
68	EXISTING	-79.86774	43.24531	3	3	36%	3	3	3	Beautiful vista into the downtown, unique location already established as a lookout.	15	Important vista.	-	✓

WARD 8 VISTA EVALUATION

Ward 8 Vista #	PART 1 - Preliminary Vista Identification				PART 2 - Defined Existing & Potential Vistas								PART 3 - Refined Existing & New Vistas	
	Vista Type	Coordinates (Decimal Degrees)		Natural Heritage Quality Assessment	Slope Analysis*	Slope Percentage	Cultural Heritage Feature	Tree Offset Planting Potential	Scenic View		Overall Score (15 max)	Community Comments	Management	Final Site Confirmation/ Review
		Point Y	Point X	1. Good - to be protected 2. Average- some removal potential 3. Poor - removal potential	1. 10-20% (gentle) 2. 20-33% (moderate) 3. 33% (steep)		1. No Featues 2. Adjacent to Feature 3. Feature	1. No Adjacent Planting Space 2. Minimal Adjacent Planting Space 3. Optimal Adjacent Planting Space	1. Obscured 2. Average 3. Excellent	Observations				
69	POTENTIAL	-79.89927	43.24264	1	3	40%	3	3	2	Limited long view, unique location at gorge in Balfour Park.	12	-	Most woody vegetation is native limiting removal opportunities. However, raising crown of two (2) red oaks and one (1) basswood would improve overall view.	✓
70	EXISTING	-79.90059	43.24172	3	3	92%	3	1	3	Existing view.	13	-	-	✓
71	EXISTING	-79.90624	43.24485	3	3	49%	1	3	3	Existing view.	13	-	-	✓
72	POTENTIAL	-79.90747	43.24511	2	2	33%	3	3	2	Long views into the valley and city, unique opening, adjacent to stairs.	12	-	Vista creation would require the removal of four (4) non-native trees consisting of Siberian elm (8-15 DBH), and one (1) green ash (8 DBH). Replace with native low-growing vegetation to prevent non-native reestablishment.	✓ ✓
73	EXISTING	-79.90806	43.2444	3	3	85%	3	3	1	Existing lookout, limited views out.	13	Important vista.	-	
74	EXISTING	-79.90873	43.24484	3	3	92%	3	3	3	Existing view.	15	Important vista.	-	✓
75	POTENTIAL	-79.91029	43.24542	3	3	67%	3	2	2	Long views into the valley and city, unique opening.	13	-	Vista creation would require the removal of three (3) non-native tree species consisting of (1) Norway maple (18 DBH) in poor condition on escarpment brow and two (2) Norway maple on brow slope (10-15 DBH). The removal of a large stand of non-native honey suckle would also be required. Replace with native low-growing vegetation to prevent non-native reestablishment.	✓
76	EXISTING	-79.9126	43.24539	3	3	43%	2	3	3	Existing view.	14	-	-	✓
77	POTENTIAL	-79.92018	43.24578	2	3	85%	1	3	3	Long views into the valley and city, unique opening.	12	-	Limited due to most woody vegetation being native. Maintain existing sight line by raising the crown where possible.	✓
78	EXISTING	-79.92119	43.24559	3	3	42%	1	3	3	Existing view.	13	-	-	✓
79	EXISTING	-79.92143	43.24546	3	3	49%	1	3	3	Watercourse crossing with vista.	13	-	-	✓
80	EXISTING	-79.92342	43.24584	2	3	105%	1	3	3	Long views into the valley and city, unique opening with shade tree canopy at lookout point.	12	-	-	✓
82	POTENTIAL	-79.92618	43.24583	2	3	81%	1	3	3	Long vistas into the valley.	12	-	Maintain existing sight line via cutting or planting of low native shrubs. No barrier is present along the escarpment brow.	✓

5.4 VISUAL IMPACT ASSESSMENT

The visibility analysis tools involved creating a Digital Surface Model (DSM) from the City of Hamilton GIS data. This model was enhanced by adding a tree canopy layer at a height of 10 meters and building heights (building footprint layer) to the City of Hamilton 2014 Digital Terrain Model. Additional on-site reconnaissance augmented the data from the City.

The field analysis information (GPS locations) was added to the model. This included 17 new vista points and 29 existing enhanced vista points along the Escarpment edge. Each location was expanded to create a 3 metre radius opening in the vegetation.

Using ArcGIS Spatial Analyst visibility geo-processing tool, a total of 497 buildings (closest urban edge along the Escarpment brow) were added as observation points. Larger buildings such as apartments were converted to more than one observer point to reflect the larger footprint. A vertical height of 1.5 metre was added to the DSM to replicate the average viewer height, while the observer locations were offset by their coded building heights. The resulting analysis identifies whether the observation points (buildings nearest to the Escarpment brow) are visible from any given location on the lands beyond the toe of the Escarpment in the Downtown or nearby neigbourhoods.

The model was then further refined to recognize any visibility values located within wooded areas and building footprint areas since these locations would have views that are obstructed (by tree canopy or the mass of buildings) and would not contribute to visual impact.

The digital model results (see ***Figure 15***) illustrate the undesirable change in visibility where the new vista openings and maintenance approaches expose some of the built form along the Escarpment Brow. A buffer radius of 500 metres and 1,000 metres were used to conceptualize the horizontal distance between the escarpment edge and the urban context within the valley. It is important to add that desirable changes in visibility had also occurred, where the visibility of the built form along the Escarpment brow was minimized due to replanting of native species.

The conclusion of the Visual Impact Assessment was that, although there were a number of locations where there was new visibility of the lands beyond the brow of the Escarpment, these locations were isolated and obscured by the urban fabric of the neighbourhood. Additionally, the tree canopy in the urban area beyond the brow provided additional screening, making it difficult to discern the vegetation on the face of the Escarpment from that in the background urban area. Views will differ in the winter when the surrounding woodlands are leafless; however the density of the vegetation and localized landscaping will continue to provide a visual screen.

The management plan for the study area includes a strategy to replace the non-native trees that are removed to enhance views with native replacements in locations where the new trees can grow without impacting scenic views. The analysis illustrated that there would be very limited visual impact and the associated replanting activity will benefit the ecological qualities of the Escarpment forest.

Mountain Brow Vista StudyWards 6, 7 & 8

New Vista Visibility Analysis Changes
Figure 15

- New Vistas (Vegetation Extruded to 1 m)
- Buildings Used in the Visibility Analysis (1 - 2 Stories)
- Buildings Used in the Visibility Analysis (3 - 6 Stories)
- Buildings Used in the Visibility Analysis (> 6 Stories)
- Escarpment
- Escarpment 500m Offset
- Escarpment 1000m Offset
- Major Road
- Highway
- Ward Boundaries
- Visibility Changes
- No Changes
- Visibility Changes > 50 sqm

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY CITY OF HAMILTON

MAP CREATED BY: PFM
MAP CHECKED BY: MB/EN
MAP PROJECTION: NAD 1983 UTM Zone 17N

The visibility analysis uses a Digital Surface Model (DSM) created by adding 10 m vegetation heights (tree canopy layer) and coded building heights (building footprint layer) to the City of Hamilton 2014 Digital Terrain Model. Approximately 4% of the building footprints contained no building heights. Those buildings missing heights were estimated using Google Streetview.

A total of 17 new vista points were identified on the escarpment edge. Each point was buffered to create a 3 m radius and used to extrude the DSM vegetation height to 1 m.

A total of 497 buildings located on the first row of the mountain brow were inputted as observation points. Larger buildings such as apartments were converted to more than one observer point to reflect the larger footprint area. A vertical distance of 1.5 m was added to the DSM to replicate the average viewer height. The resulting analysis identifies whether the observation points are visible from any given surface location at the specified viewer height.

The output is then processed to remove any visibility values located within vegetation canopy and building footprint areas since these areas represent visibility obstruction elevations, not terrain elevation.

0 0.125 0.25 0.5 km

SCALE 1:25,000

FILE PATH:
G:\GIS\152794 Hamilton Mountain Brow\GIS Data\MXD\...
VIA New Vista Changes - 2015-09-14

PROJECT: 152794 STATUS: DRAFT DATE: 9/15/2016

WARD 8 - INFORMAL TRAIL

6.0 VISTA CONCEPT

The Vista Concept presents the Mountain Brow Vista Study and Management Plan Vision of becoming a foundation and inspiration to celebrate and protect the natural environment along the Escarpment brow, while providing continuous access for a range of panoramic views that reflect the natural beauty of and beyond the Niagara Escarpment. The four guiding management principles established in consultation with the community are to:

1. Protect and enhance the existing natural features (i.e., slopes, forest and habitats) along the Escarpment brow, at the interface of City open space and the protected Natural Areas of the Niagara Escarpment Plan;
2. Improve the urban forest quality within the Urban Area of the Niagara Escarpment Plan;
3. Minimize the negative impacts and further visual encroachment of urban development on the Escarpment environment; and
4. Minimize the visual intrusion of the Urban Area into the Natural Area of the Niagara Escarpment.

The recreational trail network along the brow in Wards 6, 7 and 8, and its supporting infrastructure will continuously foster a unique experience and breathtaking vistas atop a UNESCO World Biosphere Reserve. The Vista Concept illustrates the location and distribution of the 46 carefully selected vistas openings and their viewsheds into the natural, cultural and urbanized valley of the city (see ***Figure 16***). Through the management and maintenance of these vista openings, the quality of the edge landscape along the Escarpment brow will be improved using site-specific measures that strengthen the native natural cover and slope stability. The vistas provide another viewing platform to the special ecological and geological features of the Niagara Escarpment, while enabling a continuous connection between the three wards along the enhanced recreational trail infrastructure.

Each ward boasts with location-specific vista openings that have potential to reveal its cultural heritage and natural heritage significance. In Ward 6, there are a total of 9 existing vistas and 10 new vista locations to be managed. In Ward 7, there are 12 existing vistas and 2 new vista locations to be managed. In Ward 8, there are 8 existing vistas and 5 new vista locations to be managed.

MANAGED VISTA BY CITY OF HAMILTON WARD & OPEN SPACE LOCATION

Ward 6

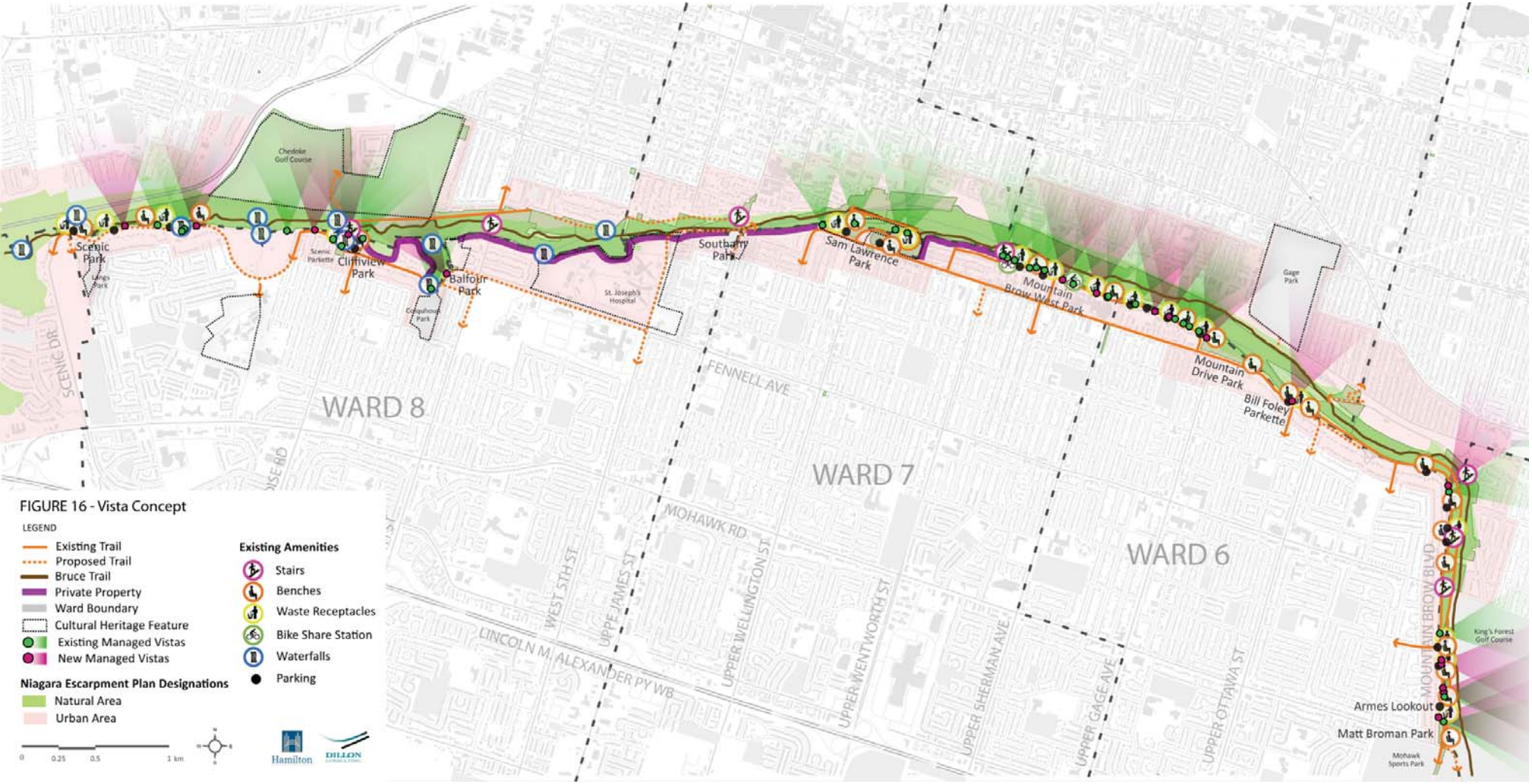
- Matt Broman Park (1 existing, 1 new)
- Armes Lookout (1 existing, 2 new)
- Bill Foley Parkette (1 new)
- Mountain Drive Park (1 new)
- Mountain Brow West Park (5 existing, 2 new)
- Other Public Lands (2 existing, 3 new)

Ward 7

- Mountain Brow West Park (8 existing, 2 new)
- Sam Lawrence Park (4 existing)

Ward 8

- Southam Park (N/A)
- Balfour Park (1 new)
- Cliffview Park (1 existing, 1 new)
- Scenic Park (N/A)
- Other Public Lands (7 existing, 3 new)


Chedoke Golf Course
Scenic Park
Lings Park
Scenic Parkette
Cliffview Park
Balfour Park
Cataqui Park
St. Joseph's Hospital
Southam Park
Sam Lawrence Park
Mountain Brow West Park
Gage Park
Mountain Drive Park
Bill Foley Parkette
King's Forest Golf Course
Armes Lookout
Matt Broman Park
Mohawk Sports Park
SCENIC DR
FENNELL AVE
MOHAWK RD
LINCOLN M. ALEXANDER PY WB
WEST 5TH ST
UPPER JAMES ST
UPPER WELLINGTON ST
UPPER WENTWORTH ST
UPPER SHERMAN AVE
UPPER GAGE AVE
UPPER OTTAWA ST
MOUNTAIN BROW BLVD
WARD 8
WARD 7
WARD 6
FIGURE 16 - Vista Concept
LEGEND
Existing Trail
Proposed Trail
Bruce Trail
Private Property
Ward Boundary
Cultural Heritage Feature
Existing Managed Vistas
New Managed Vistas
Niagara Escarpment Plan Designations
Natural Area
Urban Area
Existing Amenities
Stairs
Benches
Waste Receptacles
Bike Share Station
Waterfalls
Parking
0
0.25
0.5
1 km
Hamilton
DILLON

WARD 6 - NEW MULTI-USE RECREATIONAL TRAIL

7.0 VISTA MANAGEMENT

7.1 RECOMMENDATIONS

The recommendations are provided in two sections: the first discusses the specific activities that are needed in the near term to protect and enhance the views on public lands along the brow; the second section identifies recommendations for actions that will enhance the experience for the public and neighbouring residents into the future.

The vista evaluation table (see ***Appendix C***) is the basis for selecting which locations are suitable for maintaining and creating new vistas along the Escarpment brow. The evaluation considers the degree of impact on the natural environment, the difficulty and amount of effort to clear and manage the landscape, with the resulting benefit of protecting visually striking long views in safe public locations.

A total of 87 vista sites are identified and organized into three categories : a) 41 locations where there are currently views and no actions are needed to maintain them now and in the future; b) 29 locations where there are existing views that are obscured with overgrown shrubs and invasive species that can be maintained by the City's Vista Management Maintenance Crew; 3) 17 new locations where new views are possible with the removal of non-native trees and groundcovers, that require the removal by skilled forestry professionals, and the installation of new low-growing native groundcovers.

These locations are organized into three management zones, each with its own maintenance requirements.

1. Continue to monitor the 41 locations where there are existing views. Review the location of benches and waste receptacles and whenever possible (along formal trails) co-locate the amenities where there are views.

2. Extend the work undertaken by the Vista Management Crew to include the 29 locations where some remedial pruning and shrub clearing is needed to maintain the views. Identify locations where replacing non-native ground covers with low growing native plants could reduce the long term maintenance effort. Review the location of benches and waste receptacles and whenever possible (along formal trails) co-locate the amenities where there are views.

3. Undertake tree and shrub removal in 17 locations where non-native trees can be removed to open new vistas. The width of the opening should not exceed 3-5 meters and disturbed ground should be stabilized with native ground covers. Plant a replacement (one for one) native tree (60mm caliper) in the vicinity of the clearing to off-set the lost urban forest canopy (see ***Figure 17***).

4. Allow natural succession in non-managed locations.

5. Set highest priority for landscape management in parks where viewsheds contribute to the cultural heritage significance of the sites. These include: Sam Lawrence Park, Balfour Park and Cliffview Park.

6. Set highest priority for managing the landscapes in the vicinity of the Juravinski Hospital and Cancer Care Center and Mountain Brow West Park because of the long standing access to vistas.

Recommendations for the Future

7. Continue to improve the recreational infrastructure along the brow (i.e., trails, lighting, fencing and parking, etc.) to support the resident and visitor needs consistent with the City's Recreational Trails Master Plan.

8. Undertake detailed design and engineering to implement a more formal lookout at vista location 82 to improve public safety and discourage informal access to a highly scenic viewing area.

9. Enhance the experience along the Escarpment brow with interpretative signage, trailheads with trail maps and UNESCO World Biosphere Reserve information.

10. Evaluate undertaking a Niagara Escarpment Parks and Open Space System (NEPOSS) management plan that includes all of the public recreation facilities in the Niagara Escarpment Plan Area in Wards 6, 7 and 8.

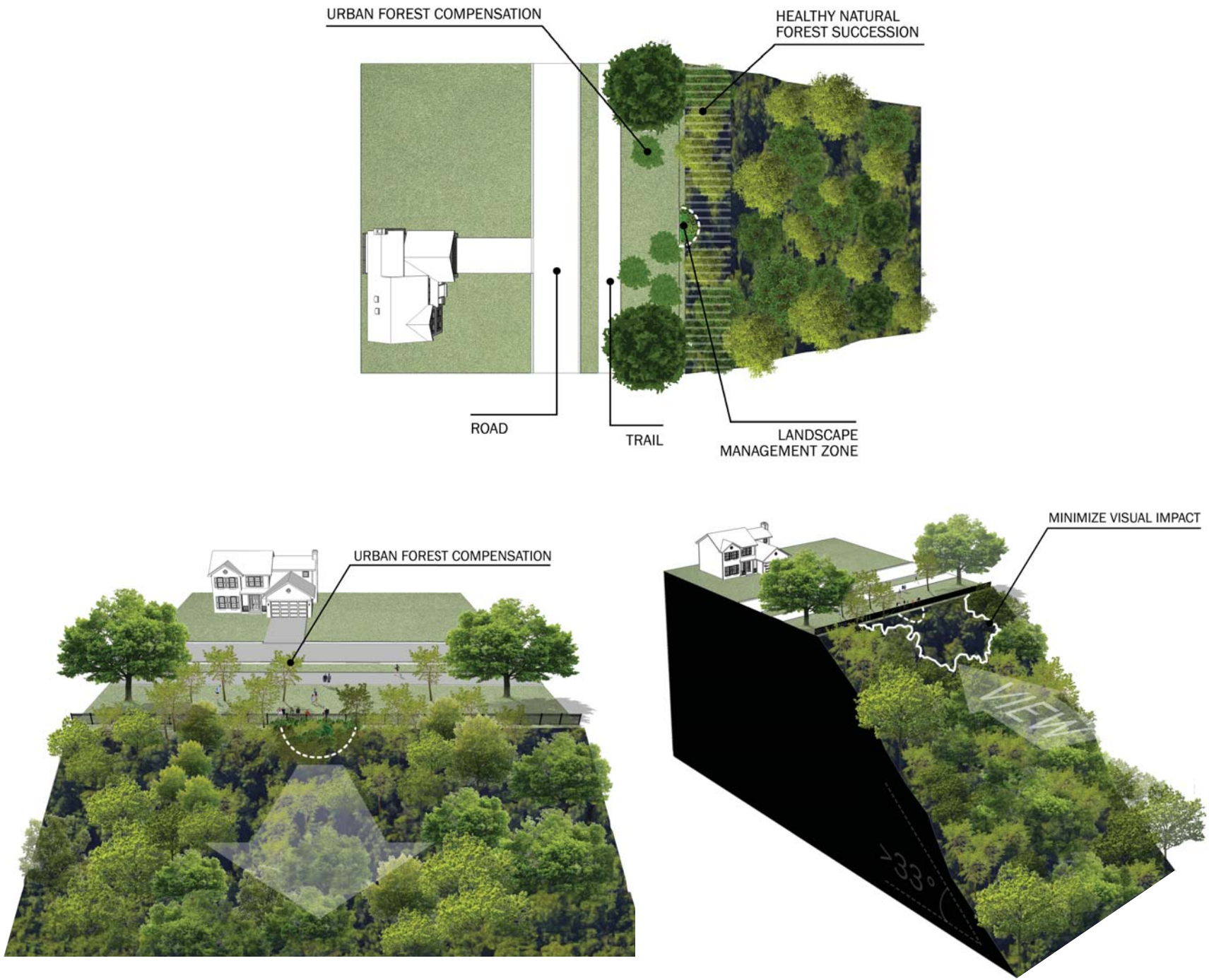


FIGURE 17 - Mountain Brow Vista Management

7.2 MAINTENANCE MONITORING

1. A detailed risk assessment should be undertaken by an ISA certified arborist/or City forester for trees that have been identified as being potential hazards to determine if any of the native trees can be retained.

2. A program of invasive species management should be implemented on an annual basis involving the identification of locations where a combination of invasive species removal and replacement with native groundcovers will reduce long term maintenance effort.

3. Periodic monitoring mature ash trees located in the deciduous forests adjacent to Scenic Drive should be undertaken due to the presence of Emerald Ash Borer (Agrilus planipennis). These trees may have reduced structural capacities; however, the extent of decline/internal decay was not assessed as part of this study.

4. In the vicinity of public trails, an assessment and monitoring of erosion of the brow of the Escarpment should be undertaken where localized drainage is impacting the integrity of the face of the Escarpment. Impact to native vegetation and trail user safety should be evaluated. Site-specific recommendations for remediation should be documented and implemented.

5. Develop a maintenance schedule with corresponding budget, giving highest priority to vistas in public parks and lookouts (i.e., Sam Lawrence Park, Balfour Park, Cliffview Park, Juravinski Hospital and Cancer Care Center, Mountain Brow West Park). Review the schedule every two years and adjust as required.

7.3 FINANCIAL IMPACT

The cost for implementing the vista management plan has two phases. Phase One is the initial cost for clearing and opening the viewsheds. Phase Two is the ongoing operational cost of managing the vista locations.

The Phase One estimate was based on the labour and equipment rates for the City's Vista Management Crew and City's Forestry staff working in teams of three or four with the necessary equipment and disposal costs. Based on this data, the cost for the initial removal and clearing is **$84,250** for pruning/cleaning 29 existing vista locations and the site specific non-native tree removals and pruning of 17 new vista locations. The replacement of invasive and non-native species will require replanting of approximately 35 trees estimated at **$21,000** and 150 square meters of ground covers estimated at **$7,500**. The total estimate is **$112,750** based on site-specific management recommendations from the vista evaluation (see ***Table 1*** and ***Appendix C***).

The Phase Two estimate evaluates the ongoing operating cost of the two main activities related to maintaining the vista locations and the associated trails, including snow removal and waste receptacle cleaning.

The management strategy recognizes that not each of the 46 vista locations will need to be pruned or cleaned each year. Some of the sites will need ongoing maintenance until the invasive plants have been eradicated. This may take several years and require more intensive effort until native groundcovers are sustainable. The monitoring schedule anticipates that follow-up for each site will be conducted within two years. The annual cost for vista maintenance within the study area will be **$15,000** annually, based on semi-annual pruning at current labour and equipment rates.

Additionally, trail maintenance based on the labour, equipment and frequency rates (litter pick up winter and summer, snow clearing 16 times) provided by the City costs approximately $5,000 per one kilometer of trail each year. There are about six kilometers of formal paved trails with an estimated annual operating cost of **$30,000**.

As the trails system is implemented through the Hamilton Recreational Trails Master Plan, the ongoing maintenance budget will need to be adjusted to respond to the increase in facilities.

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