



Elliot Lake

April 2008

Spine Road Development Community Master Plan Report



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Introduction

This Community Plan report forms the basis for the development of the 400 acre Spine Road project in Elliot Lake, Ontario. This report is to read in conjunction with the Official Plan of Elliot Lake and is intended to articulate the vision for the community quality of life, the built form of the area, the provision of a recreation network and opportunities, the preservation of natural features, the preservation of wildlife habitat corridors, and the benefits that will be accrued to the larger community.

1.0 Design Vision

The Spine Road Development area comprises approximately 400 acres. The primary land use is a combination of medium-density and low density residential with some mixed use designations at certain key nodes on the property to allow for Village Retail.

The site is being developed as four series of clustered pockets, on the parts of the site that are the most receptive to development. Within the development pockets zones have been designated for where mid-density, low density and mixed use occupancies may occur. In the village concept, the principle of buffering as defined in the Official Plan should not be applied. Instead, the integration of Village Centre commercial and residential uses would be encouraged, in a tightly controlled fashion to ensure that the community aesthetic and retail needs are fully met.

1.1 Existing Land Use Conditions

The subject lands comprise approximately 162 hectares (400 acres) of forested land located on the south shore of Elliot Lake and extending from the municipal beach west to within approximately 0.5 km of the boundary with the Township of Bolger (refer to Figure 1 Context Plan).

The subject lands are bordered on the west and the south by Crown Lands. The lands to the east and south-east comprise the developed area of the City of Elliot Lake, and include a mixed density residential neighborhood immediately adjacent. The easterly property line of the site abuts municipal lands comprised of the Spine Road Beach and parking lot.

The lands include over 4,000 metres of shoreline, comprised of both rocky outcrops and a number of small and thin sandy and cobble beaches with various amounts of emergent and sub-emergent aquatic vegetation. The southern boundary of the subject property splits Hector Lake, a small lake with a graminoid fen wetland habitat perimeter.¹ The associated marsh area and watercourse drains southward to Slipper Lake (outside of the study lands), which is identified as an environmentally sensitive area in the City of Elliot Lake Official Plan (Land Use Schedule “C”).

A network of walking trails and managed cross-country ski trails traverse the entire property, originating at Spine Road Beach parking lot, and occupying what are assumed to be former logging roads. The ready access to the site has resulted in use for recreational purposes, in all

¹ Elliot Lake - Environmental Impact Study: SARC Ecological Services, November 2007



seasons, as indicated through the numerous fire-pits and extensive amount of garbage, particularly within the coniferous fringe along the shoreline of Elliot Lake.² An Ontario Federation of Snowmobile Clubs trail, accessed from the Spine Road Beach parking lot, crosses the easterly corner of the site and extends south-west through the property.



Sandy shoreline, Elliot Lake



Rock outcropping along shoreline, Elliot Lake

² Elliot Lake - Environmental Impact Study: SARC Ecological Services, November 2007





Trail through forested backshore



Figure 1: Context Plan



1.2 Primary Planning Concepts

1.2.1 Development Principles

The location of the picturesque 400 acre Spine Road site on wooded, waterfront lands provides tremendous opportunities for the development of a community plan that is environmentally sound, socially diverse, and physically rich in design quality. The lands include extensive forested areas, steep slopes, wetland areas, significant vegetation stands, and rocky outcrops that limit development to select locations, and pose challenges to traditional residential development. In keeping with the City of Elliot Lake and Provincial interests in environmental protection, the site plan promotes landform conservation; preservation and enhancement of existing habitats; and the maintenance of water quality and shoreline environments. These are achieved through the application of ecologically based planning principles including: clustered development with an extensive open space system; protection of steep slopes and prominent topographic features; establishment of a shoreline buffer; protection of existing watercourses; and the integration of passive storm-water management measures and other sustainable landscape and building design solutions.

The following Design Principles, consistent with the Environmental Design principles, as outlined in the Official Plan, emerged through the study process and were considered in the development of plans for the Spine Road Development site:

- *Structure community on a network of green spaces, with environmental 'ribbons' of open space lands connecting backshore development areas to the lake;*
- *Locate development on natural 'terraces' to reduce grading and other environmental impacts;*
- *Accommodate a range of housing types including clustered singles/semis and multi-unit buildings, with flexibility to build to market demand as road and development progress;*
- *Create a 'village' centre with central open space and other community amenities as an anchor for subsequent phases;*
- *Provide for initial phase of development close to servicing and the existing community area;*
- *Capitalize on natural assets and existing amenities such as the public beach for recreational opportunities;*
- *Incorporate nature and water-based recreational activities, e.g. fishing, swimming, trails;*
- *Provide a continuous pedestrian circulation trail network linking housing clusters and community amenity areas;*
- *Provide for continuation or reinstatement of existing public recreational walking/cross-country ski trails.*



1.2.2 Development Pockets

The Spine Road Development Area has many diverse opportunities and constraints, although the most notable are its extensive shoreline frontage, wooded backshore, and rolling terrain which create a unique and desirable setting for a new community. In undertaking the site analysis it became clear that, while many reasonably level areas exist across the 400 acres, there are also many rock outcroppings and steep slopes that are best avoided or built around to reduce environmental impacts and financial implications. The steeper terrain is frequently encountered within the lakefront zone, creating limitations on development within the most desirable areas of the site.

In order to evaluate the site's development potential an ArcGIS tool was utilized to analyze the terrain by slope percent. Areas with slopes between 0% and 15% were categorized as development pockets that would support a range of housing. Within the identified development pockets, areas with slopes ranging from 0-10% were identified as suitable for all development types including multi-storey buildings, surface parking, roads and other infrastructure. Areas with slopes predominantly in the range of 10-15% were considered most suitable for unit types with small footprints (e.g. singles, semis), within clustered development or on single lots. Areas of mixed slopes with ranges up to 20% were also considered for larger lot development (e.g. 0.5 acre to 1 acre in size) if they provided a suitable single building site. High rocky points were left out of development pockets as they are visually prominent, difficult to traverse, and tend to be locations where overburden is thin. Figure 2 illustrates the Site Development Capabilities (ENVision).



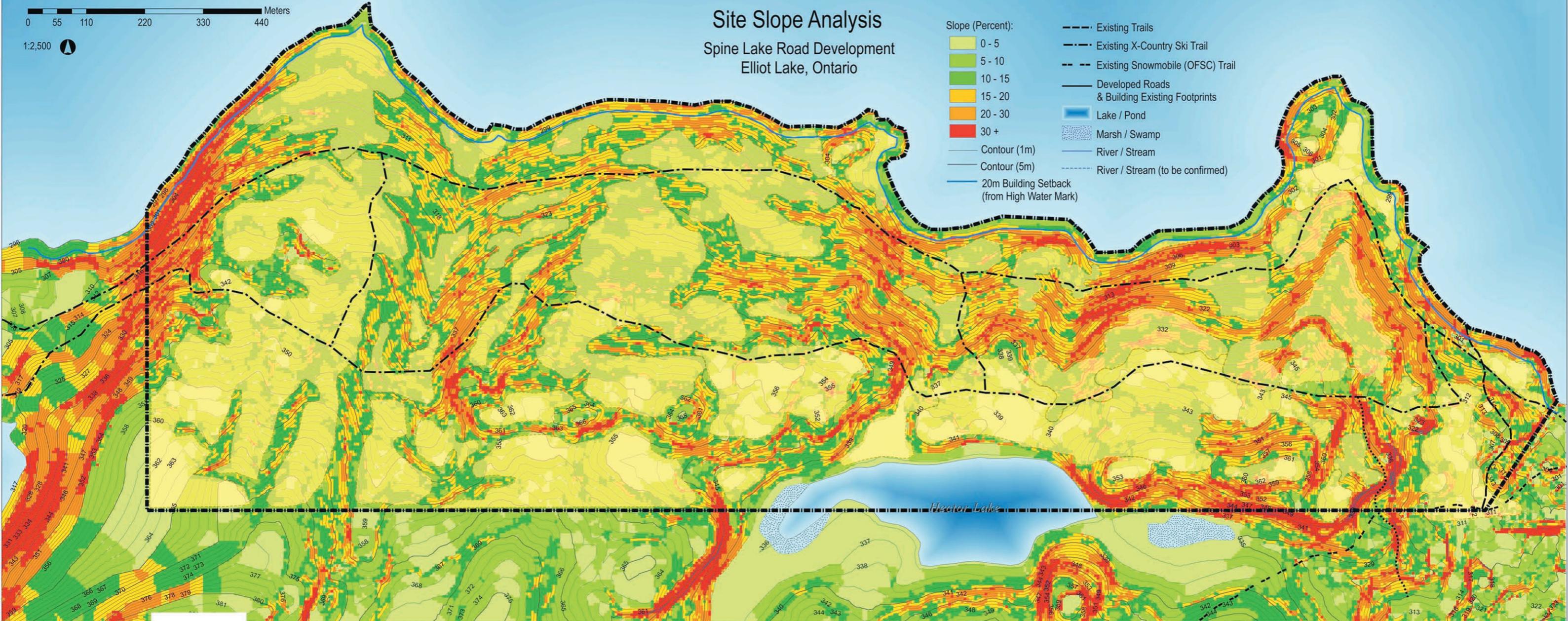
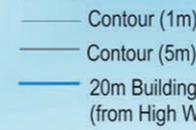
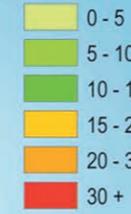
0 55 110 220 330 440 Meters

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Site Slope Analysis

Spine Lake Road Development Elliot Lake, Ontario

Slope (Percent):



Elliot Lake
Ontario
Kemp



Retirement Living

Site Slope Analysis - Spine Road Development

ENVISION
the hough group

WONG GREGERSEN DABRUS ARCHITECTS INC.

ALLEGRIA ENTERPRISES

NORTHLAND ENGINEERING

Figure 2: Site Development Capabilities

1.2.3 Development Character

The Spine Road Development area has been designed in accordance within the spirit of the Official Plan for the City of Elliot Lake, with refinements to articulate the character specific to the unique location and physical qualities of the property.

The character and theme for the overall community is that of a series of development nodes that blend into the natural features of the landscape. The development nodes will incorporate significant wildlife corridors and untouched natural features defining the pockets of development.

Within the development nodes there will be potential for a variety of housing types as well as retail opportunities that support the community and create an attraction for the enjoyment of the rest of the community.

Opportunities this project brings to Elliot Lake include:

- *New housing and community amenities;*
- *Reinforcement of the close linkages to the natural environment;*
- *Demonstration of the benefits of integrated uses;*
- *Sustainability at both a community and a building scale.*

Issues that must be addressed for successful implementation include:

- *Establishment of 'critical mass' to encourage residency and support activity;*
- *Phasing to establish the residential, commercial, social and recreational components early and maintain the appropriate balance on a continuing basis;*
- *Provision of infrastructure that is affordable and sustainable;*
- *Development of a plan and implementation program that can respond to changing market needs and demands.*

Community - Master Plan Design Principles

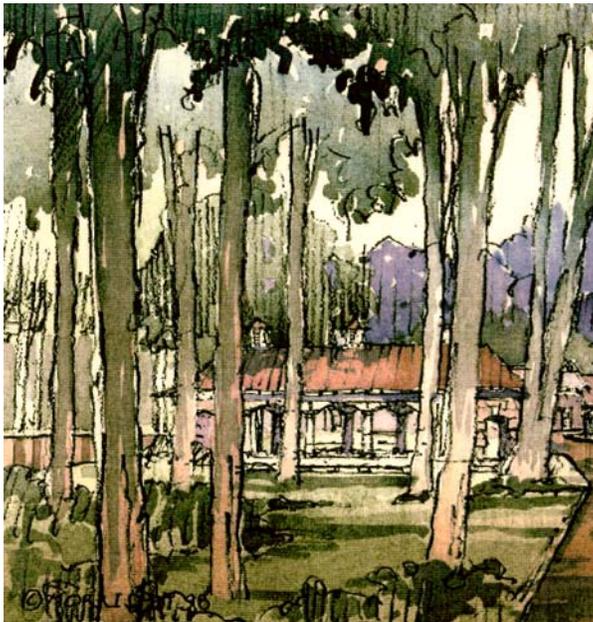
- *Structure community on a network of green spaces, with environmental 'ribbons' connecting backshore development to the lake;*
- *Include clustered singles and multi-unit buildings in the first phase of development along a central connecting roadway, with flexibility to build to market demand as road and development progress;*
- *Locate multi-unit buildings on natural 'terraces' to limit grading, with clustered development behind/adjacent, and in backshore area;*
- *Plan for double loaded roadway, with initial phase of development close to servicing and the existing community area;*
- *Capitalize on existing public beach as an amenity, and augment with a public pier;*
- *Provide continuous pedestrian circulation trail linking housing clusters and community amenity areas;*



- *Develop natural beach on development lands as an additional community amenity, and destination along the trail;*
- *Consider development of small fishing piers and docks at key points within the open space network;*
- *Create a ‘village’ centre with central open space and a lookout, trails and gazebo on the headland, as a community focus.*

Urban Design Principles

- *The experience will be memorable along Spine Road Development’s main street, providing a strong visual experience of the natural environment interrupted with clusters of development including a Village Centre and pockets of mid or low density residential nestled into the natural environment;*
- *At certain points within the development Village Centres, will be incorporated into the larger community fabric. The experience of “village character” will be strong, expressed in smaller scale buildings, a fine grain of commercial frontage, pedestrian terraces and paths throughout, narrower street corridors, strongly formed public spaces and commercial activity spilling out of the buildings into the public realm;*
- *Buildings will be of human scale, visibly anchored in the earth, using appropriate and natural materials, expressed in simple architectural forms, and fit respectfully within the dramatic rocky topography of the site;*
- *Streets will be places for people, including human scale edges, narrower widths where possible to slow vehicles with parking intermixed with trees alongside Spine Road, a range of textured materials, ample space for pedestrians and bicycles, and tasteful street lighting;*
- *Pedestrian paths and spaces in the public realm throughout Phase One will provide for ease of movement, interaction with gardens and natural areas, access to commercial areas, as gentle movement up and down slopes as possible, and clear links to existing trails. All such areas will be furnished with appropriate walking surfaces, signage, lighting and furnishings.*



Example of Sustainable Community (Mount Laurel, Birmingham, Alabama)



Landscape Design Principles

- *The landscape will be designed to harmonize with the location of the proposed development on pristine, forested waterfront lands;*
- *The site provides tremendous opportunities for a development that is environmentally sound, socially diverse, and physically rich in design quality;*
- *Working with the existing natural heritage features to integrate ecologically sustainable design solutions and technologies as an important aspect of the approach to site planning. This includes such considerations as: landform conservation; preserving and enhancing existing vegetation and habitats; maintaining water quality and shoreline environments;*
- *The creation of four-season landscapes suited to the local climate.*



Landscape design for Four-Seasons Use will be an important consideration

Building Design Principles

Residential Buildings

The residential buildings address the Master Plan Design Principles in the following manner:

- *The building massing and scale for all units will emphasize both a human scale vertically, and horizontal separation between units within a theme of highly articulated buildings or clusters of buildings. This approach will reinforce the Buildings Nestled in Nature and Village feel, permitting light and air to reach more than one side of each unit. It also permits each unit to take advantage of interesting views into and out of the Community;*
- *The siting of each residential building will be unique, to permit retention of key landforms, outcrops and rocky features;*
- *Residential buildings will be primarily ground oriented, in keeping with the Rustic/Village feel and the need for accessibility. The buildings will be terraced into the hillside in most cases, utilizing appropriate materials to emphasize the buildings connection to the earth;*
- *Exterior cladding will include a mix of familiar, durable materials in colours that are subtle and of natural tones, with an eye to maintaining a peaceful visual quality and linking with the colours of the natural environment around the homes.*



- *Glazing will not be dominant on the walls, but rather expressed as being “within” the walls, with deep reveals and strong frames;*
- *Upper floors will have character provided by changes of materials from lower floors in many cases, as well as the provision of balconies. The structure of the buildings will also be visible in many cases through the treatment of the roof/wall interface. Roofs are designed to provide overhangs appropriate for Northern Ontario vernacular architecture as well as for the weather;*
- *Entrances will include weather-protected overhangs, strong detailing and wood doors in most cases. Entrances will have unit numbers, clearly visible in day or night.*



Residential Building Conceptual Typology

Commercial & Mixed Use Buildings

The commercial and amenity buildings will address the Master Plan Design Principles in the following manner:

- *The building massing and scale will emphasize human scale architecture articulated through building massing, detailing of materials between floors and structuring of rooflines;*
- *The siting of each building will emphasize the pattern of a small community and provides strong, well articulated edges to the public open spaces that form the heart of each of the three sub areas of the Village Centre;*
- *Exterior cladding will include wood, stone, cementitious siding and panels, metal roofing and composite shingles utilizing colours that are subtle and of natural tones, compatible yet different to distinguish the three sub-areas;*
- *Glazing will not be dominant on the walls, and will be articulated with substantial frames and trim;*
- *Signage and awnings for the commercial buildings will be “artisan”-oriented in expression, seeking variety and harmony throughout the area. Front-lit signs will be used;*
- *Roof overhangs in this area are generous in order to provide for ample space for shops to spill their operations out into the terraces and plaza areas;*
- *Roof mounted mechanical or telecommunications equipment will be screened from view or dealt with in an unobtrusive manner.*



1.3 Proposed Land Use and Land Use Inventory

The Spine Road Development area comprises approximately 400 acres. The primary land use is a combination of medium-density and low density residential with some mixed use designations at certain key nodes on the property to allow for limited retail and community service functions.

The property is being divided into four distinct development phases that are separated from each other by significant landscape/wildlife and recreation corridors. Refer to **Figure 3**.

The first phase of development, Phase One, is approximately 10.95 ha and has a maximum projected residential accommodation of 200 units. Phase One also includes a “Village Centre’ concept which incorporates a small amount of retail and community service space along the main Village Centre roadway. The forms of residential include mid-density multi unit residential properties as well as low-density residential development.

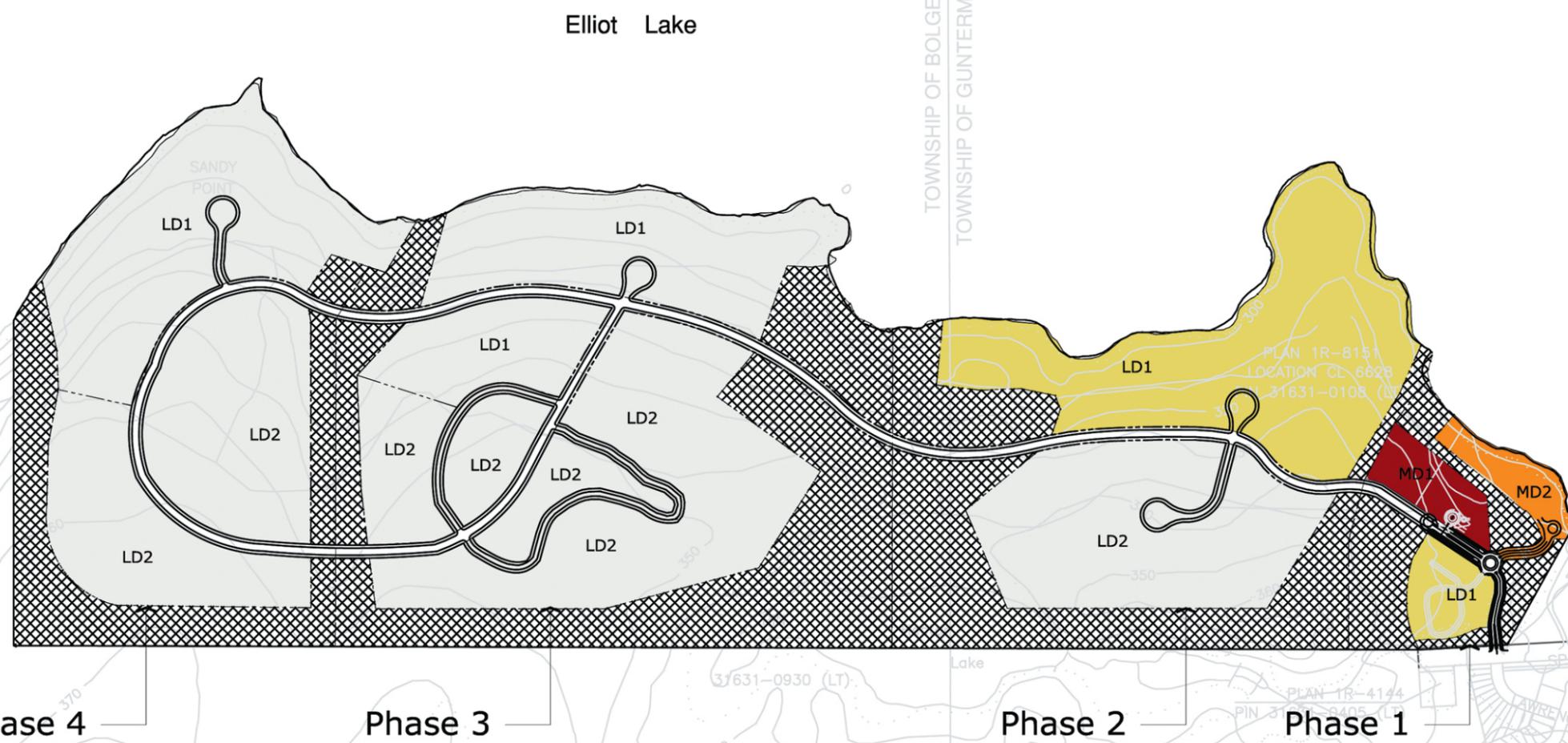
Phase One is intended to set the tone for the quality of the overall development and act as the gateway to the community. In addition to containing Village Centre functions, this phase will also establish the enhancement of a recreation network that will benefit the community as a whole.

The second phase of development, Phase Two, encompasses 48.11ha and is a combination of Medium Density buildings that are located closer to the main connecting roadway and Low Density units that are located further inland. The projected number of units is 405 units.

The third phase of the development, Phase Three, is 64.81ha with a projected number of units of 393 units. Phase Three contains a combination of Medium Density and Low Density Units. As with the other phases the Medium Density buildings are located in a zone closest to the Lake, Medium Density units are located along the main road connecting all phases of the project and the Low Density units are located inland.

The fourth and final phase of the project, Phase Four, encompasses 43.43ha with a projected number of units of 346. This phase has a combination of Medium Density units located closer to the Lake and Low Density Units located inland.





COMMUNITY PLAN - LAND USE MAP

Legend/ Areas Table	Phase 1			Phase 2			Phase 3			Phase 4			Total		
	Hectares	Acres	Units Allowable	Hectares	Acres	Units Allowable	Hectares	Acres	Units Allowable	Hectares	Acres	Units Allowable	Hectares	Acres	Units Allowable
MD1 Medium-Density/ MIX USE 40 UPH	2.02	5.00	80	0.00	0.00	0	0	0	0	0.00	0.00	0			
MD2 Medium-Density 40 UPH	2.02	5.00	80	0.00	0.00	0	0	0	0	0.00	0.00	0			
LD1 Low Density-1 20 UPH	2.02	5.00	40	18.52	45.77	370	16.37	40.45	327	15.09	37.29	301			
LD2 Low Density-2 2.5 UPH	0	0	0	14.30	35.33	35	26.78	66.17	66	18.38	45.42	45			
OPEN SPACE	4.89	12.08		15.29	37.78		21.66	53.52		9.96	24.61				
SUBTOTAL	10.95	27.08	200	48.11	118.88	405	64.81	160.14	393	43.43	107.32	346	167.30	413.42	1344



Figure 3: Community Land Use Plan

1.4 Conceptual Land Use Plan & Phase One Area Demonstration Plan

1.4.1 Site Conditions

The Phase One area has been designed in accordance with the spirit and sense of place outlined in the Development Character section of this document and in accordance with the Official Plan for the City of Elliot Lake.

At the outset of the study process, the primary area of development interest within the 162 hectare site was identified as an approximate 30 hectare (75 acre) parcel at the east end of the property adjacent to Spine Road Beach and extending north from Spine Road to a large promontory. Following a detailed review of site assets and constraints within this study area, potential locations for development were plotted with findings of the site analysis to ensure protection of the site's natural features and feasibility of development (see Section 2.1 for a description of the methodology and a summary of environmental constraints). Several Concept Options were prepared for the eastern portion of the study lands that illustrate conceptual road routing and a range of locations and housing types within each development pocket to meet overall density objectives. Refer to **Appendix A**.

Within this area of focus, a first phase of development or Phase One Demonstration Plan area, of approximately 25 acres was subsequently selected on the basis that it is close to existing infrastructure at Spine Road, has several good developable pockets, including a prime waterfront location, and affords some excellent views across Elliot Lake from the waterfront site as well as potentially from the higher backshore areas. Although much of the area is characterized by rocky escarpment, the slope analysis shows that several large sites within the Phase One area are relatively gently sloped with only a few rocky outcrops. These highly developable areas afford opportunities for a range of housing types.

A watercourse with defined banks parallels the east property boundary, extending in a north-easterly direction with outlet to the lake, creating a natural buffer between the proposed development area and the Spine Road Beach park site. On the western side, a thirty metre high escarpment constrains the developable area, requiring a north-westerly orientation to the entrance road to a point where gradients can support the future extension westward.

1.4.2 Plan Description

The Phase One Demonstration Area includes the main entrance road into the site from Spine Road, along with residential development and community amenities in a 'village style' setting. The entrance road is enhanced with street trees, landscaped boulevards, and a traffic circle to serve as visual elements, and promote traffic calming.

The Demonstration Plan (**Figure 4**) illustrates a range of housing types including singles, towns and multi-unit buildings, and protects the significant natural features with an interconnected system of green spaces. These public open space lands accommodate a network of recreational trails that link the residential clusters with community amenities, the waterfront, and each other. Protected features within the open space system include a creek valley, and several rock outcroppings, ridges and high points which serve as visual landmarks.



A focal point of the Plan is the public plaza and promenade that extends from the centre of the village creating a community gathering space, and visually and physically linking the backshore neighbourhoods with the waterfront residential development and its associated amenities. The Plan also accommodates walking and cross-country skiing activities that currently take place on the Spine Road lands.

The waterfront within the Phase One area is characterized by moderately steep gradients within the planned 20m shoreline buffer area, with a gently sloped backshore area of sufficient size to support a multi-storey residential building. This site provides excellent views across the lake, proximity to amenities at Spine Beach, and is targeted as the initial development project. The retention of a naturally vegetated buffer protects shoreline habitats and will provide some visual screening of the development from across the Lake.



Phase 1 Area shoreline





- | | |
|--|---|
| <p>1. Existing Park Beach & New Fishing Pier</p> <p>2. Multi-unit Lakeside Residence</p> <ul style="list-style-type: none"> - 64 units - below-grade parking - municipal driveway loop & drop-off area - views to lake, backshore views of landscape <p>3. Multi-unit Upper Terrace Residence</p> <ul style="list-style-type: none"> - 60 units - below-grade parking - small commercial at grade - village edge <p>4. Public Promenade & Lookout</p> <p>5. Village Centre</p> <p>6. Roundabout Traffic Circle</p> | <p>7. Village Towns Residence</p> <ul style="list-style-type: none"> - 16-20 units - at grade parking - fronts onto village - views to lake, backshore views of landscape <p>8. Hillside Semi's & Singles (18 units)</p> <p>9. Spine Road Community Entrance</p> <p>10. Stormwater Management</p> <p>11. Main Route to Western Site Development</p> <p>12. Hiking & Ski Trail</p> <p>13. Dock Area</p> <p>14. OFSC Snowmobile Route</p> |
|--|---|

Figure 4: Phase One Development Area Demonstration Plan

1.4.3 Built Form Description

The Phase One Development Area consists of two medium density multi-unit condominium structures with approximately 40 units per hectare and a single low density area with approximately 20 units per hectare being provided. Refer to Figure 5.

The first multi-unit condominium structure is the building closest to the lake, taking advantage of the topography to provide a sense of privacy while at the same time assisting in concealing the parking. The building is 4-6 storeys facing the water and stepped down facing inland, again taking advantage of the natural slope of the terrain in an effort to reduce the physical scale of the building on approach to the entrance. The building will have varying sized units ranging from 1, 2 and 3 bedroom units. The architecture includes a sloped traditional style roof, balconies and a wood porte-cochere.

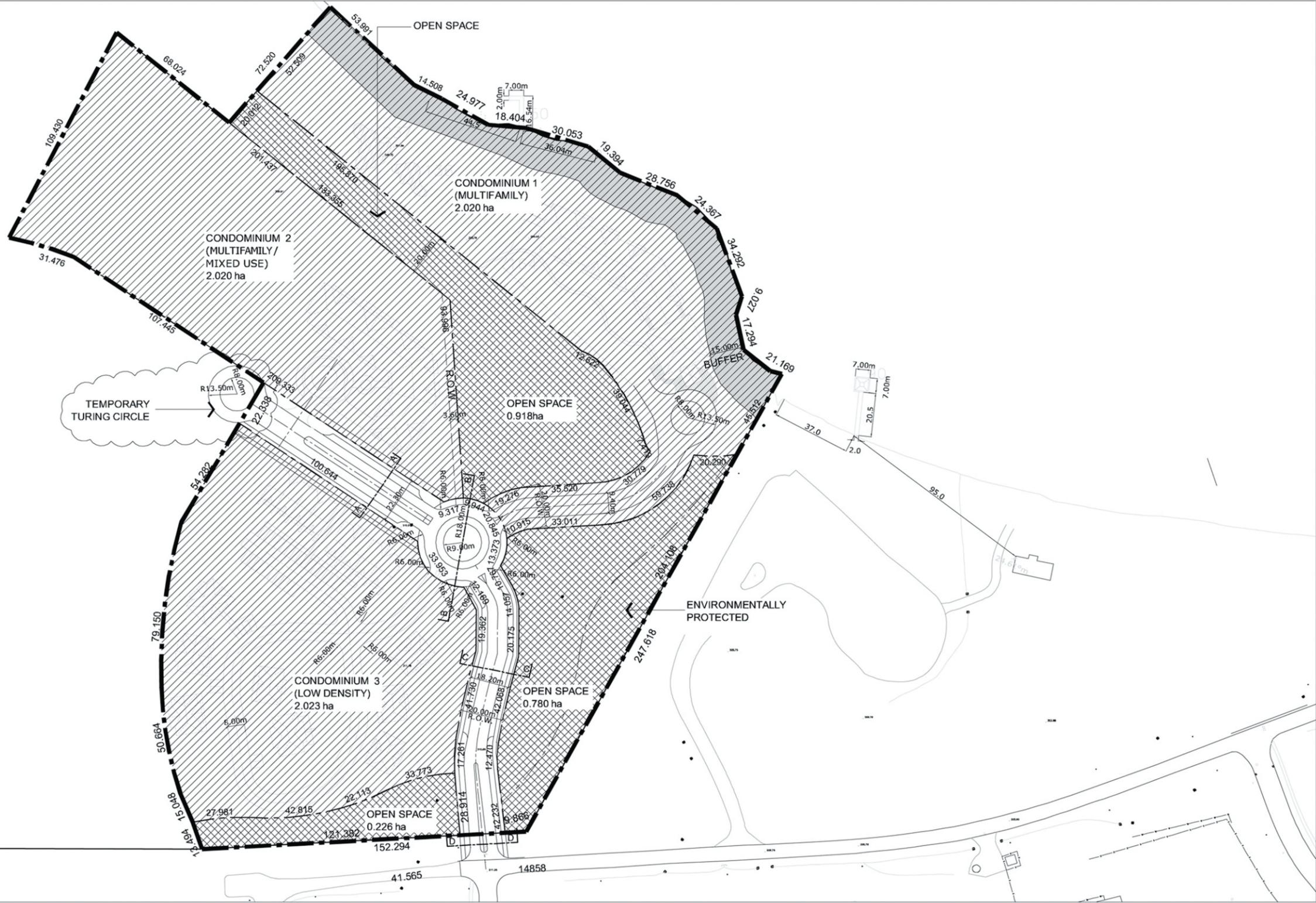


Conceptual View of Phase One Development Area from Lake





KEY PLAN



condominium 1 (MULTIFAMILY)	2.020 ha	90 UNITS
condominium 2 (MULTIFAMILY/ MIXED USE)	2.020 ha	90 UNITS
condominium 3 (LOW DENSITY)	2.023 ha	60 UNITS

PHASE I - DRAFT PLAN OF SUBDIVISION

1:2000

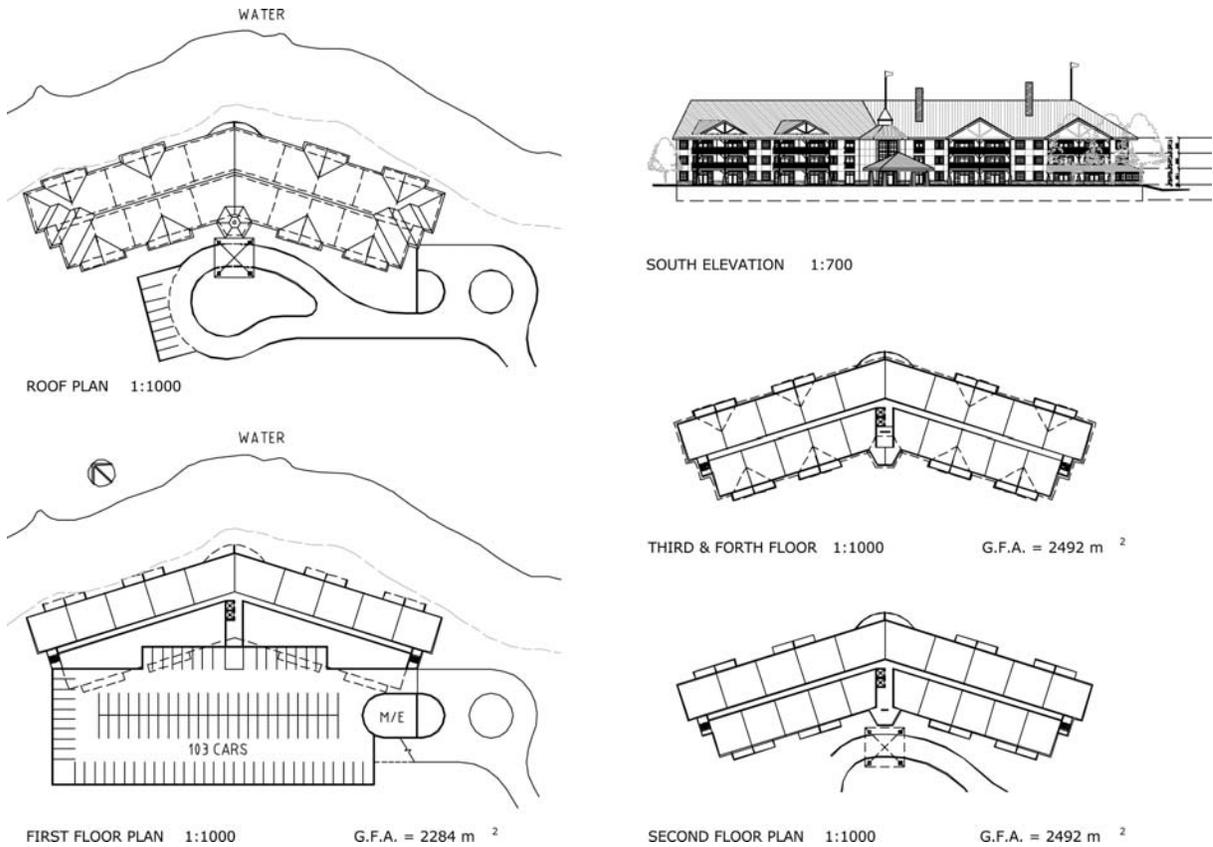


PROJECT NORTH

A2

Figure 5: Phase One Development Area

Figure 6 Building Floor Plan & Elevations



The second multi-unit condominium structure is a 4-6 storey structure, which forms an edge to the Village Centre. The medium-density, multi-unit condominium structure could contain approximately 75 to 100 units of varying sizes, and number of bedrooms ranging between 1 and 2. On the side of the building facing the Village Centre there will be the opportunity for a small amount of retail or community service functions to serve the area. As with the first condominium structure the parking will be partially concealed and the architecture will include a sloped roof, dormers, balconies and a porte-cochere at the entrance.





Conceptual View of Entry Road

The third development pocket of Phase One consists of low-density residential units. The dwelling units may vary including detached, semi-attached, townhome and multi unit residential building types. The maximum height in the area would be 4-6 stories, adjacent to the Village Centre street. The unit count for this portion of Phase One will be in the range of 40 dwelling units. The buildings, as with other components of this phase, would be traditional in character with the use of wood, sloped roofs, porches, chimneys, gables, and dormers.



Conceptual View of Village Centre



1.5 Recreation Plan/Network

In the proposed community, the range of residents would include all types of generations and residents, with an emphasis on young energetic retirees, less-active seniors, and visiting families, each with varied leisure interests and physical capabilities. Accordingly, the open space plan and landscape design focuses on four-season use and designing for different users and their needs, while ensuring that the location and design of facilities and amenities complement and support the natural setting.

The overall recreation plan for the Spine Road Development lands (Figure 7) includes an extensive wooded, backshore open space system with a public trail for hiking and cross-country ski trails, and use of promontories and beaches as focal points and areas of common use. Open space fingers leading down to the lake in strategic locations will provide greater public access and use of the lake than exists presently.

The Phase One Recreation Plan (Figure 8) conceptually illustrates the trail network and recreation amenities within this initial phase of development. The new neighbourhood will be well-served by its proximity to swimming and picnicking opportunities at Spine Road Public Beach, and is within walking distance of the adjacent residential area south of Spine Road. A public pier with a shade structure is suggested as a new amenity at Spine Road Beach to accommodate fishing and lake-viewing.

The public walking/cross-country ski trail originates at Spine Road Beach, crossing the adjacent creek in its current location and extending north-west through forested open space. A trailhead and shelter for putting on skis is proposed just north of the road leading to the waterfront development. A newly aligned trail continues westward to link to the existing network of trails north of the development area, and provides continued access to the small cobble beach area, which is well known to many local residents. The existing trail that runs along the southerly property boundary, and accommodates hiking and the Ontario Federation of Snowmobile Clubs trail is also maintained.

Each condominium area will be served by a system of walkways, strolling paths and local trails that link into the community trail network. As well consideration has been given to the provision of landscaped open space to accommodate amenities such as: gardens; seating plazas; and informal games areas (e.g. shuffleboard, horseshoes or lawn bowling). Private fishing / small-boat docks may be provided on the waterfront for condominium use.



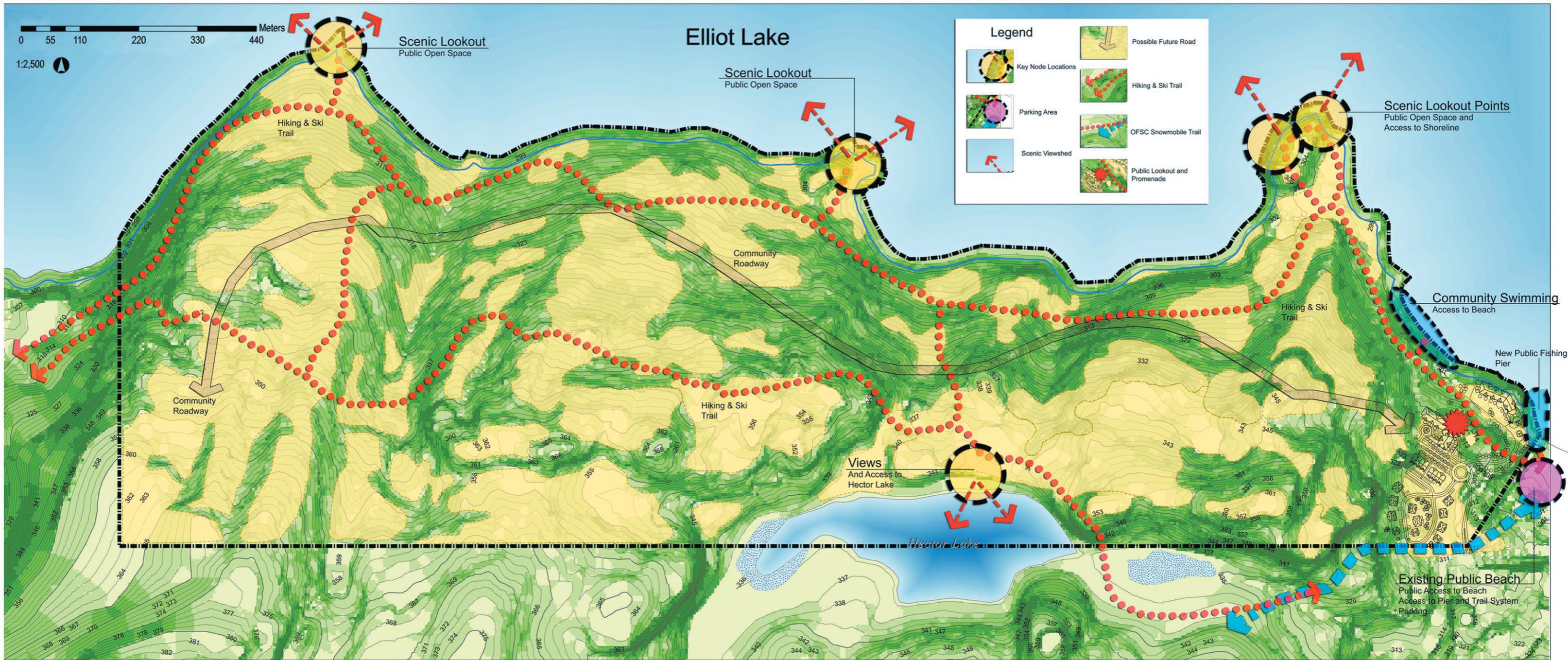


Figure 7: Community Recreation Plan

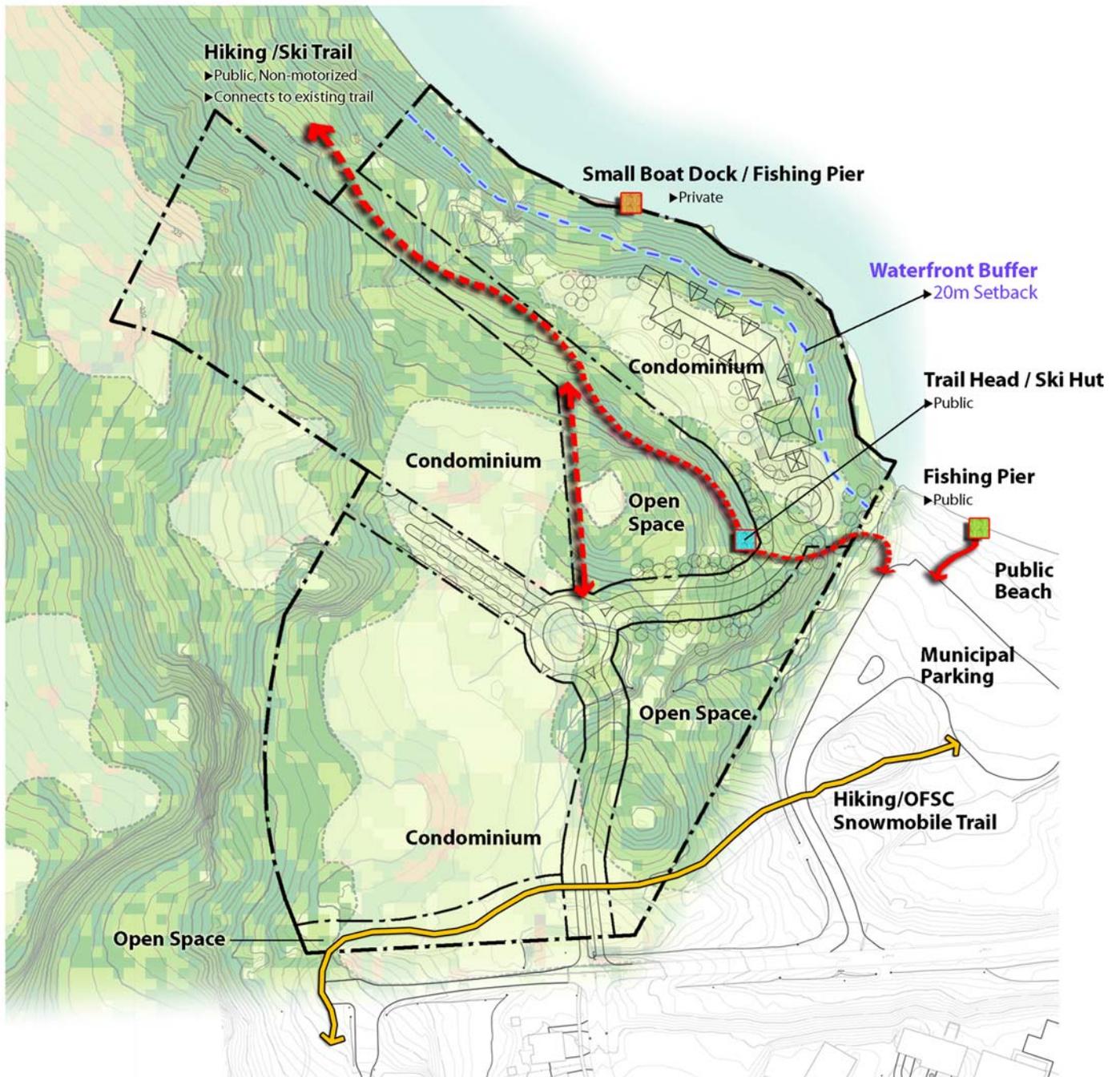


Figure 8: Phase One Area Recreation Plan Concept



1.6 Sustainable Design Measures

Development of the site in all phases will be *encouraged* to follow a “Green Plan Performance Protocol”. The Protocol will include sustainable site design and building construction practices.

Sustainable Site Design / Landscape Measures to be considered include:

- *Minimizing site disturbances such as earthworks and clearing to reduce the development impact area;*
- *Designing with a minimal building footprint;*
- *Passive, ecologically based stormwater management. Recommended measures include infiltration trenches, vegetated swales, use of permeable or porous paving (porous asphalt, filter strips, eco-pavers), detention areas, and constructed wetlands (where needed);*
- *Application of xeriscaping principles: native plant material selected for reduced water consumption, drought resistance, climate hardiness;*
- *Use of groundcovers, mulched shrub areas, permeable surfaces: gravel / pavers to minimize managed lawn areas;*
- *Locate and plant trees to shade hard surfaces and buildings to reduce heat island effect and to cool buildings;*
- *Use of solar powered landscape lighting, and down-turned and shielded streetlight fixtures to promote ‘dark skies’;*
- *Accommodation of walking/cycling trails and connections to internal/external trails and amenities, and provisions for bus transit to promote alternative transportation.*



Example of Vegetated Stormwater Swale (Humberwood Community Centre, Toronto)



Sustainable Building Design Measures to be considered include:

- *as part of a “Green Plan Performance Protocol” to be developed, green initiatives in the construction of buildings will be considered including the use of ductless energy systems, lighting with solar tubes (photovoltaic), specifying recyclable materials and products, the use of non off-gassing materials, the use of high levels of insulation, the reduction of air changes, the use of heat recovery systems and the reduction in water through low flow showers and toilets.*

1.7 Approach to Winter Design

Winter Design principles as outlined in the Official Plan for Elliot Lake will be adhered to where appropriate to the development of buildings within the various phase of the development.

The principles will include for the maximization of solar exposure to areas that have pedestrian activity, siting and design of buildings minimize the affect of snow drifting, working with the municipality to adopt winter control measures in the design of transit stops, sidewalks intersections, etc., the utilization of vegetation of landscape vegetation that mitigates the impact of wind, is durable to salt, and can also provide cooling benefits in the summer time, wind breaks and general comfort control, sheltered recreation pathways, and slopes and grades that are minimal to allow for general usage as well as for accessibility.



2.0 Environmental Constraints

2.1 Environmental Assessment

2.1.1 Approach

The conditions of Elliot Lake and its surrounding habitats were reviewed in 1999 through a Lake Management Plan prepared for the Elliot Lake Waterfront Development Committee, for the purposes of identifying cottage lot capability. The lands were subsequently reviewed in 2007 by SARC Ecological Services as part of a multilevel Scoped Environmental Impact Study (EIS) to assess the development proposal for the 400 acre community. The EIS was undertaken in accordance with the requirements of the City of Elliot's Official Plan sections 3.6, 4.16, and 5.2.6/5.3.7 and the 2005 Provincial Policy Statement Section 2.1.

The Scoped EIS included an overall assessment of the 400 acre property, accompanied by a focused comprehensive examination of the area comprising the first phase of development (approximately 25 acres) adjacent to Spine Road, along with adjacent lands. The EIS investigated the site for the presence of: significant habitats for Species at Risk; wetlands; and Significant Wildlife Habitats; and confirmed existing fish habitat mapping and mapped fish habitat along the shoreline where mapping does not currently exist.

Existing information pertaining to the natural heritage features of the property and the surrounding lands was obtained from the Ontario Ministry of Natural Resources (MNR), and the Natural Heritage Information Centre (NHIC 2007). Additionally, relevant Official Plan (OP) policies of the City of Elliot Lake, were considered. Specifically, Section 4.16 Ecological Planning Principles of the OP states:

"The City of Elliot Lake's Official Plan supports the concepts of community ecological planning and design for sustainable development. Ecological planning and design is the strategy for the optimum management of the ecological components on a site, within the context of the surrounding community."

Within the context of sustainable community development, ecological planning and design integrates nature in development. It represents a process where the natural environment is viewed as a benefit for development, and not an obstacle."

The following principles are to be addressed as part of significant new development in the City:

- *Development can result in a net gain for natural features;*
- *A balance is to be maintained where land uses co-exist in harmony with the existing or restored ecosystem;*
- *Landscape disturbance should be kept to a minimum to create the least site development alteration, reduce site development costs and create a unique site signature;*
- *Connections to areas beyond the development site improve the natural features of the site;*
- *Targets may be established by the City to provide benchmarks for sustainable development. Such targets may include increased open space and natural areas, minimizing road construction, improved storm water management, improved waste and energy efficiency, and more intensive development clustering in appropriate locations.*



2.1.2 Findings of the EIS

The Scoped EIS identified some sensitive areas and natural features worthy of protection on the overall subject property and makes recommendations to ensure their long term protection. While noting that these areas will require further evaluation as development proceeds, the study has identified that the proposed boundaries of future phases generally avoid these sensitive areas (refer to mapping in Appendix B).

The EIS recommends that the Hector Lake Fen be protected from development and a 30m buffer established around the edge of the wetland where no development or site alteration will occur (e.g., extensive tree cutting, building construction, road development, or groomed ski trails). Types of compatible development would be low-impact nature trails, with small boardwalks or lookouts.

The EIS further concludes, based on a review of the Phase One Demonstration Plan, that the proposed development will have regard for Section 4.16 of the City of Elliot Lake's Official Plan and will not impact any of the natural heritage values identified as occurring on or adjacent to the subject property.³

The drainage valley between the Spine Beach and the Phase One development has been identified as a potential natural corridor for wildlife traveling between Elliot Lake and the wetlands to the south and southwest.

The following sections summarize the environmental attributes of the property. Further detailed information can be found in the Scoped Environmental Impact Study (SARC Ecological Services, November 2007).

2.2 Topography and Constraints

The underlying bedrock in the vicinity of Elliot Lake is comprised of the Elliot Lake – Hough Lake – Quirke Lake Group dating to the Precambrian Era, and consisting of conglomerates, greywacke, limestone, basalt and rhyolite⁴. A geological fault is documented as traversing the study lands on a north-west to south-east trajectory. The bedrock in the Elliot Lake area includes 'uranium bearing rock'.

The topography of the site is varied and ranges from reasonably level tableland areas and 'benches' with slopes ranging from 0% to 10%, to moderate slopes 10%-15% and steep slopes of 25% and greater. There are also significant areas where rock outcroppings present as escarpment faces.

Overburden comprises topsoil, sand and silt layers ranging in depth from approximately 0.1m to 3.7m, overlying suspected boulders or bedrock and with areas of exposed rock outcroppings⁵. In geotechnical investigations conducted for the study, groundwater was typically encountered at depths ranging from 1.7 to 3.1m below the surface, although

³ Elliot Lake - Environmental Impact Study: SARC Ecological Services, November 2007

⁴ Lake Management Plan of Elliot Lake. Laurentian University for Elliot Lake Waterfront Development Committee, 1999.

⁵ Preliminary Geotechnical Investigation Spine Road Development, Trow Associates Inc., September 2007.



seasonal fluctuations in the water table can be expected with higher levels during wet weather conditions (typically spring and late fall).

The lakeshore is comprised primarily of shallow, vegetated edges with scattered boulders and cobbles, and includes a few areas with underlying sandy beaches and also having steep rock faces in several locations.

2.3 Valuable Habitats

2.3.1 Species at Risk

Through review of the Natural Heritage Information Centre database (NHIC 2007), the EIS determined that the following species at risk have been identified in the general area closest to the study lands;

- *Blanding's turtle (Emydoidea blandingii)* – Threatened
- *Wood turtle (Glyptemys insulpta)* – Endangered (Ont.), Special Concern (Can.)

Both are considered Species at Risk by both the Province of Ontario and Government of Canada.

The EIS notes that no Blanding's turtles or wood turtles were found during site inspections, and there is no significant habitat available for Blanding's turtles and wood turtles within the areas that comprise Phase One of the subject property. Within the broader study lands, the fen habitat associated with Hector Lake is noted as having the potential to support turtle habitat and a 30m buffer to the lake is recommended to protect the wetland features, where no development or site alterations would occur.

The natural open sand beach on the point of land in the north-west of the study lands was also noted as having the appropriate aspect, width and elevation to potentially provide turtle nesting opportunities. However none were noted during site visits.

2.3.2 Other Wildlife

The EIS included a comprehensive assessment of the Phase One area for use by wildlife; including Hawks (i.e., Hawk nests), ungulates (i.e., Whitetailed Deer (*Odocoileus virginianus*) and Deer wintering habitat, signs of Moose (*Alces alces*), and Black Bears (*Ursus americanus*). No nests of any Hawk species were found within the area, and no Significant Wildlife Habitat with respect to Hawks was identified. The EIS concludes some potential wintering habitat for Deer along the near-shore area and some small areas towards the southern boundary, however there was a complete lack of deer sign (i.e., no pellet groups, bedding sites, or Deer browse), similarly no sign of Moose or Bear, thus no Significant Wildlife Habitat as it relates to those species exists within the Phase One area. It was noted that the area close to Spine Road is highly fragmented by trails of various sizes, and other evidence of human use and disturbances which may contribute to the limited wildlife sightings.

The small creek valley located between Spine Road Beach and the proposed development is noted in the EIS as a wildlife corridor, connecting Elliot Lake to the wetlands to the south and southwest. This area is identified for protection within the proposed development plan.



2.3.3 Fish Habitat

Elliot Lake is part of a drainage system that outlets to the North Channel. The lake covers more than 600 hectares, has approximately 26 km of shoreline and a mean average depth of 15.6 metres. Two basins extend to depths of over 120m. These occur at the far west end and in the area to the north and east of the study lands and approximately 300m offshore. A number of intermittent streams traverse the site, including at least two streams within the Phase One development area.

The Ministry of Natural Resources has designated Elliot Lake as an A2 category capable of supporting a warm water fishery. The A2 designation indicates that the lake has a large area of water under the 18m contour, with good water quality, and has natural reproduction capabilities. Lake conditions are slightly acidic conditions (common to the Canadian Shield), and phosphorous levels indicate excellent water quality. Lake Trout have been identified and studies suggest that populations of Brook Trout have migrated to Elliot Lake. The lake is popular for fishing in both summer and winter.⁶,

Aquatic plant species observed along the shores of Elliot Lake include white waterlily, watershield, pondweed, pipewort, and pickerel weed which inhabit most of the shallow, shelter bays and inlets in the lake, and which help to support the fishery.



Area of shoreline with Type 1 Fish Habitat

⁶ Lake Management Plan of Elliot Lake. Laurentian University for Elliot Lake Waterfront Development Committee, 1999.



During the course of the EIS, the Ministry of Natural Resources was consulted on fish habitat potential within the study lands. No instances of Type 1 Fish Habitat were previously identified along the shoreline, however field investigations undertaken in the fall of 2007 areas by the consultants undertaking the EIS did indicate a small amount of Type 1 Fish Habitat, in proximity to Spine Road Beach, approximately at the outlet of the small stream.

The EIS identifies the remainder of the shoreline of the Phase One development as Type 2 Fish Habitat, which is deemed by MNR to be common and variable. In accordance with the requirements of the Official Plan, a 20m setback from the lake edge to development is proposed. The Master Plan proposes that this area be maintained to the extent possible in a natural condition to protect the shoreline aquatic habitats. The EIS further notes that the proposed pier/floating docks are not located in Type 1 Fish Habitat and do not pose a significant risk to the existing fish habitat, and enhance fish habitat in the localized area.

Other small areas of Type 1 and Type 2 fish habitat were identified along the balance of the shoreline of the study lands. Further study of these areas is recommended as development proceeds to identify appropriate forms of development and protection measures.

It should be noted that any proposed development will need to proceed with appropriate permits, approvals, and/or Fisheries and Oceans Canada (DFO), Ontario operational statement habitat management program for the protection of fish habitat.

2.3.4 Vegetation

The majority of the site is comprised of dry upland, mainly hardwood forest of Sugar Maple (*Acer saccharum*) and Yellow Birch (*Betula allegheniensis*), with an extensive fringe of coniferous (Hemlock (*Tsuga canadensis*) and Eastern Cedar (*Thuja occidentalis*)) shoreline habitat, approximately 100 m wide running along the northern border of the subject property; which in turn represents the southern shoreline of Elliot Lake.



Mixed deciduous forest in backshore



Forming a perimeter around Hector Lake is a floating fen peat mat community. Aside from the extensive sphagnum layer, the shrub layer of this community is made up of Tamarack (*Larix laricina*), and a variety of bog species including: Sweet Gale (*Myrica gale*), Bog Rosemary (*Andromeda polifolia*), Small Cranberry (*Vaccinium oxycoccos*), Bog Laurel (*Kalmia polifolia*), and Sheep Laurel (*Kalmia angustifolia*). Herbs include Pitcher Plant (*Sarracenia purpurea*), and Round-leaved Sundew (*Drosera rotundifolia*). This area is recommended for protection within a 30m buffer surrounding Hector Lake.⁷

The Elliot Lake Management Plan (1999) notes a significant population of old-growth hemlock located on the end of the large eastern promontory of the subject lands, and extending west along the shoreline, which were observed during 2007 field investigations. An additional stand of mature hemlock is noted in the EIS (2007) as occurring immediately to the west of the Phase One development area. Characteristic of the entire site, the shoreline vegetation through the Phase One area comprises a mixed deciduous-coniferous forest predominated by Hemlock, Yellow Birch, and White Pine with Cedar becoming more dense and dominant along the shoreline. The higher elevations of the backshore area are characterized by a dry Sugar Maple, Yellow Birch forest, with a high level of hardwood regeneration in the understory, and a moderate level of shrubs, including Mountain Maple (*Acer spicatum*), Striped Maple (*Acer pensylvanicum*), and Ground Hemlock (*Taxus canadensis*). Rocky outcrops throughout the site are devoid of forest cover.



Mature hemlock stand

⁷ Elliot Lake - Environmental Impact Study: SARC Ecological Services, November 2007





Mixed shoreline forest

There is evidence of former logging in the established network of roadways that traverse the site and in the age of the forest cover.

2.4 Heritage Features

The results of a surface survey and test pitting of the site indicated that there are no areas in the first phase of the property development which contain cultural values. Study of the areas along the shoreline shows that there is an immediate rise from the waters edge of some 4-6 meters. The shoreline is also very rocky which would have made landing a canoe and scaling up cliffs rather difficult. This was confirmed by a field demonstration. Further it should be noted that prior to the middle of the 20th century, when a dam was built on the western end of the Lake, the water level was 3 meters lower, making the gradient steeper and more difficult.

As a result of a field examination of the area the only observable land that could be considered as a likely archeological site would be The Old Beach, which is adjacent to, but not physically part of the proposed development. It is a natural sand beach of significant length (over 100 meters) with a gentle gradient. The location of The Old Beach is sheltered by the peninsula which dominates the first phase of the property development, providing a very useful buffer from the predominant west and northwest winds. However the construction of the beach and the raising of the Lake's level would suggest that any cultural values have either been destroyed or remain under several feet of water.

In conclusion, there appears to be no evidence of cultural values on the portion of the property making up the first phase of development. For subsequent phases of development further Archaeological and Heritage Impact Assessment Reports will need to be undertaken.



3.0 Impact on Economy

3.1 Economic State

The City of Elliot Lake's Official Plan "recognizes the economic stimulus that may be provided through the increase in shoreline residential development on selected lakes within the City and surrounding area, and through the development of new residential construction in the vicinity of Hector and Elliot Lakes."

In a report prepared by Dr. Atif Kubursi of Econometric Research Limited, regarding the economic state of Elliot Lake, Dr. Kubursi quantifies the historic impact of the retirement living concept on Elliot Lake's economy, and provides the community with a tool to measure the economic impact of shoreline residential development (cottaging) and new residential development within the vicinity of Hector and Elliot Lakes.

In his report (Appendix B), Dr. Kubursi states that the 5,730 people who are 55 years or older who live in Elliot Lake, and were attracted by the affordable housing and the quality of the retirement lifestyle offered, contributes to the economy:

- *\$91.9 million in expenditures*
- *Total income of \$62.6 million locally, and \$102.5 million provincially*
- *1,046 incremental jobs locally and a total of 1,659 provincially*
- *\$39.0 million in local wages and \$62.4 million provincially*

In the presentation of this information to the community, Dr. Kubursi also identified the fact that retirees also contribute to the sustainability of 551+ health care and social services jobs in the community which generate wages of more than \$32.4 million. Without the retirement living concept the need for this number of jobs would diminish drastically.

In his conclusion, Dr. Kubursi commends the community for its success in attracting urban retirees and surviving the obliteration of the mining industry, and suggests that community continue to develop the retirement sector while also moving into new nodes of growth. The development of this parcel of land over the upcoming years will play an important role in the above. The new housing stock of higher value will attract retirees with higher income, and will also provide quality housing for other workers in other industries.

3.2 Economic Impact of Residential Development

Dr. Kubursi provided a model to be used by the community to compare the impact of various economic development initiatives. When assessing the construction of 100 condominium units and the impact of 100 new retiree households, the model indicated the following impacts:



Construction of 100 Unit Building	Elliot Lake Impact	Provincial
Initial Expenditure	\$22,800,000	\$22,800,000
Total Income	\$14,178,087	\$26,226,652
Total Wages	\$11,141,489	\$18,360,796
Employment (person years)	214.9	392.7
Federal Taxation	\$2,999,651	\$5,429,847
Provincial Taxation	\$1,824,379	\$3,380,686
Local Taxation	\$2,674,951	\$3,112,131

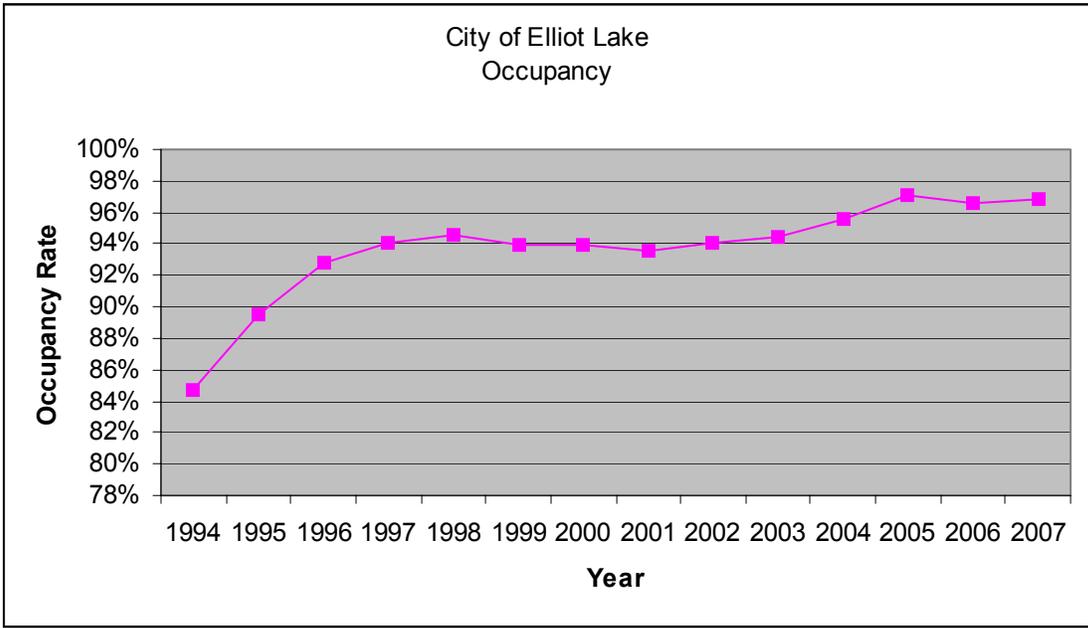
The impacts above represent the one time impact of a construction project. In the table below, the ongoing impact of 100 new retirement households is presented.

Ongoing 100 new retiree families	Elliot Lake Impact	Provincial
Annual Expenditures	\$4,262,000	\$4,262,000
Total Income	\$2,910,487	\$4,835,893
Total Wages	\$1,748,405	\$2,892,298
Employment (person years)	45.2	74.9
Federal Taxation	\$584,524	\$968,536
Provincial Taxation	\$411,014	\$625,835
Local Taxation	\$234,606	\$299,455

3.3 Vacancy Rates

From 1994 to 2007, the City of Elliot Lake has experienced an increase in housing occupancy. The closure of the community's only industry in the early 1990's left the community with a housing occupancy of 84.7% by 1994. The success of the retirement living program and external marketing of the community as an affordable place to live and retire has had a positive impact on the occupancy of housing. The community currently (2007) has 6,197 living units and an occupancy rate of 96.9%. When allowing for units that are committed to future residents, the occupancy rate increases further, so much so, that the rental landlords in the community are in essence full. The development of additional housing stock in the community, and in particular this parcel of land will enable the growth of the retirement living concept, and satisfy the demand for housing within the community.





3.4 Housing Prices

The increasing occupancy rates over the past several years have had a positive affect on housing prices. As the chart below indicates, housing prices have steadily increased in recent years. The addition of new housing at prices higher than current averages is not expected to have an adverse affect on housing prices.



4.0 Infrastructure Systems

4.1 Transportation

The site is accessible from Spine Road approximately three kilometers from the Municipal Centre and the downtown core. Spine Road is a paved rural arterial road servicing residential areas at the City's west end as well as the public beach on the south shore of Elliot Lake. Other developments served by Spine Road are an Ontario Hydro electrical substation at the west limit of the road, and the Municipal Water Treatment Plant. There is very little residential development along the road. The road serves as an entrance to the east and west limits of Ottawa Avenue (a crescent) as well as the northerly end of Lawrence Avenue which serves a small subdivision directly across from the proposed development. The St Joseph's General Hospital is located at the near the downtown core on Spine Road about 2.8 kilometers from the entrance to the development.

At the present time, the City has no plans to extend Spine Road westerly beyond the present limits. The proposed development will in fact be the new westerly limit of residential development

4.1.1 Road Design Considerations

Transportation routes within the proposed development will permit access to local traffic and will be constructed to a rural standard which will allow for vehicles such as buses and delivery trucks in consideration of the following:

- *Paved lane widths of 3.25 metres are proposed with 1.5 metres shoulders and bicycle and walkway lane;*
- *An internal east- west rural standard arterial road will serve the development with smaller rural standard crescents or cul-de-sacs providing access to the multi unit and single unit developments;*
- *An urbanized standard, i.e., curbs and walkways, will be incorporated into the main entrance circle some 190 meters off Spine road which will distribute local traffic to specific destinations within the development;*
- *All streets will be designed to accommodate the city fire department vehicle which has a non standard turning radius of 13.5 metres;*
- *The hilly terrain is generally sloping to the lake (south to north) and will present opportunities for varying grades. It is proposed to maintain a maximum grade of 8.5 percent;*
- *Speeds in the development should be restricted to 60 kilometers per hour (kph) for the main road and 50 kph for remaining roads;*
- *Vehicle parking will be available in parking lots assigned to each multi unit development with limited on-street parking. The number of parking spaces to be provided is 1.5 spaces per residential unit.*

Schematic cross sections of the road types are illustrated on Figure 9.



4.2 Urban Streets / Profile

The Spine Road Development will utilize a variety of road design standards with the goal of maintaining a rural character for much of the development, with the exception of the main entrance to the development area and within the Village centre.

The following are the proposed design standards.

4.2.1 Urban Local One

Leading up to the Village Centre from the entrance to the site the road will be an Urban Local Road with a partial landscaped median. The width of the right-of-way is 40m at the widest point with a 2.4m median separating the lanes of traffic in each direction. Curbs and gutters will be provided along this road section as will a side walk along both sides of the road.

4.2.2 Urban Local Two

In the Village Centre the road allowance will accommodate parallel parking on both sides. The design of the median is intended to undulate so as to reduce the apparent width of the roadway and make pedestrian crossing more manageable.

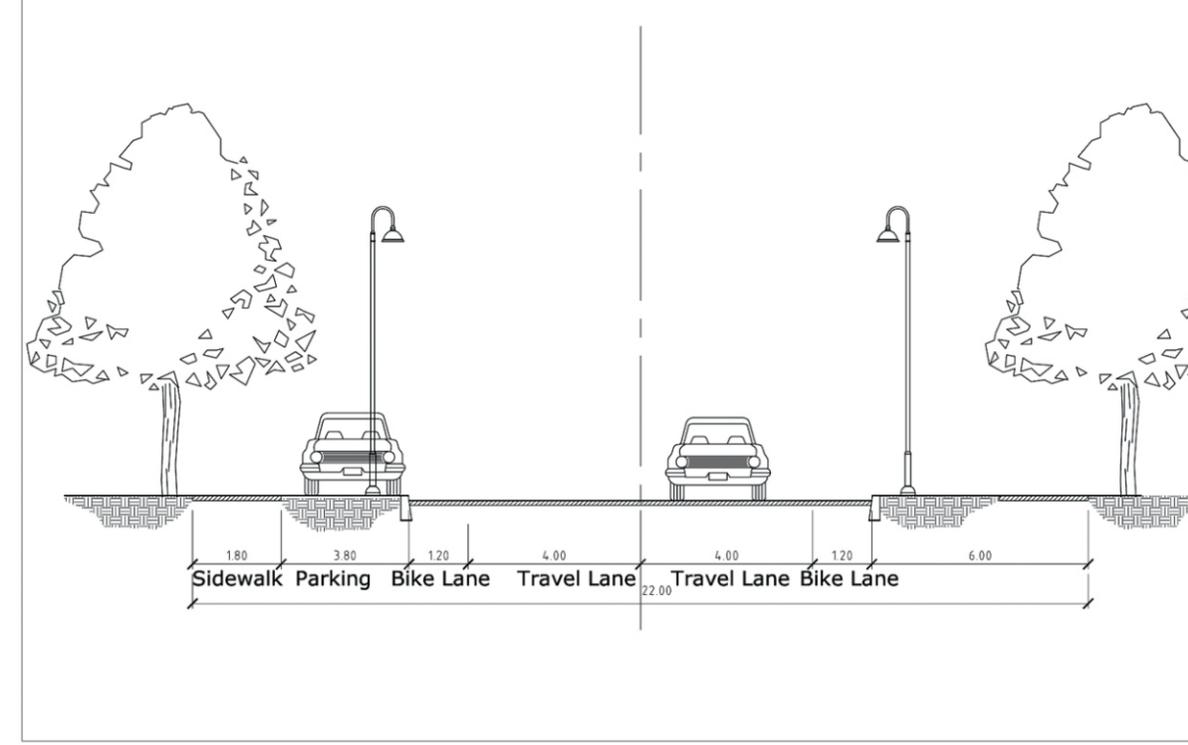
4.2.3 Rural Road

The main part of the connecting roadway throughout the new development would be considered a Rural Road with a right-of-way of 20m. Swales feeding into a limited storm sewer system taking water off of the ROW would be provided.

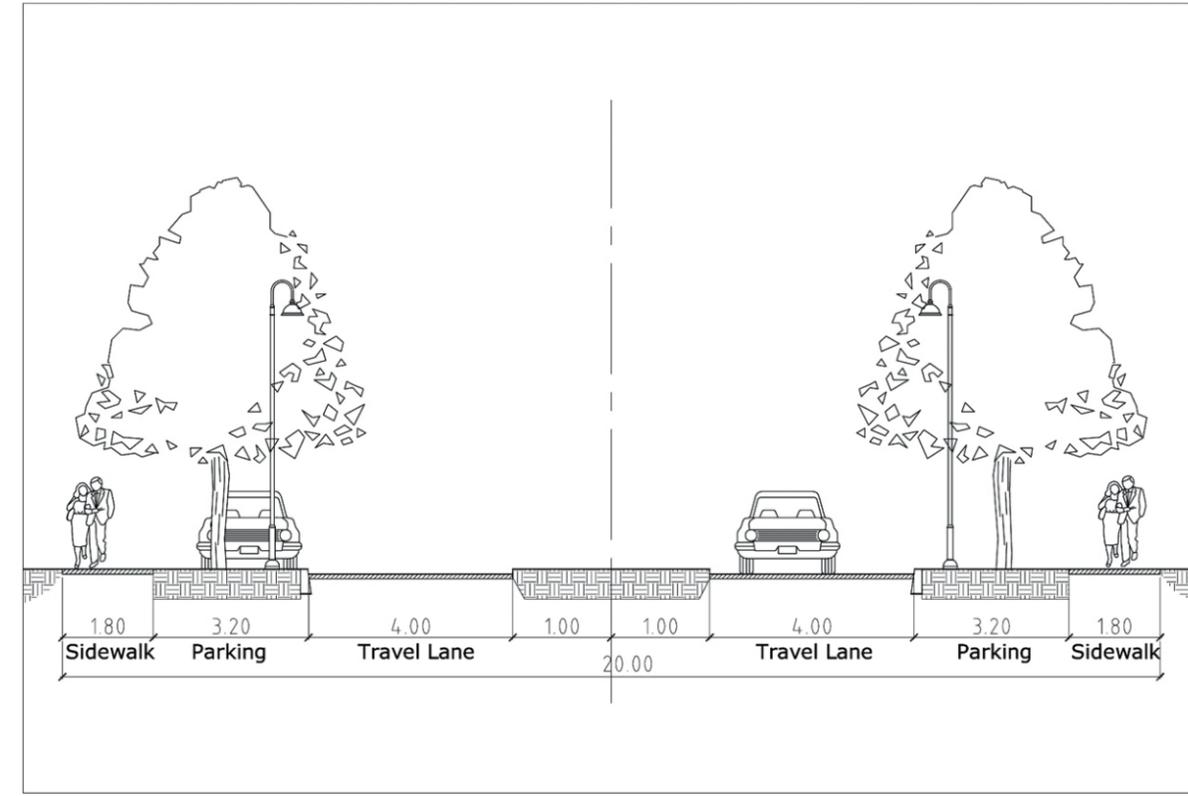
4.2.4 Private Roads

It is the intent that much of the Spine Lake Road Development will consist of pockets of Condominium clusters. The condominium clusters would have internalized road systems that will comply with site design standards at the time of a Site Plan Application for the specific property.

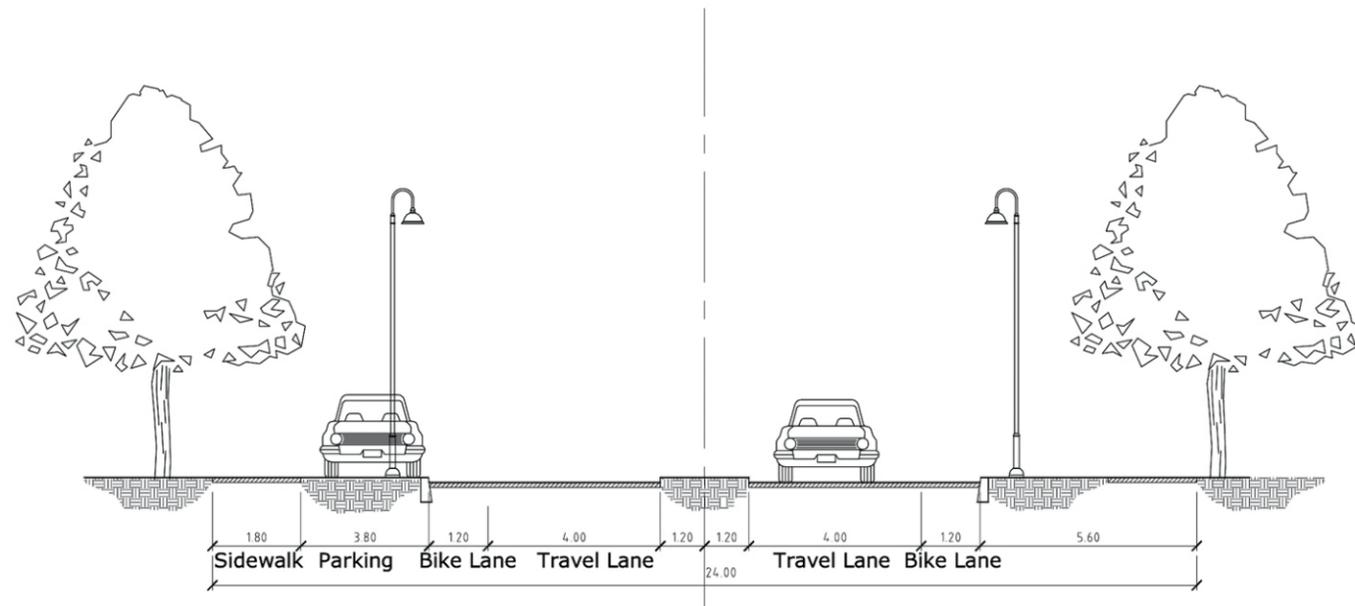




URBAN LOCAL ONE ROAD SECTION
1:150



URBAN LOCAL TWO ROAD SECTION
1:150



URBAN LOCAL ONE ROAD SECTION
1:150



Retirement Living

Spine Road Development

ENVISION

WGD ARCHITECTS INC.

ALLEGRIA ENTERPRISES

NORTHLAND ENGINEERING

Figure 9: Roadway Cross-sections

4.3 Sewer & Water

4.3.1 Sanitary Sewer System

A Municipal sewage collection system is available at the entrance to the development. The city sewage infrastructure system terminates at the south east corner of the intersection of Spine Road and Lawrence Avenue and a 250 mm sewer pipe directs flows easterly on the south side of Spine Road to a sewage lift station some 230 metres to the east. This station serves the existing Lawrence Avenue residential area of approximately 10 hectare with about 300 residences and an estimated population of 810.

There is sufficient capacity in the existing piping system and the pumping station for the projected population of the development. It is noted however that completion of Phase IV may surcharge one and possibly two runs of the existing sanitary sewer line along Spine Road immediately west of the Spine Road Pumping Station. These runs are 70 and 87 metres respectively. However, it is also noted that theoretical flows are based on the ultimate population and several future areas for development are proposed as low density. Therefore, actual flows may be considerably less. In addition, new technologies such as low flush toilets and reduced water usage which is being encouraged in Municipalities, may eliminate the need for future upgrades.

The sewage system will be designed to accommodate potential future flows. The ultimate number of units is based on values in Table I.

	No. of Units / Ha	Phase I		Phase II		Phase III		Phase IV		Totals	
		Area	Units	Area	Units	Area	Units	Area	Units	Area	Units
Medium Density/ Mixed Use	40	2.02	80	0.00	0.00	0.00	0.00	0.00	0.00	2.02	80
Medium Density	40	2.02	80	0.00	0.00	0.00	0.00	0.00	0.00	2.02	80
Low Density	20	2.02	40	18.52	370	16.37	327	15.09	301	52.0	1038
Low Density	2.5	0.00	0.00	14.3	35	26.78	66	18.38	45	59.46	146
Totals										115.5	1344



Population figures may be assumed to be 2.0 persons per unit, considering that the development is proposed as a predominately adult community. Other figures to be used as design criteria for sewage facilities are;

- *A per capita flow rate of 360 litres per day*
- *Infiltration rate of 33,700 litres per day per hectare*
- *Minimum grades of 0.35% for 200 mm and 250 mm diameter pipes.*
- *Minimum cover over pipes of 2.3 metres.*

Using the above values, a main sewer pipe outflow pipe servicing the development is calculated at 300 mm with a minimum slope of 0.5 percent. The limiting elevation of the existing manhole at Spine Road will dictate the vertical alignment of the main service road grade at the centre circle in the first phase of the development. While it is possible to connect to the second manhole down Spine road, this would require an additional 70 metres of pipe along Spine Road which no doubt would be installed in a rock trench.

The topography of the site does not permit gravity sewers to service all areas of development. Therefore, sewage lift stations will be located to service buildings in areas designated within the future municipal right of way. The lift station serving phase I will be located adjacent to

Building “D” a with a force main leading to a main manhole located near the centre turning circle. It is then possible to allow gravity flow to the existing sewer system on Spine road.

Sewer flows for future phases will be pumped to the main manhole. The internal sewer system will be designed to minimize the number of pumping stations in order to reduce future operations and maintenance costs.

4.3.2 Water System

A water distribution system which follows the general route of the streets will be included in the design, with pipe sizes varying from 150mm to 300mm, depending on their location. As discussed above, a population per unit of 2.0 people, and a per capita average day usage rate of 360 litres per day was used to determine anticipated water consumption levels in the proposed area. As well, the requirements for the necessary fire flow were considered. The number of units estimated for the ultimate development is 1370. Based on these numbers, the following demand scenarios for this development are projected for each phase:



Phase	Estimated Population Per Phase	Cumulative Population	Average Day Demand (L/s)	Max Day Demand (L/s)	Peak Hour Demand (L/s)	Basic Fire Flow Requirements	Total Fire Flow Required (L/s)
I	400	400	1.7	5.0	7.5	38 L/s for 1.25h	43
II	810	1210	5.0	12.6	18.9	70 L/s for 2.0h	83
III	786	1996	8.3	18.7	28.1	95 L/s for 2.0h	114
IV	692	2688	11.2	25.2	37.9	105 L/s for 2.5h	130

Using the above estimated parameters, a total average day demand of 11.2 L/s will be needed in the final (Phase IV) development and approximately 37.9 L/s during times of peak demand. During a fire flow situation, the sum of both max day demand for the area (25.2 L/s) and the fire flow requirements (105 L/s) will need to be met as per provincial guidelines, for a total of 130 L/s for 2.5 hours at a minimum required pressure of 20 psi (as described in the Fire Underwriters Survey guidelines). A recent pressure test of the existing water distribution system at the hydrant near the entrance road to the proposed development (as shown below) carried out by the City of Elliot Lake forces, indicated that 87.9 L/s of flow was available at this pressure value, which is less than the necessary requirements in either Phase III or Phase IV.

Hydrant Pressure Test – Spine Road / Lawrence Avenue – July 23, 2007	
Flow Rate (L/s)	Pressure (psi)
62.1	95
78.8	50
87.9	20
90.1	0

It appears that the existing municipal distribution system cannot provide adequate flows and pressures for future phases. Providing elevated storage for the additional volume is recommended to provide adequate water supply for fire flow after Phase II is built. The fire flow plus maximum day demand scenario for the ultimate development (Phase IV) is estimated to require a total water volume of between 945 and 1635 cubic meters, depending on local sizing design requirements. For comparison, the two Elliot Lake water tank standpipes are located near the highest point in the city, and their approximate volumes are 7870 cubic meters and 1530 cubic meters for a total of 9400 cubic meters of available water when full.



A proposed new looped watermain line to the development would run westward from the town's water treatment plant along Spine Road to join with the existing system at Ottawa Street. Although a looped system does not appear to be necessary for the development at this time, this line would result in an increase in available pressures and flows in the new development area, as confirmed by a basic hydraulic model of the area. These increased pressures may result in a reduced storage tank volume size requirement in future phases.

As well, it is recommended that an electronic flowmeter be installed at the future watermain connection into the Spine Road development to give an idea of actual flows that are running into the development. This would provide a realistic idea of the water consumption to be expected in future phases, which will likely reduce storage requirements, as theoretical per-capita consumption rates are typically oversized.

To summarize, it appears that water needs can be satisfied by the municipal water supply during the first two phases, however additional storage will likely be necessary in Phase III. The amount of storage needed by this time can likely be reduced – or possibly eliminated – by looping the watermain, and also installing a flow meter ahead of the development in order to get a more realistic idea of actual consumption rates.

Further detailed analysis of storage, pressure, and consumption issues would need to be carried out through the preparation of a detailed computer model of the City of Elliot Lake's distribution system.

4.4 Site Drainage

As per the requirements of the City of Elliot Lake, the development will not require a storm water management plan and report. However, given the site's proximity to a sensitive water body, it will be important to account for siltation, sedimentation and erosion in the site design during and after construction.

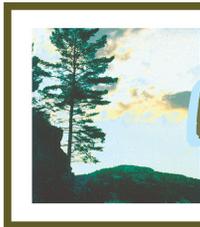
The property generally slopes towards the east and northeast and contains some minor drainage courses, which enter the north boundary into Elliot Lake. There is also a public beach on the shoreline immediately east and adjacent to the site. Thus, given the sensitive nature of the area, it will be important to ensure that the quality of runoff from the development is high, in order to minimize potential impacts to the lake.

In order to carry this out, it is proposed that the final development's design keep as much of the natural features - vegetation, groundcover, shorelines, direction of slope, watercourses - as possible. The buildings and roads will thus be incorporated into the site in a manner that maintains the existing drainage character. Initial soil investigation has indicated that the soil appears to have satisfactory permeability, and thus incorporating the existing overburden will provide favorable conditions for reducing the expected increase in the amount of drainage going off-site. As well, the amount of new storm sewer pipes will be minimized in favor of swales, ditches, and existing natural drainage courses.



Additionally, siltation control during construction activities will be important. Siltation poses harm to both aquatic wildlife, and also to aesthetics. Strategically-placed silt curtains (geotextile sheets and/or straw bales) are measures commonly used to prevent the incursion of sediments into a water-body, and should be incorporated into the design. They should be maintained on site for at least a year after construction activities have ceased, in order to provide opportune time for revegetation, which will bring a reduction in erosion.





Elliot Lake

Spine Road Development Community Master Plan Report

Appendix A Phase One Area Concept Plans

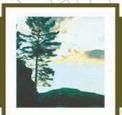


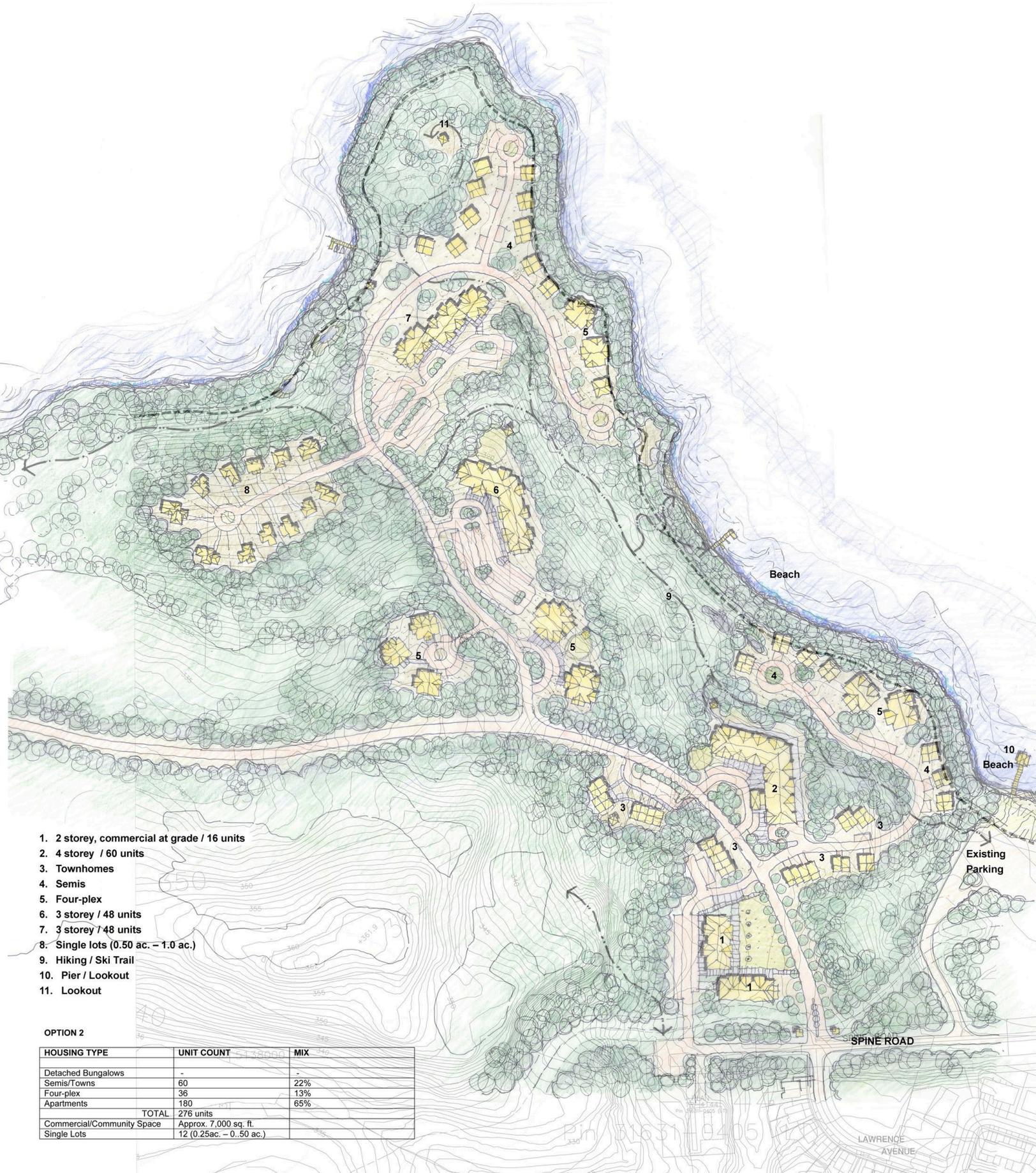


- 1. Townhomes
- 2. Townhomes
- 3. 1 storey commercial
- 4. 3 storey / 24 units, some commercial/community space at grade
- 5. 3 storey / 30 units, some commercial/community space at grade
- 6. Open Space
- 7. Semis / Townhomes
- 8. 3 storey / 48 units
- 9. Bungalows
- 10. Single lots (0.50 ac. – 1.0 ac.)
- 11. 3 storey / 42 units
- 12. Semis
- 13. 3 storey / 48 units
- 14. Four-plex
- 15. Lookout
- 16. Pier / Lookout
- 17. Hiking / Ski Trail

OPTION 1

HOUSING TYPE	UNIT COUNT	MIX
Detached Bungalows	6	2%
Semis/Towns	50	20%
Four-plex	12	5%
Apartments	180	73%
TOTAL	248 units	
Commercial/Community Space	Approx. 12,000 sq. ft.	
Single Lots	10 (0.50 ac. – 1.0 ac.)	



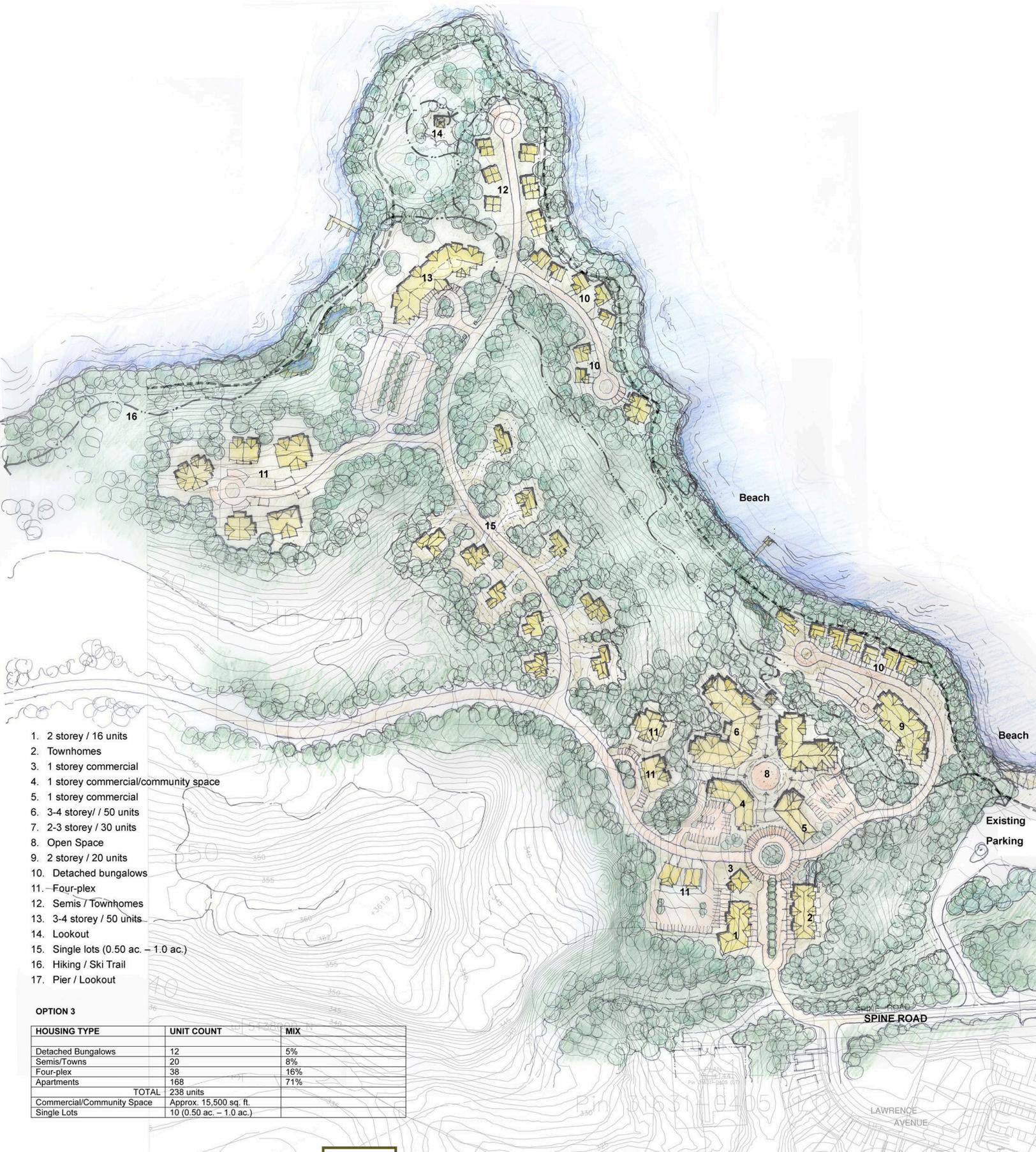


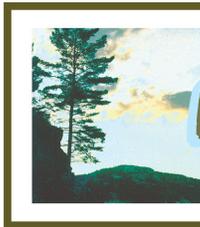
- 1. 2 storey, commercial at grade / 16 units
- 2. 4 storey / 60 units
- 3. Townhomes
- 4. Semis
- 5. Four-plex
- 6. 3 storey / 48 units
- 7. 3 storey / 48 units
- 8. Single lots (0.50 ac. – 1.0 ac.)
- 9. Hiking / Ski Trail
- 10. Pier / Lookout
- 11. Lookout

OPTION 2

HOUSING TYPE	UNIT COUNT	MIX
Detached Bungalows	-	-
Semis/Towns	60	22%
Four-plex	36	13%
Apartments	180	65%
TOTAL	276 units	
Commercial/Community Space	Approx. 7,000 sq. ft.	
Single Lots	12 (0.25ac. – 0.50 ac.)	







Elliot Lake

Spine Road Development Community Master Plan Report

Appendix B Environmental Impact Study



Development Application:

(Elliot Lake Retirement Living – Phase One)

Environmental Impact Study

Species at Risk Consulting and Ecological Services

Jeremy D. Rouse

November 2007

Executive Summary

Species at Risk Consulting and Ecological Services was retained to complete a scoped Environmental Impact Study to address concerns with regards to the impact the development of the Phase One of a Four Phase Retirement Community may have on the natural heritage and how any unacceptable impacts can be eliminated or minimized, specifically habitats of Species at Risk and Significant Wildlife Habitat.

Site visits were conducted on the subject property in mid September for the identification of the significant habitats of the Species at Risk and other wildlife in the area, including fish habitat. The property was also assessed using an Ecological Land Classification system designed for the Central Ontario Forests.

No significant habitats of the *threatened* and *endangered* species were found within the Phase One area. We also confirmed that wildlife such as Hawks, White-tailed Deer, Moose, or Black Bear do not use the Phase One regularly. Finally a small area of Type 1 Fish Habitat was found along the shoreline of the Phase One, but will not be impacted by the proposed development.

In conclusion, Species at Risk Consulting and Ecological Services has identified some habitats and natural features worthy of protection on the subject property and has made recommendations that if agree to and implemented will ensure the long-term protection of those natural features. Finally, Species at Risk Consulting and Ecological Services believe that Phase One will be developed with regard to Section 4.16 of the City of Elliot Lake's Official Plan and in accordance with the proposed zoning, will not impact the any of the natural heritage values identified as occurring on or adjacent to the subject property.

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1 Introduction

1.1 Background

A multilevel Scoped Environmental Impact Study (EIS) for the four phased development proposal to build a 400 acre community was undertaken at the request of the proponent as per the requirements of the City of Elliot's Official Plan sections 3.6, 4.16, and 5.2.6/5.3.7 and the 2005 Provincial Policy Statement Section 2.1.

1.2 Purpose and Scope of Study

The scoped study included an overall assessment of the property (i.e., all phases, approximately 400 acres), accompanied by a focused comprehensive examination of the area comprising Phase One (approximately 25 acres) and adjacent lands for any significant habitats for Species at Risk, wetlands, and Significant Wildlife Habitats, confirming existing fish habitat mapping and mapping fish habitat along the shoreline where mapping does not currently exist.

To address the concerns, this study determined the potential impacts the proposed development of the property may have on the natural heritage and how any unacceptable impacts can be eliminated or minimized. More specifically, Species at Risk Consulting and Ecological Services was retained to:

- determine the significant habitat of *threatened* and *endangered* species within the area comprising Phase One of the subject property,
- determine the Significant Wildlife Habitat within the area comprising Phase One of the subject property,
- confirm, identify, and map fish habitat along the shoreline of the area comprising Phase One of the subject property,
- provide a general preliminary ecological assessment on the other phases of the project on the subject property to identify any sensitive areas to consider in the future,

- ensure that the proposed application acts in accordance with policies set out in the 2005 Provincial Policy Statement and the City of Elliot Lake's Official Plan.

1.3 Location and Description of Property

The subject property is located immediately east of the Spine beach and residential area within the City of Elliot Lake. The subject property is comprised of mainly a hardwood forest of Sugar Maple (*Acer saccharum*) and Yellow Birch (*Betula allegheniensis*), and an extensive fringe of coniferous (Hemlock (*Tsuga canadensis*) and Eastern Cedar (*Thuja occidentalis*)) shoreline habitat, approximately 100 m wide running along the northern border of the subject property; which in turn represents the southern shoreline of Elliot Lake. Along the shoreline there are a number of small and thin sandy and coble beaches with various amounts of emergent and submergent aquatic vegetation. The southern boundary of the subject property splits Hector Lake, a small lake with a graminoid fen wetland habitat perimeter. The subject property has an intricate network of trails (i.e., ski and hiking), some large enough to drive a regular sized vehicle down; resulting in excellent access to the majority of the subject property during all seasons. As a result of the access the area is heavily utilized for recreational purposes, in all seasons, as indicated through the numerous fire-pits and extensive amount of garbage, especially within the coniferous fringe along the shoreline of Elliot Lake.

2 Study Approach

2.1 Collection and Review of Background Information

Existing information pertaining to the natural heritage features of the property and the surrounding lands was obtained from the Ontario Ministry of Natural Resources (MNR), and the Natural Heritage Information Centre (NHIC 2007). Additionally, Official Plan policies of the City of Elliot Lake were considered where relevant to the property. Specifically, Section 4.16 Ecological Planning Principles provided the basis for the assessment of Phase One of the subject property.

Section 4.16 Ecological Planning Principles of City of Elliot Lake's Official Plan

states:

[City of Elliot Lake's Official] Plan supports the concepts of community ecological planning and design for sustainable development. Ecological planning and design is the strategy for the optimum management of the ecological components on a site, within the context of the surrounding community.

Within the context of sustainable community development, ecological planning and design integrates nature in development. It represents a process where the natural environment is viewed as a benefit for development, and not an obstacle.

The following principles are to be addressed as part of significant new development in the City:

- Development can result in a net gain for natural features;
- A balance is to be maintained where land uses co-exist in harmony with the existing or restored ecosystem;
- Landscape disturbance should be kept to a minimum to create the least site development alteration, reduced site development costs and create a unique site signature;
- Connections to areas beyond the development site improve the natural features of the site;

Targets may be established by the City to provide benchmarks for sustainable development. Such targets may include increased open space and natural areas, minimizing road construction, improved storm water management, improved waste and energy efficiency, and more intensive development clustering in appropriate locations.

Digital Ontario Base Maps (OBM - scale 1:10,000), and aerial photographs were reviewed using ArcMap GIS software. Other sources of information were consulted as necessary (e.g., environmental reports and reference guides for this area). A review of existing information (e.g., natural heritage mapping, fish habitat mapping, known flora and fauna, and various remotely sensed images) associated with this area provided an understanding through expert interpretation of the values including, significant habitats of *threatened* and *endangered* species, as well as other significant wildlife habitats that may be found on the property. The review and preliminary habitat mapping allowed for identification and confirmation of values efficiently during site visits.

A review of the Natural Heritage Information Centre database (NHIC 2007), indicated that the following species are closest to the greater general area;

- Blanding's turtle (*Emydoidea blandingii*) – *threatened*,

- Wood Turtle (*Glyptemys insulpta*) – *Endangered (Ont.), Special Concern (Can.)*

Both considered Species at Risk by both the Province of Ontario and Government of Canada.

2.2 Aerial Photograph Interpretation

Aerial photographic interpretation of the subject property's biophysical features was undertaken prior to visiting the site to carry out inspections and inventories. Aerial imagery provided the basis for mapping the general ecological features of the property, including vegetation communities, and potential habitats of Species at Risk, and Significant Wildlife Habitats. Preliminary mapping was ground-truthed and boundaries revised as required during site visits on 8th, 9th and 14th of September, 2007.

2.3 Wildlife Habitats

Descriptions of significant habitat for the Blanding's turtle, and Wood Turtles were obtained from the descriptions of the biology and habitat requirements in status reports prepared for the individual species by COSEWIC. Habitats for these species, were initially assessed using existing aerial photos and resource data, and confirmed with site visits. Wildlife Habitat Suitability from habitat typed using Field Guide to Forest Ecosystems of Central Ontario (Chambers et al. 1997) was used for White-tailed Deer, Moose, and Hawks along with appropriate field techniques designed to identify signs of habitat use by those species.

Fish habitat was assessed and mapping refined as either Type 1 or Type 2 according to the MNR Fish Habitat definitions as follows; Type 1 - Significant areas of emergent and/or submergent aquatic vegetation, Type 2 - Highly variable; ranging from detritus substrate to small aquatic vegetation beds to rocky bedrock substrate. Generally abundant non-specific habitat utilized by a wide variety of inhabiting fish species at various life stages (OMNR 1994). Fish habitat determined to be Type 1 should have restrictions with regard to the types of development within those areas as per the requirements of provincial and federal governments; Type 2 habitat is generally abundant and compatible developments (e.g., docks, piers, and boat houses) should be allowed.

2.4 Land Classification

The subject property was mapped using the Field Guide to Forest Ecosystems of Central Ontario (Chambers et al. 1997), an ecological classification system developed specifically for central Ontario forests, or Field Guide to the Wetland Ecosystem Classification for Northwestern Ontario (Harris et al. 1996) (Figure 1, Figure 2). This was completed to provide a general inventory of the lands and determine if any significant communities were present that required additional consideration. None of the mapped communities in Phase One were considered to be significant.

3 Biophysical Features

3.1 Land Classification

3.1.1 V10 (ES29.X), Sugar Maple – Yellow Birch

The majority of the subject property is comprised primarily of a Sugar Maple – Yellow Birch (V10) forest (Figure 1). The understory in general had high level of hardwood regeneration, including Sugar Maple, Yellow Birch, Balsam Fir (*Abies balsamea*), and moderate levels of shrubs, Mountain Maple (*Acer spicatum*), Stripped Maple (*Acer pensylvanicum*), and Ground Hemlock (*Taxus canadensis*). The herb layer is comprised mainly of Wood Fern (*Dryopteris* sp.), False Solomon's Seal (*Maianthemum racemosum*), Wild Sarsaparilla (*Aralia nudicaulis*), and Starflower (*Trientalis borealis*). There is an extensive network of large trails through this habitat type, resulting in minor habitat fragmentation and local disturbance due to heavy recreational use.

3.1.2 V18 (ES30.X), Hemlock – Yellow Birch

A strip of Hemlock – Yellow Birch (V18) habitat type runs along the north part of the subject property along a near-shore fringe area of Elliot Lake (Figure 1, Figure 3). The area is comprised of Hemlock, Yellow Birch, with Eastern Cedar, with some White Pine (*Pinus strobus*), Balsam Fir and White Spruce (*Picea glauca*). Cedar becomes denser and more dominant approaching the shoreline. The understory consists of Mountain Maple, Stripped Maple, and Ground Hemlock. The few herbs present usually consist of various ferns (e.g., Wood Fern), and some club mosses. There is an extensive network of large and small trails through this habitat type directly attributed to heavy

recreational use, resulting in habitat fragmentation, heavy local disturbances, habitat destruction, garbage piles, fire-pits, etc (Figure 4).

3.1.3 V19, Hemlock

Hemlock dominated stand with an understory of Yellow Birch. Shrub layer is primarily Striped Maple and Fly Honeysuckle (*Lonicera canadensis*) (Figure 1, Figure 5). The herb layer consists of Wood Ferns and Wild Sarsaparilla. This area is potential Deer wintering habitat; however there was no evidence of use by Deer.

3.1.4 W10, Mixed Meadow Marsh

A small mixed meadow marsh community was documented along the south side of the subject property (Figure 1). The community was comprised of both emergent vegetation (graminoids and shrubs) and floating vegetation (pondweeds). The dominant graminoids are comprised of Woolgrass (*Scirpus cyperinus*), and Canada Blue-joint (*Calamagrostis canadensis*). Shrubs were comprised primarily of Sweet Gale (*Myrica gale*). The floating vegetation consisted of White Water Lilly (*Nymphaea odorata*), Floating-leaved Burreed (*Sparganium fluctuans*), and Water Sheild (*Brasenia schreberi*).



Legend

Development Phases	Land Classification	
Approximate Area	Code,Description	V16a, Sugar Maple - Hemlock - Yellow Birch - Ravine
Fish Habitat	HD, Human Disturbed - Municipal Beach	V18, Hemlock - Yellow Birch - White Pine
Type 1	OW, Open Water	V19, Hemlock
Type 2	RB, Rock Barren	V26, Balsam Fir
Wildlife Corridor (10m)	SB, Sand Beach	V38, White Cedar
30m Protection Buffer	V10, Sugar Maple - Yellow Birch	W10, Marsh: Mixed - Organic Substrate
	V16, Sugar Maple - Hemlock - Yellow Birch	W23, Open Graminoid Fen: sedge / sphagnum
		W35, Thicket Swamp

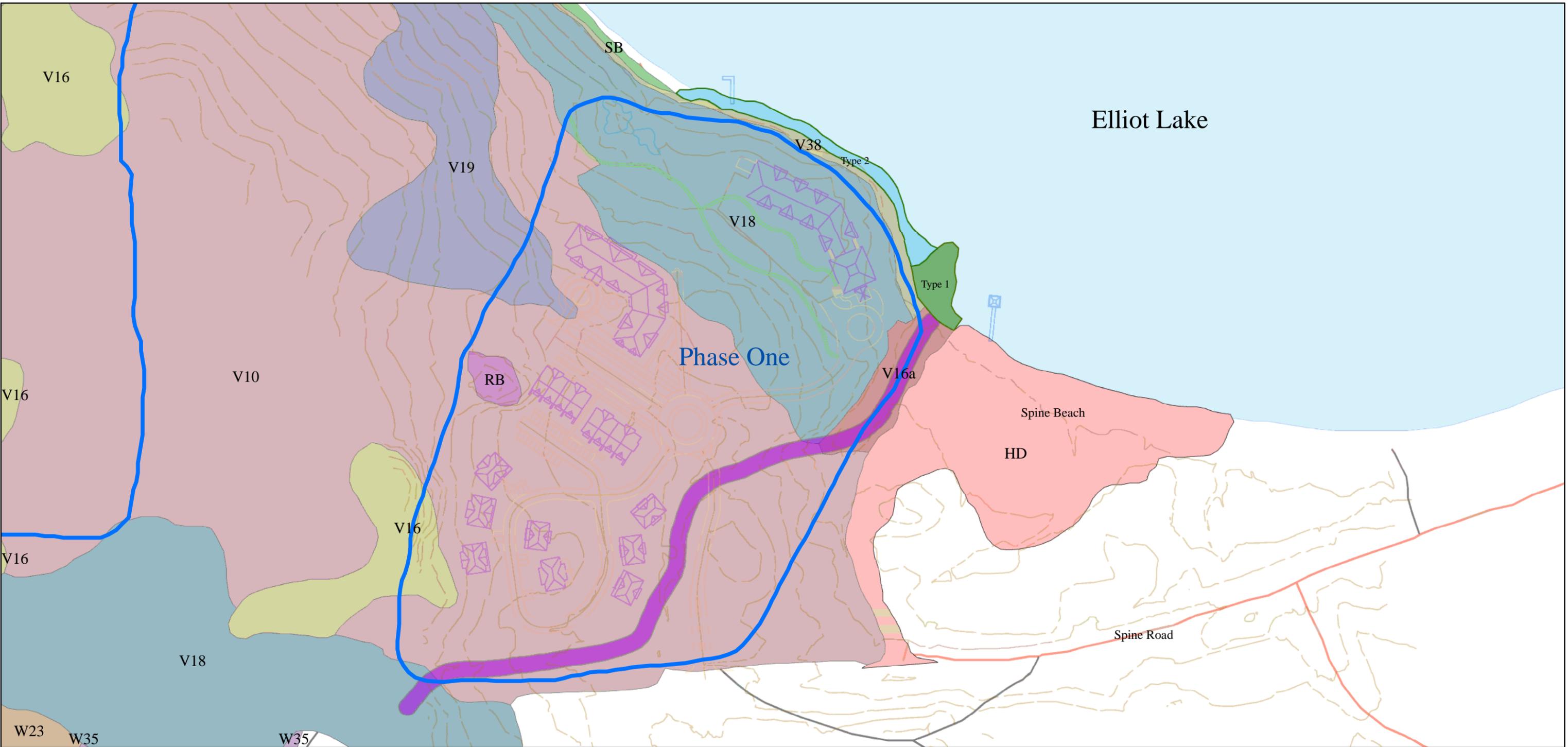
290 145 0 290

 Meters

Projection: UTM-Zone 17, NAD83

This map is illustrative only. Do not rely on it as being a precise indicator of routes, nor as a guide to navigation

Figure 1. Ecological Land Classification for all phases of the development.



Legend

Development Phases

Approximate Area

Fish Habitat

Type 1

Type 2

Wildlife Corridor (10m)

Land Classification

Code, Description

HD, Human Disturbed - Municipal Beach

OW, Open Water

RB, Rock Barren

SB, Sand Beach

V10, Sugar Maple - Yellow Birch

V16, Sugar Maple - Hemlock - Yellow Birch

V16a, Sugar Maple - Hemlock - Yellow Birch - Ravine

V18, Hemlock - Yellow Birch - White Pine

V19, Hemlock

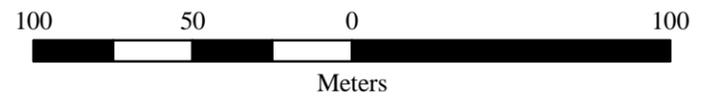
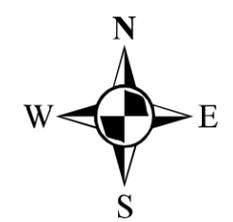
V26, Balsam Fir

V38, White Cedar

W10, Marsh: Mixed - Organic Substrate

W23, Open Graminoid Fen: sedge / sphagnum

W35, Thicket Swamp



Projection: UTM-Zone 17, NAD83

This map is illustrative only. Do not rely on it as being a precise indicator of routes, nor as a guide to navigation

Figure 2. Ecological Land Classification for Phase One of the development.



Figure 3. Photo of V18, Hemlock - Yellow Birch habitat type near-shore area.



Figure 4. Photo of one of the many areas of garbage, broken glass, and cut live trees for use as fire wood.



Figure 5. Photo of V19 – Hemlock habitat type; west edge of Phase One.

3.1.5 W23, Open Graminoid Fen

Forming a perimeter around Hector Lake is a floating fen peat mat community (Figure 1, Figure 6). Aside from the extensive sphagnum layer, the shrub layer of this community is made up of Tamarack (*Larix laricina*), Sweet Gale (*Myrica gale*), Bog Rosemary (*Andromeda polifolia*), Small Cranberry (*Vaccinium oxycoccos*), Bog Laurel (*Kalmia polifolia*), and Sheep Laurel (*Kalmia angustifolia*). Herbs include Pitcher Plant (*Sarracenia purpurea*), and Round-leaved Sundew (*Drosera rotundifolia*). The dominant graminoids are comprised of Tawny Cottongrass (*Eriophorum virginicum*), Few-Seeded Sedge (*Carex oligosperma*), Beaked Sedge (*Carex utriculata*), and Three-fruited Sedge

(*Carex trisperma*). This area could be used by Blanding's turtles for hibernation under the floating fen mats, thus the area should be protected from development.



Figure 6. Photo of and Hector Lake and open graminoid fen W248, around the perimeter.

3.2 Wildlife Habitat

3.2.1 Turtle Habitat

3.2.1.1 Phase One

No Blanding's turtles or wood turtles were found during site inspections, and there is no significant habitat available for Blanding's turtles and wood turtles within the areas that comprise Phase One of the subject property. No hibernation habitat for Blanding's turtles or wood turtles exists within the Phase One boundary. There are no natural open dry sandy areas wide enough, with the proper aspect, or away from waves and wash for nesting opportunities for these turtles within the Phase One boundary on the subject property. The drainage valley between the Spine Beach and the Phase One development has been identified as a potential natural corridor for wildlife traveling between Elliot Lake and the wetlands to the south and southwest (Figure 2). This wildlife corridor could be utilized by turtles as well as many other animals. The identified corridor is of

illustrative purpose, and the actual corridor can be functionally created by allowing an area no less than 30 m wide to remain in a completely natural state, where a road is necessary to cross the wildlife corridor the natural vegetation should be allowed to encroach closer to the shoulder and the speed limited should be reduced significantly and signs in this area should be used to inform community residents. Culverts that need to be installed for drainage purposes should be increased to the largest possible size within the wildlife corridor and naturalized to some degree to accommodate small animal movement and increase the permeability of the road to wildlife. It is important to realize that the wildlife corridor will need to be established and maintained throughout the construction of Phase One as well.

3.2.1.2 Greater Property

No Blanding's turtles or wood turtles were found during site inspections, and the overall habitat available for Blanding's turtles and wood turtles is relatively poor. However, the area identified as W23, Open Graminoid Fen (Figure 1, Figure 6) along the south side of the subject property could be potential Blanding's turtle hibernation habitat. Aside from being a potential hibernation site for turtles it is also up stream of Slipper Lake's wetland/lake complex considered to be an environmental sensitive area (City of Elliot Lake's Official Plan - Land Use Schedule "C"). Species at Risk Consulting and Ecological Services recommends that the Hector Lake Fen be protected from development and a 30 m buffer established around the edge of the wetland where no development or site alteration will occur (e.g., extensive tree cutting, building construction, road development, or groomed ski trails), types of compatible development would be low-impact nature trails, with small boardwalks or lookouts (Figure 1). There is one natural open sandy area with an appropriate aspect, wide enough with good height above the lake water level to avoid being swamped by waves and wash (Figure 7) identified in Figure 1 that could potentially provide nesting opportunities for turtles along the shore of Elliot Lake, no nests were found during the site visits. Unfortunately, this sand spit area, as many other areas along the shoreline and within the near-shore area of Elliot Lake, have a large degree of human disturbance from heavy recreational use.



Figure 7. Photo of the large sandy point at the northwest end of the subject property.

3.2.2 Other Wildlife Use

3.2.2.1 Phase One

The area comprising Phase One of the subject property was comprehensively assessed for use by wildlife; including Hawks (i.e., Hawk nests), ungulates (i.e., White-tailed Deer (*Odocoileus virginianus*) and Deer wintering habitat, signs of Moose (*Alces alces*), and Black Bears (*Ursus americanus*). No nests of any Hawk species were found within the Phase One area, thus no Significant Wildlife Habitat with respect to Hawks exists within the Phase One area. There was some potential wintering habitat for Deer along the near-shore area and some small areas towards the southern boundary, however there was a complete lack of deer sign (i.e., no pellet groups, bedding sites, or Deer browse), similarly no sign of Moose or Bear, thus no Significant Wildlife Habitat as it relates to those species exists within the Phase One area. The Phase One area is highly fragmented by trails of various sizes (Figure 8, Figure 9), from wide ski trails to small walking trails. The Phase One area is highly disturbed by heavy recreational use (e.g., many fire-pits, lots of garbage, and excess of small trails) especially within 20-30 m of

the shoreline. The heavy recreational use is likely due to the proximity to the City of Elliot Lake, and public access to the property and lake (e.g., the many trails, adjacent to the public Spine Beach (Figure 1), etc.), this high level of disturbance could account for the lack of Hawk nests, as well as the complete lack of other signs of large wildlife (e.g., Deer, Bear, Moose, etc.).

3.2.2.2 Greater Property (Phases 2-4)

The habitat for Hawks on the greater property is average; one Broad-Winged Hawk (*Buteo platypterus*) was identified during site visits; due to the timing (mid-September), breeding could not be confirmed. During the general assessment of the greater property no nests were documented. However, the search for nests was not as comprehensive as in the Phase One area. A survey for hawks should be conducted as the phases of the development proceed. Similarly to the Phase One area, little evidence of large animal use in the area was documented, although not searched as intensely, only one Deer pellet group was located. We are confident that more animal sign could have been located during a more intensive search but the overall conclusion would continue to be that the use of the area by large mammals is minimal. The other three phases of the subject property are also highly disturbed by heavy recreational use, although as you move towards the west end of the property the disturbance does decrease significantly; the large network of trails still exist but there is less garbage, and the density of fire-pits and campsites decreases.



Figure 8. Photo illustrating a typical trail within the subject property.



Figure 9. Photo showing a large cleared disturbed area with the Phase One development area.

3.2.3 Fish Habitat

3.2.3.1 Phase One

The Ministry of Natural Resources has not identified any habitat along the shoreline of the subject property as Type 1 Fish Habitat. The Official Plan does not identify any areas along the Phase One shoreline as significant. However, field visits did identify a small amount of Type 1 Fish Habitat along the Phase One shoreline and is indicated in Figure 1. There were also sections of Type 2 Fish Habitat along the Phase One shoreline; Type 2 Fish Habitat is common and extremely variable (see MNR definition above). The proposed pier/floating docks are not located in Type 1 Fish Habitat and do not pose a significant risk to the existing fish habitat; the structure and protection created by these pier or floating structure may actual enhanced the fish habitat in the localized area. The Phase One development should proceed with appropriate permits, approvals, and/or Fisheries and Oceans Canada (DFO), Ontario operational statement habitat management program for the protection of fish habitat.



Figure 10. Photo of the small area of Type 1 Fish (floating submergent vegetation area in the top left of the photo) habitat along the shoreline of Phase One.

3.2.3.2 Greater Property (Phases 2-4)

There exists some small sections of Type 1 Fish Habitat and numerous sections of Type 2 Fish Habitat along the shoreline of Elliot Lake (Figure 1, Figure 11, Figure 12); further studies to determine what development within and around these areas would be compatible should be undertaken as the next phases of the development proceed.



Figure 11. Photo of small sections of Type 1 and Type 2 Fish Habitat towards the west end of the subject property.



Figure 12. Photo of a small narrow section of Type 1 Fish Habitat towards the west end of the subject property.

4 Environmental Impact Statement

4.1 Species at Risk

Species at Risk Consulting and Ecological Services has determined that there is no Significant Habitats of the identified *threatened* and *endangered* species within the area designated as Phase One of the subject property and the proposed development will have no impact on the habitats of the Blanding's turtle or wood turtle.

4.2 Other Wildlife Habitat

Species at Risk Consulting and Ecological Services has determined that there is no Significant Wildlife Habitat of Hawks, Deer, Moose, or Bears within the area designated as Phase One of the subject property and the proposed development will have no impact on the habitats of those species.

4.3 Fish Habitat

Species at Risk Consulting and Ecological Services has confirmed that there is a small amount of Type 1 Fish Habitat existing along the shoreline of Phase One of the development on the subject property, but that the development will have no impact on the identified habitat.

4.4 Greater Property (Phases 2-4)

Species at Risk Consulting and Ecological Services has identified through the general assessment some sensitive areas that will need further study as the development proceed; however the general bounds of the future phases seems to avoid these sensitive areas (Figure 1); we are unaware if this has been proactive planning or a fortunate coincidence.

4.5 Summary and Conclusions

In conclusion, Species at Risk Consulting and Ecological Services has identified some habitats and natural features worthy of protection on the subject property and has made recommendations that if agree to and implemented will ensure the long-term protection of those natural features. Finally, Species at Risk Consulting and Ecological Services believe that Phase One will be developed with regard to Section 4.16 of the City of Elliot Lake's Official Plan and in accordance with the proposed zoning (Shoreline Residential) will not impact the any of the natural heritage values identified as occurring on or adjacent to the subject property.

5 References

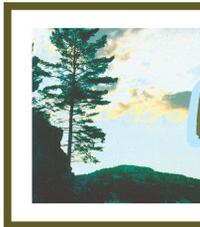
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Mr. Jeremy D. Rouse M.Sc., B.Sc, Ecologist, led the fieldwork and authored this report.



Elliot Lake

Spine Road Development Community Master Plan Report

Appendix C Horizon Archaeology Stage One and Two Project Report



HORIZON ARCHAEOLOGY

**STAGE ONE AND TWO PROJECT REPORT
SPINE ROAD HOUSING DEVELOPMENT
PROPOSAL, PHASE 1, ELLIOT LAKE, ON**

Prepared for:

**Mrs. Rhona Guertin, Elliot Lake Retirement Living, 151
Ontario Ave., Elliot Lake, ON., P5A 2T2, (705)848-4911 ext.
524**

Submitted by

**HORIZON ARCHAEOLOGY
220 Chippewa St. West
North Bay, ON
P1B 6G2**

**Attention: Dr. David J.G. Slattery
Telephone: (705) 474-9864
Fax: (705) 474-5626
E-mail: slattery@vianet.ca**

**Province of Ontario
Archaeological Licence # P041-059-2007**

June 25, 2007

HORIZON ARCHAEOLOGY

North Bay Office
June 25, 2007

Mrs. Rhona Guertin
Elliot Lake Retirement Living
151 Ontario Ave.
Elliot Lake, ON
P5A 2T2

Attention: Mrs. Guertin

Re: Stage 1 and 2 Assessment for Phase 1 of the Spine Road Housing
Development

Please find attached three copies of an Archaeological and Heritage Impact
Assessment Report for the above captioned project.

As required for licence and regulatory purposes, we are sending an additional
three copies on your behalf to the following offices:

Archaeological Licence Office (two copies) and
Development Plans Review Office (Winston Wong) (one copy)
Heritage Operations Unit
Ministry of Culture, Tourism and Recreation, 4th Floor,
400 University Ave
Toronto, Ontario, M7A 2R9

We were pleased to have assisted you with this project and hope to be of
continuing service with your future undertakings.

Yours truly,
HORIZON ARCHAEOLOGY


Dr. David J.G. Slattery
PY/ds. Enclosures

EXECUTIVE SUMMARY

Location: Elliot Lake is located some 30 kilometers north of the Trans-Canada Highway where Highway 108 branches off at the hamlet of Serpent River. The town (pop. 13,500) is located along the eastern end of the Lake as well as its south-eastern shores and is part of the southern section of Borden block CcHp. The proposed property identified for development is some 428 acres in size. As the project is currently being planned as a two phased development, Horizon Archaeology was contracted to assess a 100 acre parcel forming the most eastern portion of the site.

Purpose: As it is the intention of the Elliot Lake Retirement Living group to develop several hundred acres of lakeshore property along the southern shore of Elliot Lake, an archaeological assessment was required. Given that the area was part of the traditional lands of the Mississagi (albeit primarily to the north of the Lake), its location on the shores of one of the largest lakes in the region and given that this particular property includes a prominent peninsula which juts northward into the lake, the potential for cultural values being located on it was very high. This assessment was based not only on the predictability modeling of the Ministry of Culture, but also additional criteria used by Horizon Archaeology.

Methodology: Horizon Archaeology was commissioned to study the area to determine if the construction of the first phase of the housing project (some 100 acres) would damage or destroy areas of cultural interest. A Stage 1 assessment of known sites in the area was undertaken. A Mississagi sacred site has been noted on Sylvain Island some 1.8 kilometers ENE of the subject property. This Island is also identified on the 1:50,000 topographic maps as Sylvah Island. It appears that this is a spelling error. A review of the available literature indicates that the Mississagi were active along the north shore of the Lake, but especially around Quirke and Dunlop Lakes and the Serpent River, as well as to the west along the Mississagi River which flows into the North Channel of Georgian Bay. Annual trading trips were made via the river to the North Channel (Various, Jewel in the Wilderness: A History of Elliot Lake, p. 7). Champlain's map of the area confirms this presence. A reference, "Until about 150 years ago, a First Nation village was located on the shore of Elliot Lake" (Kevin McSheffrey et al., Discover Us, The Standard, 2005, p. 4) proved upon follow up to be a publication error. Thor Conway was very active in this area in the 1980's. However, there is no reference to cultural values having been located near the subject property. Three sites have been registered with the Ministry of Culture and appear in their

BACKGROUND DATA

Archaeological Licence Regulations

Recommendations: Any recommendation made in this report are subject to approval by the Minister responsible for the Ontario Heritage Act, R.S.O. 1990. Pursuant to Section 65(1) of the Act, it is required that the licensee shall include in any report the following: a statement of impacts that the proposed undertaking may reasonably be expected to have upon archaeological heritage, any recommendations made to the proponent regarding the protection, preservation or conservation of archaeological heritage in the area of the undertaking, and a statement of the reasons for those recommendations.

Site Record Form: Every newly discovered site must be recorded on an Archaeological Site Record Form. Each site revis ted or previously recorded must be documented on a Site Update Sheet.

Prior Notice: The licensee must, before initiating field work on a particular undertaking, provide the Ministry of Culture with notice concerning the identity of the proponent and/or contractor, the identity of the Project Director, the nature, purpose, location, duration and extent of the planned field work, the anticipated staffing of the project, and the details of special arrangements or conditions of the contract. Before commencing field work, the licensee must receive confirmation of receipt of this notice from MOC.

Human Remains: An archaeological licence does not authorize disinterment of human remains. Disinterment must be conducted in compliance with the Cemeteries Act, R.S.O. 1990, C.C.4 and the Ministry of Consumer and Commercial Relations.

Deeply Buried Remains: This report also notes the possibility of additional deeply buried cultural remains. Should such occur during this project, the proponent is required to immediately cease work and contact the Ministry of Culture at the above noted address. It is also requested that Horizon Archaeology be contacted concerning this discovery.

Archaeological licenses are issued pursuant to the Ontario Heritage Act, R.S.O. 1990, C.O.18, and are subject to the provisions of this Act. Licences are not transferable.

Under archaeological licence regulations, three copies of this report must be submitted to the Ministry of Culture (MOC) within one year of undertaking the archaeological fieldwork.

database. However, all are at least 10 kilometers north of the property. None have been registered in the adjacent western Borden block CcHq.

A Stage 2 investigation was undertaken over a four day period by Horizon Archaeology. Access to the area was from an area known as The Old Beach (see Map). A walking trail follows the shoreline of the Lake while a cross country ski trail runs somewhat parallel to the Lake, but further inland. Although the area is fairly heavily wooded, it was possible to surface survey much of property with relative ease. The forest shows clear evidence of logging activity, a common occurrence throughout almost all of Northern Ontario. The soils are thin and of poor quality. Gneiss bedrock outcrops are common and most of the property shows evidence of glacial deposits in the form of large and medium sized rocks. Few, if any, pockets of well drained soil were observed. Given the nature of the terrain, its rocky nature and undulating topography, test pitting had to be done on a random, rather than a strict interval basis.

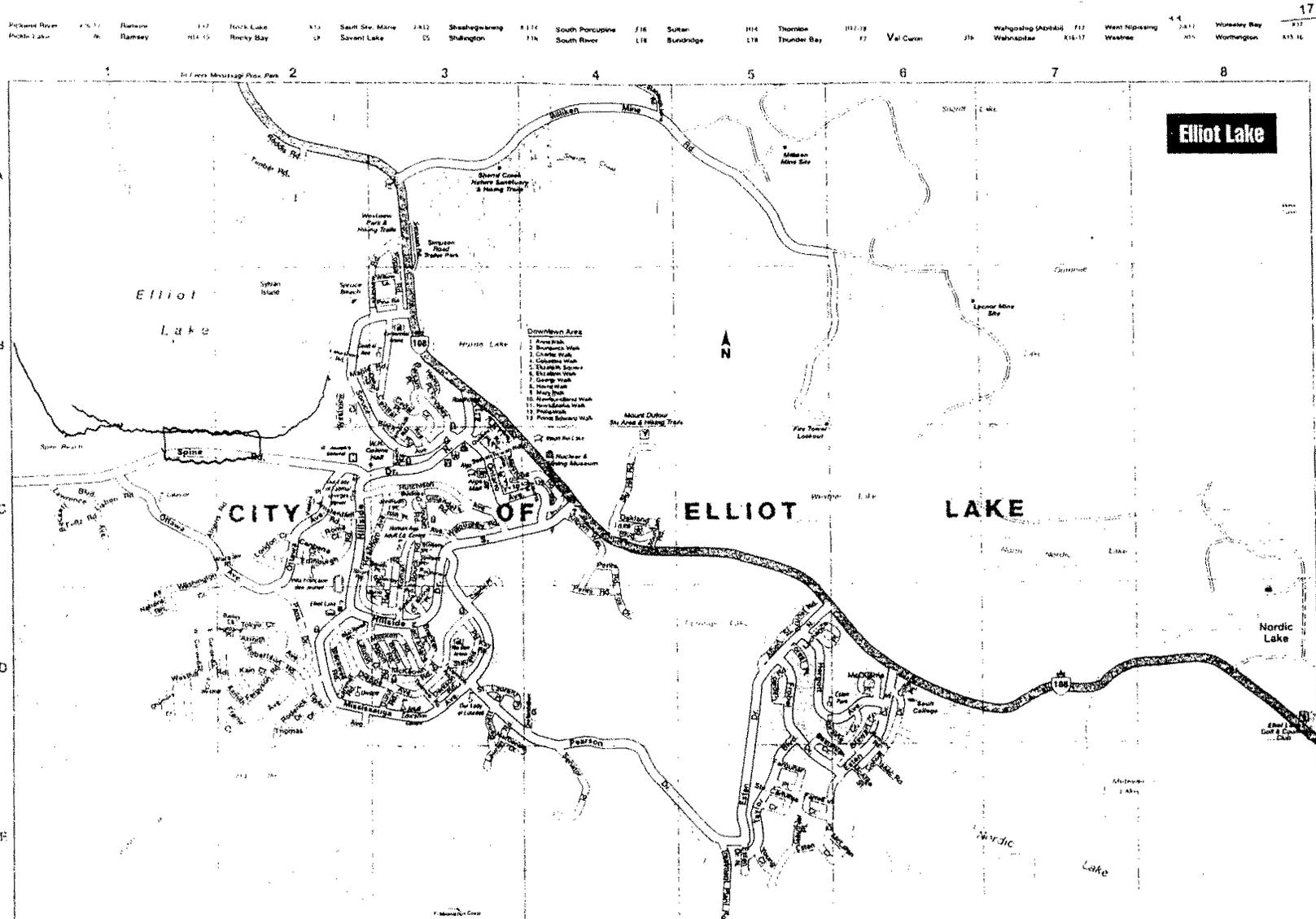
The results of the surface survey and test pitting indicated that there are no areas in this portion of the property which contain cultural values. Study of the areas along the shoreline show that there is an immediate rise from the water's edge of some 4-6 meters. The shoreline is also very rocky which would have made landing a canoe and scaling up the cliffs rather difficult. In order to confirm this, the author made use of a boat and approached the shoreline from the Lake side. Not only were the observations confirmed, but it can be suggested that prior to the middle of the 20th century, when a dam was built on the western end of the Lake, the water level was some 3 meters lower, thus making the gradient that much steeper. Finally, as noted above, if a prime location for an archaeological site is to be sought, the natural location would be The Old Beach. Not only is it immediately adjacent to the subject property, but is a natural sand beach of significant length (over 100 meters) with a gentle gradient. Furthermore, the peninsula which dominates the subject property would have provided a very useful buffer from the predominant west and northwest winds. Unfortunately, the construction of the beach and the raising of the Lake's level would suggest that any cultural values have either been destroyed or remain under several feet of water.

Recommendations: In the opinion of Horizon Archaeology, there appears to be no evidence of cultural values on this portion of the property. Therefore, it is suggested, subject to any other studies which may be required, that Phase 1 of the housing development be approved to proceed.

Report Authors: Dr. David J.G. Slattery

Field Visit: Dr. David J.G. Slattery

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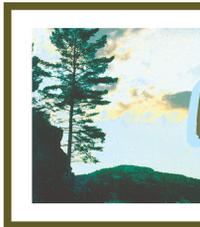
MapArt

Full colour digital maps of Ontario. Multiple zoom levels from 1:50,000 to 1:10,000 street names, point shopping centres & works with Microsoft Windows.

Ontario Street

Western

MapArt Publishing Co.



Elliot Lake

Spine Road Development Community Master Plan Report

Appendix D The Economy of Elliot Lake: The Challenge of Revival



**The Economy of Elliot Lake:
The Challenge of Revival**

**Submitted
to
Elliot Lake Retirement Living**

**by
Econometric Research Limited**

September, 2007

Introduction

Many communities are known for their dependence on a dominant activity. This activity is often resource-based such as mining, forestry or tourism. These communities have typically found it difficult when the dominant activity is scaled down or phased out. Unemployment rates rise; population declines as families move to seek employment elsewhere.

Communities dependent on resource extraction or resource-based activities have traditionally suffered from the "boom and bust" cycles of fluctuating resource prices and the availability and access to resources. These cycles are not strange to Elliot Lake. The community went through pronounced fluctuations in the 70s and 80s. The 1990's have compounded earlier difficulties with a new set of challenges. The Free Trade Agreement, NAFTA, and the GST, increased environmental concerns, industrial restructuring, and a host of new technological impulses have combined to alter the operating conditions and norms of the local, provincial, national and global economies.

Too many communities typically ignore or dismiss the need for economic renewal and diversification until after they have suffered major difficulties that often involve closures, layoffs and population losses. Although community and government interests in, and support for, economic renewal usually increases after a closure or a layoff, it is generally more difficult to kick-start the economy under these conditions of uncertainty and general decline.

Elliot Lake does not depend anymore exclusively on the extraction of natural resources; other economic activities now complement the local economic base. This is not the general case in many northern communities where it is quite difficult to ascertain that their complementary economic activities are independent of the primary extracting sectors. Upstream or downstream activities sustained by mining and other natural resource extraction do not represent, by themselves, necessarily a diversification alternative for the local economy. Alternatively, off-stream activities, which are not directly connected to resource extraction, such as tourism, retirement centres, central services and knowledge based activities could be considered appropriate diversification options for the local economic base. But even these off-stream activities can foster new dependencies and exclusionary structures if they are not themselves complemented by other independent activities.

Elliot Lake has already embarked on a diversification program. This diversification effort is, however, more likely to work if a correct choice of activities is made and if the community were to capitalize on natural comparative advantage or foresight and the collective determination to unshackle their future from the bonds to natural resources. This is necessary but not sufficient, the community must also ensure that the new nexus of activities are diversified sufficiently and do not constitute an exclusive cluster.

Generally there are two major components to accelerating community economic renewal and diversification. The first involves creatively identifying, exploring and

evaluating existing and potential economic opportunities to focus on the ones which have the highest probability of expansion and success. The second component consists of the parallel and ongoing initiatives the community can undertake to create the enabling environment and conditions conducive to economic expansion and entrepreneurship. Both must be co-ordinated into a comprehensive and consistent work plan. This co-ordination process necessitates a comprehensive, up-to-date database of the local economy, inter-regional and international markets. The availability of an analytical econometric impact model capable of processing available information, detailing alternative configurations of the economy and measuring the impacts of complementary and competing activities is also a critical requirement for the success of the co-ordination and restructuring effort.

Econometric Research Limited was retained by the community of Elliot Lake to develop CDIM: Elliot Lake. The model is intended to provide the Economic Development Corporation and other civic institutions in Elliot Lake with a Decision Support System for reviewing a number of development proposals (construction, infrastructure, development projects), current or prospective activities (tourism projects, events, retirement centres, retirees requirements and demands) in terms of a suite of quantitative indicators that measure the economic impacts of positive and negative economic shocks that the community typically experiences on an ongoing basis. It is also intended to measure and ascertain the dependence of the community on the new activities. This is crucial to prevent a development trajectory that replicates a new dependency on a narrow set of activities.

The model is anchored on economic, financial, fiscal and structural data for Elliot Lake. The economic assessment of the community that follows is based on this data set and the use of several model scenarios.

Communities at Risk

Communities in Ontario vary widely in terms of structure, size, performance and potential. But despite this wide variation, there is considerable evidence that peripheral communities share many characteristics. Elliot Lake is typically characterized to belong to the set of communities at risk. But in what sense is a community more at risk than others? What risks do they face? In general they are at risk for five principal reasons. First, they are at risk in the sense of probable economic malfunction and population decline because of their vulnerability to external shocks over which they have little or no control. Most of the activities in these communities are owned by non-residents and they sell in external markets. Second, opportunities in the local economy are so limited that these communities are often unable to retain or attract highly educated workers. The locally generated labour supply lacks diversity and depth due to selective out-migration of many of the highly skilled and talented labour. Third, any decline in demand for their products or resources can generate devastating impacts because of the lack of diversification and the capacity to absorb and mitigate shocks. These communities typically have very few sectors and activities over which to spread the impacts of decline. Fourth, the cost of production in these communities is typically very high because of

limited scale and scope. Their remoteness raises the cost of transportation and the absence of a critical mass of firms in the same or related sectors means that specialized local services and infrastructure to support businesses in the community is lacking and out of necessity must come from outside the community at very high cost. Fifth, the absence of technical and economic linkages with other sectors and regions rob them of the capacity of drawing on other sectors and regions to compensate for the declines in their basic activities.

Table 1
Small Businesses in Ontario Census Agglomerations

Census Agglomerations	Small businesses* (thousands) 2002	Change in number of small businesses 1998-2002	Rank in Canada	Change in CMA/CA population 1998-2002	Rank in Canada
Barrie	3.6	19.2%	2	16.7%	1
Collingwood	0.5	13.6%	4	2.0%	29
Guelph	3	8.5%	9	7.3%	6
Midland	0.8	8.0%	10	0.8%	43
Strathroy	0.3	6.4%	12	2.7%	23
Kenora	0.6	6.2%	13	-2.3%	80
Lindsay	0.6	6.0%	14	1.3%	37
Orillia	1	4.0%	17	3.9%	17
Tillsonburg	0.4	3.8%	18	4.4%	14
Leamington	1.3	2.8%	22	4.7%	12
Peterborough	2.8	2.4%	25	1.5%	33
Brantford	2.3	2.3%	26	1.4%	36
Port Hope	0.2	2.1%	27	0.7%	46
Chatham	1.6	1.0%	32	-1.2%	71
Kingston	3.4	0.9%	33	1.1%	40
Cornwall	1.4	0.4%	35	-1.7%	75
Woodstock	0.8	0.3%	38	1.7%	30
Stratford	0.7	-0.1%	40	1.6%	32
Brockville	1	-0.9%	44	-0.7%	67
Belleville	2.5	-1.0%	45	-0.4%	61
Owen Sound	0.9	-1.3%	48	-0.1%	60
Cobourg	0.4	-2.4%	54	4.2%	15
Haileybury	0.5	-3.5%	67	-4.4%	99
Simcoe	0.4	-3.8%	70	0.4%	52
Pembroke	0.7	-4.2%	75	-3.0%	87
Sarnia	2	-4.8%	77	-1.8%	77
North Bay	1.8	-5.0%	78	-1.2%	70
Timmins	1.1	-5.4%	81	-5.7%	108
Hawkesbury	0.4	-5.5%	83	0.1%	56
Sault Ste Marie	1.8	-5.6%	85	-4.0%	96
Elliot Lake	0.2	-8.6%	100	-8.6%	110

* includes enterprises with between 1 and 49 employees.

Source: BMO (2003) Exhibits 2 and 6.

There is a price/cost premium for almost all goods in remote and isolated communities that arises out of their remoteness (transportation and communication costs) and limited competition in particular in their labour and retail sectors. There is an evident separation between consumers and producers, employers and workers, service providers and clients. This separation is costly and debilitating. These characteristics combine to limit potential and even the Information and Communication Technologies (ICT) cannot compensate sufficiently for these structural constraints.

Is remoteness and economic declines inseparable? Are there ways and means to de-link remoteness from decline? Are there strategies that can transform remoteness into an asset? The answers to these questions are critical for the survival and meeting the challenges faced by remote communities. The way forward depends on understanding the salient features of decline and the requirements for renewal and revival.

Generally these communities tend to share the following basic attributes:

- Small in size in terms of population, labour force, and markets.
- High rates of out-migration.
- Unusual age structures with large proportions of aging population cohorts.
- High dependency ratios.
- Physically separated from main urban centres
- Depend heavily on a narrow set of economic activities.
- Offer limited employment opportunities.
- Weak and disarticulated economic bases.
- Limited scale and high costs of services and production.
- Limited range of public and private services.
- Small and often declining resource base or rural hinterland.
- Limited attractiveness for new capital investment and in-migrants.
- Harsh climates.

These structural characteristics give rise to bi-polar income distribution with many low-income and marginal workers and a few higher income workers in the highly specialized occupations. Labour markets in these communities are dualistic with truncated economic bases manifesting excessive specialization in narrow production or extraction lines. The fiscal base in these communities is tight and often insufficient to support a wide range of social and production services, medical facilities, infrastructure and cultural and recreational activities. Their employment and occupational structures are also truncated in that they are concentrated in only a few sectors and activities and tend to lack jobs in the higher echelons of managerial and professional occupations.

Explaining the causal factors that give rise to these peripheral communities has suggested that their demise is closely linked to their remoteness from major urban centres. Bamford, Dunne and Hugo (1999) have developed an accessibility/remoteness index for 11,338 populated localities in Australia based on their degree of access, typically by road, to one of 200 service centres in the country's urban hierarchy. The index also measures the size of the urban centre to which residents had the most

convenient access. Using statistical regressions they were able to demonstrate that an inverse relationship exists between local growth and the remoteness index. There is no such classification of communities in Canada. The closest we have is the study by McNiven, Puderer and Jones (2000), where they divided the country into zones, called Metropolitan Influence Zones (MIZ). They measured the influence in terms of the intensity of commuting and thus the degree of economic integration with metropolitan CMAs and urban CAs. According to this study much of Ontario qualifies as remote and the degree of remoteness was identified as responsible for explaining the lack of diversification and the degree of poor economic performance. Successful communities are those that can tap into the dynamism of urban centres. The geography of growth is closely linked to the geographical proximity to urban centres. Generally speaking, the more remote and isolated the community, the poorer is its general economic performance but particularly in terms of small business generation. But how can this remoteness be circumscribed and to what extent counter strategies may be used to alleviate and supersede the constraints that remoteness poses.

Below we present a synopsis of the economy of the community of Elliot Lake as a forward towards building a renewal strategy.

The Economy of Elliot Lake

The economy of Elliot Lake is fragile but has the potential to attract more investment, create more jobs and sustain a steady growth path. This potential is anchored on a positive assessment of its future based on an already successful strategy of diversification that needs to be deepened, augmented, regulated and stabilized.

A clear understanding of the dynamic and structural factors shaping the economy is a necessary prelude for developing this strategy. The following dominant features characterize Elliot Lake.

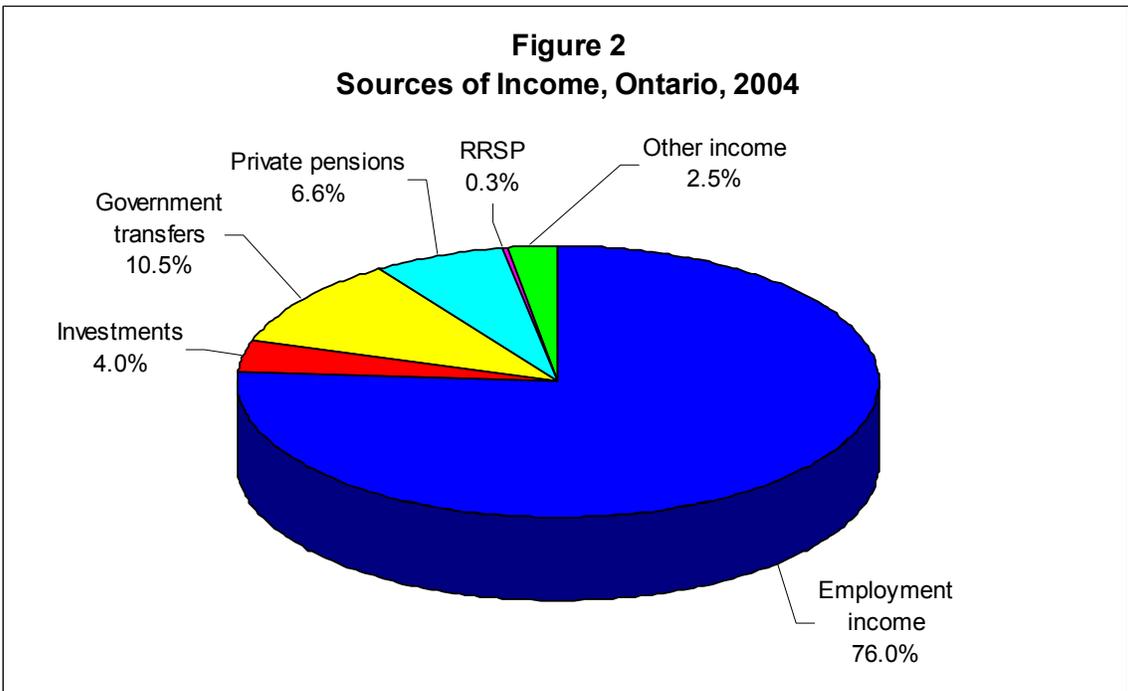
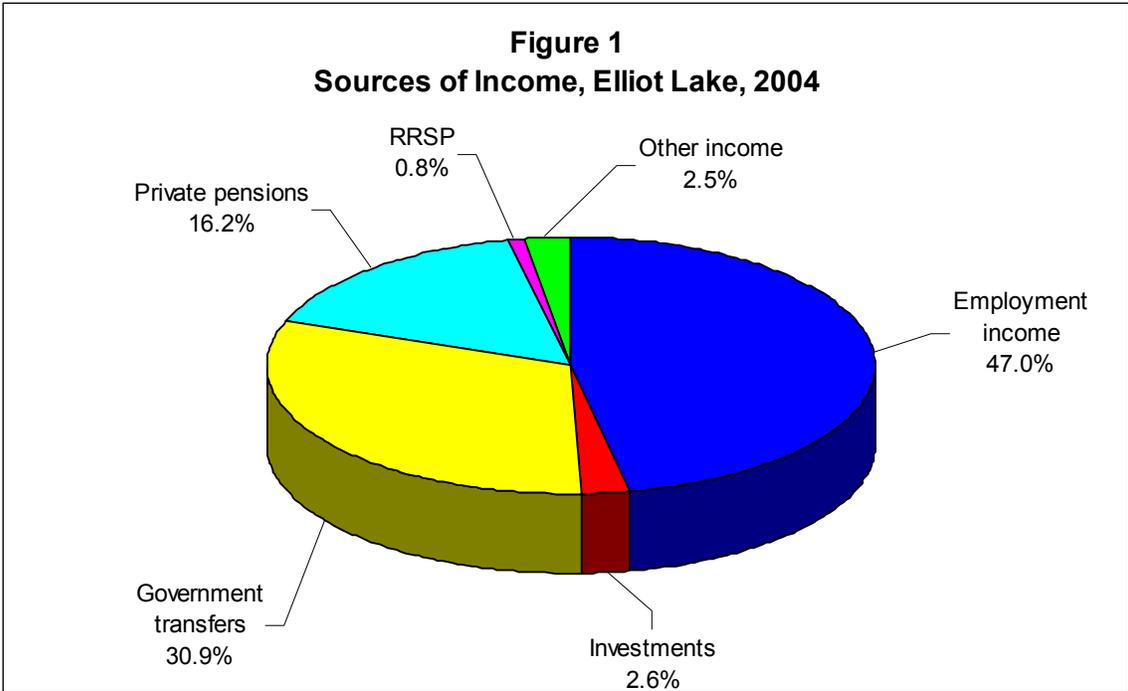
First, a total income of \$249.2 million is estimated for 2004. The major component of this income is employment earnings of \$117.1 million. Two other components are more indicative of the structure of income generation in the community. Government grants account for \$77 million or over 31% of total community income. These grants are primarily Canada Pension and Old Age Security payments. When private pension incomes of about \$40 million are added, a total of \$117 million results, which is equivalent to the employment income in the community (Table 2 and Figures 1 and 2). This high share of unearned income in the total income of Elliot Lake is quite unique to the community. Actually employment income in Elliot Lake is only 0.05% of Ontario's employment income whereas government grants in Elliot Lake are more than 4 times higher in relative terms (0.22% of Ontario's government grants). The implications of these facts are clear; Elliot Lake's income flows are significantly dependent on non-employment income. Looked at this from another side, the economy of Elliot Lake is heavily dependent on its unearned incomes. While this represents an added income flow

to Elliot Lake, increasing the earned component of total income presents a serious challenge for balancing the future economy of Elliot Lake.

Table 2
Sources of Income, Elliot Lake vs. Ontario, 2004

	Elliot Lake		Ontario		Share
Employment income	117,092,000		252,541,399,000		0.05%
Wages/salaries/commissions		108,663,000		232,856,317,000	0.05%
Self-employment		8,428,000		19,685,082,000	0.04%
Investments	6,397,000		13,235,120,000		0.05%
Government transfers	76,926,000		34,730,740,000		0.22%
Employment Insurance		3,829,000		3,695,700,000	0.10%
OAS/Net federal supp.		21,644,000		9,646,614,000	0.22%
CPP/QPP		29,347,000		11,250,081,000	0.26%
CCTB		2,762,000		3,113,449,000	0.09%
GST/HST credit		1,435,000		1,046,258,000	0.14%
Workers compensation		8,753,000		1,835,352,000	0.48%
Social assistance		7,393,000		3,160,676,000	0.23%
Provincial tax credits/Family benefits		1,763,000		982,610,000	0.18%
Private pensions	40,395,000		22,083,428,000		0.18%
RRSP	2,065,000		1,100,085,000		0.19%
Other income	6,300,000		8,402,822,000		0.07%
Total income	249,175,000		332,093,593,000		0.08%
Employment income	46.99%		76.05%		
Wages/salaries/commissions		43.61%		70.12%	
Self-employment		3.38%		5.93%	
Investments	2.57%		3.99%		
Government transfers	30.87%		10.46%		
Employment Insurance		1.54%		1.11%	
OAS/Net federal supp.		8.69%		2.90%	
CPP/QPP		11.78%		3.39%	
CCTB		1.11%		0.94%	
GST/HST credit		0.58%		0.32%	
Workers compensation		3.51%		0.55%	
Social assistance		2.97%		0.95%	
Provincial tax credits/Family benefits		0.71%		0.30%	
Private pensions	16.21%		6.65%		
RRSP	0.83%		0.33%		
Other income	2.53%		2.53%		
Total income	100.00%		100.00%		

Source: Statistics Canada



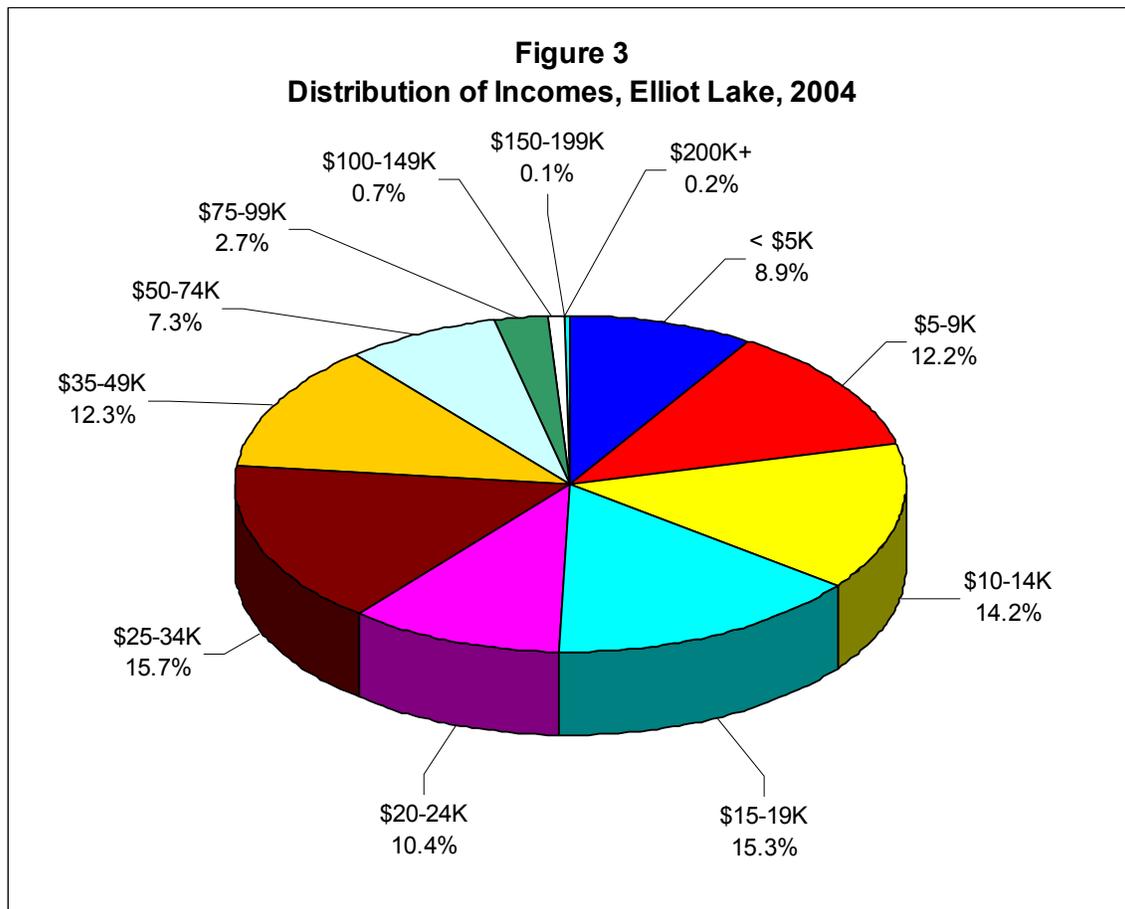
Second, the distribution of income in Elliot Lake is skewed towards the lower levels. The highest group of people are those that earn between \$25,000 and \$34,000. More than 89% of persons in Elliot Lake earn less than \$50,000 (Table 3 and Figure 3).

There are quite a few people that earn less than \$5,000 a year (8.9%) and about a third earn less than \$15,000 a year.

Table 3
All Persons with Income by Total Income, Elliot Lake, 2004

Income Range	< \$5K	\$5-9K	\$10-14K	\$15-19K	\$20-24K	\$25-34K	\$35-49K	\$50-74K	\$75-99K	\$100-149K	\$150-199K	\$200K+	Total
Persons	850	1170	1360	1470	1000	1510	1180	700	260	70	10	20	9600
Share	8.9%	12.2%	14.2%	15.3%	10.4%	15.7%	12.3%	7.3%	2.7%	0.7%	0.1%	0.2%	100%

Source: Statistics Canada



Third, Elliot Lake was in the middle range of the 13,000 and 14,500 population category in Ontario in 1996. It has since slipped to 11,549 losing 3.4% between 2001 and 2006. This population loss is significant given that a few northern communities in Ontario have registered positive population growth between 2001 and 2006. Elliot Lake has to examine carefully its population trends and the reasons for this continuation of population decline (Table 3). The fact that this decline between 2001 and 2006 is lower than that between 1996 and 2001 is comforting but the fact that a decline is still part of the population dynamics of the community remains a problem (Table 4).

Table 4
Population, Elliot Lake and Ontario, 2001-2006

	Elliot Lake	Ontario
Population in 2006	11,549	12,160,282
Population in 2001	11,956	11,410,046
2001 to 2006 population change	-3.4%	6.6%
Total private dwellings ²	6,061	4,972,869
Private dwellings occupied by usual residents	5,647	4,554,251
Population density per square kilometre	16.5	13.4
Land area (square km)	698	907,574

Source: Statistics Canada, 2006 Community Profiles

Table 5
Population, Elliot Lake and Ontario, 1996-2001

	Elliot Lake	Ontario
Population in 2001	11,956	11,410,046
Population in 1996	13,588	10,753,573
1996 to 2001 population change	-12.0%	6.1%
Total private dwellings	6,148	4,556,240
Population density per square kilometre	17.1	12.6
Land area (square km)	698	907,656

Source: Statistics Canada, 2001 Community Profiles

Fourth, there are significant differences between the age structure of Elliot Lake's population and that of Ontario (Table 6). The percentage share of the young population (those between 0-19 years) is 21% in Elliot Lake while in Ontario it exceeds 26.3%. There are more young people in Ontario at large than in Elliot Lake. On the other hand, Elliot Lake has twice the share of old people in its total population (those 65 years and older) than in Ontario. Moreover, the age cohort of 25-44 years old in Elliot Lake is significantly lower (19.8%) than what their share in total Ontario population (30.8%).

Fifth, residents in Elliot Lake appear to move more than the general population of Ontario, but the differences are not very significant. In total 54.6 % of the residents of Elliot Lake lived at the same address 5 years ago, whereas 57.2% of the residents of Ontario did so (Table 7).

Table 6
Age Characteristics of the Population, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total - All persons	11,955	5,730	6,225	11,410,050	5,577,055	5,832,990
Age 0-4	405	200	205	671,250	343,340	327,905
Age 5-14	1,310	665	650	1,561,500	801,355	760,145
Age 15-19	740	370	375	769,420	394,915	374,500
Age 20-24	435	215	215	718,420	359,645	358,775
Age 25-44	2,370	1,065	1,305	3,518,010	1,724,535	1,793,480
Age 45-54	1,660	775	885	1,635,280	801,540	833,740
Age 55-64	2,030	985	1,050	1,064,000	520,565	543,430
Age 65-74	2,065	1,050	1,010	818,165	383,625	434,545
Age 75-84	810	375	440	503,930	202,265	301,665
Age 85 and over	130	35	95	150,075	45,260	104,810
Median age of the population	49.4	49.6	49.1	37.2	36.4	38
% of the population 0-19	21%	21.6%	19.8%	26.3%	27.6%	25.1%
% of the population 25-44	19.8%	18.6%	21.0%	30.8%	30.9%	30.7%
% of the population 65 and over	25.1%	25.5%	24.8%	12.9%	11.3%	14.4%

Source: Statistics Canada, 2001 Community Profiles

Table 7
Mobility Status of the Population, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total population 5 years and over	11,460	5,490	5,965	10,609,755	5,183,200	5,426,555
Lived at the same address 5 years ago	6,260	3,040	3,220	6,067,755	2,951,790	3,115,965
Percent of Total	54.6%	55.4%	54.0%	57.2%	56.9%	57.4%
Lived within the same province/territory 5 years ago, but changed address	4,870	2,320	2,550	3,784,170	1,855,225	1,928,945
Percent of Total	42.5%	42.3%	42.7%	35.7%	35.8%	35.5%
Lived in a different province/territory or country 5 years ago	325	125	200	757,830	376,190	381,650
Share of Total	2.8%	2.3%	3.4%	7.1%	7.3%	7.0%

Source: Statistics Canada, 2001 Community Profiles

Sixth, the school attendance profiles in Elliot Lake are proportionate to those in Ontario with a minor difference in the proportion of those attending full time where the data shows that residents of Elliot Lake show lower shares in this category than Ontario at large (Table 8).

Table 8
School Attendance, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total population 15 years and over attending school full time	915	420	495	1,060,115	519,905	540,215
Age group 15-19 attending full time	595	285	305	570,550	291,735	278,810
Age group 20-24 attending full time	230	90	135	312,470	148,215	164,255
Total population 15 years and over attending school part time	260	100	160	436,730	187,750	248,980
Age group 15-19 attending part time	10	10	-	19,045	9,675	9,375
Age group 20-24 attending part time	10	10	-	57,580	29,190	28,390

Source: Statistics Canada, 2001 Community Profiles

Seventh, the educational attainment in Elliot Lake is glaringly different than the province. In particular, the share of the population aged 20-34 in Elliot Lake without a high school graduation certificate is almost twice as large as the corresponding share in the province. On the other hand the percent of residents aged 20-34 in Elliot Lake with a high school graduation certificate and/or some post secondary education (40.2%) is higher than the corresponding share (33.7%) in the province. Similar trends are observed for those aged 35-44 (Table 9). Those aged 45-64 with a university certificate, diploma or degree in Elliot Lake show a share of 12.2%. The province's corresponding share is 21.5%. These shares are indicative of lower educational attainment in Elliot Lake in comparison with the province particularly in the working age group. This educational deficit in the labour force is particularly evident at both ends of the educational achievement levels.

Table 9
Highest Level of Schooling, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total population aged 20-34	1,230	515	710	2,263,910	1,112,910	1,150,995
% of the population aged 20-34 with less than a high school graduation certificate	24	27.2	21.8	13.2	14.9	11.5
% of the population aged 20-34 with a high school graduation certificate and/or some postsecondary	40.2	42.7	38.7	33.7	36.1	31.5
% of the population aged 20-34 with a trades certificate or diploma	5.7	7.8	3.5	7.9	9.6	6.2
% of the population aged 20-34 with a college certificate or diploma	17.9	15.5	20.4	19.5	16.5	22.4
% of the population aged 20-34 with a university certificate, diploma or degree	12.6	9.7	15.5	25.7	23	28.4
Total population aged 35-44	1,575	705	870	1,949,840	954,260	995,580
% of the population aged 35-44 with less than a high school graduation certificate	29.2	29.1	28.7	17.3	18.8	16
% of the population aged 35-44 with a high school graduation certificate and/or some postsecondary	22.9	17	27	25.6	23.7	27.5
% of the population aged 35-44 with a trades certificate or diploma	16.2	23.4	10.3	11.5	15	8.2
% of the population aged 35-44 with a college certificate or diploma	22.2	20.6	23.6	21.2	18	24.3
% of the population aged 35-44 with a university certificate, diploma or degree	9.8	9.9	9.8	24.3	24.6	24.1
Total population aged 45-64	3,680	1,790	1,885	2,684,705	1,311,380	1,373,325
% of the population aged 45-64 with less than a high school graduation certificate	37.2	34.4	40.1	27.5	26.5	28.4
% of the population aged 45-64 with a high school graduation certificate and/or some postsecondary	19	16.5	21.5	22.9	19.9	25.7
% of the population aged 45-64 with a trades certificate or diploma	14.9	21.2	9	11.6	15.8	7.7
% of the population aged 45-64 with a college certificate or diploma	16.4	13.7	19.1	16.6	13.8	19.2
% of the population aged 45-64 with a university certificate, diploma or degree	12.2	14	10.3	21.5	24	19

Source: Statistics Canada, 2001 Community Profiles

Eighth, labour force indicators reflect the population structure of the community as well as its limited employment base. The overall participation rate in Elliot Lake is quite low. Elliot Lake's participation stood in 2001 at 38% which was less than half the province's rate of 67.3%. With so many old retirees in the population and lower proportions in the working age population, it is not surprising to find such a low participation rate (Table 10). On the other hand, the high unemployment rate is troublesome particularly in view of the low participation rate.

Table 10
Labour Force Indicators, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Participation rate	38%	37.7%	38.2%	67.3%	73.4%	61.5%
Employment rate	33.1%	31.4%	34.6%	63.2%	69.1%	57.6%
Unemployment rate	13%	16.9%	9.4%	6.1%	5.8%	6.5%

Source: Statistics Canada, 2001 Community Profiles

Ninth, the employment structure shows quite low percentages in manufacturing and construction (8.3%) compared to a 22% share for the province. It is also interesting to note that Elliot Lake has a higher percentage share in wholesale and retail trade employment (17.9%) than is the case in Ontario with 15.9% (Tables 11 and 12). Health and education show a share of 22% in Elliot Lake versus 15.1% for the province. Alternatively, Elliot Lake shows a higher share in other services (23.6%) and a lower share in business services than the corresponding Ontario shares of 18.1% and 19.1% respectively. Ordinary services show a much larger proportion in the experienced labour force of Elliot Lake than in the province. This is both a product of a limited industrial base and the high intensity of services required by a non-typical population with high proportions of old aged people. Unemployment rates in Elliot Lake are over twice as high as those in Ontario despite lower labour force participation rates.

Table 11
Industries, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total - Experienced labour force	3,680	1,725	1,955	5,992,765	3,173,280	2,819,490
Agriculture and other resource-based industries	270	255	20	191,020	135,925	55,090
Manufacturing and construction industries	305	265	45	1,316,580	979,715	336,870
Wholesale and retail trade	660	295	365	950,730	484,505	466,230
Finance and real estate	145	40	100	401,445	171,350	230,095
Health and education	835	220	615	902,990	212,830	690,165
Business services	590	320	270	1,145,910	674,075	471,835
Other services	870	325	545	1,084,090	514,875	569,210

Source: Statistics Canada, 2001 Community Profiles

Tenth, the sectoral structure of the labour force influences and is influenced by the occupational structure displayed in tables 13 and 14. Managerial occupations in Elliot Lake show almost an equivalent share to that of the province. The major differences are in Business and Finance and Natural and Applied Sciences where Elliot Lake shows

lower proportions than those in the province and in Health, Sales, Primary Industries and Art where the community shows higher proportions.

Table 12
Industries, 2001, Percentages

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total - Experienced labour force	3,680	1,725	1,955	5,992,765	3,173,280	2,819,490
Agriculture and other resource-based industries	7.3%	14.8%	1.0%	3.2%	4.3%	2.0%
Manufacturing and construction industries	8.3%	15.4%	2.3%	22.0%	30.9%	11.9%
Wholesale and retail trade	17.9%	17.1%	18.7%	15.9%	15.3%	16.5%
Finance and real estate	3.9%	2.3%	5.1%	6.7%	5.4%	8.2%
Health and education	22.7%	12.8%	31.5%	15.1%	6.7%	24.5%
Business services	16.0%	18.6%	13.8%	19.1%	21.2%	16.7%
Other services	23.6%	18.8%	27.9%	18.1%	16.2%	20.2%

Source: Statistics Canada, 2001 Community Profiles

The picture that emerges from this survey of the economic typology of Elliot Lake is of a unique community with very different attributes than any typical or average northern or southern community. But for a community that is economically small with an old, aging and declining population that exhibits lower educational attainment and higher unemployment rates despite low participation rates than the provincial average, is its economic performance commensurate with these unique attributes?

A large set of questions follow from the issue of sustainable economic performance, particularly those that focus on remoteness and lack diversification. With the unearned component of the City's total income is almost as high as the earned component could it sustain its levels of consumption and meet the growing demands of an aging population? The community is heavily dependent on services in terms of its income, employment and occupational structure, yet the community has reversed a serious and catastrophic decline in population and fortunes. What were the forces that reversed the declining trend? How sustainable are these forces? What strategic changes are necessary? How to capitalize on the new nodes of economic activity? How can this community compensate for its remoteness by capitalizing on new linkages with the dynamic urban centres of southern Ontario? What new activities should be envisaged to broaden and deepen its new economic base? To what extent are the new nodes fostering another dependency on external markets and forces? To what extent can Elliot Lake chart a more balanced and nuanced economic growth? These are part of the issues and questions that will be tackled in the next section.

Table 13
Occupations, 2001

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total - Experienced labour force	3,685	1,725	1,955	5,992,765	3,173,275	2,819,490
Management occupations	405	170	235	685,390	434,475	250,915
Business, finance and administration occupations	500	110	390	1,097,835	311,995	785,835
Natural and applied sciences and related occupations	105	100	0	422,510	326,940	95,570
Health occupations	245	50	190	286,305	58,840	227,460
Social science, education, government service and religion	420	170	255	455,825	150,560	305,270
Art, culture, recreation and sport	130	70	60	171,840	79,010	92,830
Sales and service occupations	1,010	290	725	1,371,250	590,350	780,900
Trades, transport and equipment operators and related occupations	600	530	70	845,130	778,735	66,390
Occupations unique to primary industry	160	155	10	164,365	122,555	41,805
Occupations unique to processing, manufacturing and utilities	115	90	20	492,320	319,815	172,505

Source: Statistics Canada, 2001 Community Profiles

**Table 14
Occupations, 2001, Percentages**

	Elliot Lake, City			Ontario		
	Total	Male	Female	Total	Male	Female
Total - Experienced labour force	3,685	1,725	1,955	5,992,765	3,173,275	2,819,490
Management occupations	11.0%	9.9%	12.0%	11.4%	13.7%	8.9%
Business, finance and administration occupations	13.6%	6.4%	19.9%	18.3%	9.8%	27.9%
Natural and applied sciences and related occupations	2.8%	5.8%	0.0%	7.1%	10.3%	3.4%
Health occupations	6.6%	2.9%	9.7%	4.8%	1.9%	8.1%
Social science, education, government service and religion	11.4%	9.9%	13.0%	7.6%	4.7%	10.8%
Art, culture, recreation and sport	3.5%	4.1%	3.1%	2.9%	2.5%	3.3%
Sales and service occupations	27.4%	16.8%	37.1%	22.9%	18.6%	27.7%
Trades, transport and equipment operators and related occupations	16.3%	30.7%	3.6%	14.1%	24.5%	2.4%
Occupations unique to primary industry	4.3%	9.0%	0.5%	2.7%	3.9%	1.5%
Occupations unique to processing, manufacturing and utilities	3.1%	5.2%	1.0%	8.2%	10.1%	6.1%

Source: Statistics Canada, 2001 Community Profiles

The Economic Impact of Elliot Lake Retirement Living Program

Elliot Lake Retirement Living (ELRL) is a major engine of growth and renewal in Elliot Lake. This presumption is based on the many activities and jobs created by the Program in Elliot Lake and elsewhere in Ontario. ELRL operates a number of businesses in Elliot Lake including a state of the art Golf Course, a three stars Hotel and the administration of the Retirement Program that has successfully attracted 1,829 retirees to live in their premises (occupying 1,358 units) and a large proportion of the retirement community (those 55 years of age and older) of 5,730 that do not live in ELRL premises. A good reason to credit ELRL with attracting this volume of retirees is the inordinately skewed age distribution in Elliot Lake compared to the typical age structure in Ontario. In Elliot Lake, 46.5% of the total population is 55 years and older, the corresponding

proportion in Ontario at large is 24.7% (Stat. Can. Census, 2006). The median age in Elliot Lake is 54.8 years while it is 39 years in Ontario.

It is easy to argue that in the absence of the ELRL, the retirement community in Elliot Lake would be a much smaller group. Most of the retirees have been attracted into Elliot Lake from urban centres in south-western Ontario. Their expenditures are incremental “new money” in the Elliot Lake economy. In this sense ELRL has been successful in attracting “year-round tourists” to Elliot Lake that in the absence of the Retirement Living Program may not have come to Elliot Lake at all. Tax filing data in 2004 show a total of \$91.4 million in pension and related income in Elliot Lake. Another \$8.5 million is reported in RRSP and investment income in Elliot Lake in the same year. This adds up to a hefty part of the personal incomes in the community. This source of income in Elliot Lake is almost equal to employment income (about 92%) and represents over 40% of the total reported community personal incomes in 2004. The economic impact of spending this income is significantly higher than its share of 40% of the total community income. This is because the initial impacts are typically poor estimates of total impact. It is not unreasonable to argue that many of the economic activities in Elliot Lake are dependent on the effective demand of the retirees. Few activities in Elliot Lake can be sustained in the absence of the Retirement Living Program. To assess this impact and its quantitative magnitudes a full impact analysis is needed. This is because a dollar spent on operating the Retirement Living Program (i.e., on wages and insurance) circulates and re-circulates within the economy, multiplying the effects of the original expenditures on overall economic activity. This process is referred to as the economic *multiplier effect*. It operates at several levels:

- The initial expenditures of the ELRL on wages and materials are generally referred to as the direct costs of operation and their effects are referred to as the *initial (direct) effects*.
- Subsequent purchases by suppliers of materials and services to sustain the original and derivative expenditures are called the *indirect effects*.
- The *induced effects* emerge when workers in the sectors stimulated by initial and indirect expenditures spend their additional incomes on consumer goods and services.

Some of the key terms and definitions are presented below to assist the reader in interpreting the results of the economic impact analysis:

Initial expenditures – This figure indicates the amount of expenditures directly made by either the Golf Course or the hotel or the retirees or the administration of the ELRL retirement program. It is these expenditures that drive the results.

Value Added (Gross Provincial Income) – This figure represents net output generated by the initial expenditures in the designated province. It is typically the sum of wages, rent, interest and profits in addition to indirect business taxes and depreciation minus subsidies.

Employment – This refers to the total person years (full-time equivalent jobs) generated by the ELRL and its sustaining activities.

Taxes – Our impact system generates a large number of taxes (income taxes, GST, liquor and tobacco, etc.) each of which is linked with the level of government receiving it. For example, the Federal government receives the proceeds from the GST tax, the Provincial government receives the provincial sales tax and the Local government receives both property and business taxes.

Imports – These represent the goods and services acquired from outside the province to sustain the activities of the ELRL. They essentially represent leakages from the province.

Multipliers – These are summary measures that represent the division of the total impacts (direct, indirect and induced) by the initial expenditures. For example, the income multiplier associated with the Golf Course expenditures is calculated by dividing the total income (value added) impact by the initial expenditures. The only exception is that of the employment multiplier where total employment is divided by direct employment in order to preserve the common units.

If the economy is operating at full employment, additional expenditures will most likely reflect themselves in higher prices and wages as additional workers attracted to the site are drawn from other employment. Only if, the economy is operating with excess capacity, some unemployment and slack in critical sectors and there exists no apparent bottlenecks anywhere in the economy, is it possible to claim that the person-years associated with the activity expenditures represent additional or incremental employment. These are precisely the conditions that have prevailed in the study area which allow us to claim that the economic impacts in this study are incremental impacts.

Economic impact analysis is a useful mathematical tool capable of quantifying the patterns and magnitudes of interdependence among sectors and activities. It is predicated on two fundamental propositions:

- First, regardless of the inherent value of primary activities such as preserving a northern community, to the extent that an activity involves the use of scarce resources it generates economic consequences that can be measured and compared.
- Second, economic impacts are only partially captured by assessing direct expenditures. In as much as the economy is a complex whole of interdependent and interacting activities, there are some significant indirect and induced impacts associated with the direct expenditures. These indirect and induced impacts are often larger than the direct impacts.

The Economic Impact Model

The impact model used here is a special application of the CDIM: Elliot Lake developed by Econometric Research Limited. It is a unique model that captures the economic impact of several elements and activities at the local level and at the provincial level. The model is based on a novel technology that integrates input-output analysis and location theory. The CDIM system is part of a family of models developed by ERL that have already been applied to the study of the economic impact of many activities in small and large communities in North-western and North-eastern Ontario and in many other communities in Alberta, New Brunswick and PEI.

The model utilises a large set of economic and technical databases that are regularly published by Statistics Canada. A short list includes the inter-provincial input-output tables, employment by sector, taxes by type of tax and the level of government collecting it, prices of products, energy used in physical and energy units, etc.

The Results

The presentation of results is organised as follows. We first present the economic impact of the ELRL activities divided into operational expenditures which includes those made by ELRL Administration, the Golf Course, and the Hotel. Then we present the impacts of the total retirees' expenditures of those attracted into Elliot Lake by the ELRL Program. We begin by classifying the typical retiree expenditures classified by age group and a proxy for the income level. The latter is taken directly from the Household Expenditure Survey. The total expenditures of the retirees are derived by multiplying the retiree typical expenditures by the number of retirees within the relevant age and income cohort. Furthermore, we group the operational and the retiree expenditures and impacts by eliminating duplicative expenditures. For example 30% of the Golf Course expenditures are assumed to arise from retiree clients and therefore is taken to be already included in the entertainment expenditures of the retirees. We also deduct the rent payments from the expenditures of the retirees' occupying ELRL premises on account of the fact that these are already included in the administration expenditures of the of ELRL Program.

Impacts are presented at both the province wide and community levels. It is reasonable to expect that the community impacts to be smaller than the province wide impacts due primarily to leakages. The latter are a function of the commodity composition of the expenditures; the larger the proportion of services in these expenditures the higher are the local impacts and the smaller are the differences between provincial and community impacts.

Total Operational Impacts

The sum of the operational expenditures of the Golf Course, Hotel and Administrative expenditures of ELRL exceeded \$8.9 million in 2006. A total of \$9.2

million in income is sustained by these expenditures in the province of which \$8.5 million is retained by Elliot Lake (Table 15).

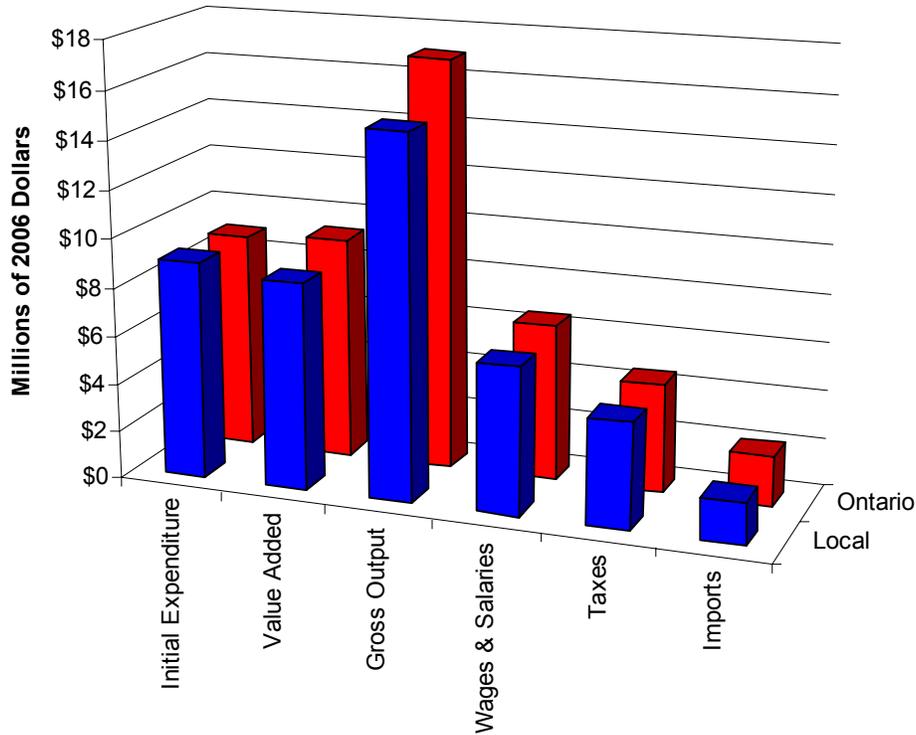
Wages and salaries supported by this program add to \$6.4 million in the province of which \$6.1 million are made in Elliot Lake. This level is rather high and indicates that the Program is labour intensive. A total of 179.3 full time equivalent jobs are sustained in Ontario by these expenditures of which 164 person years were sustained in Elliot Lake (Table 15 and Figure 4).

Table 15
Economic Impacts of Elliot Lake
Retirement Living, Golf Course and Hotel
(2006 Dollars)

	Ontario	Local
Initial Expenditure	\$8,980,500	\$8,980,500
Value Added		
Direct	\$4,674,964	\$4,620,996
Indirect & Induced	\$4,548,637	\$3,942,385
Total	\$9,223,601	\$8,563,381
Multiplier	1.03	0.95
Gross Output		
Direct	\$7,247,500	\$7,247,500
Indirect & Induced	\$9,758,246	\$7,746,065
Total	\$17,005,746	\$14,993,565
Multiplier	1.89	1.67
Wages & Salaries		
Direct	\$3,670,926	\$3,646,770
Indirect & Induced	\$2,811,750	\$2,451,478
Total	\$6,482,676	\$6,098,248
Employment		
Direct	102.0	101.6
Indirect & Induced	77.3	62.3
Total	179.3	163.9
Multiplier	1.76	1.61
Taxes		
Federal	\$1,559,634	\$1,496,754
Provincial	\$995,451	\$964,438
Local	\$1,938,799	\$1,930,031
Total	\$4,493,884	\$4,391,223
Imports		
From Other Provinces	\$1,410,927	\$1,194,761
From Other Countries	\$653,231	\$562,079
Total	\$2,064,158	\$1,756,840

Source: Econometric Research Limited

Figure 4
Economic Impacts of Elliot Lake
Retirement Living, Golf Course and Hotel



The effective direct wage supported by ELRL operational expenditures is about \$35,893, whereas the total effective wage is higher at \$37,207. While the direct wage is about equal to the Ontario average, the total effective wage is slightly higher than this average. This indicates that the indirect and induced wages are even higher than the direct wage. This is perhaps due to the linkages to higher paying wages of accountants, lawyers and other professionals in the community that are indirectly tied to the operations of the Program.

All three levels of government collect revenues on the impacts in Elliot Lake and in the province. A total of \$4.5 million is associated with these expenditures in Ontario of which \$4.4 million is collected on these impacts in Elliot Lake (tables 16 and 17 and figures 5 and 6). The largest share in these taxes is derived by the local government in the form of direct property and business taxes. The direct taxes paid by the ELRL Program exceeded \$1.7 million. The federal government is shown to collect about \$1.6 million on the province wide impacts primarily from Personal Income Taxes (PIT). The provincial government share in these taxes is about \$1 million and again primarily from PIT and Provincial Sales Tax (PST).

Table 16
Province-Wide Tax Impacts of Elliot Lake
Retirement Living, Golf Course and Hotel
(2006 Dollars)

	Federal	Provincial	Local	Total
Personal Income Tax	\$1,176,160	\$576,164	\$0	\$1,752,324
Provincial Sales Tax	\$0	\$289,288	\$0	\$289,288
Goods & Services Tax	\$247,126	\$0	\$0	\$247,126
Tariffs	\$3,149	\$0	\$0	\$3,149
Corporate Profit Taxes	\$133,199	\$90,778	\$0	\$223,977
Property & Bus. Tax	\$0	\$0	\$1,938,799	\$1,938,799
Tobacco & Liquor Tax	\$0	\$39,221	\$0	\$39,221
Total	\$1,559,634	\$995,451	\$1,938,799	\$4,493,884

Source: Econometric Research Limited

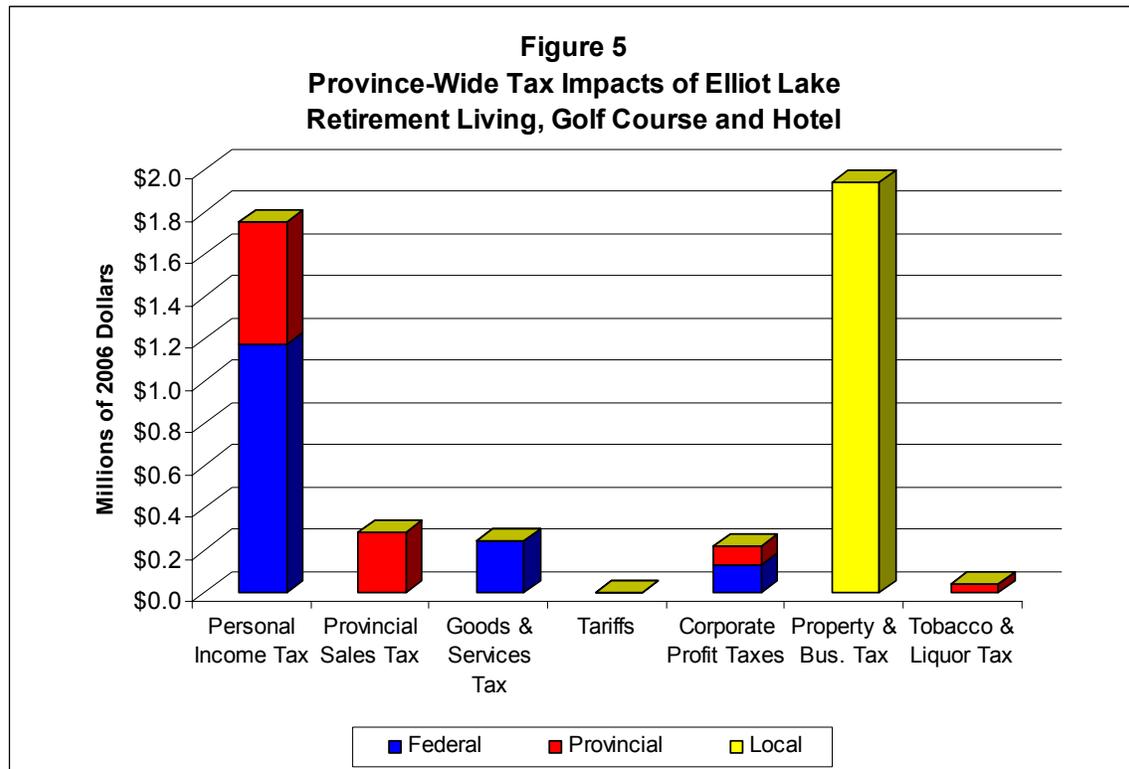
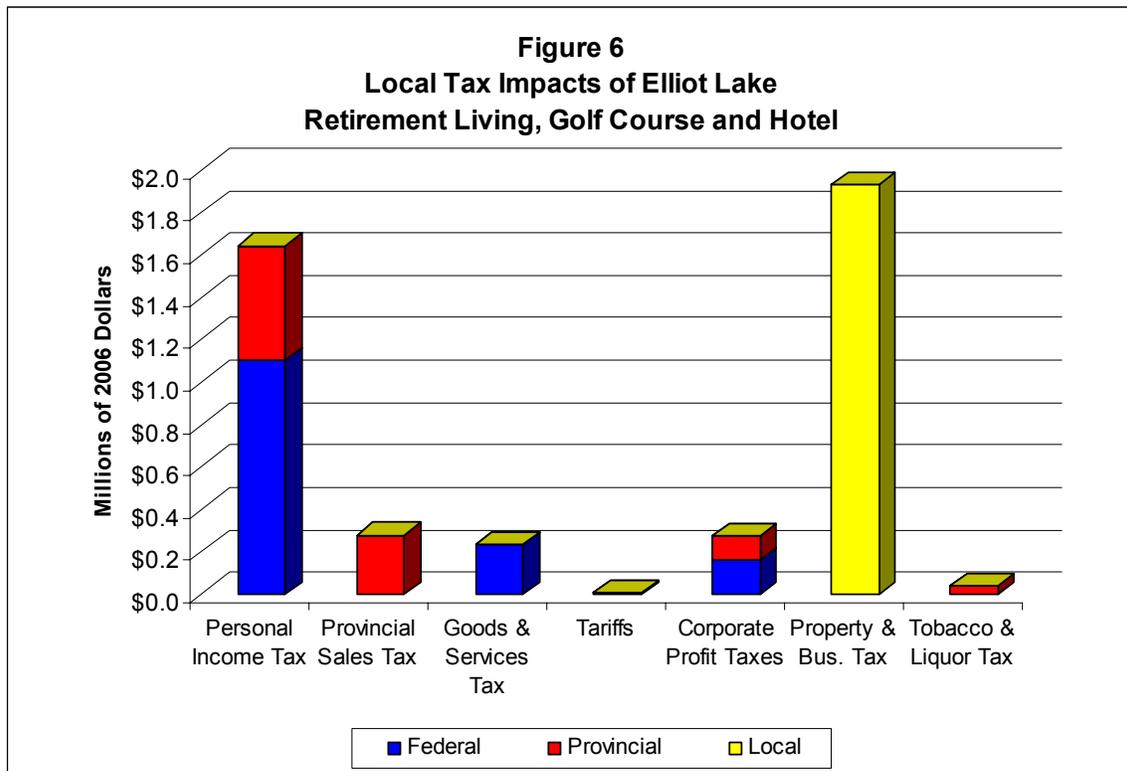


Table 17
Local Tax Impacts of Elliot Lake
Retirement Living, Golf Course and Hotel
(2006 Dollars)

	Federal	Provincial	Local	Total
Personal Income Tax	\$1,101,771	\$539,723	\$0	\$1,641,494
Provincial Sales Tax	\$0	\$276,963	\$0	\$276,963
Goods & Services Tax	\$230,555	\$0	\$0	\$230,555
Tariffs	\$2,727	\$0	\$0	\$2,727
Corporate Profit Taxes	\$161,701	\$110,202	\$0	\$271,903
Property & Bus. Tax	\$0	\$0	\$1,930,031	\$1,930,031
Tobacco & Liquor Tax	\$0	\$37,550	\$0	\$37,550
Total	\$1,496,754	\$964,438	\$1,930,031	\$4,391,223

Source: Econometric Research Limited



There is hardly a sector in Ontario that is not impacted by the program expenditures either directly or through indirect and induced effects. Naturally some sectors show higher employment impacts than others given their closer affinity to the Program. The province wide sectoral employment impacts are presented in Table 18. Employment in the Hotel, Golf Course and Administration is about 68 of full time job equivalent

positions. Trade, construction, operating office, education and health are the sectors with the largest employment impact shares in Ontario. The picture does not change much at the community level. Initial employment at the respective activities operated directly by the ELRL show the highest impacts (Table 18). Operating office, trade, education and health as well as business and computing services are also major recipients of the local employment impacts.

Table 18
Province-Wide Employment Impacts of Elliot Lake
Retirement Living, Golf Course and Hotel
(Person Years)

Agriculture	1.62	Fishing & Hunting	0.04
Logging	0.09	Mining	0.49
Food & Beverages	1.38	Rubber & Plastic	0.70
Primary Textile	0.04	Clothing Industries	0.59
Wood Industries	0.27	Furniture	0.14
Paper & Allied P.	0.39	Printing & Publish.	0.58
Primary Metals	0.35	Metal Fabricating	0.63
Machinery & Equip.	0.33	Transport Equipment	0.85
Electrical Products	0.19	Non-Metal. Minerals	0.24
Petroleum Products	0.24	Chemicals & Chem. P.	0.48
Other Manufacturing	0.44	Construction	11.47
Transp. & Storage	3.79	Communic. & Utilities	5.16
Trade	14.59	Finance, Ins., Real Est.	7.24
Business & Comp. Serv.	11.14	Edu. & Health Services	12.01
Accommodation Services	7.56	Other Services	5.02
Operating Office	17.77	Travel & Marketing	5.19
Transportation Margins	0.63	Households	0.00
Initial	67.64	Total	179.29

Source: Econometric Research Limited

Table 19
Local Employment Impacts of Elliot Lake
Retirement Living, Golf Course and Hotel
(Person Years)

Agriculture	0.4	Fishing & Hunting	0.03
Logging	0.05	Mining	0.25
Food & Beverages	0.69	Rubber & Plastic	0.1
Primary Textile	0.01	Clothing Industries	0.12
Wood Industries	0.16	Furniture	0.06
Paper & Allied P.	0.28	Printing & Publish.	0.35
Primary Metals	0.1	Metal Fabricating	0.13
Machinery & Equip.	0.05	Transport Equipment	0.09
Electrical Products	0.02	Non-Metal. Minerals	0.08
Petroleum Products	0.07	Chemicals & Chem. P.	0.14
Other Manufacturing	0.22	Construction	11.47
Transp. & Storage	3.77	Communic. & Utilities	5.16
Trade	14.59	Finance, Ins., Real Est.	7.24
Business & Comp. Serv.	11.14	Edu. & Health Services	3.8
Accommodation Services	7.56	Other Services	5.02
Operating Office	17.77	Travel & Marketing	5.19
Transportation Margins	0.23	Households	0
Initial	67.54	Total	163.88

Source: Econometric Research Limited

The Economic Impact of Retirees Expenditures

Elliot Lake is home to 5,730 people 55 years or older. The Elliot Lake Retirement Living Program that has successfully attracted 1,829 retirees to live in their premises (occupying 1,358 units) and a large proportion of the retirement community (those 55 years of age and older) of 5,730 that do not live in ELRL premises. In Ontario the proportion of the total population 55 years and older is 24.7%, it is 46.5% in Elliot Lake. If Elliot Lake were to have the same proportion as Ontario of the age cohort 55 and older in the absence of ELRL it should have no more than 2,853 people. The difference between 5,730 and 2,853 of 2,877 persons can easily be attributed to the success of the ELRL program in attracting this additional number of retirees to Elliot Lake.

At this time 1,829 people live in 1,358 units run by ELRL, the remainder are assumed to have been attracted by ELRL but do not live in ELRL units. The expenditures of this additional group are credited to the success of the ELRL and total expenditures by type of expenditure were calculated to represent the inputs to CDIM: Elliot Lake. Expenditures were allocated by age cohort and type of disposable income associated with each age cohort. Knowing that a total of \$93.1 million represents the total public and pension income of the retirees in Elliot Lake we estimated that a total of \$89.5 million

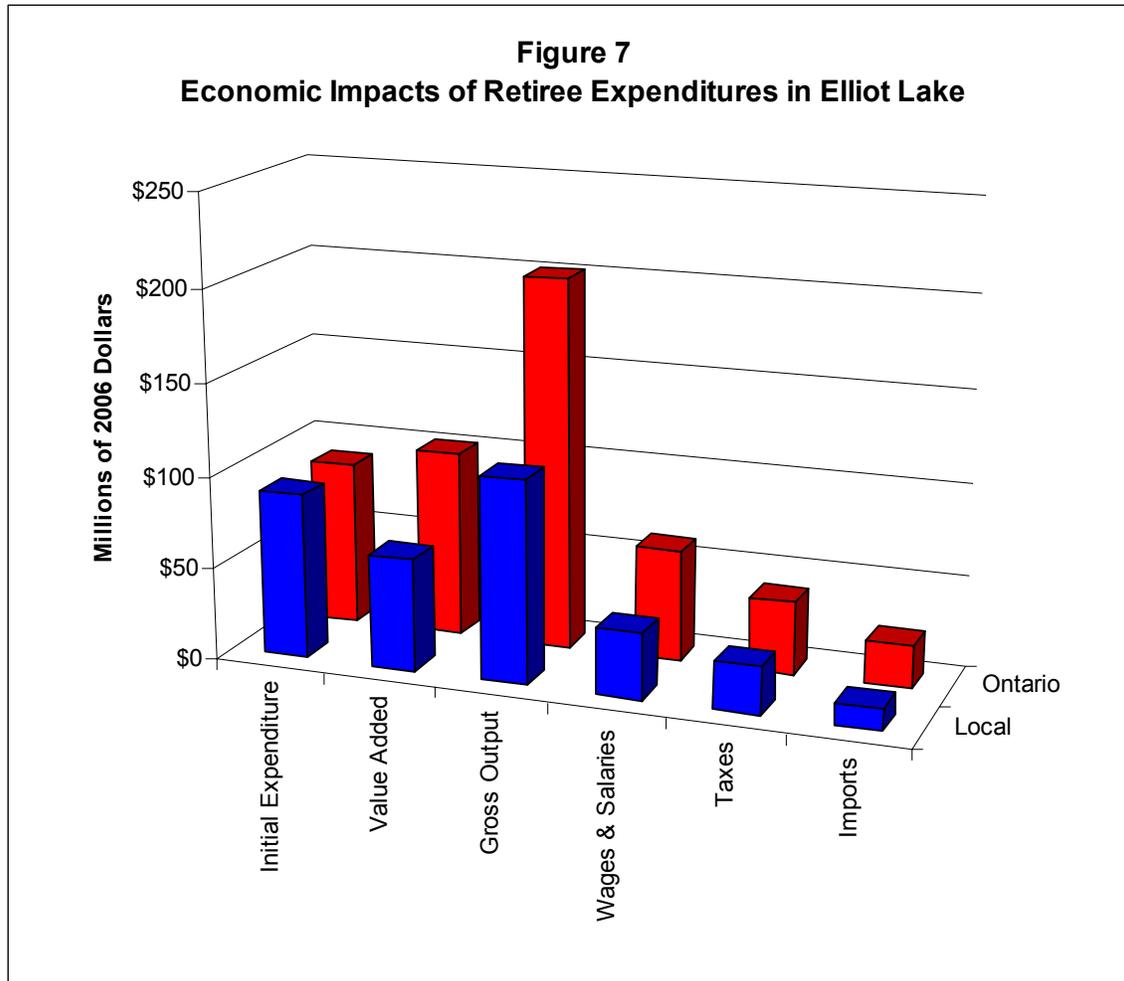
were spent by the retirees attracted or retained at Elliot Lake by ELRL program, facilities and services.

These expenditures sustain a total provincial income (Gross Provincial Product) of \$101 million but only \$61.1 million in Elliot Lake, again because of major leakages as the local economy fails to meet the demands of the retirees for food, equipment, medications, etc from local sources (Table 20 and Figure 7).

Table 20
Economic Impacts of Retiree
Expenditures in Elliot Lake
(2006 Dollars)

	Ontario	Local
Initial Expenditure	\$89,460,242	\$89,460,242
Value Added		
Direct	\$53,305,750	\$18,920,576
Indirect & Induced	\$48,084,047	\$42,190,668
Total	\$101,389,797	\$61,111,244
Multiplier	1.13	0.68
Gross Output		
Direct	\$89,460,242	\$26,479,073
Indirect & Induced	\$111,738,372	\$83,641,383
Total	\$201,198,614	\$110,120,456
Multiplier	2.25	1.23
Wages & Salaries		
Direct	\$30,453,416	\$11,384,500
Indirect & Induced	\$29,718,788	\$24,928,220
Total	\$60,172,204	\$36,312,720
Employment		
Direct	682	264
Indirect & Induced	871	670
Total	1553	934
Multiplier	2.28	3.54
Taxes		
Federal	\$20,266,251	\$12,243,374
Provincial	\$13,186,566	\$8,718,650
Local	\$6,224,497	\$4,885,266
Total	\$39,677,314	\$25,847,290
Imports		
From Other Provinces	\$15,527,283	\$7,740,905
From Other Countries	\$8,171,041	\$4,084,283
Total	\$23,698,324	\$11,825,188

Source: Econometric Research Limited



A total of \$60.1 million in wages and salaries are associated with the retirees' expenditures. Of this \$36.3 million are retained in Elliot Lake. A direct effective wage of \$43,123 is supported by these expenditures in Elliot Lake. The corresponding total effective wage exceeds \$38,879. Both of these wages are relatively high for the local community and both are higher than the Ontario average wage.

More than 1,553 person years of employment are sustained by these expenditures province wide with 934 person years of these are sustained in Elliot Lake (Table 20). The indirect and induced impacts province wide and locally are high proportions of the total employment impact which is indicative of the strong linkages these expenditures maintain with the rest of the local economy.

Again all levels of government raise substantial revenues on the provincial or local impacts. A total of \$39.7 million is raised by the three levels of government on the provincial impacts and \$25.8 million on the local impacts alone. In both cases, the federal government derives the largest share and again principally from PIT (tables 21 and 22 and figures 8 and 9).

Table 21
Province-Wide Tax Impacts of Retiree
Expenditures in Elliot Lake
(2006 Dollars)

	Federal	Provincial	Local	Total
Personal Income Tax	\$12,203,548	\$5,562,573	\$0	\$17,766,121
Provincial Sales Tax	\$0	\$4,470,306	\$0	\$4,470,306
Goods & Services Tax	\$2,466,392	\$0	\$0	\$2,466,392
Tariffs	\$90,515	\$0	\$0	\$90,515
Corporate Profit Taxes	\$5,505,796	\$3,070,211	\$0	\$8,576,007
Property & Bus. Tax	\$0	\$0	\$6,224,497	\$6,224,497
Tobacco & Liquor Tax	\$0	\$83,476	\$0	\$83,476
Total	\$20,266,251	\$13,186,566	\$6,224,497	\$39,677,314

Source: Econometric Research Limited

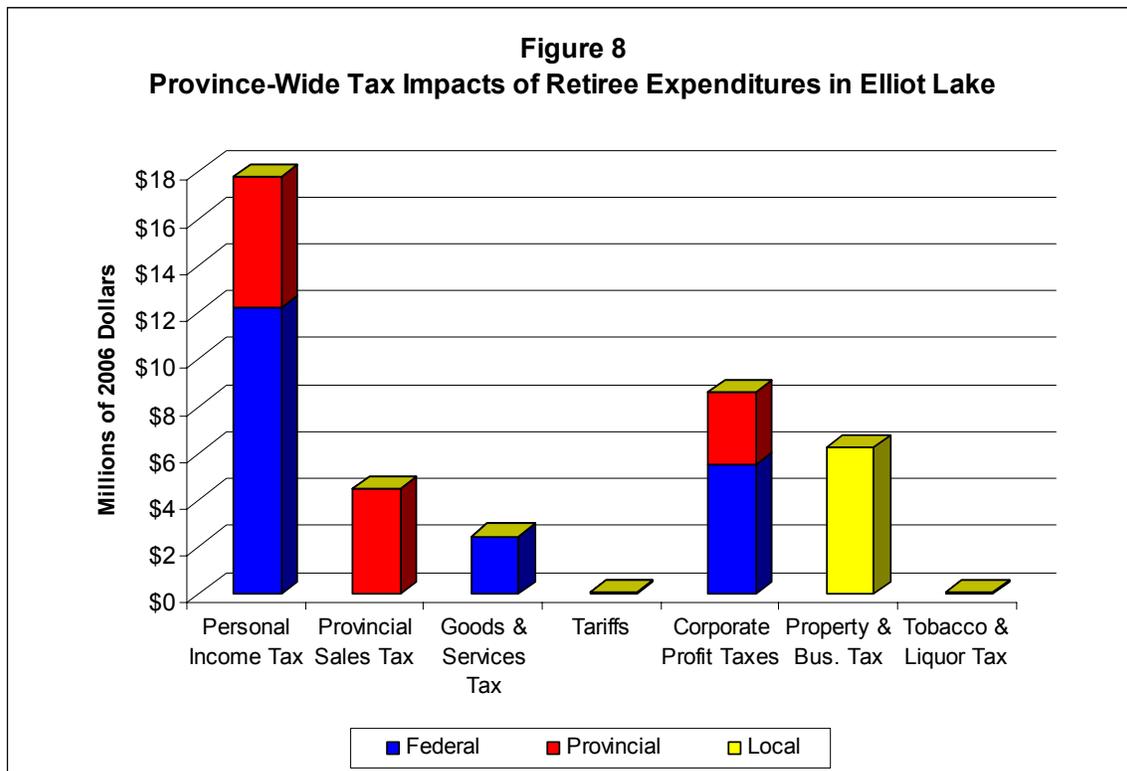
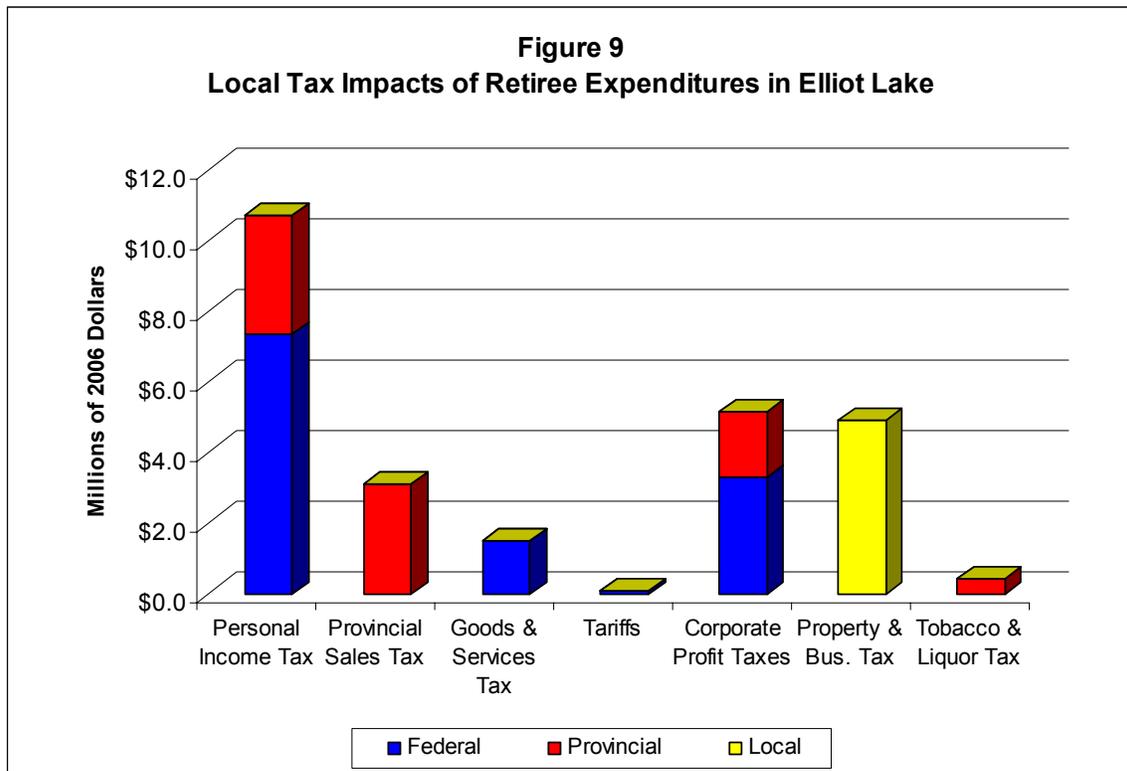


Table 22
Local Tax Impacts of Retiree
Expenditures in Elliot Lake
(2006 Dollars)

	Federal	Provincial	Local	Total
Personal Income Tax	\$7,350,358	\$3,350,410	\$0	\$10,700,768
Provincial Sales Tax	\$0	\$3,098,975	\$0	\$3,098,975
Goods & Services Tax	\$1,508,627	\$0	\$0	\$1,508,627
Tariffs	\$71,832	\$0	\$0	\$71,832
Corporate Profit Taxes	\$3,312,557	\$1,847,189	\$0	\$5,159,746
Property & Bus. Tax	\$0	\$0	\$4,885,266	\$4,885,266
Tobacco & Liquor Tax	\$0	\$422,076	\$0	\$422,076
Total	\$12,243,374	\$8,718,650	\$4,885,266	\$25,847,290

Source: Econometric Research Limited



Household expenditures on food, clothing and services drive the employment impacts. Expenditures on health, finance and insurance, food and beverage, clothing, travel, accommodation, personal and business services clearly result in higher employment impacts in the sectors that meet these demands in the provincial economy (Table 23). A different picture emerges in the local economy given its limited capacity to

meet the demand for products but its relative capacity to provide a reasonable supply of services in situ is noticeably higher (Table 24). It is quite evident from the results in Table 24 that the local community retains higher proportions from employment impacts in the services' sectors but much lower shares of the impacts in the commodity producing sectors.

Table 23
Province-Wide Employment Impacts of
Retiree Expenditures in Elliot Lake
(Person Years)

Agriculture	39.64	Fishing & Hunting	0.59
Logging	0.68	Mining	3.38
Food & Beverages	52.23	Rubber & Plastic	5.47
Primary Textile	0.81	Clothing Industries	70.67
Wood Industries	1.50	Furniture	23.10
Paper & Allied P.	3.94	Printing & Publish.	5.26
Primary Metals	2.29	Metal Fabricating	6.99
Machinery & Equip.	2.11	Transport Equipment	5.70
Electrical Products	1.33	Non-Metal. Minerals	0.88
Petroleum Products	2.64	Chemicals & Chem. P.	14.00
Other Manufacturing	9.76	Construction	15.33
Transp. & Storage	190.35	Communic. & Utilities	24.72
Trade	170.40	Finance, Ins., Real Est.	139.08
Business & Comp. Serv.	132.92	Edu. & Health Services	300.36
Accommodation Services	112.96	Other Services	55.06
Operating Office	79.48	Travel & Marketing	64.50
Transportation Margins	7.23	Households	7.85
Initial	0.00	Total	1553.21

Source: Econometric Research Limited

Table 24
Local Employment Impacts of
Retiree Expenditures in Elliot Lake
(Person Years)

Agriculture	3.96	Fishing & Hunting	0.3
Logging	0.1	Mining	0.34
Food & Beverages	13.58	Rubber & Plastic	0.55
Primary Textile	0.08	Clothing Industries	10.6
Wood Industries	0.37	Furniture	4.62
Paper & Allied P.	0.98	Printing & Publish.	1.84
Primary Metals	0.23	Metal Fabricating	0.7
Machinery & Equip.	0.21	Transport Equipment	1.14
Electrical Products	0.14	Non-Metal. Minerals	0.13
Petroleum Products	0.26	Chemicals & Chem. P.	1.82
Other Manufacturing	2.44	Construction	1.91
Transp. & Storage	150.83	Communic. & Utilities	19.52
Trade	83.22	Finance, Ins., Real Est.	104.95
Business & Comp. Serv.	40.6	Edu. & Health Services	296.32
Accommodation Services	85.52	Other Services	42.75
Operating Office	12.34	Travel & Marketing	45.61
Transportation Margins	1.22	Households	4.73
Initial	0	Total	933.91

Source: Econometric Research Limited

Total Impacts of the ELRL Program

The total impact of the ELRL includes both the operational activities of the Hotel, Golf Course and Administration as well as the incremental expenditures of the retirees. The aggregate impacts are not simply the addition of the two separate impacts because of the several overlaps in the expenditures noted above. ELRL estimates that retirees represent 30% of their clients at the Golf Course. We therefore deducted 30% of the impact of the Golf Course expenditures. We also deducted the rent portion of the retirees' expenditures of those who live in ELRL units on the assumption that the rent is part of the income spent on Administration by the ELRL Program.

Over \$91 million of expenditures are directly associated with the combined ELRL Program. This is the net sum of the operational and retirees' expenditures in Elliot Lake. This volume of spending sustains a total income of \$62.6 million in Elliot Lake and over \$102.5 million in the province (Table 25 and Figure 10). Wages and salaries paid in Elliot Lake by the impacts of these total expenditures is over \$39 million, whereas it exceeds \$62.4 million province wide. A total of 1,046 incremental permanent full time jobs are created in the community and about 1,659 in the province. An effective direct wage of \$39,970 is associated with the total impacts in Elliot Lake. This is slightly higher than the total effective wage of \$37,286. The corresponding effective wages in Ontario

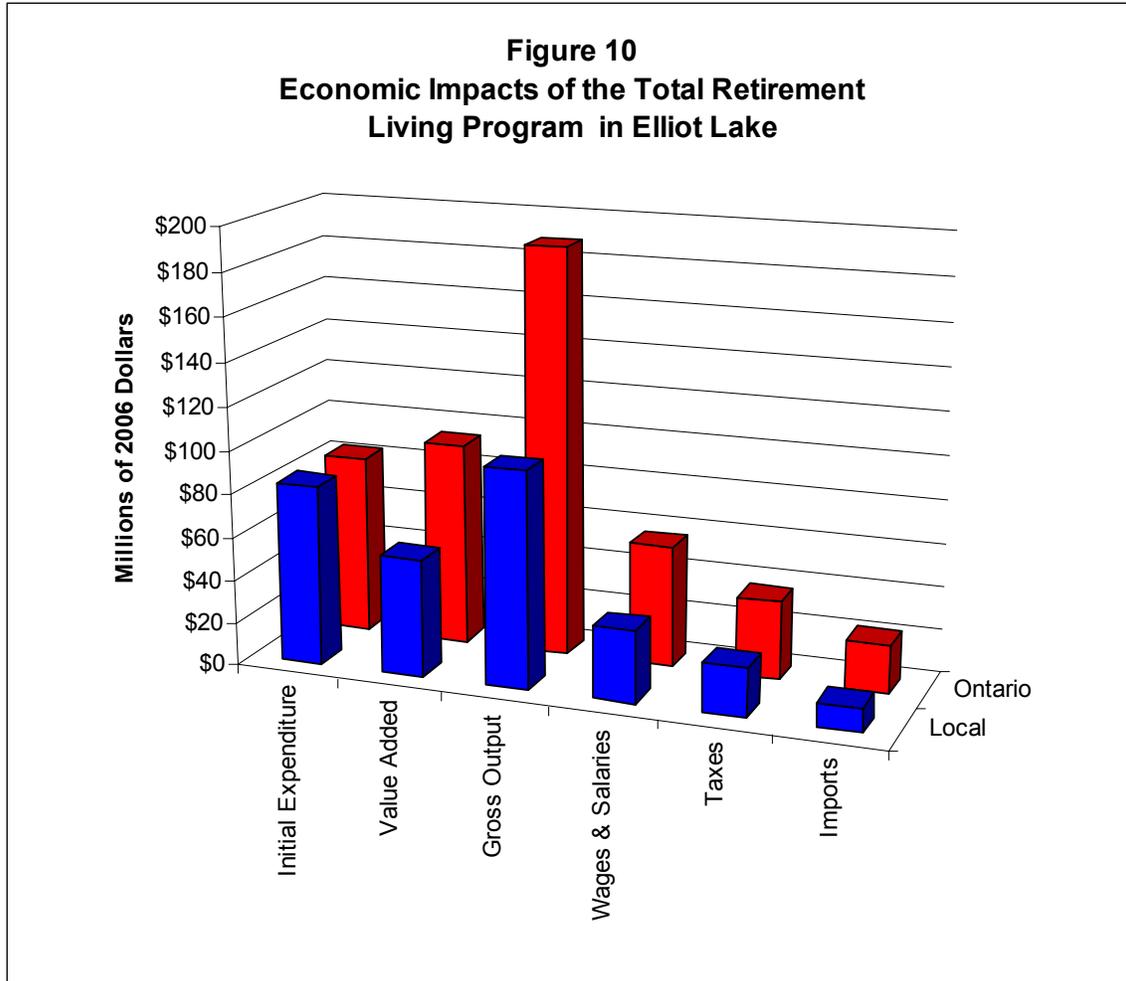
sustained by these impacts are slightly higher than those in Elliot Lake for obvious reasons with \$41,784 and \$37,666 respectively.

Table 25
Economic Impacts of the Total Retirement
Living Program in Elliot Lake
(2006 Dollars)

	Ontario	Local
Initial Expenditure	\$91,894,678	\$91,894,678
Value Added		
Direct	\$52,765,900	\$21,588,133
Indirect & Induced	\$49,756,251	\$41,033,031
Total	\$102,522,151	\$62,621,164
Multiplier	1.12	0.68
Gross Output		
Direct	\$90,161,678	\$31,536,694
Indirect & Induced	\$114,616,879	\$82,785,770
Total	\$204,778,557	\$114,322,464
Multiplier	2.23	1.24
Wages & Salaries		
Direct	\$31,789,074	\$14,125,450
Indirect & Induced	\$30,684,447	\$24,875,670
Total	\$62,473,521	\$39,001,120
Employment		
Direct	760.8	353.5
Indirect & Induced	897.8	692.5
Total	1658.6	1046.0
Multiplier	2.18	2.96
Taxes		
Federal	\$20,262,634	\$12,394,404
Provincial	\$12,925,812	\$8,442,158
Local	\$7,679,380	\$6,360,581
Total	\$40,867,826	\$27,197,143
Imports		
From Other Provinces	\$16,079,202	\$8,327,886
From Other Countries	\$8,422,466	\$4,362,744
Total	\$24,501,668	\$12,690,630

Source: Econometric Research Limited

Figure 10
Economic Impacts of the Total Retirement Living Program in Elliot Lake



Total taxes collected on these impacts in Ontario by the three levels of government add up to a large flow of \$40.9 million (Table 26 and Figure 11), of which \$27.2 million are collected on the community impacts in Elliot Lake (Table 27 and Figure 12).

The Federal government alone collects \$20.3 million annually on the province wide impacts. The corresponding level collected by the federal government in Elliot Lake is \$12.4 million. The Provincial government shows a share of \$12.9 million on the provincial impacts and a total of \$8.4 million on the Elliot Lake impacts. The local government in Elliot Lake is shown to have collected a total of about \$6.4 million.

The principal source of revenues for both the federal and provincial governments is the PIT. The local government in Elliot Lake derives its revenue principally from the property taxes paid directly by ELRL Program.

Table 26
Province-Wide Tax Impacts of the Total Retirement
Living Program in Elliot Lake
(2006 Dollars)

	Federal	Provincial	Local	Total
Personal Income Tax	\$12,537,428	\$5,752,972		\$18,290,400
Provincial Sales Tax		\$4,169,874		\$4,169,874
Goods & Services Tax	\$2,508,374			\$2,508,374
Tariffs	\$91,716			\$91,716
Corporate Profit Taxes	\$5,125,116	\$2,873,806		\$7,998,922
Property & Bus. Tax			\$7,679,380	\$7,679,380
Tobacco & Liquor Tax		\$129,160		\$129,160
Total	\$20,262,634	\$12,925,812	\$7,679,380	\$40,867,826

Source: Econometric Research Limited

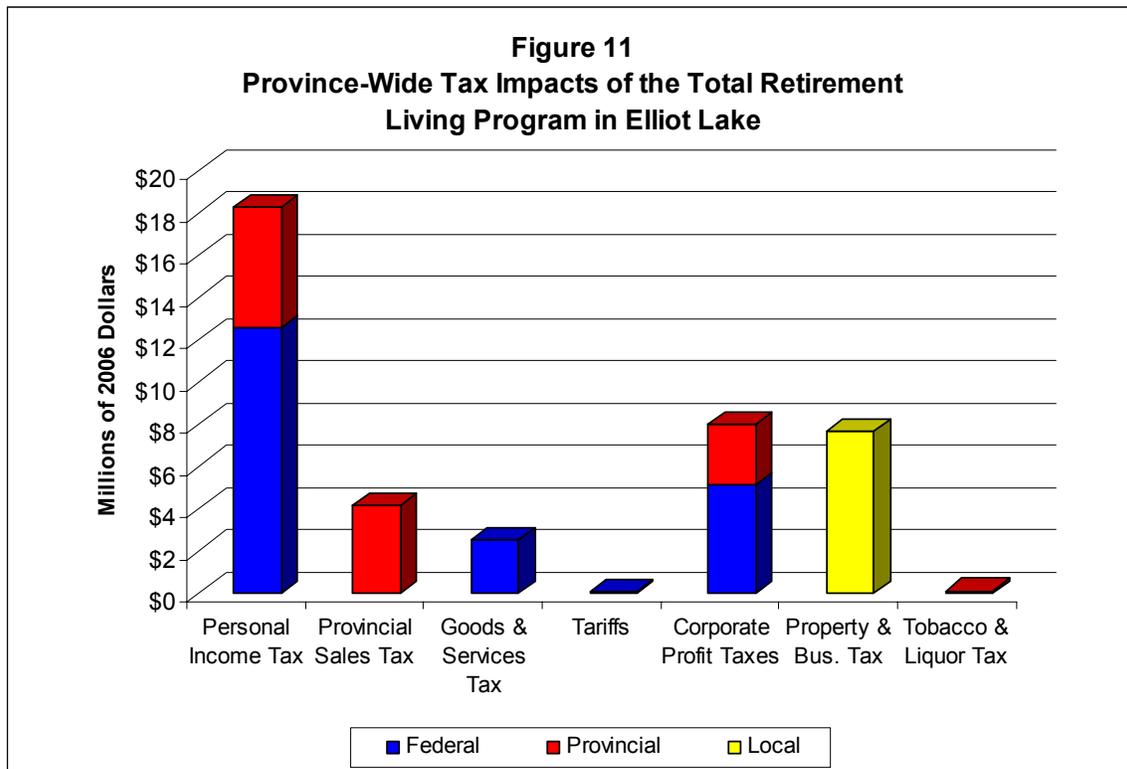
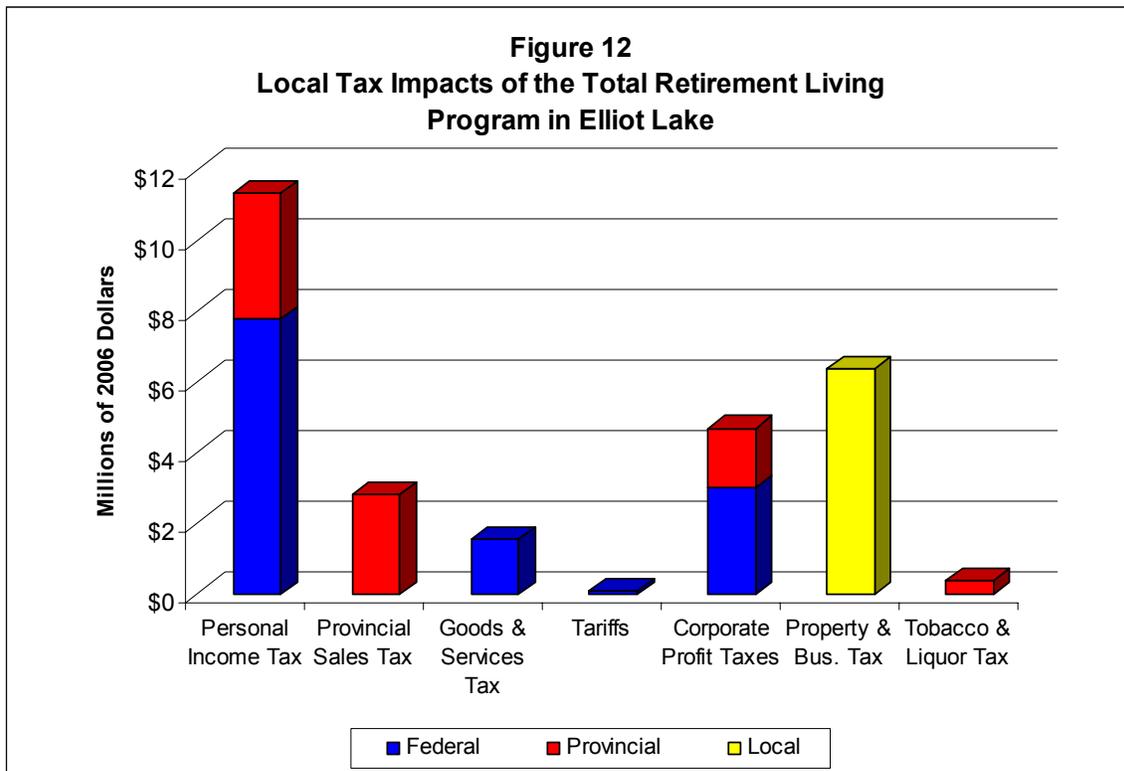


Table 27
Local Tax Impacts of the Total Retirement
Living Program in Elliot Lake
(2006 Dollars)

	Federal	Provincial	Local	Total
Personal Income Tax	\$7,767,605	\$3,576,402		\$11,344,007
Provincial Sales Tax		\$2,796,615		\$2,796,615
Goods & Services Tax	\$1,560,462			\$1,560,462
Tariffs	\$73,175			\$73,175
Corporate Profit Taxes	\$2,993,162	\$1,688,411		\$4,681,573
Property & Bus. Tax			\$6,360,581	\$6,360,581
Tobacco & Liquor Tax		\$380,730		\$380,730
Total	\$12,394,404	\$8,442,158	\$6,360,581	\$27,197,143

Source: Econometric Research Limited



The sectoral employment impacts are diffused throughout the economy but some sectors appear to derive larger shares than others. The sectoral spread of the provincial impacts are naturally wider than the local employment impacts given the richer economic base of the province and its evident capacity to meet the consumer and business demands

sustained by the ELRL Program total expenditures (Table 28). Elliot Lake's economic base is tighter and therefore it is more likely that the services sectors would show higher shares of the employment impacts. This is actually the case in Table 29 that shows that a greater concentration of the employment impacts in transportation, health, education, trade and other services.

Table 28
Province-Wide Employment Impacts of the Total
Retirement Living Program in Elliot Lake
(Person Years)

Agriculture	40.52	Fishing & Hunting	0.62
Logging	0.74	Mining	3.72
Food & Beverages	53.03	Rubber & Plastic	5.94
Primary Textile	0.83	Clothing Industries	71.04
Wood Industries	1.71	Furniture	23.16
Paper & Allied P.	4.18	Printing & Publish.	5.61
Primary Metals	2.54	Metal Fabricating	7.42
Machinery & Equip.	2.35	Transport Equipment	6.25
Electrical Products	1.46	Non-Metal. Minerals	1.06
Petroleum Products	2.76	Chemicals & Chem. P.	14.29
Other Manufacturing	10.01	Construction	24.91
Transp. & Storage	191.97	Communic. & Utilities	29.23
Trade	176.99	Finance, Ins., Real Est.	122.50
Business & Comp. Serv.	136.11	Edu. & Health Services	305.06
Accommodation Services	116.54	Other Services	57.70
Operating Office	92.69	Travel & Marketing	67.59
Transportation Margins	7.63	Households	7.34
Initial	63.10	Total	1,658.60

Source: Econometric Research Limited

Table 29
Local Employment Impacts of the Total
Retirement Living Program in Elliot Lake
(Person Years)

Agriculture	4.27	Fishing & Hunting	0.32
Logging	0.15	Mining	0.57
Food & Beverages	14.08	Rubber & Plastic	0.63
Primary Textile	0.09	Clothing Industries	10.68
Wood Industries	0.52	Furniture	4.66
Paper & Allied P.	1.22	Printing & Publish.	2.11
Primary Metals	0.32	Metal Fabricating	0.80
Machinery & Equip.	0.25	Transport Equipment	1.17
Electrical Products	0.15	Non-Metal. Minerals	0.20
Petroleum Products	0.32	Chemicals & Chem. P.	1.93
Other Manufacturing	2.61	Construction	12.87
Transp. & Storage	153.60	Communic. & Utilities	24.23
Trade	94.24	Finance, Ins., Real Est.	87.55
Business & Comp. Serv.	49.45	Edu. & Health Services	293.31
Accommodation Services	90.12	Other Services	46.06
Operating Office	29.08	Travel & Marketing	49.66
Transportation Margins	1.40	Households	4.32
Initial	63.03	Total	1,045.97

Source: Econometric Research Limited

An Economic Renewal Strategy for of Elliot Lake

While it may be convenient to argue that Elliot Lake economic difficulties in the past can be explained totally by the decline in mining activity, the truth perhaps lies elsewhere. The fact that mining activity alone could have affected so adversely all economic indicators of performance of the City is itself revealing. In this respect the heavy dependence on mining uranium is symptomatic of the general economic malaise in Elliot Lake.

The economy of Elliot Lake today remains generally undiversified but surely to a lesser extent than it was in the 1970s. Few activities remain as the exclusive economic engines of the City. Manufacturing activity is quite limited, disarticulated, traditional, inward looking, and technologically dependent on outside sources and control. Limited technological capabilities are developed or employed within the City, support services for businesses are scarce and entry into the knowledge economy is spotty and rare. The City cannot afford to gamble on "sun set" industries and old Fordist and smokestack manufacturing activities. There is considerable evidence that success in the new globalized world of today is rooted in sun-rise activities of the new economy.

The current economic problems of the City are serious and there is little that a renewal strategy framework can do to deal with them individually or collectively. But an appreciation of what went wrong and that simplistic and borrowed solutions will not suffice is critical for reversing the negative operating mechanisms of the economy and for building the foundations for tomorrow's growth. It is generally believed that a correct diagnosis of the problems and challenges represents 70% of the solution.

There is also a general tendency in the City as elsewhere to underestimate the positive achievements and to exaggerate the negative trends. The City has been successful in arresting decline and has developed a few growth poles against formidable odds. There are still more to be done. What must be avoided are simplistic solutions that tend to exaggerate the implications of one paradigm or another. Most of the tendered recommendations these days involve Neo-Schumpeterian solutions and/or the perpetuation of the mythology of technological solutions. A more balanced, nuanced and eclectic perspective is needed. Below are some of the ingredients of what might work for Elliot Lake.

The City needs a renewal strategy, part of a social project involving its entire population. First and foremost there is a critical need for well defined quantitative targets with pre-determined milestones. One such simple target is to raise the per capita income in the City to the provincial level. It is an easy target to monitor progress towards and very specific measures can be taken to govern its achievement. A few initiatives can help realizing this target. Below are a few prescriptive measures:

The City needs to move to productive activities with high value added. This will increasingly depend on building innovation capabilities, entrepreneurial and technical skills, appropriate educational and research centres, the requisite infrastructure, and a full fledged and deliberate entry into the new economy. To move into high value added and sustainable activities the City must build and strengthen its competitive fundamentals. These call for:

- Empowerment of the business sector and community initiatives through strategic partnerships and by providing the enabling environment to sustain and solidify their participation.
- Adoption of effective policies and promoting institution building to encourage and develop domestic initiatives and co-ordinate the collective community effort to attract more investment.
- Raising and retaining skill levels. The emphasis here should be on building domestic productive capacities that can absorb and train on the shop floor, in the schools and everywhere, the skills of the residents.
- Increasing domestic technological capabilities by attracting and expanding higher education institutions.

- Developing linkages and networks between local businesses and non-local businesses that should be seen as techno-economic laboratories and agents of knowledge creation and dissemination. This is accomplished by helping firms strengthen their internal problem-solving capacities (through skill upgrading and building competencies) and through fostering external linkages to other firms and knowledge producing institutions.
- Increasing the share of the new economy and the knowledge economy. Competitiveness now seems to depend on getting the right information and knowledge to the right place at the right time. This needs a viable and efficient informational infrastructure from Internet connections, to web sites, to satellites, to fibre optics, to governments opening up the information highway corridors.
- Continuous tapping into local talents and dismantling any barriers that preclude the full participation of residents, young and old.

Each one of the elements above can be the subject of an entire research. What is intended here is a general outline of the fundamentals that have to be debated. These are chosen because they are proven ingredients in the success of other advanced and rapidly-developing cities, because they address directly observed weaknesses in the economy of Elliot Lake, because they build on City's strengths as a means to meet the challenges facing them, and because they create large indirect and spin-off benefits throughout the economy.

Focusing on the competitive fundamentals and increasing value added activities that are divorced from natural resource dependency have implications for change throughout the economy - for business, for other sectors, for local, provincial and federal governments, for regional institutions and for the economy and society as a whole. A consistent picture has recently emerged from the diverse literature on technological gaps, information gaps and knowledge gaps. The potential for "catch-up" is there, but is only realized by cities that have a sufficiently strong "social capability", e.g., those that manage to mobilize the necessary resources (investments, education, R&D, etc.) and actors (people, firms, entrepreneurs, government, universities, unions, etc.). These factors should also be seen as complements rather than as substitutes in economic growth.

It is equally crucial to not treat technology as "blueprints" or "designs" that can be bought and sought in the market. Rather it should be treated as organizationally embedded, tacit and cumulative in character, influenced by the interaction between firms and their environments, and geographically localized.

Governments will still have to act in critical areas for catch-up to happen and to have the greatest benefits in strengthening the City's competitive fundamentals:

- Changing the way the City invests for the future: Putting strong emphasis on investing in people, training, information and knowledge.

- Changing the way the public sector relates to the private sector: Emphasizing the development of sectoral strategies, strategic groups of companies, community initiatives and local/regional. Above all removing the impediments on the full participation of residents in all aspects of development.
- Changing the management of the economic change: Finding winners, building on strength and creating flexible systems for a more adaptable economy.
- Building the needed infrastructure in all of its aspects—the physical, the informational, the organizational and technological.

Although the City Administration has an important and vital role to play in this economic renewal process, it cannot alone make the policy work. Everyone must work together to develop an economy with built-in capacity to upgrade and continuously move to higher value added and to the newer realms of the economy. Tapping into the federal programs, provincial initiatives and private Foundations is necessary and critical.

The renewal strategy we are defining is not a budget, or a short-term stabilization policy or even a plan. It is a framework that is intended to create a shared vision and a common sense of direction that shapes the way all segments of the economy and society can work together.

Value added is the difference between an industry's total sales and the cost of raw materials and the goods and services it buys from other industries. The higher the value added, the larger the income that can be shared by business, labour and government. Businesses can increase their value added by becoming more efficient and reducing unit costs. Alternatively, they can produce something that is worth more to their customers. Higher value added activities include continuous improvements in design and engineering, research and development, training, marketing, quality control and customer service. Other activities such as organizational innovations, more work-place flexibility, adoption of the state-of-the-art technologies and reducing cycle times can dramatically reduce cost or material inputs and thereby increase value added. Moving into higher value added is not a one-time event. It should be seen as a process, not a destination. Higher value added is a result of both doing different things and doing them differently. In Elliot Lake, moving into higher value added takes six principal directions.

First, the City needs to move away from exclusive dependence on any one dominant activity. There is indeed higher value added in moving upstream and downstream in the retirement industry. That should be done by exploiting all necessary linkages with health, continuous education, entertainment, sports and tapping into the knowledge base of the retirees, etc. But the City should also increasingly move to off-retirement and activities by developing new nodes of growth and new poles of development. Excellent examples can be in developing high-order centres such as an advanced health centre, expanding the rehabilitation centre, a mining-servicing technology centre, a regional professional

services centre, a multipurpose technology centre, etc. This is needed to diversify economic structures, markets, technological capabilities and skills and to circumvent vulnerability to external shocks and uncontrollable changes in any dominant activity.

Second, the City needs to develop stronger presence in the new economy where industries grow fast, are less volatile and can create new knowledge. Wider and better use could be made of the new Information and Communication Technology (ICT) notably in areas such as e-government, e-business, and e-services. These technologies offer excellent solutions to the problems of communication and delivery of services posed by low population densities, vast distances and remoteness.

Third, we need to emphasize renewable sources of income (sustainability). It is not smart to build industrial foundations on a non-renewable resource that will disappear in the lifetime of our grandchildren. The City has been exceptionally successful in attracting urban retirees. In this sense it was successful in tying into a Metropolitan Influence Zone. By drawing on resources in the dynamic metropolitan zones, the City tapped into this dynamism. This is only one such in-road into the MIZs, a few other avenues may be tapped. Development of reasonably priced cottages for residents of large urban centres is another vehicle. Retreat centres, tourism tours particularly those of the eco-tourism variety, etc. can be examined as possible avenues for exploitation.

Fourth, moving into higher value added will require a lot of research and development effort and placing emphasis on developing technological capabilities. This is precisely what is needed to address a fundamental structural weakness in the City's economy of today.

Fifth, higher education institutions should spearhead this technological transformation process in the City. Technology development need not be solely concentrated in production related activity. It can be anchored on many new niches that the City may wish to consider. Examples include graphic art, photography, etc.

Sixth, attracting a talented and creative pool of people into the City. There is considerable research (Richard Florida (2005) that argues that cities that realized the highest rates of growth were ones that were noted for their ability to attract and retain a creative pool of talent and that this factor is more important and a better explanatory factor than any other growth determining variable.

Recognizing the suggestions above and the fact that upgrading skills of local community members, particularly women and youth, will generate better sustainable outcomes, a Multipurpose Technology Community Centre (MTCC) should be established in Elliot Lake with the aim of providing the local community with access to Information and Communication Technology including Internet access, computer training as well as vocational/technical training programmes that focus on light processing and support services. ICT will provide support for existing and future educational and training programmes to which access will be open to any interested member of the community. ICTs will also be used as basis for embryonic e-commerce, e-government, e-education

activities as well as disseminating awareness on specific health issues with emphasis on retirees as principal beneficiaries.

In order to enhance local community skills and thus open up new employment opportunities, several vocational/technical training packages will be designed and developed as self-contained computer-based courses targeting special topics: (a) a computer-based training course in a specific line of manufacturing with comparative advantage in Elliot Lake; (b) a training course in light products manufacturing; (c) a programme designed to provide training and skill development required for entry-level work to perform a wide range of accounting activities, financial services and investment planning for clients; and (d) a programme designed to provide training and skill development required for performing a range of entry level positions in health sciences, secretarial and office management skills.

Disseminating best practices and modalities in implementing modern technology for development is undertaken within the general Technology Dissemination Programme (TDP) tendered above. This programme together with the MTCC should be launched with emphasis on networking within partner universities and neighbouring communities and funded by appropriate and relevant government programs of which there are a few in Ontario.

It is legitimate to ask whether these prescribed actions can deal with the complex and endemic difficulties constraining the economy of Elliot Lake. Indeed, it is difficult to suggest that following the strategy above would bring about economic success. The prescriptions above are no more than general ideas distilled from the experiences of successful small cities around the world. Nothing substitutes for the collective wisdom of the people of the City working together to chart a better future for their children and beyond.

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