

Key Directions Report for the Northwest Welland Secondary Plan Area



June 2020

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1 Introduction and Purpose



1.1 Introduction

As part of the Northwest Welland Secondary Plan Study, the City of Welland has hired a team of consultants lead by SGL Planning and Design Inc., to undertake the preparation of a Secondary Plan. The study area, as seen in **Figure 1**, runs along Quaker Road and is bound by the City of Pelham and City of Thorold to the north, the rear lot lines of properties along Niagara Street to the east, Niagara College Welland Campus to the south and Line Avenue and Clare Avenue on the west. The Northwest Welland lands comprise approximately 190.3 hectares of primarily rural/agriculturally designated lands.

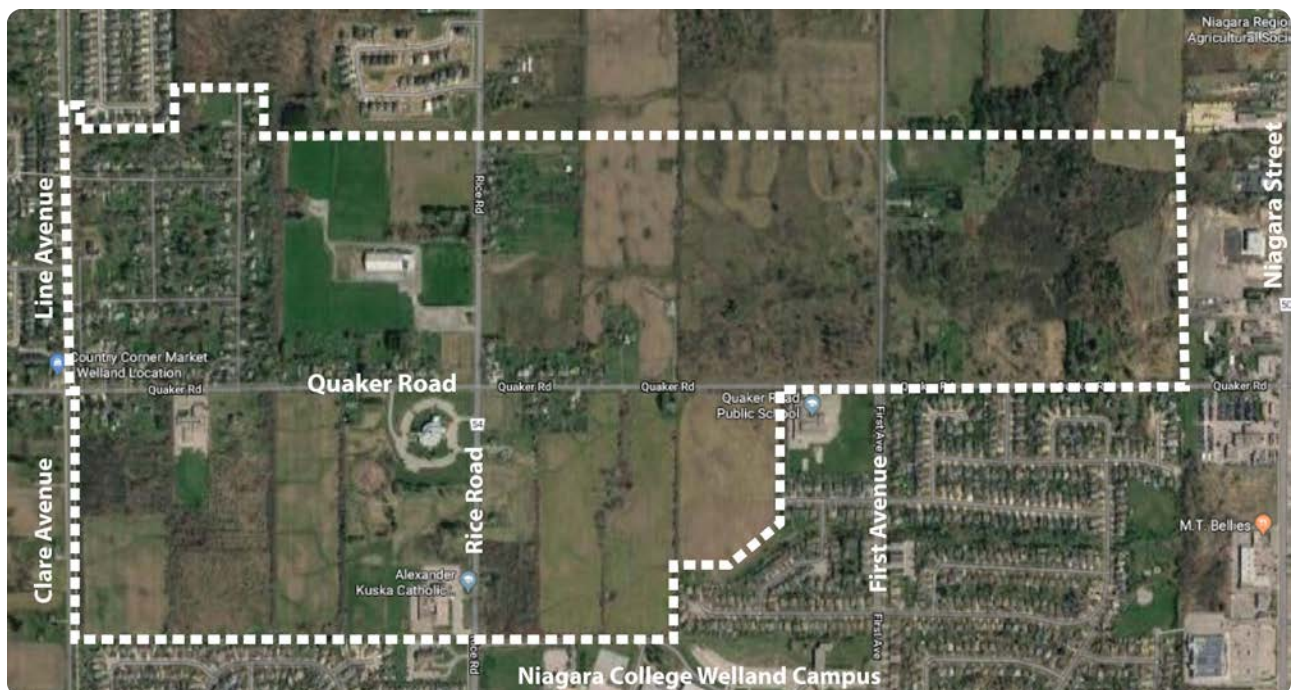


Figure 1: Northwest Welland Study Area Boundary

The City of Welland has accommodated nearly all of its recent growth within its Built-up and Designated Greenfield Areas within an increasing proportion of growth accommodated within the Built-up Area. However, not all of the City's future growth can be accommodated solely in its Built-up Area, and the City has limited lands available for future Designated Greenfield development over the next twenty years.

In 2008, the City prepared a Planning and Servicing Study/Municipal Class Environmental Assessment for the Northwest Welland study area. The 2008 study was

conducted concurrently with the City's Official Plan review and update. However, the decision to modify the City's urban boundary was deferred by the Region of Niagara.

The Region is currently conducting a Municipal Comprehensive Review (MCR), and update to its Official Plan, which will determine the anticipated residential and employment growth to 2041 as well as the need for and locations for settlement expansion. The City is continuing to consult and work with the Region on determining the appropriate population forecast and location for future development to 2041 as the Region finalizes its MCR.

Phase 1 of the study included background studies that assessed the feasibility for development within the Northwest Welland study area and provide rationale for the subject lands being an appropriate location to accommodate the City's forecasted Designated Greenfield Area growth to 2041. The following background studies were conducted by the consultant team during this phase of the study:

- Agricultural Impact Assessment;
- Archeological Resource Assessment;
- Cultural Heritage Resource Assessment;
- Municipal Servicing Study;
- Transportation Study;
- Natural Heritage Study/Environmental Impact Study;
- Floodplain and Natural Hazards Study; and
- Land Needs Study.

Based on the work conducted in Phase 1 of this study, the City has identified the Northwest Welland lands as an appropriate location for future Designated Greenfield development. Details of the Phase 1 work and background studies can be found in the *Rationale for Urban Growth in Northwest Welland*, dated July 2019 and Prepared by SGL Planning & Design Inc. in collaboration with AgPlan Limited, ASI Archaeological and Cultural Heritage Services, Aquafor Beech Limited and Associated Engineering.

As part of Phase 2, Land Use Plan, SGL Planning and Design have prepared this report to document the development and evaluation of two land use options, and selection of the preliminary preferred land use option.

1.2 Purpose of the Report

The purpose of this report is to confirm a preliminary preferred land use plan and provide key policy directions to inform the preparation of Official Plan policies for the Northwest Secondary Plan. This document highlights the preparation of two land use options, the methodology and evaluation of the options and the selection of a preliminary preferred land use plan for the Secondary Plan area. Overviewing the process for the development of the options and their evaluation the report confirms and includes:

- A description of the two land options as set out in **Section 2** of this report;
- The methodology and evaluation matrix as explained in **Section 3**;
- An explanation of the preliminary preferred land use plan as set out in **Section 4**;
- The key policy directions to inform the Official Plan policies as they relate to the to land use and Urban design are explained in **Section 5**; and
- The next steps involved in preparing the Secondary Plan policies and urban design guidelines included in **Section 6** of the report.

2 Description of Land Use Options



This section describes the vision for the Secondary Plan, structural elements, and the proposed land uses for the two land use options for the Secondary Plan Area.

2.1 Vision

The community vision is to guide future growth and development in this secondary plan area in a manner that takes into consideration the character of Welland, transportation infrastructure, servicing infrastructure, and environmental management consistent with Provincial, Regional and Local planning policies and legislation. The vision of this area is to create a residential area with a mixed use node that fits well with the character of existing built form and provides opportunity for a more walkable, transit-supportive community that respects the natural environment.

To achieve the overall vision for these lands, Option 1 maintains the existing residential uses along Quaker Road and proposes a mixed use node adjacent to Quaker Road with its centre at the proposed collector Road and Quaker Road. Option 2 provides medium density residential along the length of Quaker and a mixed use node at the intersection of Rice and Quaker Roads.

2.2 Structuring Elements

Land Use Options 1 and 2 (**Figures 2 and 3**) contain common structural elements such as housing mix, natural heritage system, schools and active transportation network. The common structural elements are described below.

2.3 Common Structural Elements

While the land use options vary, a few fundamental structural elements form the foundation of the Secondary Plan area and are consistent between both options.

Housing Mix and Housing Types

Options 1 and 2 provide for Mixed Use, Medium Density and Low Density Residential housing types.

Natural Heritage System (NHS)

The NHS is the same in the two options and includes significant natural heritage features that are to be protected and maintained. The NHS is based on Aquafor Beech's *Natural Heritage and Natural Hazards Existing Conditions Report*, as part of the Phase 1. The report identified natural areas that merit protection from development and which form a natural heritage system. This same natural heritage system is shown on both land use options.

Schools

As part of the background work in Phase 1, the team identified, through discussion with the Welland Catholic District School Board and Welland Region District School Board, that the existing school sites are sufficient and should be maintained. The specific number of school sites required will be reconfirmed with the School Boards based on the final housing units determined for the preferred option.

As part of both options, it is proposed to reduce the size of the existing school board site to 3.9 hectares to allow for future development.

Active Transportation Network

Both options propose sidewalks or multi-use path and bike lanes as part of the streetscape design for the right of ways on Quaker Road, Rice Road and First Avenue.

2.4 Option 1

Vision

The character of Quaker Road is respected in this option. A proposed mixed use core, adjacent to parks, schools, access to daily needs and access to active transportation creates a walkable community. Parks and trails are easily accessible throughout this community. **Figure 2** identifies the proposed land uses and structural elements of the plan.

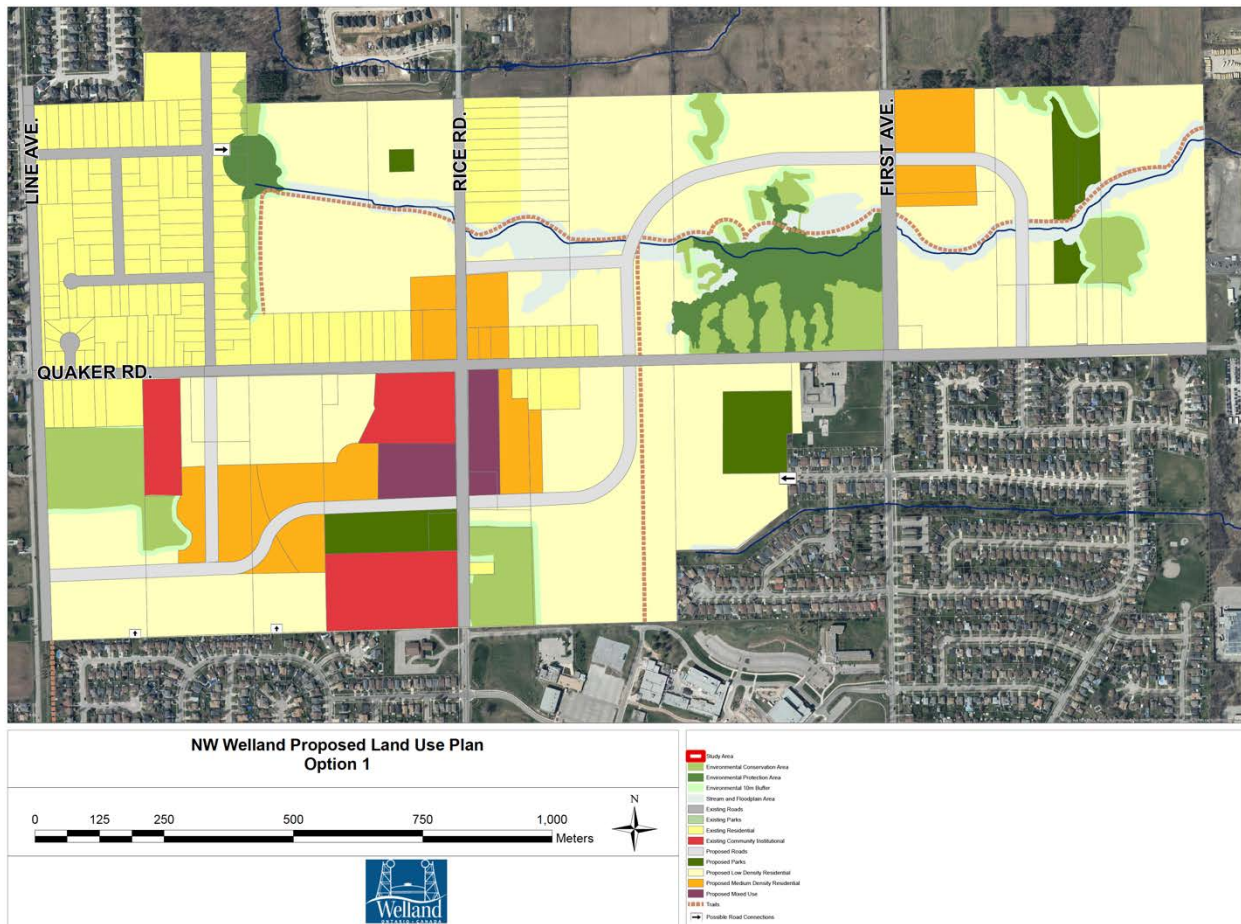


Figure 2: Option 1 Proposed Land Use Plan

Mixed Use

Mixed use runs north south along Rice Road between Quaker Road and a new collector road. On the west side of Rice Road, the proposed land use is adjacent to parkland, medium density residential and existing institutional.

Medium Density Residential

Medium density residential is concentrated around the mixed use abutting a large park in the southern section and two school sites. An additional area of mixed use is located in the north east section of the Secondary Plan area providing an opportunity for residential density that is closely linked to the off road trail system and parkland.

Low Density Residential

Low density residential is proposed throughout the Secondary Plan Area and includes access to a mix of land uses such as schools, parks and trails.

Low density residential is located to the south and east of the existing residential neighbourhood providing a transition to the proposed mixed use area.

Parks

There are five park blocks (three relatively large and two smaller), two of which in combination are directly adjacent to natural heritage features and would act as direct linkage between these features. Two of the large parks are adjacent to existing school sites.

Trails and Connectivity

There is one off road trail running east west located north of Quaker road, and two off road trails running north south that connect to it.

Trail connections are provided to one large park, two small parks and the environmental conservation and protection area, located to the east of Rice Road are provided. The trail that connects to these parks can be accessed centrally within the subject site from Quaker Road and from the western portion of the site just north of Quaker Road.

2.5 Option 2

Vision

In Option 2 character of Quaker Road will be allowed to evolve over time. A proposed mixed use core providing access to daily needs and access to active transportation creates a walkable community. Parks and trails are easily accessible throughout this community. **Figure 3**, identifies the proposed land uses and structural elements of the plan

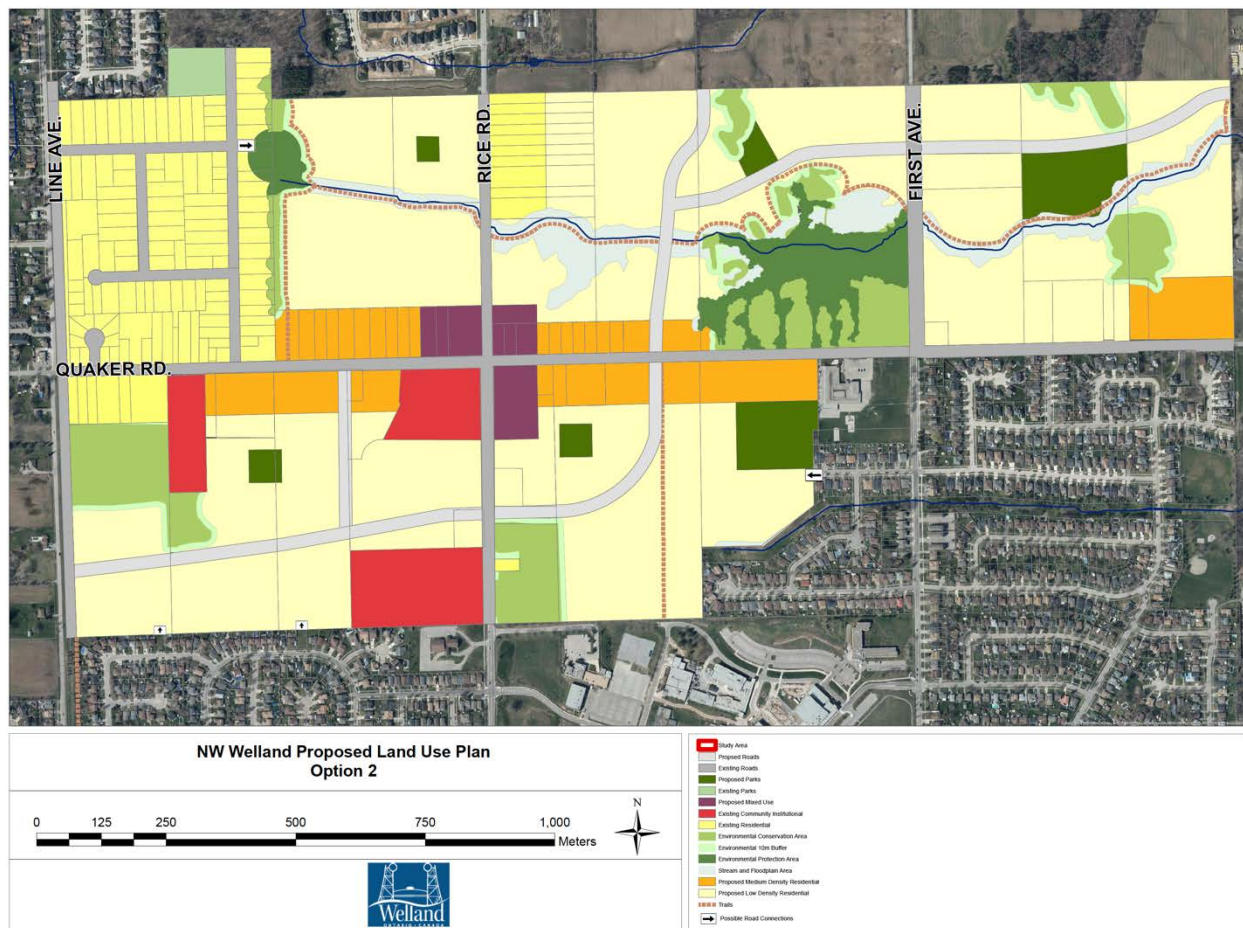


Figure 3: Option 2 Land Use Plan

Mixed Use

The mixed use is located around the arterial road intersection of Rice Road and Quaker Road. Mixed use is located on three corners of the intersection, with existing institutional on the remaining corner.

Medium density abuts the mixed use to the east and west, and low density abuts it to the north and south.

Medium Density Residential

Medium density is located along Quaker Road abutting mixed use, existing institutional, parkland and existing low-density residential.

Low Density Residential

Low density residential is located throughout.

Parks

Six proposed park blocks (two relatively large and four smaller), two of which are directly adjacent to natural heritage features but provide only partial linkage function related to those features due to the proposed location of roads. The remaining parks are not located adjacent or in proximity to existing natural heritage features.

One of the proposed parks is adjacent to an existing easterly school site .

Trails and Connectivity

This option has one off road trail that runs east west, located north of Quaker road, and two off road trails running north south that connect to the east west trail. Trail connections to one large park, one small park and the NHS located east of Rice Road are provided.

3 Evaluation and Methodology of Land Use Options



3.1 Evaluation Process

An evaluation matrix (Matrix) was prepared based on the study principles, background and technical reports, input from public engagement and input from City staff and the Steering Committee.

The principles that guided the evaluation are:

- Respect the Natural and Cultural Heritage;
- Built Form that reflects the character of Welland; and
- Create a healthy resilient community.

The criteria and measured were developed using the principles. The Matrix, attached in **Appendix A**, details the evaluation of the option 1 and 2. A snapshot of the Matrix shown in **Figure 4** shows how the principles, criteria, measures and colours have been used to determine the preferred option for each of the measures.

Table 1: Evaluation of Welland Secondary Plan Options

The following table sets out the evaluation of two options by criterion and measures. The **coloured** legend indicates their evaluation in relation to the measures:

More Preferred	Equally Preferred	Less Preferred
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Principle: **Built, Natural & Cultural Heritage**

Criterion 1) Protection and integration of cultural heritage elements.

Measure	Option 1	Option 2	Preferred Option
1. Ability to minimize road conflicts with cultural heritage features.	The proposed road layout affects two potential heritage properties in the following ways: <ul style="list-style-type: none"> • The road that intersects with Quaker Road between Rice Road and First Ave will cut through the middle of a property that was identified in the Cultural Heritage Resource Assessment as a potential cultural heritage landscape (CHL4). • The extension of Montgomery Street proposed south of Quaker Road, through a property that has been identified as a potential built heritage resource (BHR8). 	The road layout affects one property through: <ul style="list-style-type: none"> • The road that intersects with Quaker Road between Rice Road and First Ave cutting through the middle of a property that was identified in the Cultural Heritage Resource Assessment as a potential cultural heritage landscape (CHL4). 	Option 2 The proposed road layout for Option 1 appears to affect two potential heritage properties, while the road layout for Option 2 only affects one property. Therefore Option 2 is the preferred option.
2. Land uses do not negatively impact Archaeological sites.	No known archaeological sites will be impacted by this Option.	No known archaeological sites will be impacted by this Option.	Equally Preferred Both options will have an impact on cultural resources and present the same level of risk to potential archaeological resources therefore they are equally preferred.
3. Appropriate land use transition can be provided abutting heritage attributes.	Development on or adjacent to potential cultural heritage properties may occur.	Development on or adjacent to potential cultural heritage properties may occur.	Equally Preferred The ability to assess the appropriate land use transitions in relation to potential cultural heritage resources is difficult to assess without an understanding of the cultural heritage attributes of the individual properties, and the massing, style, setbacks and urban design of any new development on or adjacent to the property.

Figure 4: Evaluation Matrix Snapshot

An explanation of the methodologies used and description of the evaluations of the Land Use, Archeology, Cultural Heritage, Natural Heritage, Transportation are provided below. The preliminary preferred plan will also be evaluated based on fiscal impact, a more detailed stormwater and transportation analysis.

3.2 Land Use

Land use for each option were evaluated for walkability based on access to parks and daily needs, active transportation, mix of housing types and ability of each option to meet the density targets.

Walkability was evaluated based on the location of parks and daily needs provided by a mixed use land use to include convenience retail and personal service. Parks were evaluated based on the ability of residents to walk within a 5-10-minute distance, measured by an 800m radius, to parks without crossing and arterial road (**Figure 5 and 6**). Access to daily needs was evaluated based on the ability of residents to walk to the mixed use and measured by a 400 m radius from the centre of the proposed mixed use (**Figure 7 and 8**).

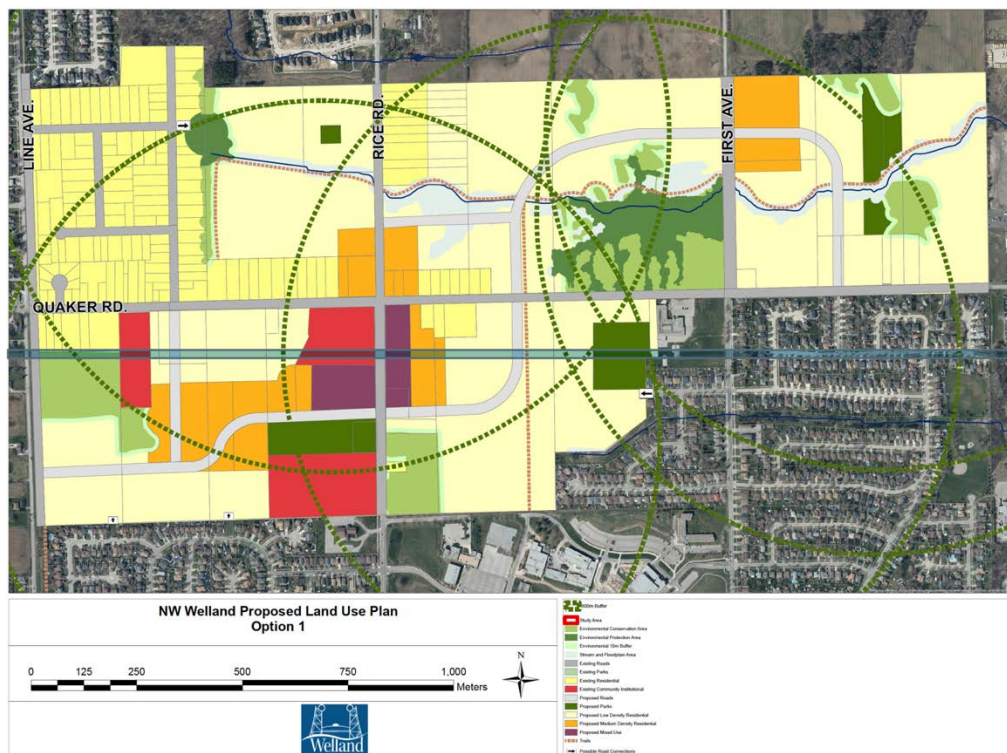


Figure 5: Option 1 - 800 metre walking radius showing access to parks without crossing arterials roads

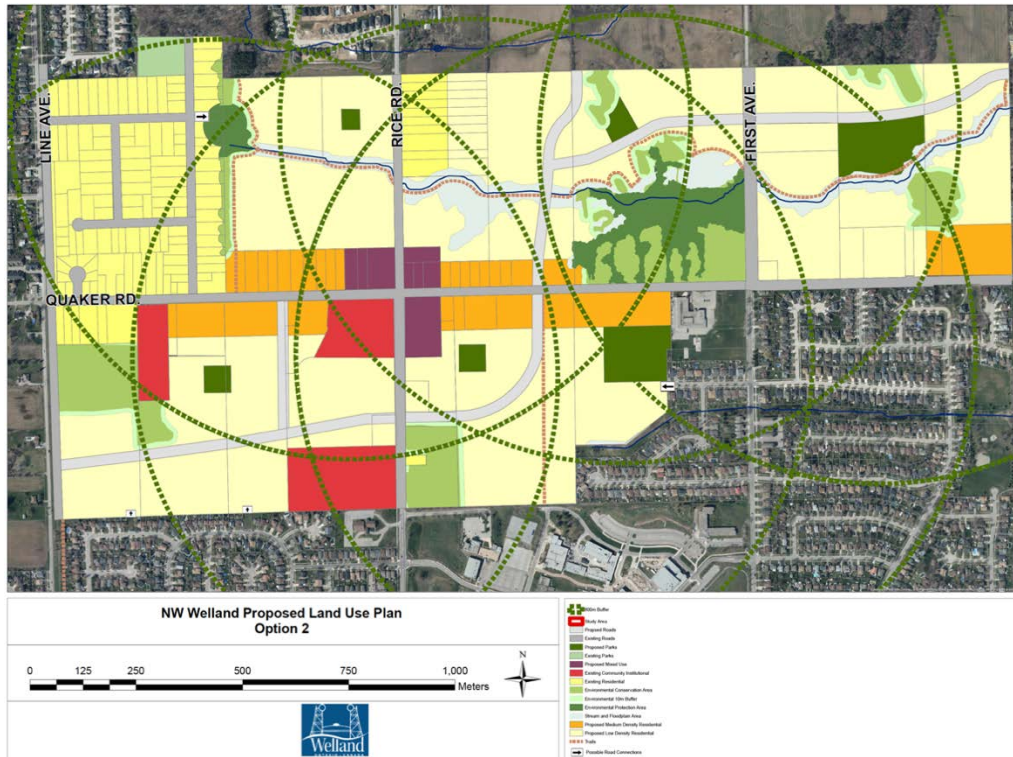


Figure 6: Option 2 - 800 metre walking radius showing access to parks without crossing arterials roads

Based on the results of figure 5 and 6, Option 2 provides all residents access to a park within 800 metres of their homes without crossing an Arterial Road, unlike Option 1 where the residential area north of Quaker Road between Rice Road and First Avenue does not have access to a local park, within 800 metres, without crossing an Arterial Road.

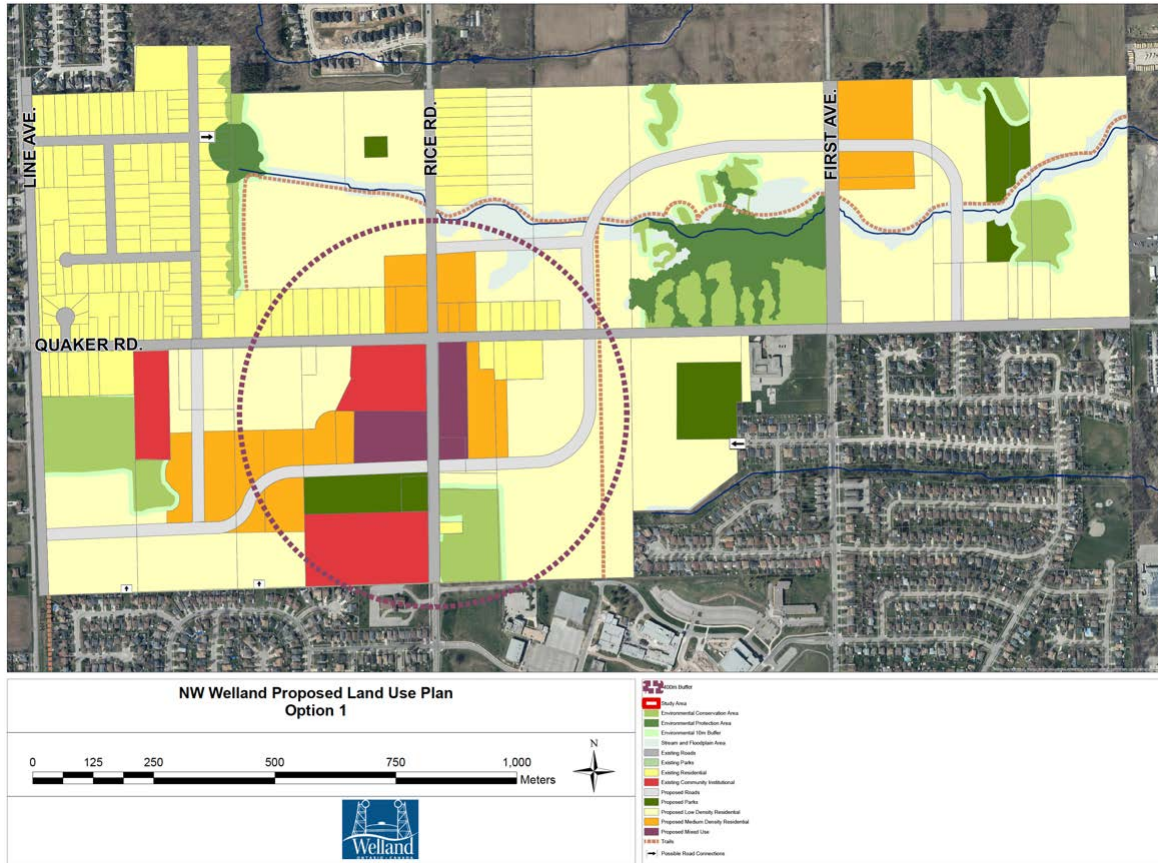


Figure 7: Option 1 - 400 metre walking radius centred on the Mixed Use land use identifies the density of residents that will have access to daily needs

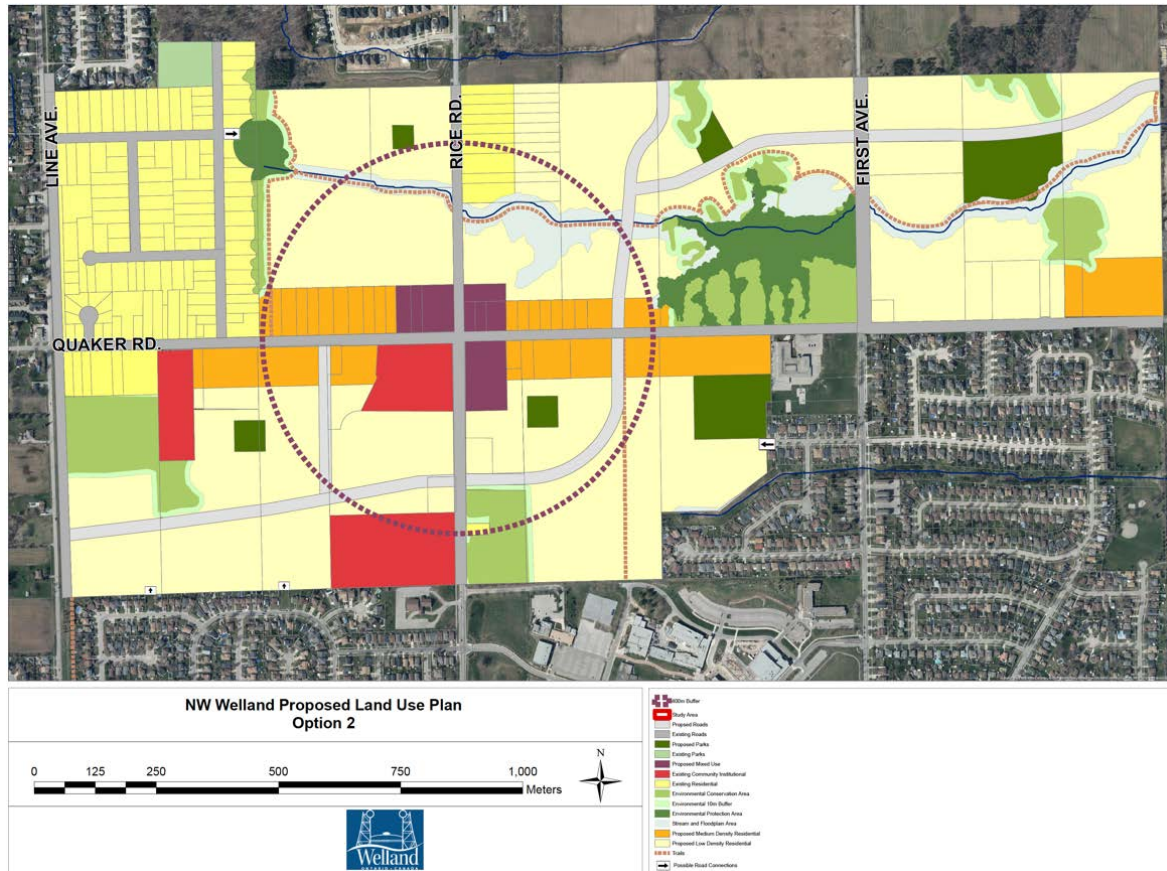


Figure 8: Option 2 - 400 metre walking radius centred on the mixed use land use identifies the density of residents that will have access to daily needs

Option 2 was identified as having the highest density surrounding the mixed use with 8.068 hectares of density within 400 metres of the mixed use compared to the 6.438 hectares of density provided by option 1.

Active Transportation

The active transportation network for each of the options was evaluated based on the ability for on and off road trails and multi-use pathways to connect within the Secondary Plan area and to outside routes was assessed for each option.

Both options provide connections to the active transportation network, as well as the multi-use pathways and bike lanes that are proposed as part of the streetscape for the right of way designs for Quaker Road, Rice Road and First Avenue.

The proposed multi-use pathways and bike lanes on the right of way designs can be used in both options for cyclists to access the off-road facility running north south along

Line Avenue and to the waterfront trail which runs between St. Catharines and Port Colborne.

The trail system is similar in both options. Option 2 provides an additional connection to Quaker Road and option 1 provides trail connectivity to an additional small park over option 2.

Housing Mix

The housing mix and resulting density was evaluated based on the City's Provincial Greenfield Area requirements to achieve the target of 50 residents and jobs combined per gross hectare in Greenfield areas.

Both options meet this criterion, however option 2 provides 0.71 more hectares of Medium Density and 0.17 more hectares of Mixed Use than Option 1.

Total Land Areas and Units

The total land areas and units provided by each option were evaluated base on gross areas per hectare and residential unit counts (**Tables 1 and 2**).

As shown in the below tables and explained above, option 2 provides more residential area per hectare and a higher unit count than option 1.

The amount of Natural Heritage System and land dedicated to schools is the same in both options.

Table 1 Option 1 Land Areas and Units

Land Use	Gross Area (ha)	Units
Residential Areas	124.84	1,752
Low Density	80.35	1,176
Medium Density	13.08	435
Mixed Use	3.03	141
Existing Residential	28.38	
Schools	7.69	

Land Use	Gross Area (ha)	Units
Neighbourhood Parks	6.14 ¹	
Natural Heritage System	30.97	
New Roads	8.18	
Existing Roads	13.74	
TOTAL	190.97	

Table 2 Option 2 Land Areas and Units

Land Use	Gross Area (ha)	Units
Residential Areas	125.15	1,848
Low Density	84.76	1,240
Medium Density	13.79	459
Mixed Use	3.20	149
Existing Residential	23.40	
Schools	7.69	
Neighbourhood Parks	5.71	
Natural Heritage System	30.97	
New Roads	7.88	
Existing Roads	13.74	

¹ The parkland designation is 5% of the developable land, which varies within each option, depending on the amount of existing residential that is re-designated as Medium Density or Mixed Use.

Land Use	Gross Area (ha)	Units
TOTAL	190.97	

3.3 Archeology

The determination of the preliminary preferred land use plan and the impact to potential archaeological resources was prepared using the evaluation of archaeological potential undertaken as part of the Stage 1 archaeological assessment of the Northwest Welland Secondary Plan Area (ASI 2019). The guiding principle to the evaluation of potential land use options is to:

“Protect and avoid archaeological resources and areas of potential for the presence of archaeological resources, and where avoidance is not possible, assess and mitigate the archaeological resources.”

As identified in the Stage 1 archaeological assessment report, approximately 99% of the study area has the potential for the recovery of archaeological resources. Given the prevalence of archaeological potential, it is assumed that all potential options will have equal impact on archaeological resources that may exist within the Northwest Welland Secondary Plan area and any development must be preceded by a Stage 2 archaeological assessment.

3.4 Cultural Heritage

The determination of the preliminary preferred land use plan and the impact to potential cultural heritage resources was prepared using the results of the Cultural Heritage Resource Assessment (CHRA) for the Northwest Welland Secondary Plan Area (ASI 2019). Recommendation 3 of the report noted that “Identified potential cultural heritage resources may be historically, architecturally, and/or contextually significant properties, which have emerged from their contextual setting, and contribute to land use patterns within the Northwest Welland Secondary Plan study area. Accordingly, any proposed development on or adjacent to an identified potential cultural heritage resource should require a cultural heritage impact assessment to further assess the cultural heritage value of the identified potential cultural heritage resources, and to ensure that the cultural heritage resources in the study area are conserved.”

Based solely on the proposed rezoning of the study area, the impact of new land uses on potential cultural heritage resources can only be presumed to be equal throughout

the study area. Impacts on potential cultural heritage resources cannot be measured without knowledge of the location, form and massing of new development and an evaluation of the cultural heritage value of properties identified in the CHRA. As such, the options were evaluated based on the location of proposed roadways within the study area and their proximity to potential cultural heritage resources. While the preliminary preferred option was chosen based on anticipated impacts deriving from roadway construction through potential heritage properties, the full extent of the impacts can only be determined by a cultural heritage impact assessment.

3.5 Natural Heritage

Natural heritage criteria were evaluated by identifying how the proposed features and land uses (particularly parks, roads, and trails) interacted with the established Natural Heritage System. The preliminary preferred land use plan alternative minimized impact to natural heritage features (e.g., via encroachment or habitat fragmentation) and/or provided a benefit to the existing NHS (e.g., parkland established adjacent to a natural heritage feature).

3.6 Transportation and Servicing

The two options were evaluated from a traffic perspective in terms of whether the layout would have sufficient transportation capacity to accommodate the proposed development, whether the layout would minimize conflicts between different road user groups, whether the layout would discourage cut-through traffic and whether the proposed connections to the existing road network would not introduce safety or operational issues.

From a traffic perspective, Option 2 was preferred. Higher density development will be concentrated along Quaker Road, which would be better suited to handle the additional traffic to be generated. The road layout in Option 2 would result in fewer points of conflict and would discourage cut through traffic. Option 2 does however have a higher potential for access related conflicts, given the proposed high density development adjacent to the intersection of Quaker Road and Rice Road. This can be mitigated by implementing access controls on the approaches to this intersection.

The two options were evaluated from a municipal servicing perspective, in terms of comparing which layout would more efficiently provide sanitary, storm, and water servicing. Considerations included simplicity of the pipe networks, flexibility of land use for stormwater management sites, and the mitigation of impact to adjacent existing properties. With these criteria in mind, Option 2 is preferred. With this option, all sanitary sewer capacity needs will be addressed with proposed infrastructure,

minimizing the need to use infrastructure of adjacent properties. For water servicing, the layout supports the ability to provide large watermains on large roads, and smaller distribution mains on smaller roads. The option also provides more flexibility to provide storage footprints adjacent to park areas for stormwater management.

4 Preliminary Preferred Land Use Plan



Based on the results of the evaluation matrix, a preliminary preferred plan was confirmed. The preliminary preferred land use plan as shown in **Figure 9** is based primarily on Option 2. The vision for the preliminary preferred plan combines key objectives from both options. There are some differences between Option 2 and the preliminary preferred plan as noted on **Figure 10** and described below. The details of the land use areas, densities and housing mix is also provided below.

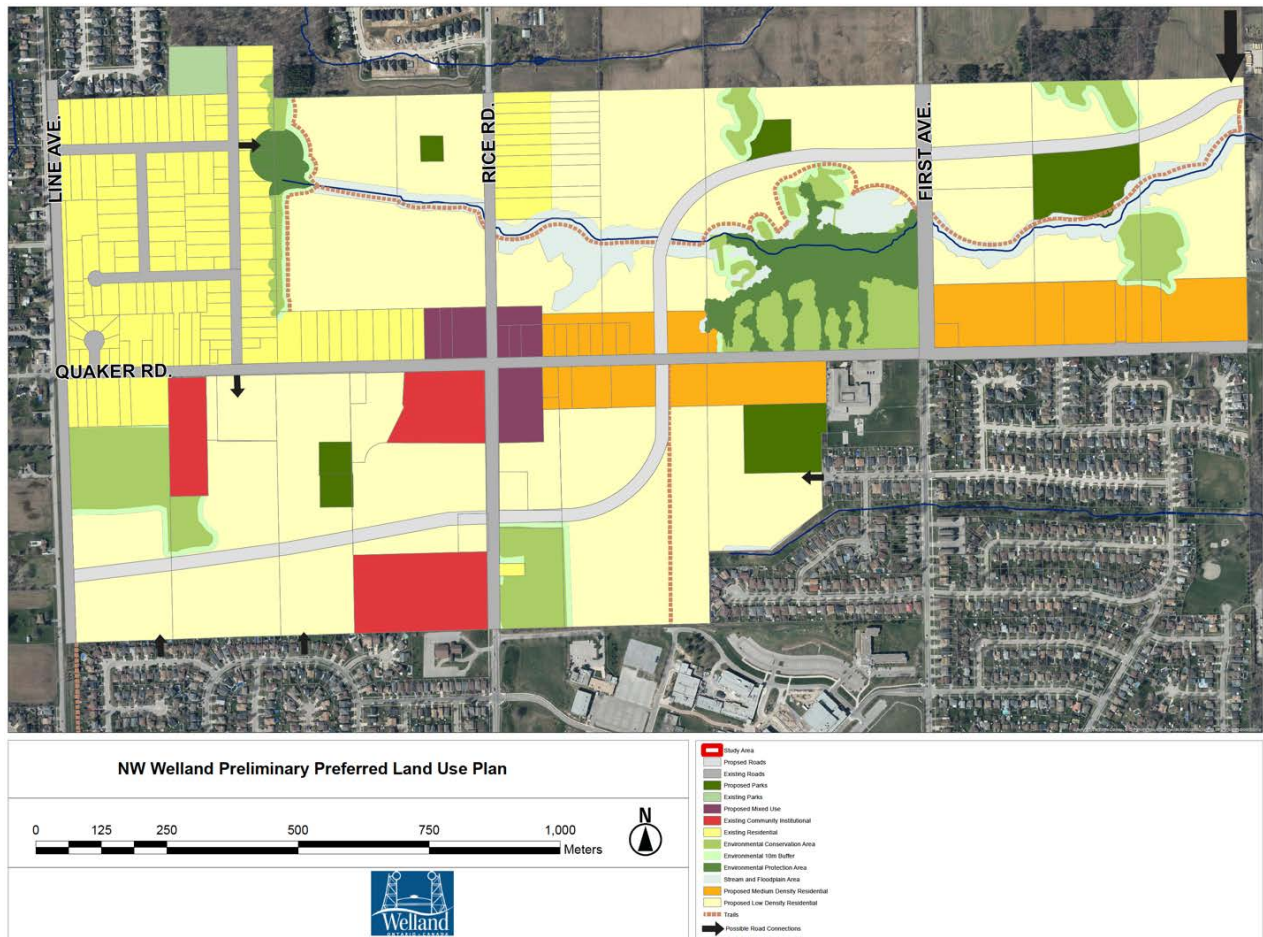


Figure 9: Preliminary Preferred Land Use Option

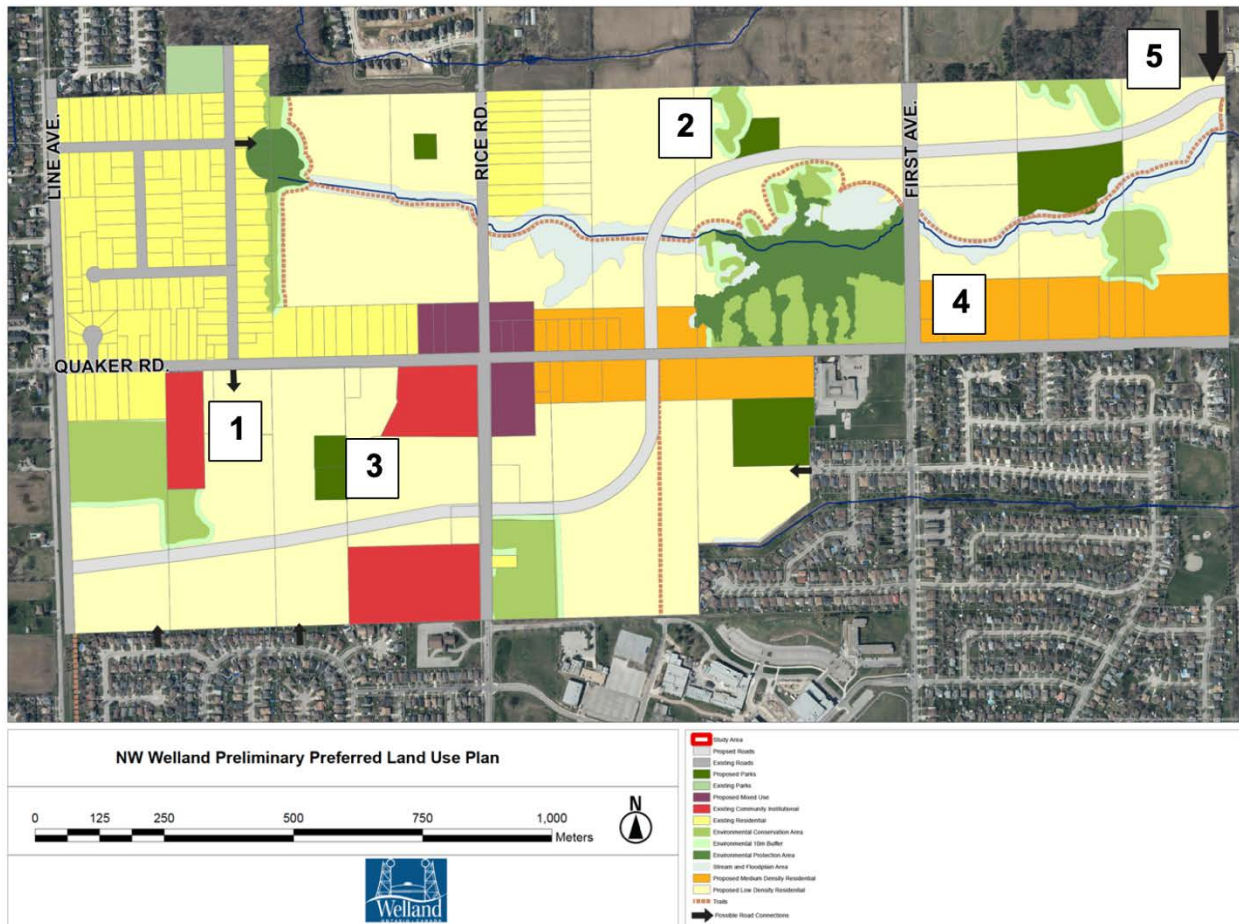


Figure 10: Key differences between Option 2 and Preliminary Preferred Plan

- 1 Provision for a local road extending from the existing Montgomery Road to the proposed collector to the south
- 2 Proposed collector extension to the north is removed
- 3 Amalgamation of 2 smaller parks to create on larger central park
- 4 Extension of medium density residential from the mixed use at Quaker and Rice Roads to the easterly boundary of the study area
- 5 Recognition of the proposed collector to the north to connect to the proposed collector

4.1 Vision

The preliminary preferred land use plan provides the opportunity to respect the character of Quaker Road west of Quaker and Rice Roads and allow opportunity for the east of Quaker and Rice Roads to evolve a new character over time. A proposed mixed use core, close to parks, schools, access to daily needs and access to active transportation creates a walkable community. Parks and trails are easily accessible throughout this community.

4.2 Density Target

The preferred option meets the requirement that Welland's Greenfield Areas are to be planned to support the achievement of the target of 50 residents and jobs combined per gross hectare in Greenfield areas.

4.3 Resulting housing mix, housing types and density

This option provides the following amounts of Medium Density and Mixed Use per hectare to meet the required 50 persons and jobs per hectare:

- Medium Density: 13.57
- Mixed Use: 3.20

4.4 Land Areas and Units

The preliminary preferred option provides:

- The same amount of Natural Heritage System, parks and schools as options 1 and 2;
- More Low Density Residential than option 1, and less than option 2;
- More Medium Density Residential than option 1, and less than option 2;
- More Mixed Use than option 1 and the same Mixed Use as option 2; and

Table 3: Preliminary Preferred Land Areas and Units

Land Use	Gross Area (ha)	Units
Residential Areas	125.21	1,820
Low Density	83.37	1,220
Medium Density	13.57	451
Mixed Use	3.20	149
Existing Residential	25.07	
Schools	7.69	
Neighbourhood Parks	5.75	
Natural Heritage System	30.98	
New Roads	7.88	
Existing Roads	13.74	
TOTAL	190.97	

4.5 Fiscal Management

Hemson has prepared the Welland Northwest Area Secondary Plan Fiscal Impact Analysis which provides a summary evaluation of capital costs, operating costs and revenue sources associated with the Preferred Land Use Plan. The report indicates that as a result of the build out of the Secondary Plan Area, an anticipated 4,400 additional population is forecasted based on the City's 2019 Development Charge (DC) study. This population number and an assumed 10-year build out period were used to evaluate the fiscal costs for the secondary plan area.

A total of \$62.5 million is anticipated for capital costs such as roads, water and storm sewer infrastructure, parks and other infrastructure. Replacement costs will be approximately \$788,000 per year.

The total operating costs associated with the development of the secondary plan area is calculated at \$3.4 million and annual revenues are calculated at \$629,200. The total net annual operating costs are \$2.8 million.

Based on a sampling of recently constructed buildings in Welland, new buildings emerging from the NWSP are forecasted at \$620 million which would make the annual City property tax \$5 million. These are higher taxations due to more modern buildings which raises their value.

Overall, the annual cost per capita and employment revenue is \$1,112, the expenditures work out to be \$940, thus leaving an annual surplus of 15% over the 10 year build out period. However, Hemson did identify an area of concern regarding development charge rates for capital costs. They found that a development charge revenue shortfall associated mostly with engineering services will occur at \$6.2 million over the 10-year build out period. The City should consider direct developer contributions and arrangements, area specific development charges and updating development charge rates in the coming Development Charge Background Study.

Based on the findings, the analysis shows that the preferred land use plan will achieve long-term fiscal sustainability.

4.6 Storm Water Management

Aquafor Beech Limited has prepared the Welland Northwest Area Secondary Plan Stormwater Management Plan to develop an integrated Subwatershed Plan which ties into the findings and objectives of the Secondary Plan. The City of Welland has recognized and supported the inclusion of lands in the Northwest Area of the city despite it not being currently within the urban development boundary so that urban development could proceed on these lands along with being a prime candidate for boundary expansion. The subwatershed has been divided into a greater number of subcatchments than usual, along with them being irregularly shaped and large in size, due to the need to develop a model that can assess both development impacts and flood hazard assessment.

Three proposals have been made:

- i) Do nothing, in which the developments will proceed without any stormwater management controls;
- ii) Traditional SWM Strategy, where the SWM ponds are in place where the development is proposed. In this scenario it should be specified that certain ponds have been located in a way that will avoid a higher density node at the intersection of Rice Road and Quaker Road. A 20 m overload/below ground drainage easement is required to convey flows from one of these facilities to the receiving stream; or

- iii) Traditional plus Low Impact Development (LID), where the developments impact is responded with the use of LID measures and dry storage stormwater ponds in order to control 100-year post-development peak flows to pre-development levels. Despite the PCSWMM model not having a perforated pipe algorithm, it is modeled for all proposed land uses. Based on the alternatives available in the model, the infiltration trench algorithm was selected to represent perforated pipe systems. The LID control is placed in existing subcatchments that will replace an equal amount of non-LID area from the subcatchment.

The report suggests alternatives i) or iii) as being the preferred means to provide the required stormwater management works for new development.

4.7 Transportation Analysis

Associated Engineering (AE) has prepared the Northwest Welland Secondary Plan Transportation Assessment Preferred Plan to document the assessment of the transportation facilities within the proposed development area referred to as the Northwest Welland Secondary Plan. There are several surrounding streets from the study area operating under traffic signal control. Under the existing conditions, these intersections are all operating below capacity and should therefore, be able to withstand future expansion.

There is a lack of active transportation present in the North West Secondary Plan (NWSP) area but an opportunity exists to add pedestrian and cyclists' paths as part of the Secondary Plan implementation. An expansion of transit service should be considered along the entirety of Quaker Road.

A collector road has been proposed to service the residential subdivision within the development. It will provide points of access on Claire and Rice Road, Quaker Road and First Avenue. 2031 projections suggest that Rice Road and Merritt Road should be widened to a four-lane and Merritt Road will be extended to connect to Rice Road.

Based on a traffic conditions study under the horizon year (2031), growth factors show a rise in AM peak hours. The intersection of Rice and Quaker Road and First Avenue and Quaker Road will experience congestion thus needing traffic signals. There will also be congestion on eastbound left turns on Niagara Street and Regional Road.

Varying levels of congestion and capacity will warrant the need of left turn lanes and signalization on the intersections of Quaker Road and Rice Road and Quaker Road and First Avenue. Niagara Street and Merritt Street shall also warrant an increase signal time for left turns.

The cost of these improvements is estimated at approximately \$20.1 Million which will include reconstruction of city roads, new collector and local roads, added signalization, and 30m left turn lanes.

4.8 Servicing

Associated Engineering (AE) has prepared the Northwest Welland Servicing Conceptual Design Report to document the assessment of the servicing facilities within the proposed development area referred to as the Northwest Welland Secondary Plan. The report reviews background information and provides capacity analysis for existing water, sanitary, and storm sewer servicing in the study area. In addition, an initial assessment was completed for proposed conceptual water, sanitary, and storm servicing. These analyses were used to develop general recommendations for municipal water, sanitary, and storm servicing requirements in the Secondary Area. Based on the analysis, the following conclusions for water, wastewater and stormwater are provided in the report:

The current water infrastructure will not be able to maintain adequate pressure and may experience issues with re-filling the Bemis Elevated Tank and the Shoalt's Drive Reservoir. Therefore, alterations to the Welland Treatment Plan (WTP) operations will be required to proceed. There were modifications made to WTP operations for the assessment however a separate study is still required. The addition of the New Welland Secondary Plan (NWSP) area does not itself significantly impact the system pressures and available fire flows but rather, the Welland system must be reviewed separately for required improvements due to the anticipated growth in the system.

Diameters of watermains may need to be upgraded to accommodate for suitable flow to the NWSP area such as those on Rice Road north of Quaker Road flowing to north of Quaker Road and West of Rice Road Future watermain sizing along collector roads will range from 200m to 300m. Likewise, the elevations in the NWSP area south of Quaker Road and west of Rice Road are too high to meet pressure requirements and will need to be reduced to approximately 190m. To service the area, an additional connection at the intersection of Quaker Road and Cataract Road is required.

There are already existing sanitary services within the NWSP area which include mains down Rice Road, the Montgomery subdivision and a sanitary sewer along Quaker Road. This sewage flows to the Welland Wastewater Treatment Plan (WWTP) held responsible by the Region and should have no problems accommodating the NWSP area. The WWTP and the Towpath Sewage Pumping Station (SPS) and the trunk sewer that the SPS discharges to all have sufficient capacity to accommodate the NWSP area. The SPS and trunk sewer may even be able to accept increases in flow, however, the Towpath SPS will require a future upgrade due to anticipated growth situated north of the study area. The upgrades should also consider capacity of downstream trunk sewer for determining SPS outflow.

Lastly, stormwater management practices were looked at by Aquafor Beech which specifies six (6) potential stormwater ponds to service the area. Gravity sewers will direct runoff to the ponds but will require fill in lower areas due to high elevations to allow for instillation.

5 Proposed Key Policy Directions



The following sets out potential policy directions for the proposed land uses in the preliminary preferred land use plan for Northwest Welland that are not currently addressed in the City's Official Plan. Both Low Density and Medium Density land use designations are currently in the Official Plan but some further direction on design guidance is provided. Mixed Use, which is supported by the Official Plan, is further detailed here.

5.1 Low Density Residential

The low density residential designation is proposed to be consistent with section 4.2.2.1 Low Density Residential of the Official Plan.

As noted in the policies, a mix of permitted uses including single-detached, semi-detached, triplex, townhouse and duplex housing units will be encouraged within these lands. Elementary schools and places of worship will be permitted. Neighbourhood commercial uses may also be permitted, and home-based businesses may be permitted as long as they are accessory to the principal residential use and occur entirely within the confines of the dwelling unit.

Consistent with Section 4.2.2.B Design, design guidance for Low Density Residential uses will be encouraged to have useable front porches or covered entrances. Attached garages should not dominate the dwelling unit and should be designed so that the streetscape and public realm is dominated by the front yard landscaping, front doors, and front windows of the dwelling units. Low Density Residential uses will be encouraged to have a variety of façades and use a variety of building materials. More than one type of built form will be permitted to be built adjacent to each other, including two or more bungalows adjacent to 2 or more 2-storey dwellings.

5.2 Medium Density Residential

The medium density residential designation is proposed to be consistent with section 4.2.2.3 Medium Density Residential of Official Plan.

As noted in the policies, a mix of dwelling types including triplexes, four-plexes, townhouses, stacked townhouses and apartments will be permitted. Private amenity space for the benefit of the immediate residents are encouraged. Accessory, home-

based businesses may be permitted as accessory uses to the principal residential use as long as it occurs entirely within the dwelling unit. Elementary schools and places of worship are permitted. Neighbourhood commercial uses may also be permitted, in accordance with the Commercial policies of the Official Plan.

Consistent with Section 4.2.2.3.B, in addition to the design guidance for low density residential uses, medium density residential development will be developed in accordance with the Medium Density/Mid-Rise Urban Design Guidelines.

5.3 Mixed Use

In addition to the Neighborhood Commercial policies in the current Official Plan, a mixed use designation is proposed at the corner of Quaker and Rice Road. The intent of this designation is to create a Village Centre or Mixed Use Node.

The mixed use designation is intended to provide a variety of retail and residential housing to serve the needs of local residents living in close proximity to the area. Uses permitted include a range of retail, and service commercial uses, including a small supermarket or a general merchandise store and a diversified mixture of basic shopping facilities, specialty retail, restaurants, cafés, and personal services.

Mixed use buildings in the form of row houses, stacked townhouses or mid-rise mixed use apartments are envisioned, particularly, for the lands at the intersection. Uses will be encourage in both single use and mixed use buildings.

Mixed use buildings with access from rear lanes or parking areas will be required at the intersections of Quaker and Rice Road. The permitted uses include triplexes, four-plexes, and low-rise apartment housing with commercial on the ground floor.

At the intersection of Quaker and Rice Road, mixed use development up to 6 storeys in height will be permitted. The highest buildings are intended to be located at the intersection. Transition policies will be provided to ensure that appropriate setbacks are proposed in relation to adjacent properties and that adverse impacts are appropriately mitigated.

Along the frontages of Quaker and Rice Road, buildings should be oriented towards the street, with a minimal setback so as to create a strong street edge and comfortable public realm for people to walk. Surface parking shall be located at the side or rear of the building and drive-through facilities will not be permitted along these street frontages.

Individual driveways along Quaker and Rice road will not be permitted.

The maximum area commercial/retail building shall be 650m².

The Village Centre/Mixed Use Node will be developed in accordance with the City's Urban Design Guidelines

6 Next Steps



The next steps for the study are to prepare draft Official Plan Policies and Urban Design Guidelines supporting the preliminary preferred land use plan. An in person public information session will be confirmed by the City based on the current situations or an alternative format may be proposed to seek feedback and input into finalizing the policies and guidelines. Once completed the final draft Secondary Plan and Urban Design Guidelines will be presented to Council for adoption.

Appendix A: Evaluation Matrix



Table 1: Evaluation of Welland Secondary Plan Options

The following table sets out the evaluation of two options by criterion and measures. The coloured legend indicates their evaluation in relation to the measures:

More Preferred	Equally Preferred	Less Preferred
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Principle: Built, Natural & Cultural Heritage

Criterion 1) Protection and integration of cultural heritage elements.

Measure	Option 1	Option 2	Preferred Option
1. Ability to minimize road conflicts with cultural heritage features.	The proposed road layout affects two potential heritage properties in the following ways: <ul style="list-style-type: none"> The road that intersects with Quaker Road between Rice Road and First Ave will cut through the middle of a property that was identified in the Cultural Heritage Resource Assessment as a potential cultural heritage landscape (CHL4). The extension of Montgomery Street proposed south of Quaker Road, through a property that has been identified as a potential built heritage resource (BHR8). 	The road layout affects one property through: <ul style="list-style-type: none"> The road that intersects with Quaker Road between Rice Road and First Ave cutting through the middle of a property that was identified in the Cultural Heritage Resource Assessment as a potential cultural heritage landscape (CHL4). 	Option 2 The proposed road layout for Option 1 appears to affect two potential heritage properties, while the road layout for Option 2 only affects one property. Therefore Option 2 is the preferred option.
2. Land uses do not negatively impact Archaeological sites.	No known archaeological sites will be impacted by this Option.	No known archaeological sites will be impacted by this Option.	Equally Preferred Both options will have an impact on cultural resources and present the same level of risk to potential archaeological resources therefore they are equally preferred.
3. Appropriate land use transition can be provided abutting heritage attributes.	Development on or adjacent to potential cultural heritage properties may occur.	Development on or adjacent to potential cultural heritage properties may occur.	Equally Preferred The ability to assess the appropriate land use transitions in relation to potential cultural heritage resources is difficult to assess without an understanding of the cultural heritage attributes of the individual properties, and the massing, style, setbacks and urban design of any new development on or adjacent to the property.

Criterion 2) Integration of natural heritage features.

Measure	Option 1	Option 2	Preferred Option
1. Parks and open spaces are integrated or linked with natural heritage features.	Proposed parks can provide linkages between features. There are five proposed park blocks (three relatively large and two smaller), two of which in combination are directly adjacent to natural heritage features and would act as direct linkage between these features. The large park block across Rice Road from a natural heritage feature may provide some additional habitat function to this area.	Proposed parks directly adjacent to natural heritage features provide only partial linkage function due to the proposed location of roads. The remaining parks are not located adjacent or in proximity to existing natural heritage features.	Option 1 Option 1 is preferred as it provides a greater benefit to existing natural heritage features.
2. Ability of Trails to be incorporated as part of the Natural Heritage System.	Trails can be incorporated as part of the Natural Heritage System. A small portion of the trail enters the Provincially Significant Wetland and could require disturbance of this feature to construct boardwalks or similar infrastructure. Proposed trail generally follows the watercourse corridor.	Trails can be incorporated as part of the Natural Heritage System. Trail alignment is shown outside of wetlands. Proposed trail generally follows the watercourse corridor.	Option 2 Option 2 is preferred as the proposed trail alignment stays outside of wetland boundaries. Both trails encroach equally on the watercourse corridor.

Criterion 3) Ability to protect groundwater quality and quantity.

Measure	Option 1	Option 2	Preferred Option
1. Opportunity for low impact development to minimize stormwater runoff exists.	Includes low impact development to minimize stormwater runoff as follows: Medium Density: 13.08 ha Mixed Use: 3.03 ha Parks: 6.14 ha	Includes low impact development to minimize stormwater runoff as follows: Medium Density: 13.79 ha Mixed Use: 3.20 ha Parks: 5.71 ha	Option 1 Both options include opportunities for medium to low density development, however option 1 provides more parkland and less density which offers the potential for more permeable surfaces for stormwater retention.

Criterion 4) Ability to minimize road crossings of natural heritage features.

Measure	Option 1	Option 2	Preferred Option
1. The number of collector roads that cross a natural heritage feature.	The proposed road alignments require two new watercourse crossings.	The proposed road alignments require one watercourse crossings. It is noted that the collector road terminating at the north edge of the study area is situated such that an additional watercourse crossing to the north is likely to be	Equally Preferred Both options are anticipated to result in two watercourse crossings.

		needed for any connecting road to be constructed.	
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Principle: Healthy, Resilient Communities

Criterion 1) Provides walkable and centrally located public meeting places and uses that can create place identity/sense of place.

Measure	Option 1	Option 2	Preferred Option
1. Parks are connected to trail systems and cycling routes.	<p>The trail system connects to one large park, two small parks and the environmental conservation and protection area, located to the east of Rice Road are provided.</p> <p>The two large parks in the southern section of the subject area do not have trail connections.</p>	<p>Trail systems and cycling routes provide connections to parks.</p> <p>The trail connections to one large park, one small park and the NHS located east of Rice Road is provided.</p> <p>The two small parks and one large park in the southern section of the subject area do not have trail connections.</p>	<p>Option 1 Option 1 provides trail connectivity to an additional small park over option 2.</p>
2. Proportion of residential area within 800 metres of a local park without crossing an Arterial road.	<p>The majority of residences are within 800 m of a park without crossing an Arterial road.</p> <p>The residential area north of Quaker Road between Rice Road and First Avenue does not have access to a local park without crossing an Arterial Road. It is of note that the NHS and trail system are located within this area.</p>	<p>All residential areas are located within 800 m of a park without crossing an Arterial Road.</p>	<p>Option 2 Option 2 provides access by all residential areas within 800 m of a local park without crossing an Arterial Road.</p>
3. The proportion of medium density units within or near 400 meters of a commercial or mixed-use zone.	<p>Option 1 has 6.438 hectares of density within 400 metres of the mixed use zone.</p>	<p>Option 2 has 8.068 hectares of density within 400 metres of the mixed use zone.</p>	<p>Option 2 Option 2 has more medium density within 400 m of the proposed mixed use lands.</p>
4. Ability of the proposed land use to preserve the character of Quaker Road	<p>This option maintains the majority of the existing low rise residential land uses along Quaker Road with the exception of the south east corner of Quaker and Rice Road which is changed to mixed use.</p>	<p>This option changes the low rise residential along Quaker road to a majority of medium density residential and makes three corners of Quaker and Rice Road mixed use.</p>	<p>Option 1 Option 1 minimizes the impact to the character of Quaker Road.</p>

Criterion 2) Ability to support cycling as both a form of transportation and recreation.

Measure	Option 1	Option 2	Preferred Option
1. Cycling paths and expected routes of travel connect to Welland's active transportation network.	Proposed cycling paths and expected routes of travel connect to Welland's active transportation network. This option provides a central north south connection to the east west trail which could be used to access Quaker Road which cyclists can use to access the off-road facility running north south along Line Avenue and to the waterfront trail which runs between St. Catharines and Port Colborne.	Cycling paths and expected routes of travel connect to Welland's active transportation network. This option provides a western access to the east west trail from Quaker Road which could be used to access the off-road facility running north south along Line Avenue and to the waterfront trail which runs between St. Catharines and Port Colborne by Quaker Road.	Equally Preferred Both options provide connections to the active transportation network, as well as the multi-use pathways and bike lanes that are proposed as part of the right of way designs for Quaker Road, Rice Road and First Avenue.
2. The Plan provides for on and off-road cycling facilities	On and off-road cycling facilities are provided by this option.	On and off-road cycling facilities are provided by this option. This option has an additional connection to Quaker Road.	Option 2 The trail system is similar in both options. Option 2 provides an additional connection to Quaker Road.

Criterion 3) Ability to create a vibrant mixed-use urban village.

Measure	Option 1	Option 2	Preferred Option
1. Land use provides for a human scale built form to encourage walking within the mixed-use node	Both proposed medium density and low density residential surround the mixed use node. Provides the opportunity for a human scale built form.	Both proposed medium density and low density residential surround the mixed use node. Provides the opportunity for a human scale built form.	Equally Preferred
2. Active transportation network promotes walking and cycling to the mixed use node	Proposed on road cycling infrastructure and sidewalks provide walking and cycling access to the mixed use node. Multi-use pathways and bike lanes are proposed as part of the right of way designs for Quaker Road, Rice Road and First Avenue.	Proposed on road cycling infrastructure and sidewalks provide walking and cycling access to the mixed use node. Multi-use pathways and bike lanes are proposed as part of the right of way designs for Quaker Road, Rice Road and First Avenue.	Equally Preferred Both propose multi-use pathways and bike lanes as part of the right of way designs for Quaker Road, Rice Road and First Avenue providing active transportation connections to the mixed use node.

Criterion 5) Ability to provide a diverse housing mix.

Measure	Option 1	Option 2	Preferred Option
1. The plan meets the 50 people and jobs required per hectare.	The option meets the required 50 people and jobs per hectare.	The option meets the required 50 people and jobs per hectare.	Equally Preferred Both options meet the required 50 people and jobs per hectare.
2. New development provides for a transition of built form to established neighbourhoods.	Proposed low density provides transition is provided along existing residential to the west, along Quaker Road and existing residential east and north.	Provides for similar transitions as option 1 but some proposed medium density to the west may limit transition.	Option 1 Both options provide for transition to established neighbourhoods however option 1 maintains more low density residential abutting existing neighbourhoods than option 2.

Criterion 6) Ability to provide sufficient capacity and connectivity for all travel modes in a safe manner (vehicular, transit, active transportation)

Measure	Option 1	Option 2	Preferred Option
1. Sufficient transportation capacity to accommodate the proposed development.	In Option 1, medium density residential and mixed-use development is mainly concentrated on the area bounded by Line Avenue, Quaker Road and Rice Road. Proposed collector roads in this area will need to service these developments and will experience a higher level of traffic than Option 2. There is a higher potential for the need for capacity improvements where these collector roads intersect with Quaker Road and Rice Road. A traffic signal will likely be warranted at the intersection of Quaker Road and Rice Road due to spillover traffic.	In Option 2, medium density residential and mixed-use development is concentrated along Quaker Road. Traffic will primarily increase along Quaker Road with a modest increase on other roads (Line Avenue, Rice Road and First Avenue). Quaker Road is better suited to accommodate this additional traffic, although a traffic signal will likely be warranted at the intersection of Quaker Road and Rice Road.	Option 2 Option 2 is preferred as Quaker Road is better suited to accommodate the additional traffic anticipated to be generated by the Secondary Plan.
2. Road layout will minimize vehicle-vehicle, vehicle-cyclist and vehicle-pedestrian conflict points.	In Option 1, the road layout will result in nine new points of potential vehicle-vehicle conflict (new intersections). The pathway layout will result in six new points of potential vehicle-cyclist and vehicle-pedestrian conflicts.	In Option 2, the road layout will result in six new points of potential vehicle-vehicle conflict (new intersections). No pathways are identified in Option 2 therefore no potential vehicle-cyclist and vehicle-pedestrian conflicts are identified, aside from the Steve Bauer Trail (existing) with the new collector road at Line Avenue.	Option 2 is preferred as it will result in fewer points of vehicle-vehicle conflicts and only one vehicle-cyclist or vehicle-pedestrian conflicts were identified.
3. Road layout will not encourage cut-through traffic.	In Option 1, there is a modest potential for cut-through traffic via collector roads (between First Avenue and Rice Road north of Quaker Road	In Option 2, there is a low potential for cut-through traffic via collector roads (between Line Avenue and Rice Road south of Quaker Road).	Option 2 Option 2 is preferred. There is a lower potential for cut-through traffic via the collector roads.

	and between Line Avenue and Rice Road south of Quaker Road).		
4. Connections to the existing road network will not introduce safety or operational issues (i.e. inadequate sightlines or proximity to other accesses that generate a significant amount of traffic).	No sightline issues identified. There is limited mixed-use development (1 quadrant) located near the intersection of Quaker Road and Rice Road which has some potential to generate access related conflicts due to close proximity to this intersection. New collector road intersections with Quaker Road at Montgomery Road may generate traffic conflicts (uncontrolled through movements).	Proposed mixed use development (3 quadrants) located near the intersection of Quaker Road and Rice Road has the potential to generate access related conflicts due to close proximity to this intersection. New collector road intersects with Quaker Road east of Montgomery Road, less potential for conflicts.	Option 1 Option 1 is preferred overall. Lower potential for access related conflicts adjacent to intersection of Quaker Road and Rice Road.

Criterion 7) Ability to provide capacity and level of service for all water, storm, and sanitary servicing, meeting the development requirements while adhering to City and Region standards.

Measure	Option 1	Option 2	Preferred Option
1. Service all developments while minimizing impacts to existing community infrastructure (in consideration of the fact that the Niagara Region Master Servicing Plan (2017) did not including this specific development in the plan).	Based on the layout of development density for Option 1, it might be necessary to upsize the existing watermain on Rice Road. Due to location of high density, it would be prudent to consider a collection split of sanitary flows to the south (through Northwood Dr.)	Option 2 – Watermain layout is suited to the trunks on the main roads, and the distribution mains on the side roads. Option 2 – Trunk sewers can be located on Quaker Road, minimize need for major sewer works in existing developments.	Option 2 For option 2, all sanitary sewer capacity needs will be addressed with proposed infrastructure, minimizing the need to use and therefore disturb adjacent properties. Large watermains will be focused on large roads, smaller watermains on the smaller roads.
2. Considering the NPCA comments regarding the challenges of implementing LIDs for this development due to ground conditions, minimizing the footprint of all stormwater management facilities	Option 1 has a higher density land use adjacent to at least one (1) identified park area, which is less attractive for placement of SWM facilities.	All of the park areas surrounded by low density land, which is an aesthetically attractive location, and financially appropriate land use for detention systems.	Option 2 Option 2 provides more flexibility for pond or storage footprint for SWM, adjacent to park areas.