

North West Brampton Policy Area (NWBPA) Review Study Report

DRAFT REPORT - June 18, 2018

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EXECUTIVE SUMMARY

The purpose of this report is to make a recommendation to the Region of Peel on whether it is in the public interest to replace the Northwest Brampton Policy Area ('NWBPA') with urban land use designations or if the current shale protections should remain in place.

On the basis of Minutes of Settlement entered into between the Ministry of Municipal Affairs and Housing ('MMAH'), the Region of Peel and the City of Brampton in 2006, a moratorium on development was established in the NWBPA for a period of 10 years to protect the shale resources that were known to exist. The Ontario Municipal Board ('OMB') endorsed these Minutes of Settlement in 2006.

At the present time, shale is required by the clay brick industry for the production of bricks for the construction industry.

The purpose of the NWBPA policy framework included in the Region of Peel Official Plan ('ROP') in 2006 was to provide for the protection and potential use of the shale resource, while recognizing that the long-term use of the lands will be for urban purposes. The effect of the OMB decision made in 2006 is that the NWBPA (outside of the Greenbelt Plan area) is currently within the urban area and is a Designated Greenfield Area ('DGA'), as defined by the Growth Plan.

The fact that the lands were included within the Brampton urban area in 2006 is a consideration in terms of assessing what options may exist going forward.

Upon the 10-year anniversary of the moratorium mentioned above, the Region of Peel retained Meridian

Planning Consultants ('MPC') in December 2016 to prepare this report.

A key consideration in making a decision on whether any or all of the shale resource areas identified in the NWBPA should be protected is whether there is an overall public interest in protecting an area for future shale resource extraction instead of providing for urban development on the same lands, or whether it is feasible to provide for the interim use of the area for shale extraction in advance of planned urban development.

While there is no question that shale resources are required for the brick making industry, there is also no question that the Region of Peel is required by the Province to plan for significant population and employment growth. Much of this expected growth in the Region of Peel is expected to occur in existing built up areas and in the existing DGA, which includes the urban lands within the NWBPA.

The allocation of population and employment growth to the NWBPA was established through the ROPA 24 process beginning in 2009. In this regard, the land budget associated with ROPA 24 allocated 43,000 people and 20,000 jobs to the NWBPA. It was also on the basis of this decision that the Region has included the full development of the NWBPA in its long-range infrastructure and transportation planning since that time.

Also in 2009, the City of Brampton initiated the Secondary Plan process for Heritage Heights and a number of detailed studies that were all designed to support the urbanization of all of the lands within the NWBPA were completed between 2010 and 2014. This process is now on hold pending the

completion of this report and the implementation of an updated policy framework through a future ROPA.

On December 12, 2013, Region of Peel Council endorsed a work plan for the Peel 2041 Regional Official Plan Review (Peel 2041) process. On October 26, 2017, Region of Peel staff delivered a report to Council that provided an update on the Region's 2041 Growth Allocation and Growth Management Regional Official Plan Amendment.

The October 2017 report indicated that the City of Brampton is forecasted to accommodate 205,160 people in the Designated Greenfield Area through to 2041 through the creation of 53,100 units. With respect to the NWBPA, a population of 49,500 was proposed for allocation in the October 2017 report, which is greater than the allocation provided to the NWBPA by ROPA 24. The proposed increase is due to the release of the new Growth Plan in 2017, which establishes higher minimum DGA densities. With respect to employment growth in the NWBPA, 24,000 jobs have been proposed for allocation, which is also greater than the allocation provided to the NWBPA by ROPA 24.

Although there are many policies in the Growth Plan and the 2014 Provincial Policy Statement ('PPS 2014') to consider in making a determination on the disposition of the NWBPA, there is one key section in the PPS 2014 that deals directly with the question to be answered by this report, which is whether alternative uses should be permitted in the NWBPA instead of protecting the same lands for shale resource extraction. Section 2.5.2.5 is reproduced below:

In known deposits of mineral aggregate resources and on adjacent lands, development and activities which would preclude or hinder the establishment of new operations or access to the resources shall only be permitted if: a) resource use would not be feasible; or b) the proposed land use or development serves a greater long-term public interest; and c) issues of public health, public safety and environmental impact are addressed.

It is noted that items a) and b) in Section 2.5.2.5 are separated by the word "or". This means that a case can be made that a proposed land use or development serves a greater long-term public interest than a proposed resource use even if it is determined that resource use would be feasible. While 'feasibility' is certainly a factor, what is in the longer-term public interest is a key factor to consider.

With respect to feasibility, there are two factors to consider - technical and practical.

From a technical perspective, there is no evidence to suggest that a well-planned shale quarry cannot be technically supported in the NWBPA. However, it is recognized that the technical issues can be significant, and any shale quarry would be subject to the policy requirements of the City of Brampton and Region of Peel Official Plans, applicable Provincial policies and the requirements of the Aggregate Resources Act.

On the practical side, there has to be some likelihood that lands could be assembled for quarry purposes to determine that resource use is feasible.

Given the nature and location of the constraints in the NWBPA, it is very likely that the assembly of land would

be required to establish a new quarry. The need to acquire multiple parcels of land in the NWBPA for quarry development is a significant factor to consider.

Given that the NWBPA has been within the Brampton urban area since 2006, it would be very unlikely for a landowner interested in urban development to consider foregoing the opportunity to develop their lands for a period of time that may exceed 50 to 70 years, which takes into account the time it takes to approve a quarry, extract the resources and rehabilitate the lands.

This also takes into account the fact that it is not feasible to extract more of the resource than required in any given year given the weathering that occurs when the resource is exposed to the elements.

In addition to the above, even if there were a willing seller, the cost of purchasing the land would be prohibitive.

On the basis of the above, this report concludes that the use of land for a resource extraction use is not feasible in the NWBPA.

With respect to what land use is in the greater long term public interest, it has already been clearly demonstrated since the year 2000 that the NWBPA lands are appropriate for urban development and would in fact represent the last development area in the City of Brampton.

This was confirmed by the Ontario Municipal Board in 2006, confirmed through the ROPA 24 process and continues to be the case as part of the current ROP review process that is

designed to ensure that the ROP is in conformity with the Growth Plan.

To a very large extent, the Region has determined that it continues to be appropriate to allocate population and employment to the NWBPA because:

- Of its location adjacent to the developed area that extends to Mississauga Road;
- The long-range infrastructure and transportation work completed by the region have already taken into account the development of the NWBPA;
- Development in NWBPA will allow for the development of the last remaining undeveloped area in Brampton and provide the basis for the development of additional employment uses and potentially a hospital that would support Brampton's evolution into a complete community; and,
- The NWBPA is already considered to be a Designated Growth Area as per the Growth Plan.

The latter point is important to consider because of the requirements of the Growth Plan that speaks to where growth is to be accommodated going forward. In this regard, Section 2.1 of Growth Plan (2017) speaks to how municipalities should plan to accommodate future growth:

There is a large supply of land already designated for future urban development in the GGH. In some communities, there may be more land designated for development than is required to accommodate forecasted growth to the horizon of this Plan. It is important to optimize the use of the existing urban land supply as well as the existing building and housing stock to avoid further over-designating land for future

urban development. This Plan's emphasis on optimizing the use of the existing urban land supply represents an intensification first approach to development and city-building, one which focuses on making better use of our existing infrastructure and public service facilities, and less on continuously expanding the urban area.

The above means that optimizing the use of land that is already within an urban area is more preferable than expanding the urban area to accommodate growth.

In addition to the above, Section 2.2.8.2 of the Growth Plan states that a settlement area boundary expansion may only occur where it is demonstrated that:

.... Sufficient opportunities to accommodate forecasted growth to the horizon of this Plan are not available through intensification and in the designated greenfield area:

It has also been determined as part of the current review of the ROP in accordance with the 2017 Growth Plan that an additional settlement expansion beyond Mayfield West Phase 2 Stage 2 will be required to accommodate growth in Peel to 2041 in the order of 565 hectares for community areas and 650 hectares for employment areas.

If the NWBPA were not included as development lands as per the ROPA 24 OMB decision, this means that there would be a need to plan for an additional amount of Greenfield area of up to about +/- 1,300 net hectares elsewhere, with the only other probable location being the Town of Caledon.

Adding an additional +/- 2,500 hectares of urban land in Caledon would be a

significant increment of growth, all of which would happen in a prime agricultural area.

There is also a time factor to consider as well. The time it will take to go through the process of identifying new urban lands in Caledon through a MCR would most likely take between two and three years. This would then need to be followed up by local Official Plan Amendments and Secondary Plans that are supported by detailed technical studies. This could add another two to five years to the process. Going through the more detailed Plan of Subdivision process adds to the length of time it would take before development could actually proceed. This means that it could be in excess of 10 to 12 years before development actually occurs on new urban land in Caledon. In addition, the larger the increment of growth, the more complex the process is.

In contrast, development within the NWBPA has already been factored into the Region's long-term infrastructure and transportation planning efforts and considerable time has already been spent by the City of Brampton on the development of a land use plan for Heritage Heights. This means that needed development lands in the Region could be opened up much sooner if the NWBPA is released for development.

This report concludes that the ultimate release of the lands within the NWBPA at the end of the 10-year period was and is a logical and supportable conclusion based on the wording of the policies included within the ROP and the City of Brampton Official Plan by the OMB in 2006 and by virtue of the policy changes made by ROPA 24 which

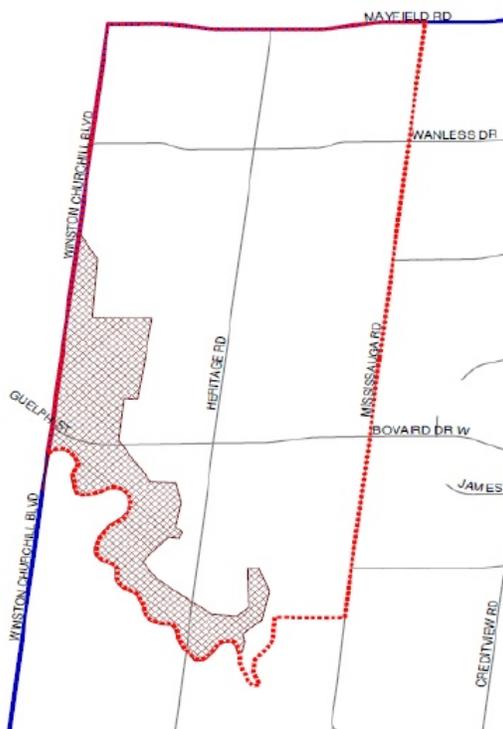
anticipated the full build out of NWBPA by 2031.

As a consequence of the above, and with consideration to the PPS 2014 and the Growth Plan, this report concludes that the full urbanization of the NWBPA serves a greater long-term public interest than protecting the lands for shale resource extraction.

1. BACKGROUND

1.1 PURPOSE

The purpose of this report is to make a recommendation to the Region of Peel on whether it is in the public interest to replace the Northwest Brampton Policy Area ('NWBPA') with urban land use designations or if the current shale protections should remain in place. The location of the NWBPA is shown below.



It is noted that the NWBPA shown on the map above includes lands within the Greenbelt Plan (which are toned); however, this report does not make any recommendations with respect to changes in planning policy affecting lands within the Greenbelt Plan area.

1.2 HISTORICAL CONTEXT

On the basis of Minutes of Settlement entered into between the Ministry of Municipal Affairs and Housing ('MMAH'), the Region of Peel and the City of

Brampton in 2006, a moratorium on development was established in the NWBPA for a period of 10 years to protect the shale resources that were known to exist. The Ontario Municipal Board ('OMB') endorsed these Minutes of Settlement in 2006.

1.3 ABOUT SHALE RESOURCES

At the present time, shale is required by the clay brick industry for the production of bricks for the construction industry. While there is no requirement in the Ontario Building Code for bricks in new construction, most new homes in the Greater Toronto Area ('GTA') are clad in brick and it has become the standard for new home construction in this area. The photo below is of an exposed shale resource deposit in Caledon known as the Caledon Badlands.



1.4 POLICY CONTEXT

The purpose of the NWBPA policy framework included in the Region of Peel Official Plan ('ROP') in 2006 was to provide for the protection and potential use of the shale resource, while recognizing that the long-term use of the lands will be for urban purposes. The effect of the OMB decision made in 2006 is that the NWBPA (outside of the Greenbelt Plan area) is currently within the urban area

and is a Designated Greenfield Area ('DGA'), as defined by the Growth Plan.

The fact that the lands were included within the Brampton urban area in 2006 is a consideration in terms of assessing what options may exist going forward.

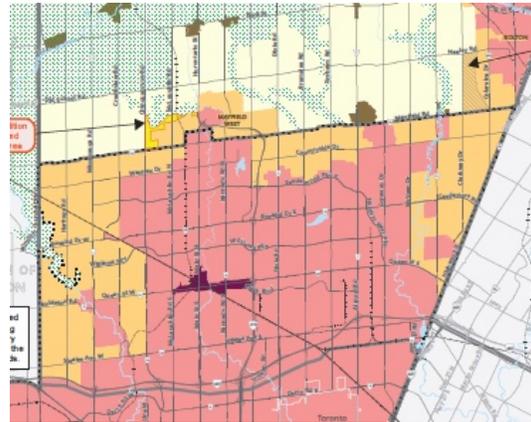
1.5 CURRENT STATUS

Upon the 10-year anniversary of the moratorium mentioned above, the Region of Peel retained Meridian Planning Consultants ('MPC') in December 2016 to prepare this report ('2018 MPC NWBPA Report').

A key consideration in making a decision on whether any or all of the shale resource areas identified in the NWBPA should be protected is whether there is an overall public interest in protecting an area for future shale resource extraction instead of providing for urban development on the same lands, or whether it is feasible to provide for the interim use of the area for shale extraction in advance of planned urban development.

While there is no question that shale resources are required for the brick making industry, there is also no question that the Region of Peel is required by the Province to plan for significant population and employment growth.

Much of this expected growth in the Region of Peel is expected to occur in existing built up areas and in the existing DGA, which includes the urban lands within the NWBPA. Existing DGA areas in Brampton and Caledon are shown in orange on the map at the top of the next column.



Section 2.1 of Growth Plan (2017) speaks to how municipalities should plan to accommodate future growth:

There is a large supply of land already designated for future urban development in the GGH. In some communities, there may be more land designated for development than is required to accommodate forecasted growth to the horizon of this Plan. It is important to optimize the use of the existing urban land supply as well as the existing building and housing stock to avoid further over-designating land for future urban development. This Plan's emphasis on optimizing the use of the existing urban land supply represents an intensification first approach to development and city-building, one which focuses on making better use of our existing infrastructure and public service facilities, and less on continuously expanding the urban area.

The above means that optimizing the use of land that is already within an urban area is more preferable than expanding the urban area to accommodate growth.

In addition to the above, Section 2.2.8.2 of the Growth Plan states that a settlement area boundary expansion may only occur where it is demonstrated that:

.... *Sufficient opportunities to accommodate forecasted growth to the horizon of this Plan are not available through intensification and in the designated greenfield area:*

Other key considerations include the end use of shale in relation to other mineral aggregate resources that are used for infrastructure and the availability of shale resource areas beyond the NWBPA. While shale and clay bricks are primarily used for residential purposes in Ontario, clay brick is also used for building public service facilities that house programs and services provided or subsidized by a government or other body, such as social assistance, recreation, police and fire protection, health and educational programs, and cultural services.

An additional consideration is the impact of losing access to shale resources in the GTA on the cost of brick, as a result of higher transportation costs.

1.6 ORGANIZATION OF THIS REPORT

On the basis of the above, this report is divided into the following sections:

- **Section 2** describes the NWBPA, identifies current land uses and infrastructure in the NWBPA and reviews proposals to develop significant infrastructure in the NWBPA, all of which are considerations in this report;
- **Section 3** provides a brief review of the process that led to the OMB decision made in 2006 to include the NWBPA within the Brampton

urban area and an overview of the policy framework established at the time;

- **Section 4** reviews the nature and location of shale resources in Southern Ontario (most notably in the Queenston Formation) and in the NWBPA and confirms that shale resources continue to be present in a portion of the NWBPA;
- **Section 5** reviews the history of brick making in southern Ontario, the location of existing brick making plants and the economic value of the brick manufacturing industry to the economy of the Region and the relative importance of brick products in home building including an assessment of the installed costs of brick, and its relationship to transportation costs;
- **Section 6** deals with the constraints to shale extraction in the NWBPA and identifies a reduced area of interest that occupies about 50% of the NWBPA;
- **Section 7** reviews the growth management decisions affecting the NWBPA by ROPA 24 and the implications of the Region's current review of the ROP in 2018;
- **Section 8** reviews the Heritage Heights planning process; and,
- **Section 9** includes an analysis of the Provincial Policy Statement in particular (because it contains the primary policy to consider in this report in the form of Section 2.5.2.5), selected policies in the Growth Plan and contains our recommendations.

2. STUDY AREA

2.1 DESCRIPTION OF THE STUDY AREA

The portion of the NWBPA that is the subject to this report is bordered by Mayfield Road to the north, Mississauga Road to the east, the Greenbelt Plan boundary to the south and Winston Churchill Boulevard to the west. **Map 1 at the end of Section 2.1** identifies where the NWBPA is in the City of Brampton.

Even though the NWBPA is within the Brampton urban area (excluding that portion that is subject to the Greenbelt Plan), the existing character of the area remains rural and agricultural as a consequence of the 2006 OMB decision.

While most of the NWBPA has been (and continues to be) in agricultural use, the area contains a number of water resources and natural heritage features and areas, including a number of tributaries of the Credit River.

These tributaries all flow into the West Branch of the Credit River that is located within the Greenbelt Plan area and located to the west and south of the NWBPA. **Map 2 at the end of Section 2.1** is an air photo of the NWBPA from 2016 that clearly shows that the NWBPA is a rural area.

There are approximately 113 parcels of land within the NWBPA. Of this total, there are four parcels that are in public ownership and these include three parcels along Mississauga Road owned by the Region of Peel and one parcel owned by the City of Brampton on Bovaird Drive as shown on the **Map 3 at the end of Section 2.1**. For the purposes of the 2019 MPC NWBPA

Report, it is expected that these lands will remain in public ownership.

There are also approximately 51 homes within the NWBPA, most of which are on smaller rural residential parcels that were created many years ago.

While agricultural land uses are the predominant land use within the NWBPA, there are a number of other land uses to consider and they include:

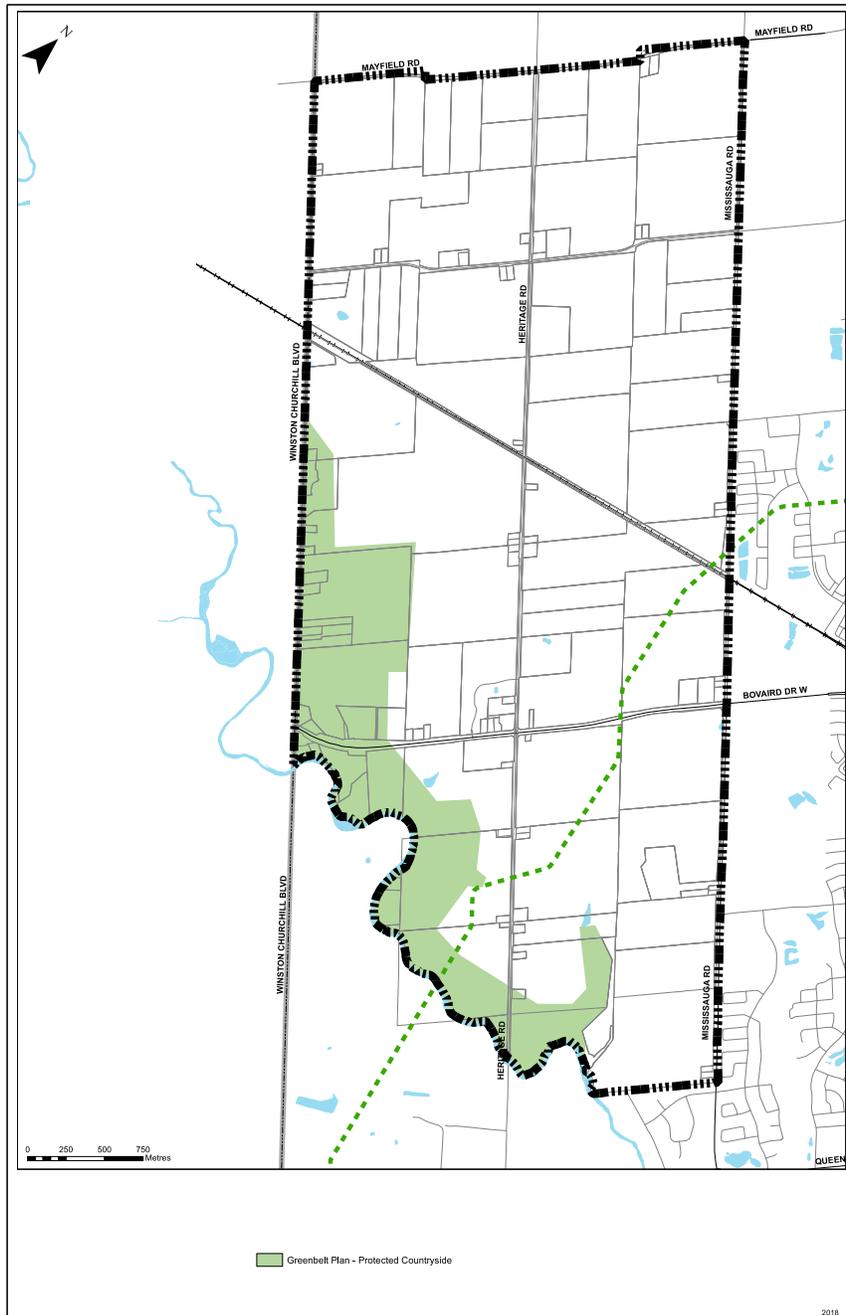
- The Apple Factory (Bovaird Drive and Mississauga Road);
- AMJ Campbell Storage (Bovaird Drive and Mississauga Road);
- Old Pro Driving Range (Bovaird Drive and Mississauga Road);
- Petro Canada (Bovaird Drive and Mississauga Road);
- St. Elias the Prophet Ukrainian Church (Heritage road, north of Bovaird Drive);
- Assembly Hall of Jehovah's Witnesses (Heritage road, north of Bovaird Drive);
- U-Need Storage (Winston Churchill Boulevard and the CN Railway); and,
- Laidlaw Orchards (Heritage Road).

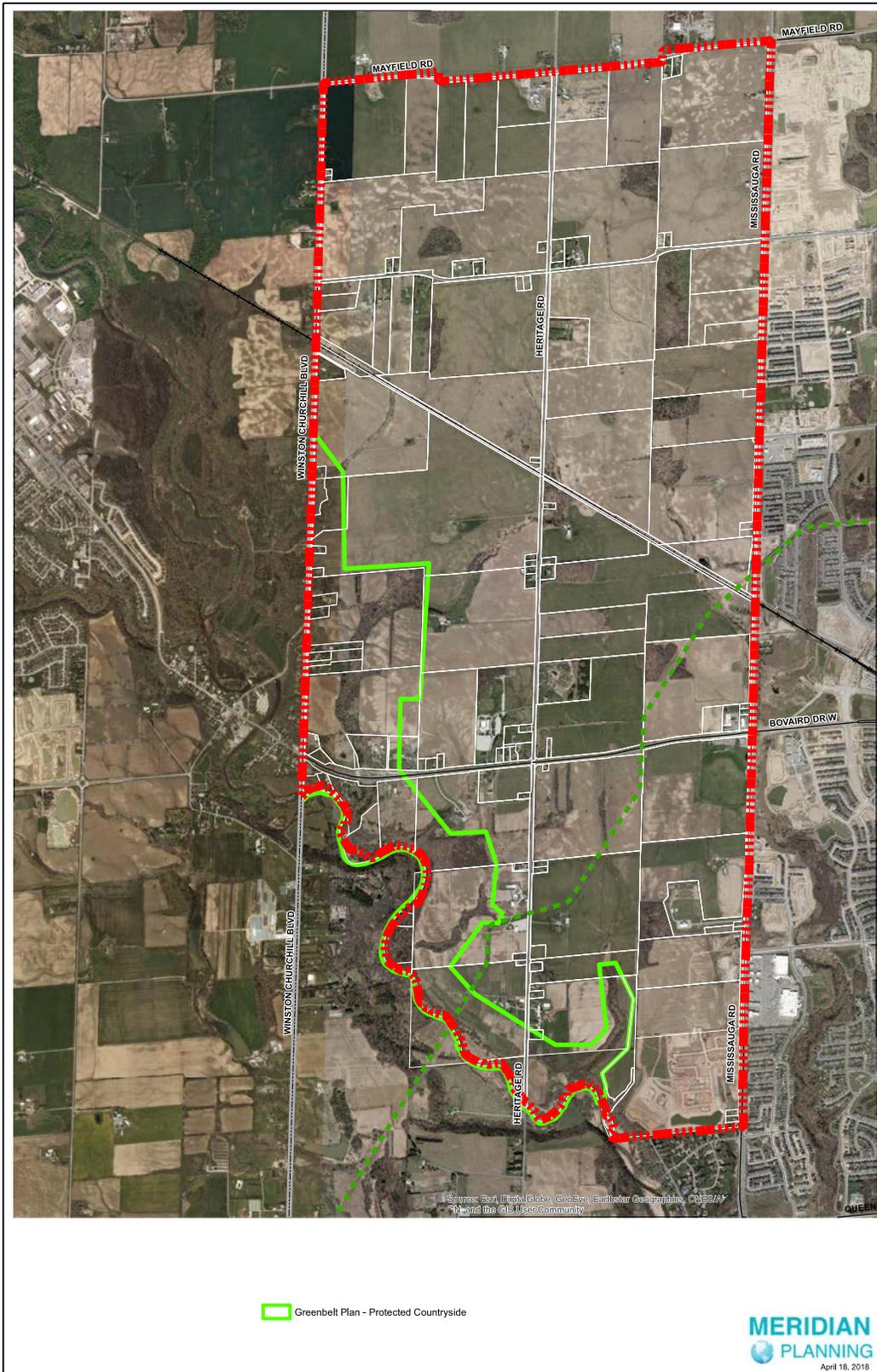
The above land uses are shown on **Map 4 at the end of Section 2.1**.

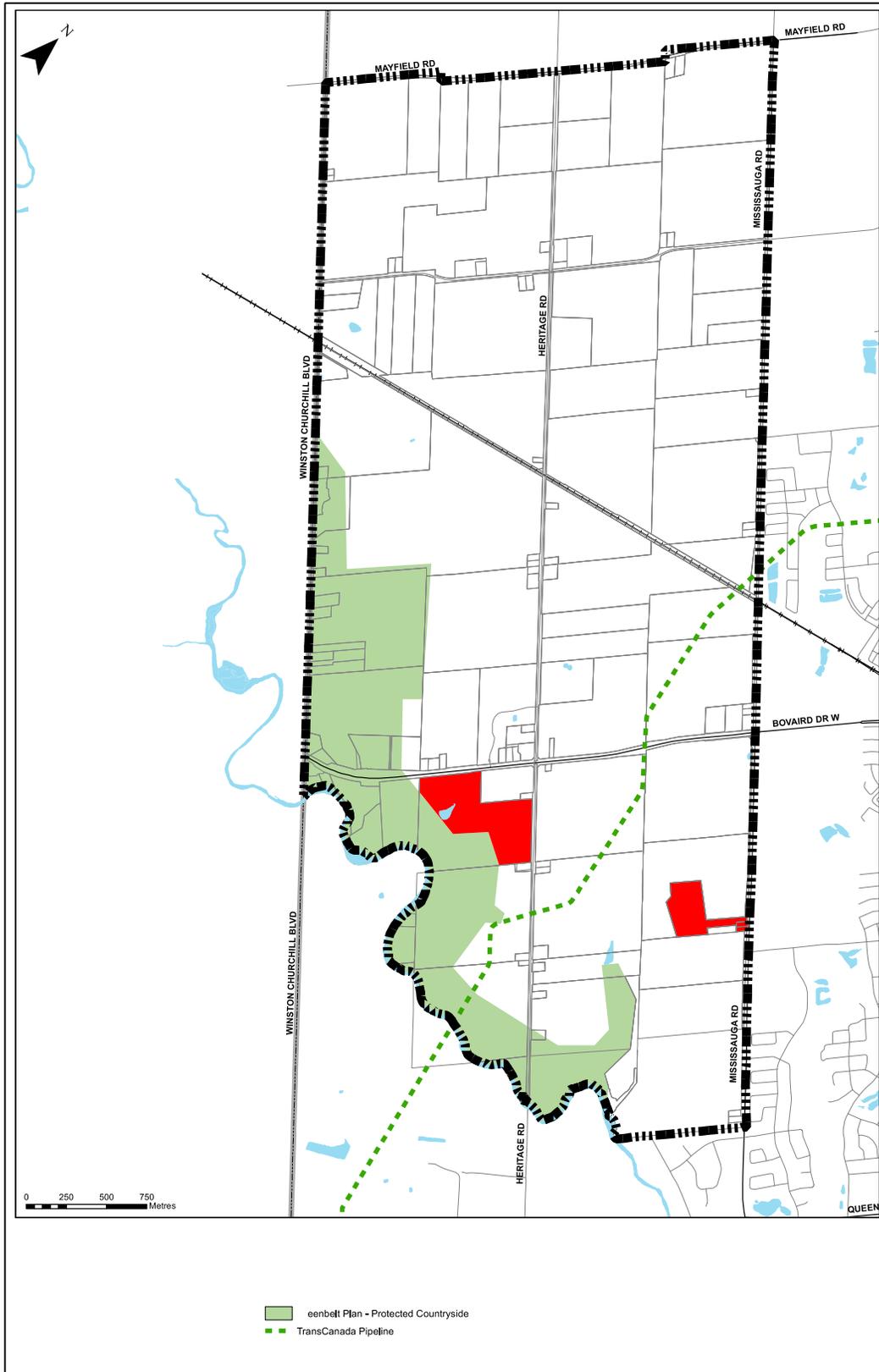
The NWBPA is also the site of the following infrastructure (also shown on **Map 4**):

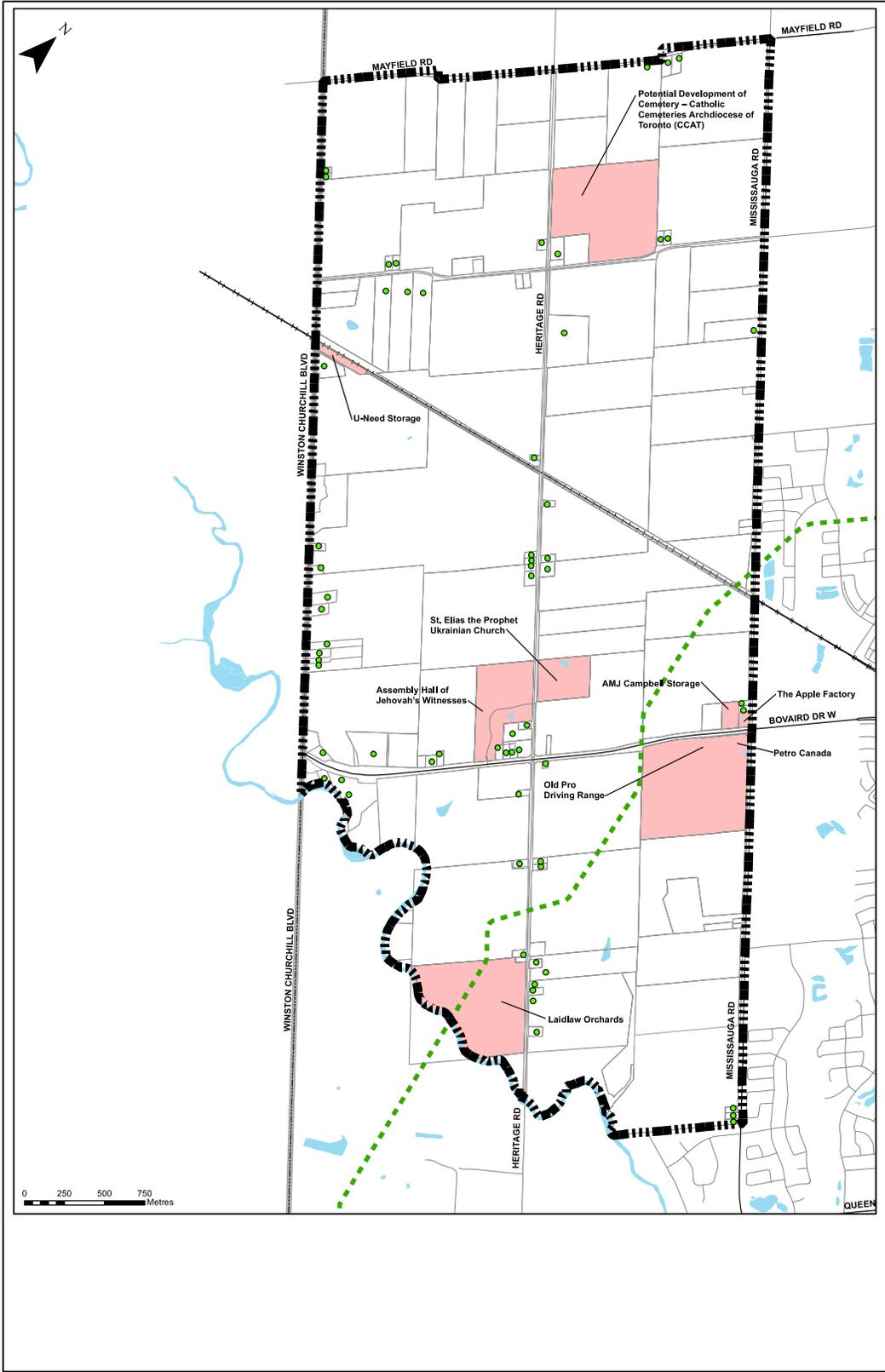
- Region of Peel - West Brampton Water Pumping Station and Reservoir (Mississauga Road, south of Bovaird Drive);

- City of Brampton Maintenance Yard (Bovaird Drive, west of Heritage Road);
 - The CN Railway (crosses the NWBPA from the northeast corner of Mississauga Road/Bovaird Drive to Winston Churchill Boulevard); and,
 - The TransCanada Pipeline (crosses the NWBPA from north of Mississauga Road southwest across the Credit River, just west of Heritage Road).
- With the exception possibly of the maintenance yard, it is assumed by the 2019 MPC NWBPA Report that the infrastructure above is fixed.









2.2 FUTURE INFRASTRUCTURE IN THE NWBPA

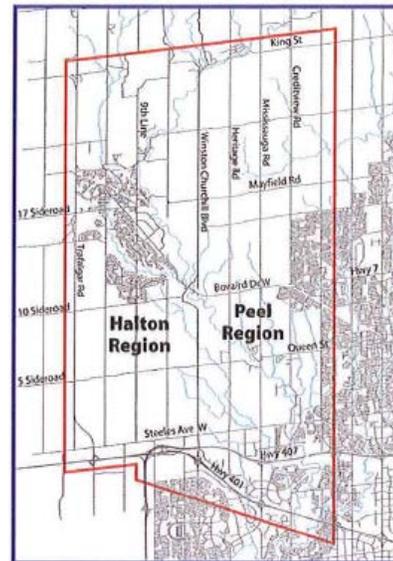
The purpose of this section is to highlight the significant interest in developing a north-south transportation corridor in the NWBPA. The reason this is relevant is because improving the transportation network in this part of the GTA is a significant public interest objective that has an impact on future land use in the NWBPA.

This is primarily because the area between the Georgetown urban area to the west and the current limit of urban development at Mississauga Road in Brampton is the only realistic location for such a north-south corridor. The location of the Credit River Valley in the Norval area that extends into Brampton also has an impact on the location of such a corridor.

2.2.1 HALTON-PEEL BOUNDARY AREA TRANSPORTATION STUDY

Interest in developing a north-south transportation corridor grew in the early 2000's, and a final report was prepared in 2010 entitled 'Halton-Peel Boundary Area Transportation Study Amended Final Report' (HPBATS (2010)).

The HPBATS (2010) study area is shown at the top of the next column.



The intent of the HPBATS (2010) was to identify a long term transportation network solution for the study area that addressed issues related to transportation network planning, long range land use planning, demand management and corridor protection planning.

A key driver of the study, as noted in the problem statement, is the following:

Over the next 25 years, the number of people who live and/or work in the Study Area is forecast to triple and that even with planned transportation improvements, the transportation network will not be able to accommodate the increased travel demand.

The HPBATS (2010) work program included a comprehensive consultation program and the preparation of a number of alternative transportation network options that considered a 'transit-first' strategy, travel demand management, active transportation and transportation system management.

A number of recommendations were made with respect to each of the considerations identified above.

In addition, the HPBATS (2010) put forth two long-term recommendations for the transit network and the road network to be implemented by 2031.

Below is a map of the HPBATS recommended transit network and road network.

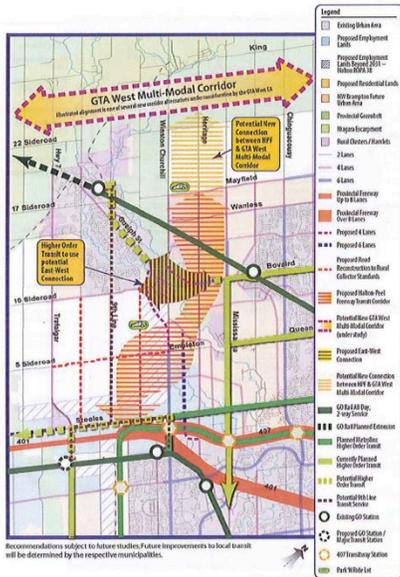


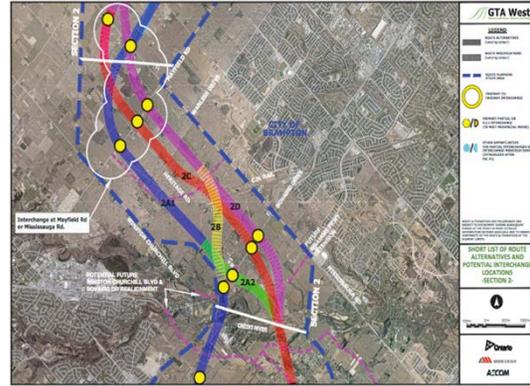
Exhibit H-1: HPBATS Recommended Transit Network, 2031

Additional work on the implementation of the HPBATS transportation strategy was halted as result of the initiation of the Greater Toronto and Area West Corridor Planning and Environmental Assessment study ('GTA West Study'), as discussed below.

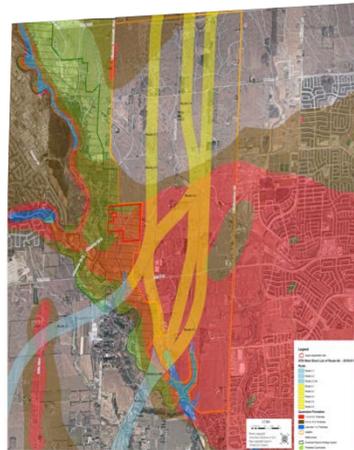
2.2.2 GTA WEST STUDY

The Ministry of Transportation ('MTO') initiated the GTA West Study in 2012. Stage 1 included a multi-modal Transportation Development Strategy (TDS) that was completed in November 2012. Stage 2 was initiated in 2014 and focused on identifying the route and developing the preliminary design for the new transportation corridor.

In the early stages of Stage 2, the MTO released a number of route alternatives. Below is a map that identifies the route alternatives through the NWBPA.



The route alternatives identified above extended through the shale resource area in the NWBPA, and in this regard, below is a map showing the route alternatives identified at the time (in yellow) and the shale resources within the NWBPA (shown in red and brown).



It is noted that the red colour on the map above identifies the areas with 1-8 metre drift thickness and the brown colour identifies the areas with 8-15 metre drift thickness.

On January 15, 2015, the City of Brampton prepared a letter to the MTO

indicating that staff continues to support a corridor alignment east of Heritage Road in the NWBPA, that is generally consistent with the Alignment of Options 2C and 2D, as proposed by the MTO.

In addition to the route alternatives identified by the MTO, the MTO also released a map during Stage Two that showed areas as being within the 'Focused Analysis Area' and the 'Development Review Area'.

Within the Development Review Area, municipalities were able to consider development applications with the Province being informed of any applications. The Focused Analysis Area was a more restrictive area where development applications were not encouraged due to route planning.

Virtually the entire NWBPA was within the Focused Analysis Area.

In December 2015, the MTO announced that the GTA West Study was being suspended indefinitely and that a panel would be struck to provide the Province with advice on whether to proceed with the GTA West Study.

On February 9, 2018, the Province announced that it would be accepting the GTA West Advisory Panel recommendation that a proposed highway in the GTA West Corridor is not the best way to address changing transportation needs in the GTA.

On the basis of the above, the Province will now be protecting a narrower corridor (1/3 the size of the Environmental Assessment analysis area) identified as the Northwest GTA Corridor from development while infrastructure needs such as utilities;

transit and transportation options are assessed.

The transportation needs of the corridor will be assessed through the Greater Golden Horseshoe Transportation Plan study that is now underway. The Northwest GTA Corridor Study is being undertaken by the Ministry of Transportation, the Independent Electricity System Operator, with support from the Ministry of Energy, and is not being conducted as an Environmental Assessment.

Given the decision of Province with respect to the GTA West Study, the following was stated in a Region of Peel Staff Report dated April 10, 2018 entitled 'Implications of the Current Provincial Planning Context on Major Planning Initiatives in Peel':

The policy framework also requires that alignment; jurisdiction and financing mechanisms of a viable north-south transportation corridor are in place to the Region's satisfaction before development can proceed. Cancellation of the GTA West Corridor Environmental Assessment means that the results of the long dormant Halton-Peel Boundary Area Transportation Study to plan for a north-south transportation corridor in the area will need to be revisited. Regional staff is gathering information to develop a terms of reference for future studies which would include evaluation of the long-term transportation infrastructure needs for Northwest Brampton.

On the basis of the above, and regardless of the status of the GTA West Study (now the Northwest GTA Corridor Study), it is the position of the Region of Peel that the need remains for a higher-order transportation corridor in the NWBPA.

2.2.3 FUTURE GO STATION AND LAYOVER FACILITY

In addition to the above, Metrolinx identified a location west of Heritage Road as one of fifty (50) potential sites for a new GO Station in the second stage of their analysis across the GTA.

On June 28, 2016, the Metrolinx Board approved 12 new stations across the GO Transit Network. The potential Heritage Road Station was not identified as one of the new stations. However, Appendix 2 to the Metrolinx Board Report identified the Heritage Road Station, among others, as a location for future consideration.

In a City of Brampton Council Report from February 16, 2018, it is noted that the City is also interested in identifying a site, in consultation with Metrolinx, for the protection of land for a GO Layover Facility in the NWBPA.

2.3 POTENTIAL HOSPITAL IN THE NWBPA

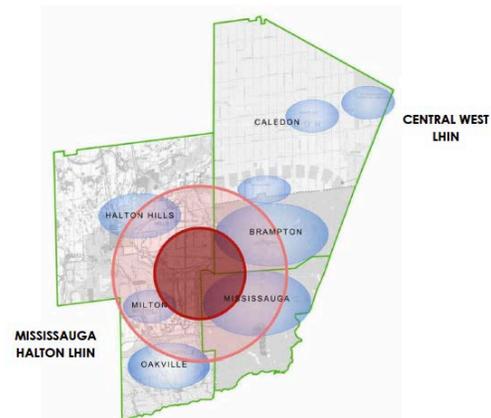
Given the location of the NWBPA and the significant growth expected in the Region of Peel, the Central West Local Health Integration Network ('LHIN') released a study ('LHIN study') in the Fall of 2014 that was jointly developed for Central West and Mississauga Halton LHINs that reviewed the need to protect land for a future health care use.

The LHIN study was completed using the projected growth in their study area between 2006-2041.

The majority of the study area for the LHIN study was located in Brampton. The report estimated that up to an additional 450 acute care beds would be required by 2041 based on the projected population growth of

approximately 500,000 people in the study area.

Below is a map of the study area in LHIN Study.



The LHIN Study indicates that the North West Mississauga and West Brampton Area are the most significant areas for growth in the study area that warrants further site analysis to determine whether a future site is likely to be required in the next 15 to 20 years.

The LHIN Study concludes with a summary and a number of observations based on the population demand in the study area. The summary indicates the following:

There is sufficient knowledge and demand to warrant securing a site in West Brampton.

In addition to this finding, one of four summary observations is specific to West Brampton and it reads:

West Brampton would be an ideal location for a site to be secured well in advance of the need for an additional Hospital.

The report also indicates as part of the LHIN Study that a preliminary investigation was undertaken on

provincial and municipal lands within the West Brampton area. It noted that there are no existing properties that are considered to be a candidate, however the following is stated:

We did have a preliminary discussion with the City of Brampton staff and there is interest at the staff level to pursue a possible institutional campus in West Brampton that would include a Hospital site - similar to the process undertaken by the City of Vaughan.

In addition to the above, the Central West LHIN submitted a letter to the City of Brampton, dated November 26, 2015, that discusses the longer term needs for future health care use and provided the following suggested requirements for a future health care/hospital use:

- *Given the size of the facility, parking requirements, setbacks and sufficient space for phased regeneration, 45 to 50 acres should be set aside for the development of the facility.*
- *It should be assumed that the site will be used for 50-100 years with expansion and regeneration.*
- *It is anticipated that the trend to move services out of a hospital into a community will continue.*
- *Wherever located, the facility should be compatible with surroundings and be developed as an integral part of the community.*

2.4 OTHER LAND USE CONSIDERATIONS

Below is a description of a number of other existing and potential land use considerations to note.

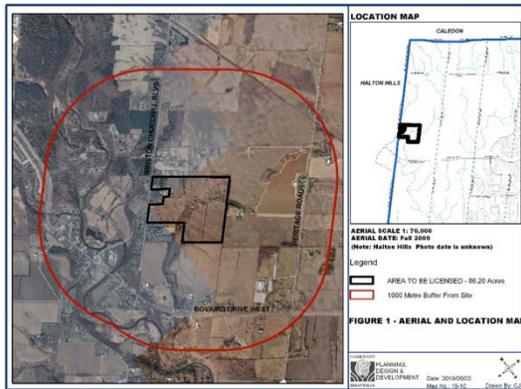
Firstly, the Catholic Cemeteries Archdiocese of Toronto ('CCAT') owns approximately 35.6 hectares of land

within the northwest quadrant of Wanless Drive and Heritage Road in the northern portion of the NWBPA. It has been reported that the CCAT wishes to develop a cemetery on the lands over the long term. However, the CCAT lands are within the Preliminary Preferred North-South Transportation Corridor that was developed as part of the Heritage Heights Secondary Plan. The lands in question are identified on **Map 4**, which is found at the end of Section 2.1 of this report.

Secondly, on February 17, 2016, the City of Brampton prepared a recommendation report to the Planning and Infrastructure Services Committee on comments received from the open house and agency circulation of a land use concept for the **Secondary Plan Areas 52 and 53 (Heritage Heights)**, which are both within the NWBPA.

This report referenced a number of infrastructure issues in North West Brampton that were identified in a Council resolution on April 22, 2015 that may influence land use planning in Heritage Heights. These included:

- City of Brampton Municipal Comprehensive Review (Official Plan Review);
- City of Brampton Office Strategy (Official Plan Review);
- City of Brampton Employment Policy Review (Official Plan Review);
- Environmental Assessment for the GTA West Corridor;
- North-West Brampton Shale Policy Review;
- Norval Shale Quarry Ontario Municipal Board Appeal;



Brampton Brick appealed both of these applications to the OMB.

In April 2018, Brampton Brick withdrew both of its applications; however, both the City and the Region established positions on these applications before they were withdrawn as briefly summarized below.

The position of the City of Brampton on the application was as per below from the City's website:

During the initial objection period of the application being submitted to the MNRF, the City of Brampton filed an objection in December 2010 on the grounds that the subject site was not zoned for the proposed quarry use and that there were outstanding concerns related to land use planning, transportation, natural environment, hydrogeology, surficial soil, visual, noise, cultural and social impacts, as determined by the initial peer review exercise.

The City of Brampton's website also indicated the following:

- *In September 2012, City Council confirmed its objection to the ARA Licence application. To date, The MNRF has not made a decision on the ARA application. On May 10, 2016, Brampton Brick Ltd. requested that the MNRF refer the Licence*

application to the OMB, to be considered along with the rezoning application.

- *In September 2014, informed by three peer previews undertaken by the City's consultants that identified number of deficiencies with the application and, based on input from the public and other stakeholders, City Council endorsed the staff recommendation not to support the re-zoning application, as proposed.*

With respect to the position of the Region of Peel on the applications, the following was recommended to Council by staff in a report dated September 28, 2017:

This report recommends that approval of the proposed Norval Quarry be opposed by Regional Council for the following reasons:

- The applicant has failed to demonstrate to the satisfaction of Regional staff and consultants, to the satisfaction of City staff and consultants and to the satisfaction of CVC staff and consultants that the impacts, risks and costs relating to Regional issues would be acceptable.*
- Regional Council is not satisfied that the Norval Quarry proposal meets the intent of the Regional Official Plan to achieve an appropriate balance between the benefits of aggregate extraction and the protection of the natural environment, community and other resources. Regional Council cannot conclude that the public interest in utilizing this shale resource, in this instance is sufficient to counterbalance the uncertainties, impacts, risks and costs of the proposal.*
- Although the Regional Official Plan recognizes the potential economic benefits of utilizing high potential*

mineral aggregate resources and the public interest of having a new source of high quality shale close to market, staff has not been satisfied by the applicant that the proposed extraction of the shale resource in this location can be undertaken without causing significant adverse impacts, risks and costs to ground and surface water resources, the natural environment, the local community, and to the economic interests of the taxpayers and residents of the Region of Peel.

- d. *The applicant has not demonstrated to the satisfaction of staff that the proposed mitigation plan and adaptive management plan will be capable of ensuring the timely protection of groundwater and surface water resources, natural features and functions and drinking water supplies, during and after operations and during rehabilitation.*
- e. *The applicant has not proposed an appropriate mechanism to ensure that short term and/or long term risks and costs that may be associated with the proposal are appropriately secured in an enforceable manner to ensure that there will not be a burden on Regional taxpayers or members of the public in the Region of Peel.*

On June 17, 2017, the Ontario Municipal Board held the first pre-hearing conference on the appealed re-zoning application by Brampton Brick Limited to the City of Brampton (PL110063). The second pre-hearing conference was held on October 20, 2017. A third pre-hearing date was scheduled for April 13, 2018 with a 90-day hearing scheduled to begin on September 10, 2018.

However, on April 6, 2018, the City of Brampton and Brampton Brick entered into Minutes of Settlement and withdrew its appeal of the City's non-decision on the re-zoning application and its referral of the license application to the OMB. Key elements of the Minutes of Settlement are below:

- The withdrawals are on a without prejudice basis, meaning that any future applications would have to be filed as completely new applications;
- The existing planning framework that identifies High Potential Mineral Aggregate Resources Area ('HPMARA') on the Norval Quarry lands will remain in place;
- The City of Brampton will consider whether any portion of the Norval Quarry lands may be appropriate for a request to the Province for potential removal from the Greenbelt Plan and, if so, to be considered by the City for inclusion as part of the NWBPA for urban uses; and,
- The City of Brampton, as part of its current Official Plan Review, would consider the staff recommended policies attached to the Minutes of Settlement. These recommendations propose to amend Section 4.15.4.1-4.15.4.11 and Section 3.2.9 of the City of Brampton Official Plan.

The Brampton Official Plan changes are premised on the boundary of the NWBPA being amended through a future Regional Official Plan Amendment such that they coincide with the Greenbelt Plan boundary. In this regard, the policy changes indicate that:

1. The warning clause that was already required for new Plans of Subdivision within 500 metres of the boundary of the NWBPA would be potentially revised following a further review of the NWBPA;
2. Staging and sequencing strategies within or adjacent to the NWBPA (as may be revised following a further review of the NWBPA) shall continue to address issues related to future shale extraction;
3. Planned development abutting the NWBPA shall incorporate appropriate intervening land uses (roads, stormwater management facilities, open space uses or other non-sensitive land uses) between existing or future resource extraction operations and sensitive land uses; and,
4. The City in consultation with the Region of Peel will review whether portions of the Brampton Brick site within the Protected Countryside designation might be appropriate for a request to the Province for the potential removal from the Greenbelt Plan to be added to the urban boundary of the Regional and Brampton Official Plans.

In a meeting held with Brampton Brick on April 20, 2018, Brampton Brick indicated that while they may have an interest in pursuing a new application on the Norval Quarry lands, they have no interest in developing a shale quarry on the urban lands in the NWBPA.

3. BACKGROUND, OMB DECISION AND RELATED POLICIES

A decision of the OMB dated December 8, 2006 set the stage for the moratorium and the analysis being completed in this report (PL050743).

The purpose of this section of the report is to review the OMB decision and the policies that were included in the ROP and the Brampton Official Plan ('Brampton OP') as a consequence.

3.1 ONTARIO MUNICIPAL BOARD DECISION

It was noted in the OMB decision that four separate Minutes of Settlement were provided to the OMB for their consideration at the time.

The primary Minutes of Settlement was entered into between the Province, the Region of Peel and the City of Brampton. These Minutes of Settlement included a modified Regional Official Plan Amendment 15 ('ROPA 15') and a modified City of Brampton Official Plan Amendment 93-245.

Other Minutes of Settlement provided to the OMB involved Brampton Brick Limited, the Sierra Club of Canada, the Region of Halton and the Town of Halton Hills.

At the time of the OMB hearing and decision, the lands that were the subject of the OMB hearing were the only lands not in the Brampton urban area.

The OMB decision itself provides a good overview of the events that led to the hearing itself and the eventual decision. Key extracts are below:

In order to determine the long term planning requirements for North West Brampton and to provide for the required infrastructure, City Council adopted on March 9, 2000 Resolution PB076-2000 that directed staff of the City to proceed with an Urban Boundary Review and initiate background studies for the North West expansion area.

In August 2000 City Council endorsed a two-stage planning process starting with Phase 1 that included an Employment and Residential Land Demand Study for the City of Brampton, a Shale Resources Review and a Transportation Infrastructure Review.

City Council, in December 2002, endorsed Phase 2 that directed staff to hold a public information meeting and to proceed with further component studies to address Environment and Open Space, Agriculture, Municipal Finance and Servicing. During this time frame, the Region advised the Ministry of Municipal Affairs and Housing of Brampton's initiation of a review of the proposed urban boundary expansion and included the letter on June 25, 2001 the Region's comments on the draft Land Needs Study prepared by Hemson Consulting.

On March 21, 2002 the Region held a statutory public meeting to determine the need for a review of the Regional Official Plan. It was determined that a Regional Official Plan Strategic Update would be required examining issues through four Focus Areas including Environment, Human Services Planning, Regional Structure and Transportation.

In terms of the intent of the Region of Peel and the City of Brampton at the time, the extract from the OMB decision below was clear:

The evidence of Mr. Waters is that PA 93-245 represents a high-level policy document that proposed to expand the urban boundary of the Official Plan of the City to include all of North West Brampton into an urban area. OPA 93-245 attempts to balance competing interests such as shale protection and agriculture while planning to accommodate a portion of future population growth and employment growth that has been forecasted for the Region of Peel. No general land use designations or natural heritage features are designated in OPA 93-245 but it provides a policy framework to guide subsequent stages of Planning for North West Brampton and the ultimate release of the lands.

With respect to shale resources and the Minutes of Settlement entered into at the time, the OMB decision stated the following:

The settlement with the Province of Ontario covers shale protection, the Growth Plan and the Greenbelt Plan. Policies have been added that continue to protect the shale resource and make it available for extraction west of Mississauga Road for a minimum of 10 years. Section 4.15.1 of OPA 93-245 clearly states that it is the policy of the Council of the City to ensure that the applicable requirements of the Growth Plan are met in the planning and development of North West Brampton.

With respect to the Minutes of Settlement with Brampton Brick Limited, the OMB decision recounted the following evidence given by Mr. Waters on behalf of City of Brampton and Mr. Hill on behalf of the Region of Peel:

The evidence of Mr. Waters is that the settlement with Brampton Brick Limited helps to clarify the Provincial position on shale protection and removed any perceived imbalance that would prevent the processing of a rezoning application

for a shale extraction operation in the Corridor Protection Area.

The above extract reflects the addition of Section 5.3.4.2.2 f) i) into the ROP by ROPA 15, which permits shale extraction in the NWBPA without an amendment to the Official Plan being required.

With respect to the findings of the OMB, the two paragraphs below summarized these findings:

Based on the viva voce evidence and the volumes of studies, reports and assessments, the Board finds that a lengthy exhaustive comprehensive planning process has been undertaken by the City of Brampton and the Region of Peel. Based on the planning evidence of Mr. Waters and Mr. Hill, the Board finds that the planning process considered all of the requirements for an urban boundary expansion set out in Section 7.9.2.8 of the Regional Official Plan and Section 1.1.3.9 of PPS 2005.

Based on the opinion evidence of Mr. Hill, the Board is satisfied that the guidance set out in section 7.9.2.8 for an expansion to the Regional Urban Boundary has been met. Based on the evidence of Mr. Waters, Mr. Hill and Mr. Hagerty, the Board finds the tests set out in Section 1.1.3.9 of the PPS 2005 have been met.

The evidence of the two planners was thorough and consistent and withstood the test of cross-examination. The expert opinion of the agrologist combined with his practical knowledge of farming is clear that the strong consideration for agriculture in the PPS 2005 must be balanced with all other planning considerations in the PPS 2005 including the expansion of a settlement area.

With respect to the Growth Plan, the OMB decision stated the following:

Based on the evidence, the Board finds that the amended OPA 93-245 and ROPA 15 will enable the Region and the City to substantially implement the Growth Plan for the Greater Golden Horseshoe (2006) and at the same time the Places to Grow Act 2005 and Growth Plan, in the detailed planning and development of North West Brampton, will ensure that density and intensification requirements are implemented.

Counsel for the Province of Ontario submits that the modifications and resulting amendments to ROPA 15 and OPA 93-245 adequately address the provincial interest in accommodating growth.

Within the Minutes of Settlement entered into between the Province, the Region and the City of Brampton, the following is noted Item 4 as it relates to the Growth Plan:

On June 16, 2006, the Province of Ontario released a Growth Plan for the Greater Golden Horseshoe, 2006 (The Growth Plan), pursuant of the Places to Grow Act, 2005. The parties hereto agree that the urban expansion authorized by ROPA 15 and OPA 93-245 is subject to the policies of the Growth Plan, except for Policy 2.2.8, by virtue of Ontario Regulation 311/06 as amended by Ontario Regulation 324/06.

The above meant that the requirements of Section 2.2.8 dealing with Municipal Comprehensive Reviews did not apply to the OMB decision.

A key addition to the ROP through the Minutes of Settlement and ultimately by the OMB involved the addition of Section 5.3.4.2.2 f) iii) to the ROP. This section states the following (and remains in effect as of the writing of this report):

Notwithstanding the protection of the shale resource that is provided by the provisions of the NWBPA and the Regional Official Plan, and Policy 5.3.4.2.2 (f)(v) in particular, all long range planning, including approvals, financing and construction of infrastructure during this 10-year period shall proceed on the basis that all lands within the NWBPA will ultimately be used for urban purposes. In addition, land use planning steps prior to the adoption of amendments, including background studies, secondary planning and block planning, in relation to lands within the NWBPA may be undertaken on the same basis, and the Province and the Region shall actively participate, as appropriate, in any such infrastructure planning program or land use planning program for Northwest Brampton.

The above is also re-enforced in an additional (paragraph #7) of the same Minutes of Settlement.

The two paragraphs from the Minutes of Settlement above (#4 and #7) make it very clear that urban development will 'ultimately' occur in the NWBPA.

3.2 DETAILS OF ROPA 15

The 2006 OMB Decision amended all of the schedules to the ROP to implement their decision. In this regard, **Schedule A** was amended to reflect the location of the lands that were the subject of the Greenbelt Plan. **Schedule B** was also amended by removing the prime agricultural area designation from the NWBPA.

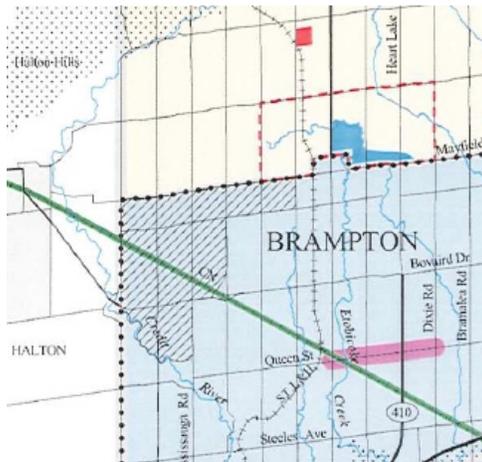
Schedule C was amended by reducing the extent of the High Potential Mineral Aggregate Resource Area to those lands in the NWBPA that were located to the west of Mississauga Road as shown below:



Schedule D was also amended to specifically identify the NWBPA as a component of the Urban System as per the map below:



The basis section of ROPA 15 provides a succinct overview of the rationale for including North West Brampton within the urban area, as set out below:



Schedule E was amended to identify the conceptual North-South Corridor/Bramwest Parkway Study Area through the NWBPA and lands to the south as shown in pink on the map at the top of the next column.

The impetus behind the need to expand the 2021 Regional Urban Boundary in Brampton and extend the planning horizon of the ROP for Brampton from 2021 to 2031 are:

- *Component studies in the area of growth forecasting, geology, environment, transportation, servicing and municipal finance undertaken for the City of Brampton since 2001 established the need to expand the urban boundary of the City to accommodate projected population and employment growth to 2031.*
- *The Growth Plan for the Greater Golden Horseshoe 2006 (Growth Plan) states the Province's expectation that 3.7 million additional people and 1.8 million jobs will be created in the Greater Golden Horseshoe by 2031. It is also notable that the Growth Plan designates Downtown Brampton as one of 25 "Urban Growth Centres" in the Greater Golden Horseshoe.*

- *With the exception of 500 acres of land adjacent to the Credit River Valley designated as part of the Greenbelt Plan, the remaining lands within North West Brampton are not subject to the recently released Provincial Greenbelt Plan. This amendment specifically achieves conformity with the Greenbelt Plan by identifying these Credit River Valley buffer lands as lands subject to the Provincial Greenbelt Plan.*
- *The expansion of the urban system to include all of North West Brampton is a logical extension of the existing urban boundary recognizing abutting development, the potential availability of Regional and City services and the need to protect for the future North-South Transportation Corridor.*

The rationale for including the NWBPA within the Brampton urban area remains as relevant today as of the writing of this report as it did in 2006.

Section 5.3.4.1 of the ROP, as amended by ROPA 15, includes a number of objectives, as set out below:

- 5.3.4.1.1 *To accommodate a significant portion of the future growth of the designated greenfield areas of Peel Region.*
- 5.3.4.1.2 *To develop complete and transit supportive communities.*
- 5.3.4.1.3 *To recognize and protect environmental features of Provincial and Regional significance.*
- 5.3.4.1.4 *To ensure the provision of major infrastructure while minimizing the financial impact on Peel Region and member area municipalities.*

5.3.4.1.5 *To achieve orderly, cost effective and timely development.*

5.3.4.1.6 *To provide for the protection of the provincially significant shale resource, in advance of urban development.*

The last objective in particular is particularly relevant in terms of identifying that the protection of the Provincially significant shale resource is time limited since urban development is anticipated.

Section 5.3.4.2.1 of the ROP, as amended by ROPA 15, speaks to the requirement in the future that the Growth Plan will be applied in the planning and development of Northwest Brampton.

Based on a review of a number of different documents, it is our opinion that these references to the Growth Plan speak to the overall desire of the Province to provide for more compact development in areas that can be serviced efficiently and which are located adjacent to existing development areas.

Section 5.3.4.2.2 of the ROP, as amended by ROPA 15, identifies the issues to be considered moving forward in the planning of the NWBPA as an urban area.

In this regard, they include ensuring that an appropriate natural heritage system is identified and protected, development is appropriately phased, development can be served by existing and planned road networks, and issues related to the north-south transportation corridor have been addressed.

Maximizing the opportunity afforded by the Mount Pleasant GO Station to provide significant transit service and the development of transit supportive land uses and densities is also mentioned.

With respect to shale resources, Section 5.3.4.2.2 f) i) of the ROP, as amended by ROPA 15, permits shale extraction without an amendment to the Official Plan being required. Sub-section ii) then indicates that wherever shale extraction is proposed it should not restrict alternatives for the planning of a potential north-south higher order transportation corridor in North West Brampton.

Sub-section v) then states the following:

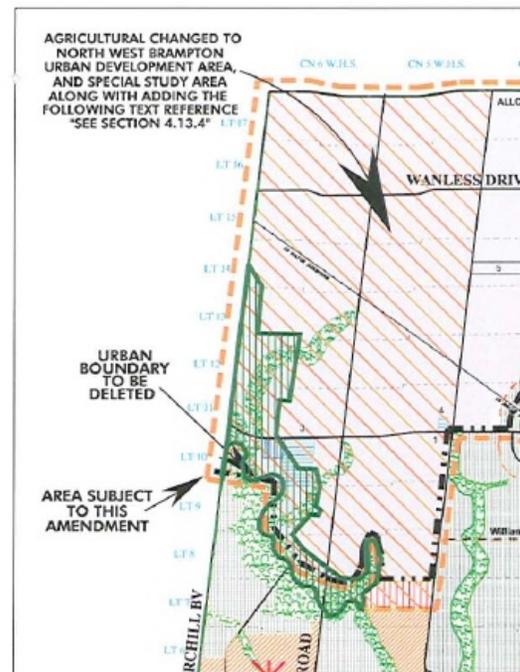
No amendment to the areal extent of the NWBPA or to the associated policy framework may be made for at least 10 years from the date of approval of this policy. Following the expiry of this 10-year time period, the Region of Peel, in consultation with the Province and the City of Brampton, shall undertake a review to determine whether it is in the public interest to replace the NWBPA with general urban land use designations. The factors to be considered in the review will be focused on a review of the following:

- *Whether any Licence under the Aggregate Resources Act has been issued for the extraction of shale on any lands in the NWBPA or whether any application has been made and is pending for such a Licence; and,*
- *An assessment of population and employment forecasts in the City of Brampton and the Region of Peel; and,*
- *Any relevant provincial policies then in effect.*

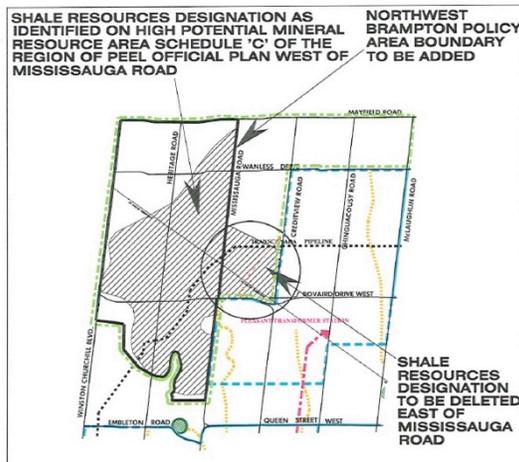
Each of the above criteria is dealt with in Section 9.0 of this report.

3.3 DETAILS OF OPA 93-245

The OMB also amended the Brampton OP in the same manner as the ROP by approving OPA 93-245. In this regard, **Schedule A** was amended to include the NWBPA within the North West Brampton Urban Development Area as per the map below:



Schedule D was also amended to remove the shale resources designation from lands on the east side of Mississauga Road as per the map at the top of the column on the next page.



Section 4.15.1 of OPA 93-245 clearly sets out the City's long-term vision with respect to the NWBPA as set out below:

The City has undertaken growth and land demand studies have concluded that to accommodate population and employment forecasts to 2031, it will be necessary to expand the urban boundaries set out in the Brampton and Regional Official Plans.

Provincial growth forecasts expect 3.7 million additional people and 1.8 million jobs to be created in the Greater Golden Horseshoe by 2031.

North West Brampton is immediately adjacent to the Official Plan Urban Boundary with the new development abutting this boundary and City and Regional services can be extended into the expansion area. It is therefore in the long-term public interest to expand the urban boundary of the Official Plan to include all of North West Brampton in order to provide certainty regarding areas intended for future growth in the municipality.

The North West Brampton Urban Development Area is intended to contain:

- (i) A residential community with a mix of housing types and densities to be determined through future*

- amendments to the Official Plan, Secondary Plans and Block Plans; and,*
- (ii) Strategically located employment lands positioned adjacent to future transportation and transit infrastructure.*

The policies below also specifically deal with shale resources:

4.15.5.1 Within the NWBPA, extraction of the shale shall be permitted to occur without an amendment to this Plan, subject to the property being zoned for mineral extraction in the City's zoning by-law and the issuance of a License under the Aggregate Resources Act.

4.15.5.2 In conjunction with the Provincial and Regional regulations, the City shall regulate a shale extraction operation and accessory uses to ensure that environmental and community impacts are minimized, consistent with the standards laid down in pertinent legislation and municipal regulations.

4.15.5.3 The City shall support the undertaking of environmental impact and hydro-geological studies in accordance with provincial legislation and policies of the Region of Peel and Credit Valley Conservation to ensure that significant features or ecological functions, surface and ground water resources are protected from the adverse effects of mineral extraction.

4.15.5.4 It is the policy of the City that the design of the extraction, operation and rehabilitation of any shale extraction operation shall not preclude the long-term use of these

lands for urban purposes and shall not preclude the subsequent urbanization of the site and surrounding area.

4.15.5.5 The City shall require that any shale extraction operation not restrict alternatives for the planning of the potential North-South Higher Order Transportation Corridor referred to in Section 4.13.4 of this Plan.

4.15.5.6 A warning clause shall be required, as a condition of development approval, for all residential plans of subdivision located within 500 meters of the NWBPA, as identified on Schedule "F" of the Brampton Official Plan. The warning clause shall

address the potential for impacts on the use and enjoyment of the subject property due to the possible interim use of lands in the NWBPA for shale extraction. Any development proposed in such areas shall be appropriately planned and designed to recognize the potential of a shale extraction operation within the NWBPA.

4.0 LOCATION OF SHALE RESOURCES

The purpose of this section of the report is to review the nature and location of shale resources in Southern Ontario (most notably the Queenston Formation) and in the NWBPA.

Shale used by the brick making industry is derived from the Queenston Formation. The map below identifies the location of the Queenston Formation, which extends from the Niagara Peninsula to just north of Owen Sound on the east side of the Niagara Escarpment.



It is noted that the information presented in this section is provided in chronological order beginning from 1996 and is sourced primarily from materials produced by the Ontario Geological Survey ('OGS') of the Ministry of Northern Development and Mines ('MNDM'). However, work completed by MHBC for the City of Brampton in 2002 is also referenced for completeness.

The OGS is responsible for the Aggregate Resources Inventory Program ('ARIP'), the purpose of which is to provide the basic geological information required to include potential mineral aggregate resource areas in land-use planning strategies and decision-making processes. According to the MNDM website, the OGS has existed for over 125 years.

4.1 1996 OGS REPORT (ARIP 165)

4.1.1 INTRODUCTION

In 1996, the OGS released Aggregate Resources Inventory Paper 165 ('ARIP 165'). ARIP 165 includes an inventory and evaluation of sand and gravel and bedrock resources in the Region of Peel.

ARIP 165 indicates the following with respect to the location of mineral aggregate deposits:

Although mineral aggregate deposits are plentiful in Ontario, they are fixed-location, non renewable resources which can be exploited only in those areas where they occur. Mineral aggregates are characterized by their high bulk and low unit value so that the economic value of a deposit is a function of its proximity to a market area as well as its quality and size. The potential for extractive development is usually greatest in areas where land use competition is extreme. For these reasons the availability of adequate resources for future development is now being threatened in some areas.

The following is then indicated with respect to the purpose of the Aggregate Resources Inventory Program:

The purpose of the Aggregate Resources Inventory Program is to provide the basic geological information required to include potential mineral aggregate

resource areas in planning strategies. The reports should form the basis for discussion on those areas best suited for possible extraction. The aim is to assist decision-makers in protecting the public well-being by ensuring that adequate resources of mineral aggregate remain available for future use.

4.1.2 BEDROCK RESOURCES IN THE NWBPA AND VICINITY

One of the products of ARIP 165 was map ARIM 165-2B that identified bedrock resources in Brampton and Mississauga. ARIP 165 indicates the following with respect to this map:

Three sets of contour lines delineate areas of less than 1 m of drift, areas of 1 to 8 m of drift, and areas of 8 to 15 m of drift. The extent of these areas of thin drift are shown by 3 shades of grey. The darkest shade indicates where bedrock outcrops or is within 1 m of the ground surface. These areas constitute potential resource areas because of their easy access.

The medium shade indicates areas where drift cover is up to 8 m thick. Quarrying is possible in this depth of overburden and these zones also represent potential resource areas.

The lightest shade indicates bedrock areas overlain by 8 to 15 m of overburden. These latter areas constitute resources which have extractive value only in specific circumstances. Outside of these delineated areas, the bedrock can be assumed to be covered by more than 15m of overburden, a depth generally considered to be too great to allow economic extraction (unless part of the overburden is composed of economically attractive deposits).

An extract from ARIM 165-2B is at the top of the next column.



The map above is difficult to read. However, Mississauga Road (which is the eastern boundary of the NWBPA) is located immediately to the right of the number 5 on the map.

The mapping from ARIP 165 was used as the basis for a 1998 OMB decision that resolved aggregate appeals to the ROP at the time. In addition, it was the mapping from ARIP 165 that was led to the identification of High Potential Mineral Aggregates Resources (HPMARA) in the ROP on Schedule C.

ARIP 165 indicates the following with respect to the Queenston Formation:

The Queenston Formation is well suited for the manufacture of structural clay products such as brick and tile, as the weathered surface layers are highly plastic and are suitable for extrusion processes (Guillet 1967).

Since some Queenston shale extraction operations essentially exploit this weathered "clay" layer, while others exploit a deposit of mixed "clay" and shale type, these licences may be classed either as pits or quarries. The Queenston Formation shales are not resistant to erosion and are unsuitable for load-bearing aggregate products.

The portion of the shale deposit that had a drift thickness of 8 metres or less and which was outside of the Brampton urban area at the time ARIP 165 was prepared was identified as a 'selected bedrock resource area'.

ARIP 165 indicates the following with respect to such areas:

Selected Bedrock Resource Areas shown on Map 2 are not permanent, single land use units. They represent areas in which a major bedrock resource is known to exist and may be reserved wholly or partially for extractive development and/or resource protection, within an Official Plan.

With respect to the inclusion of areas that have a drift thickness of 8 metres or less, the following was stated in ARIP 165:

The cut-off limit of 8 m is somewhat controversial, with some operators pointing out that only very high unit value chemical-grade limestone may economically be extracted from areas of 8 m drift cover. Rarely would a quarry producing construction aggregate strip more than 3 to 5 m of drift.

ARIP 165 then indicates the following with respect to the portion of the Queenston Formation identified as a selected bedrock resource area in Brampton:

Areas where the Queenston Formation are covered by less than 8 m of overburden have also been outlined for possible bedrock resource protection. The Queenston Formation is a provincially significant resource in the production and manufacture of brick and tile.

4.2 2001 OGS REPORT

In 2001, the OGS released a report (2001 OGS Report) entitled '#6058: A Regional Evaluation of the Shale

Resource Potential of the Upper Ordovician Queenston Formation, Southern Ontario' that evaluated shale resources of the Queenston formation across Southern Ontario.

The 2001 OGS Report indicated that shale resource quarries are primarily located in the area west of Mississauga and east of the Niagara Escarpment, in the Regional Municipalities of Halton and Peel. The 2001 OGS Report discussed the restrictions imposed by the Niagara Escarpment in some areas, but recognized that a considerable area of shale resource is located close to the surface and close to market.

In addition to the above, the 2001 OGS Report reviewed shale resource in the Regional Municipalities of Halton and Peel. In this regard, it was noted in the 2001 OGS Report that these areas host the widest part of the Queenston Formation outcrop belt and the largest areas of thin drift.

The 2001 OGS Report further identified that these areas are areas of rapid and intense urban development and thus access to future shale resources here are threatened.

The 2001 OGS Report included a section on Regional Resource Evaluations that reviewed the following areas: Niagara Peninsula, Region of Peel, Region of Halton, County of Dufferin, County of Simcoe and Grey County.

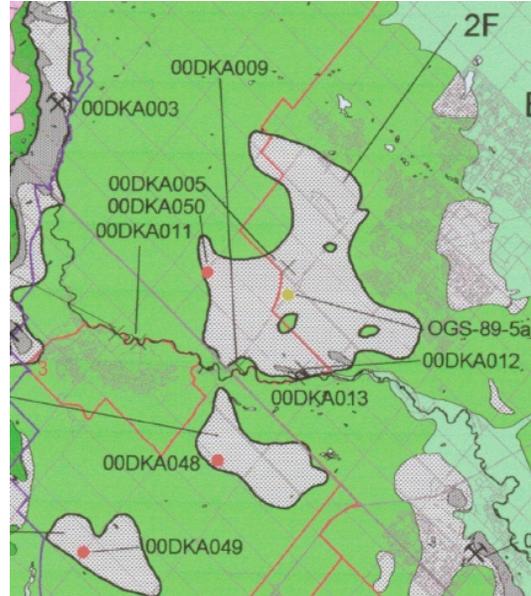
Below is a summary table summarizing where these shale resources are located based on the 2001 OGS Report.

| Location | Resource Evaluation |
|-------------------|--|
| Niagara Peninsula | Much of the shale resource areas are now urbanized. Two areas with thin drift cover remain, however, these areas are also located in areas of intense agricultural |

| Location | Resource Evaluation |
|---------------|--|
| | activity and are considered to be Specialty Crop Areas and the protection of these areas takes precedence over aggregate extraction. |
| Halton Region | <p>The largest areas of thin drift cover over the Queenston Formation are located in Halton and Peel Regions. The two Regions have 6 quarries that service brick manufacturing facilities.</p> <p>Oakville and Burlington are largely built over thin drift cover on the Queenston Formation. However, while these areas are ideal for shale extraction, they are also almost entirely urbanized.</p> <p>There are two sections of thin drift Queenston Formation in northern Oakville and northern Burlington that are presently not urbanized.</p> <p>The area in North Oakville is slated for urban development. The last remaining area in north Burlington is adjacent to the Aldershot Quarries.</p> <p>Milton has two large thin drift areas that are now included within urban land use designations and they are inaccessible as a result (these urban land use designations were placed on the lands by ROPA 8 in 1997).</p> <p>There are two locations of thin drift cover south of Georgetown. These have not been designated for urban development. There is one section of thin drift north of Georgetown and this area is currently the site of two small operating shale quarries. They are located within the Niagara Escarpment Plan area.</p> |
| Peel Region | <p>Brampton has a large thin drift cover area in its northwest quadrant.</p> <p>In Caledon, a shale resource area exists in the Cheltenham area and it is identified in the Town of Caledon Official Plan as a potential extraction area.</p> |
| County of | A few thin drift cover areas are located in Dufferin County. They |

| Location | Resource Evaluation |
|-------------------------------|--|
| Dufferin | are relatively small compared to the large areas of thin drift in Halton and Peel Regions. Most of the lands are currently non-urban. |
| Simcoe County and Grey County | <p>Most of the Queenston Formation in Simcoe County is located within the NEC area. Grey County has five areas that are overlain with thin drift cover. Two of these areas are primarily located in the NEC. Three other thin drift cover areas are fairly large and located outside of urban areas.</p> <p>A detailed assessment of the potential for shale extraction, after known constraints have been applied in Simcoe and Grey Counties has not been carried out by the Province.</p> |

With respect to the NWBPA, the map at the end of the 2001 OGS Report (as shown below) identified the same bedrock resource area that was identified in the ARIP 165.



4.3 THE 2002 MHBC REPORT

One of the reports prepared by the City of Brampton leading to the decision to include the NWBPA in the urban area

was the 'Shale Resources Review Final Report' dated July 2002.

This report was prepared by MacNaughton Hermsen Britton Clarkson (MHBC) Limited and ESG International (MHBC/ESG Report (2002)).

The MHBC/ESG Report (2002) was prepared as part of a series of background studies being undertaken by the City at the time to determine opportunities and constraints relating to the expansion of the City's Urban Boundary and its implications on the long-term development potential for lands in the then named Northwest Expansion Area.

Phase 1 of the work program consisted of general background research on the resource, study area and the brick making industry. The result of this phase was the creation of a Focus Areas map that identified shale resources in the study area with varying overburden thickness and with no overriding land use or environmental constraints to preclude resource extraction.

Phase 2 of the work program included subsurface geological testing in specific locations within the Focus Areas to provide additional data to verify previous findings and new information.

It was noted in the MHBC/ESG Report (2002) that the drilling program assisted in determining the viability of the shale resources for use in making bricks.

Some of the results of the geological investigation prompted revisions to the Focus Areas map that was created in Phase 1. As a result of the drilling program, the quality analysis indicated that shale in the Focus Areas had high carbonate content and was not of very high quality for brickmaking.

It is noted that the Clay Brick Association of Canada ('CBAC'), who were consulted during the preparation of this report, disagrees with the conclusions reached in the MHBC/ESG Report (2002).

In addition, it has been noted by the CBAC and Brampton Brick that the quality of the shale from the Cheltenham quarry (which is in the same formation and in close proximity to the NWBPA) supports the manufacturing of high quality clay brick that is used in many residential and other buildings in the GTA. Lastly, it is noted that Brampton Brick would not have submitted applications to establish the Norval quarry if the quality of the shale was poor for brick making purposes.

However, the MHBC/ESG (2002) Report also noted the following with respect to quality:

Industry practices demonstrate that the shale would be sufficient for use in today's brick plants which employ sophisticated technology and blending processes in the production of bricks.

At the conclusion of Phase 2, it was further noted in the MHBC/ESG Report (2002) that the Final Focus Areas map underwent a further screening to determine those parts of the Final Focus Areas where shale extraction in the study area may be feasible. It was indicated that the main criteria used to delineate these Focus Areas were depth of overburden and deposit area size.

The following was then concluded in the MHBC/ESG Report (2002):

The Study found that the use of shale resource is likely not feasible in significant portions of the area identified in previous studies and

presently protected in the Regional and City Official Plans.

This finding is based on economically extractable overburden depths, existing land use and environmental constraints and associated fragmentation of the resource areas. The Regional Official Plan protected area could be reduced by 77%. The City Official Plan protected area could be reduced by 68%.

The following was also further indicated about how their recommendations should be considered:

The Remaining Resource Area identified in this Study are properly included as a known deposit of mineral aggregate which are intended to be protected unless further study determines that the resource use is not feasible or a comprehensive consideration of all interests determines that urban development would serve a greater long term public interest.

The Study provides information that should be taken into account in making the final determination for land use in the Study Area. In particular, the shale in the Study Area is not very high quality although it should not be excluded as a resource at this time as it can be used as a resource for brickmaking.

Also, the proximity of the resource to market is not a significant factor as compared to other types of mineral aggregates produced for the Greater Toronto Area.

Transporting shale or bricks from areas outside the GTA would not have a significant economic effect relative to the price of a home where the brick products are used. Another finding of the Study was that the depth of recoverable resource may be limited by the presence of a saltwater layer in the underlying groundwater aquifer.

Below are a few of the other relevant findings of the MHBC/ESG Report (2002) that remain relevant in 2018:

Production: *The vast majority of Ontario's brick manufacturing is provided by the two dominant producers, Canada Brick Limited (four quarries and four plants) and Brampton Brick Limited (one quarry and one plant). All four of Canada's Brick's plants are located at quarry sources.*

Brampton Brick ships raw materials from their Cheltenham Quarry to their brick plant, a one-way distance of approximately 13 km. the quarries operate in a variety of rural and urban settings.

Canada Brick has a new plant in development at their Aldershot Quarry, expected to come on-stream in 2001.

Licensed Areas and Production Levels: *Licensed areas range from 15 to 100 hectares (ha) with extraction areas ranging from 12 to 62 ha. Quarries are generally operated at depths of between 15 to 20 metres.*

Maximum annual production as permitted by the licences ranged from just under 200,000 tonnes to over 500,000 tonnes, with one site not being subject to any production restriction. Actual production in the GTA was just over 1 million tonnes in 1998, the highest level for several years.

Overburden: *Overburden ranges in thickness from between 0.5 m to 5 m in active quarry areas. Thicker sequences of overburden may exist on-site but shale extraction is not considered economical.*

Less than 3 metres overburden is preferred but up to 5 metres can be taken in specific circumstances. The economic viability of removing overburden is dependent on a variety of factors and their inter-relationships, including resource quality, depth of

resource, location of resource and other factors.

Area Required For Licensing: A long-term supply (in the order of 30 years) should be available to justify a new license application. Ideally, quarry property would be 25 hectares or larger in size, significantly larger if a plant were to be located on the site. This sized site would leave ample room for setbacks, or other constraints to be accommodated.

An optimal scenario would be availability of a large site where a brick plant could be located in depleted quarry area while other reserves were still available on the site. In terms of an absolute minimum size, it is suggested that about 10 hectares extraction area would be required. This would yield 30 years reserve at 12 metres deep supplying 100,000 tonnes annually.

The Final Focus Areas map delineated the unconstrained shale resources areas that were not affected by overriding constraints.

In addition to the above, a number of considerations were applied to the Final Focus Areas map to identify Remaining Resource Extraction Areas where extraction may be feasible.

It was determined that an ideal quarry size would be 25 hectares or more with a minimum extraction area of 10 hectares (depending on the depth of the resource).

In addition, deposit areas were incorporated if they generally had less than 5 metres of overburden, were larger than 10 hectares and would yield greater than 3 million tonnes (30 years at 100,000 tonnes per annum).

Lastly, some additional areas with 5-8 metres of overburden depth were included as the delineation of the

boundary might not have been precise (based on interpolation of contours).

Quality, resource thickness and property fragmentation were also considered in the Remaining Resource Areas, however the MHBC/ESG Report (2002) indicates that these factors were only relevant to a final land use decision but they were not factors in reducing the Remaining Resource Areas where extraction may be feasible.

Below is the Remaining Resource Areas map, followed by a summary table for each identified area (note that Areas A and B are not being considered in the context of this report, as these lands are not located in the NWBPA).



| Area | Area (ha) | Depth (m) | Volume (10,000 m3) | Tonnage (million tonnes) |
|------|-----------|-----------|--------------------|--------------------------|
| C | 61.1 | 20.0 | 1,222 | 29.3 |
| D | 32.0 | 19.0 | 608 | 14.6 |
| E | 83.8 | 17.0 | 1,424 | 34.2 |
| F | 29.0 | 14.5 | 420 | 10.1 |
| | 205.9 | | | 88.2 |

Below is a summary of the MHBC/EGS Report (2002) conclusions pertaining to the making of a final land use decision at the time:

- There are quality limitations on the resource within the Study Area. It was noted that the shale within the Study Area is not very high quality for brickmaking, but there is

technology available to manufacture bricks of better quality (as noted previously, the CBAC and Brampton Brick do not agree with the assessment of quality).

- Quality limitations do not exclude the resource. Based on information from the brick industry, existing quarries and brick plants manufacture bricks from resources of similar quality using blending of resources to address variations in raw materials.
- The depth of the resource in the Study Area may be limited. A saltwater layer in the groundwater system (between 228 and 215 metres below ground surface) is across most of the Study Area and may represent a lower limit of the resource assuming quarries are to be dewatered.
- The economic importance of proximity to market is not significant compared to other mineral aggregates used in the GTA. Compared to other aggregates used for construction, tonnage of raw shale required by the industry is modest and most of it is not purchased by the public sector. Transportation accounts for 8-14% of the product price, which the report considers to be a minor portion of the final costs for brick houses built in Ontario. It is further noted that the economic viability of the industry does not appear to be compromised by the location of the resource and/or the brick plant. However, there are advantages from a social and environmental perspective to reducing haul distances.
- Fixed location of non-renewable resources should be given a high priority in determining land use policy. The PPS and the ROP include

policies that protect aggregate for extraction and it is noted that the protection of the resources should be considered in an urban expansion to include the Study Area.

At the end of the MHBC/ESG Report (2002) three options were presented:

1. Permit urban development;
2. Protect Resource Areas C, D, E and F and permit urban development elsewhere; or
3. Not permit urban development.

No recommendation was made in this report on a course of action to follow.

The report also considered the implications of Option 2 on the development of the remaining lands for urban uses. In this regard, the following was suggested, with these considerations remaining relevant at the time of the writing of this report:

- *Proposals for urban development proposals within 300 metres of a protected resource area would be supported by detailed site specific studies demonstrating that any development within 300 metres was appropriate taking into account a future extraction operation within the Resource Area.*
Such study may include recommendations for mitigation including design, buffering and separation that would prevent future adverse effects. (It should be noted that the Region of Peel presently has draft guidelines which provide direction for such studies. These guidelines may be adaptable to this policy context).
- *Transportation planning within the urban system and applications for subdivision approval must provide for appropriate haul routes from the protected resource areas. Future land uses planned along such haul routes should take into account*

potential for future heavy truck use. Use of regional major roads if the preferred option and truck traffic from resource areas should be directed towards these roads whenever possible. If use of local roads are required in order to access the regional road system, then uses along these routes should also take into account possibility of future truck use.

- *The design and extension of services for the urban system should avoid resource areas such that they are located around the periphery or at sufficient depth so that they do not affect resource availability. Setbacks along roads or, along the periphery of environmental features that form the boundary of several Remaining Resource Areas may be suitable locations where services could be located without affecting the viability of extraction.*
- *Extraction is an interim use. In preparing secondary plans and developing details design of urban neighbourhoods, the temporal transfer from pre-extraction, extraction to post extraction rehabilitated landform and after use will have to be taken into account. Detailed design should be focussed on final built form including post extraction land use in order to avoid an appropriate or compromised design based on a shorter-term perspective. Phasing of development may be required and development of some areas might be delayed pending extraction and rehabilitation/redevelopment of resource areas that are required in order to achieve optimal overall neighbourhood design.*

4.4 ARIP #165 - REVISED

The OGS re-issued ARIP #165 in 2009 and it was identified as 'ARIP 165 - REV'.

The main difference between ARIP 165 and ARIP 165 - REV is that the Queenston Formation in Brampton is no

longer identified as a Select Bedrock Resource Area.

In this regard, ARIP #165 - REV only identifies portions of the Amabel formation located above the Niagara Escarpment Brow because of its suitability in the road building and construction industry.

With respect to the Queenston formation (which is located below the Niagara Escarpment Brow), the following is then indicated in ARIP #165 - REV:

The Clinton and Cataract Groups have not been selected for possible bedrock resource protection, although the use and importance of these groups in the building and dimensions stone industry should not be minimized. While the Clinton and Cataract Groups and the Queenston formation may not be used in the aggregate industry, they are important sources of rock throughout the area the significance of them should not be overlooked (under-lining added).

Based on the above, it clear that ARIP #165 - REV focused on the bedrock resources that are required for the road building and construction industry and this is why lands within the Queenston Formation were not identified as 'Select' Bedrock Resource Areas.

However, ARIP 165 - REV continues to indicate the following, which is carried forward from ARIP 165:

The Queenston Formation is a provincially significant resource in the production and manufacture of brick and tile.

In addition to the above, the mapping of the bedrock resource areas in the NWBPA and area in ARIP 165 - REV is different from earlier reports. It is not clear why the mapping is different. Map 5 in Section 6.1 of this report

identifies the extent of the HPMARA boundaries in the NWBPA and the refined boundaries as per the ARIP #165 - REV.

Given the updated mapping, the HPMARA boundaries in the ROP and the Brampton OP as they relate to the NWBPA were no longer accurate when ARIP 165 - REV was released.

It is noted that the Clay Brick Association of Canada ('CBAC'), who were consulted during the preparation of this report, does not believe that the ARIP 165 - REV is not relevant since it focused solely on mineral aggregate resources required for infrastructure. In response, it was felt that all Provincial reports that dealt with the Queenston Formation should be summarized in this report for completeness.

4.5 2012 OGS SHALE REPORT

In 2012, the OGS prepared a report entitled 'Shale Resources of Southern Ontario: An Update.' For the balance of this report, it will be called the 2012 OGS Shale Report.

To some extent, the 2012 OGS Shale Report was prepared to specifically address the non-identification of portions of the Queenston Formation as a selected bedrock resource area in the ARIP 165 - REV.

It was indicated in the introduction section of the 2012 OGS Shale Report that the focus of many ARIP's has been on "true" aggregate resources. In this context, the term "true" aggregate resources refers to material used in the production of such traditional aggregate products as granular A, granular B, select sub-base material (SSM), crushed stone products, hot-laid (asphalt) and concrete aggregate.

It was then further indicated that while ARIP #165 did identify significant resources of the Queenston Formation shale used in the manufacture of brick and tile, ARIP #165 - REV did not identify these important industrial minerals, because of the low load-bearing capacity of the Queenston Formation.

This appeared to be a deliberate decision made by the MNM at the time, with the product of this decision being that portions of the Queenston Formation that were previously identified as a selected bedrock resource area in ARIP 165 were no longer identified as such in the ARIP 165 - REV.

It is noted that ARIP 165 - REV is the last ARIP produced for the Region of Peel, which means that the Queenston Formation continues to not be identified as a selected bedrock resource area. This will be a consideration in this report when the March 1997 Non Renewable Resources Training Manual is discussed in Section 9.0.

The purpose of the 2012 OGS Shale Report was then stated as follows:

Therefore, based on the concern that other important industrial minerals (e.g., high-purity dolostone from the Guelph Formation and shale resources from a variety of formations across southern Ontario) would not be identified during the land-use planning process, it was decided to produce a report and map that would identify important shale resources used in the manufacture of brick and tile.

The principles that form the basis of this report are similar to the ARIP reports, including the requirement that the shale resource must be of sufficient quality to be used by the industry. It is hoped that

this document and the accompanying map (Figure 1, back pocket) will be used by land-use planners in the same context and manner that ARIPs are.

The map referred to above is consistent with the mapping contained in the ARIP 165 - REV.

Reference was then made in the purpose section of the 2012 OGS Shale Report to an older document prepared in 1967 that indicated the following:

The conservation of raw materials for the heavy clay industry is becoming increasingly important in the urban area of Southern Ontario. Shales of the Dundas and Queenston formations outcrop mainly in the heavily populated Toronto-Hamilton area, where competition for land use is high.

The shales of this region are the principle of raw material for 92% of Ontario's brick industry." The following is also stated. "There is, however, at present acute concerns among producers that local demands for land use, and environmental restrictions imposed on resource based industries in urban areas, will result in the eventual demise of this basic industry in central Ontario.

Access to new shale resources is perhaps the single most serious problem for the industry in Ontario. Protection by certain Municipalities of small portions of their shale resources for future extraction needs is essential to brick industry is to survive.

The author of the 2012 OGS Shale Report then indicated that the above statement from the older report was still applicable (in 2012).

It is important to note that the 2012 OGS Shale Report clearly recognizes that the shale extracted from the Queenston formation is required for the manufacture of tile and brick and that a key element of the work completed

by OGS at the time was to ensure that land use planning authorities took the needs of the tile and brick making industry into account when making decisions.

This is contrasted with other types of bedrock resources that are required for road building and construction purposes, where the needs of the public authorities that fund the development of infrastructure need to be considered.

There is a considerable amount of discussion in the 2012 OGS Report on overburden thickness. In this regard, the following is stated:

One of the fundamental and underlying principles of the aggregate resources inventory program is the assumption that aggregate producers can strip up to 8 metres of overburden and still produce an economically viable product.

It was also indicated that the 8-metre limit was initially established during the development of a document entitled "A Policy for Mineral Aggregate Resource Management in Ontario" in 1977.

It was then further indicated in the 2012 OGS Shale Report that the CBAC confirmed that the stripping of 8 metres of overburden was the maximum amount that could be removed in order to remain economically viable in 1977.

Further reference was then made to a 1978 study prepared by Proctor and Redfern for the Clay Brick Association that used the 8-metre limit as the basis for calculations of future shale reserves.

With the above statements, it is clear that it is much more economical and therefore much more feasible to extract shale if the drift thickness is 8 metres or less.

The following was then indicated in the 2012 OGS Shale Report with respect to the relationship between the depth of overburden and the cost of producing brick:

The cost of overburden stripping must be balanced with all other costs involved with producing a brick. If a producer can realize a price benefit or savings in one area of his production cost, they may be able to endure higher than average costs in another aspect of production. The price of production and the price of the commodity greatly influence stripping and production costs.

The price of a commodity is extremely important. For example, the amount of overburden removed and the cost of stripping may be much higher and still economically feasible over a high-purity, high-quality dolostone used in the manufacture of metallurgical flux, than the amount of overburden and the cost of stripping over a lower cost aggregate product (e.g., crushed stone used in the production of hot-laid asphalt stone).

In the end, the author of the 2012 OGS Shale Report made the following definitive statement:

In 2008, the maximum or preferred stripping limit of 8 m was reconfirmed verbally and in written correspondence to the author by brick industry representatives.

Once again, the stripping of less than 8 m of overburden is certainly preferred but resource areas with less than 8 m of overburden are becoming rare because of urban expansion and restrictive land-use planning policies.

With respect to whether shale resources are present in the NWBPA, the ARIP 165, the ARIP 165 - REV and the 2012 OGS Shale Report confirm that there are shale resources that are overlain with 1 to 8 metres of drift in the NWBPA.

4.6 OTHER SHALE RESOURCE AREAS IN THE REGION OF PEEL

There is one other shale resource area in the Region of Peel and it is located in the vicinity of the Cheltenham Quarry, which is located at 12470 Mississauga Road in the Town of Caledon and owned and operated by Brampton Brick.

According to Caledon Council Report DP-2013-001, the property has a long history of brickyard operations dating back to 1915 as set out below:

The Township of Chinguacousy purchased the property in 1972 with the intent of developing the site as a community park. Following amalgamation, the Ministry of Natural Resources (MNR) acquired the property from the newly established Town of Caledon for its shale resource. Shortly thereafter, MNR published a request for proposals and selected Brampton Brick Limited to develop the site for the purpose of shale extraction.

According to Robert Long in an Environmental Land Tribunal of Ontario ('ELTO') Decision from 2015, the Cheltenham Quarry was actively quarried from approximately 1912 to 1964 and the property was later acquired by Brampton Brick Limited in 1990.

Below is a brief chronology of the Cheltenham Quarry approvals that were also provided by Robert Long in the ELTO Decision:

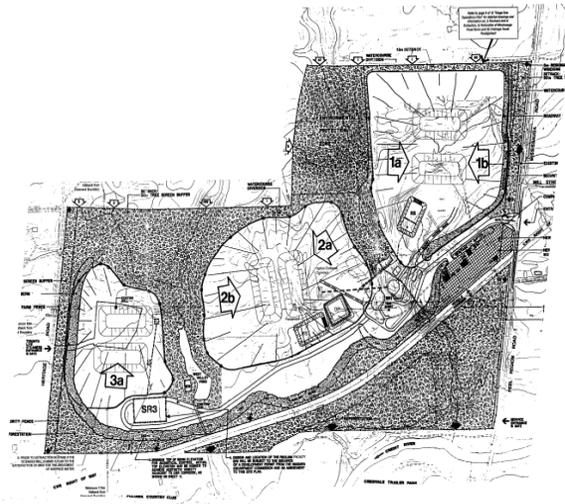
- Brampton Brick first applied for a development permit under the NEPDA in 1981 and for a Caledon Official Plan Amendment and also a Quarry License under the ARA in 1983.

- Amendments 12 and 15 to the NEP were made in the late 1980s that changed the designation of parts of the Quarry land from MREA to Escarpment Natural Area, Escarpment Protection Area and Escarpment Rural Area.
- An OMB hearing was held in 1988 to resolve objections relating to the Quarry's license under the Pits and Quarries Control Act (the predecessor to the ARA), including the adequacy of proposed rehabilitation.
- The revised development permit application was granted by way of Notice of Decision provided by the responsible Minister in 1989.
- As required by the Minister's 1989 decision, the Appellant and Peel Region entered into an agreement relating to water issues and truck traffic in 1990.
- As required by the Minister's 1989 decision, the Appellant and the Town of Caledon entered into a development agreement in 1990.
- The MNRF and the NEC approved a northerly expansion of Stage 1 in 2001. The development permit and site plan were amended to allow for this.

The Cheltenham Quarry is approximately 99 hectares in size and includes a three-staged extraction area.

The rehabilitation plan includes three isolated ponds for each stage. The map at the top of the next column is a graphic of the three-staged extraction area.

As indicated in the DP-2013-001 Council Report, Stage 1 was depleted after 18 years of excavation.



In 2009, rehabilitation of the site was initiated that included grading, topsoiling, herbaceous groundcover and the reforestation planting of approximately 1.5 hectares.

The DP-2013-001 Council Report also indicated that excavation of Stage 2 began around 2004 and remains active (as of the time of writing the report on January 22, 2013). Stage 3 remains undeveloped.

The expected lifespan of the Cheltenham Quarry was also discussed in the DP-2013-001 Council Report.

The Report predicted that Stage 2 could continue for another 15 to 20 years (as of the writing of the report on January 22, 2013) and that it was expected to be in operation for another 30 to 40 years in total, depending on market conditions.

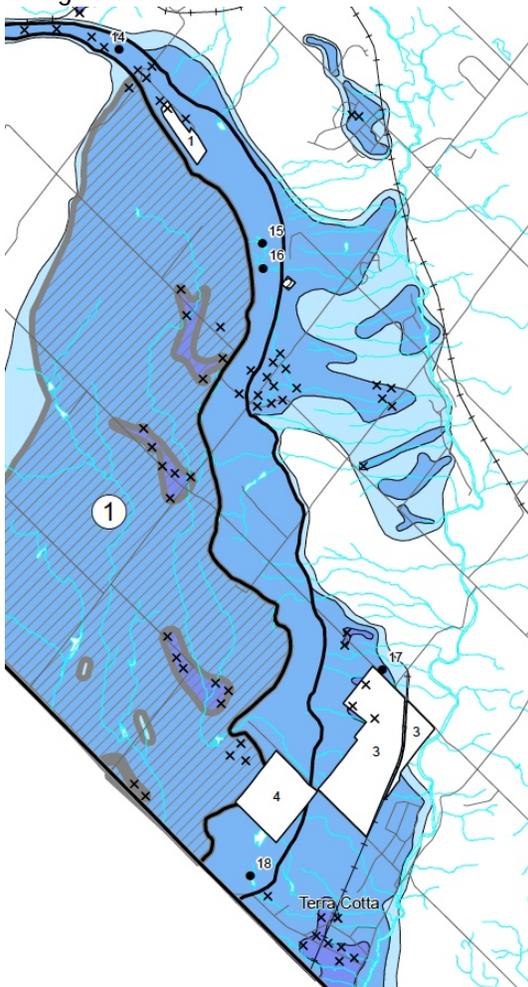
Using these predictions, this meant that the Cheltenham Quarry was expected to be in operation until the year 2043 and potentially until 2053.

It is noted that there are also additional lands in the vicinity of the Cheltenham quarry within the

Queenston Formation that could be licensed as well.

While these lands are within the Escarpment Rural Area designation (which allows for an application to permit extraction), the lands are bisected by a number of river valleys and creek systems that may have an impact on the feasibility of extraction.

The map below identifies the lands that are identified as having a drift thickness of 8 metres or less that are within the Queenston Formation and within the Escarpment Rural Area designation.



4.7 OTHER SHALE RESOURCE AREAS IN ONTARIO

The 2012 OGS Shale Report also reviewed the potential for shale in other geological formations to be used for brick making and in this regard, there are three other Formations of potential interest - the Georgian Bay Formation, the Cabot Head Formation and the Blue Mountain Formation.

With respect to whether the Georgian Bay Formation should also be considered in the analysis, the 2012 OGS Shale Report stated the following:

In 1987, 90% of all Ontario's brick and tile production came from the Queenston and Georgian Bay Formations. Since that time, the Georgian Bay Formation is no longer used to produce brick and tile, meaning that the Queenston Formation is the last, main resource of raw material.

Notwithstanding the above, the 2012 OGS Shale Report does include consideration of the Cabot Head and Blue Mountain formations, each of which have been suggested as alternative sources of raw material. However, the following was stated with respect to the Cabot Head Formation:

Based on the brick testing results unlimited geotechnical analysis, it is perhaps most unfortunate that the Cabot Head Formation is not a realistic source of raw material to the brick and tile industry.

The problem with trying to develop this resource is the following:

First, the Cabot Head Formation generally does not crop out extensively in southern Ontario as noted above. The formation is exposed along the rugged cliff face along the western shoreline of Georgian Bay and in the Niagara Falls

area. Generally, the formation is located in the subsurface of southern Ontario below a thick sequence of unconsolidated Quaternary-age sediments and a number of Paleozoic (rock) formations.

Second, the Cabot Head Formation is a rock unit that is generally exposed along the face of the Niagara Escarpment. Therefore, where the formation may crop out is within the Niagara Escarpment Development Plan (NEDP) area. The NEDP would impose a substantial planning constraint upon the licensing and extraction of this formation. Many areas where the Cabot Head Formation may crop out along the Bruce Peninsula are also within Provincial and National park boundaries.

With respect to the Blue Mountain Formation, it was indicated that the availability of lands within this formation for licensing and extraction is extremely limited. However, the following was indicated with respect to the Collingwood to Thornbury area:

Some potential for development may exist in the Collingwood to Thornbury area, but much of the resource area is located near Georgian Bay and would be limited by recreational housing and activities, and land-use planning policies. There are no quarry records, nor historical production facilities, to suggest that the Blue Mountain Formation has been used to manufacture brick and tiles commercially in the past.

As a consequence of the above, the conclusion below was made in the 2012 OGS Shale Report:

Despite the number of shale formations in Ontario, many of these shale formations are, and never were, potential sources of raw material to be used in the manufacture of brick and tile. This is because many of the formations are buried by a thick sequence of Quaternary-age sediments; are buried deeply by Paleozoic-age bedrock; have a high organic, sulphur or

bituminous content; or failed to pass standard brick tests.

Therefore, historically and in practice, only 3 shale formations have been used extensively to produce brick and tile: the Arkona, Queenston and Georgian Bay formations. Of these 3 formations, it is suggested in this report that only the Queenston Formation remains as a viable source of raw material. Between urban expansion, current land-use planning policies and overburden thickness, the Arkona and Georgian Bay formations are virtually eliminated from future extractive opportunities.

Therefore, it is vitally important to protect areas of the Queenston Formation, overlain by thin drift cover (less than 8 m), as a source of raw material for the manufacture of brick and tile for the foreseeable and distant future. Guillet and Joyce (1987) referred to the Queenston Formation as a resource of provincial significance.

As Vos stated in 1975, "Sequential land use will be a major tool in keeping this industry alive. To date the potential of this tool has neither been appreciated nor utilized." Almost 40 years after this statement was published, are we utilizing this land-use planning tool effectively?

In terms of where lands within the Queenston Formation having a drift thickness of less than 8 metres are located, these lands can be divided into the following geographies:

- The west shore of Owen Sound extending in a narrow band adjacent to the shoreline along the Niagara Escarpment;
- The Meaford area with the lands being located below the Niagara Escarpment extending from Owen Sound on the west to the Meaford Tank Range in the east;
- The Beaver Valley area, with the

lands located below the Niagara Escarpment stretching from Thornbury to Meaford;

- Creemore north with the lands located below the Escarpment extending north and south from Creemore;
- Cheltenham area;
- Lands within the NWBPA;
- Lands in the Aldershot area; and,
- Lands below the Niagara Escarpment brow between Hamilton and St. Catharines that are identified as specialty crop area in the PPS.

With respect to those portions of the Queenston Formation that are considered suitable for shale extraction, the 2012 OGS Shale Report stated the following:

As Guillet and Joyce (1987) stated, the Queenston Formation is a resource of provincial significance. It is the single-most important shale formation that has been used extensively in the past, and indeed today, to produce brick and tile. The resource is under a great deal of pressure from urban expansion in the Stoney Creek to Georgetown area. Provincial planning decisions and policies have also reduced the size of the resource area for licensing and extraction.

The Queenston Formation does exist in Grey County of southern Ontario but many of the areas where the shale is exposed are part of deeply incised river valleys and re-entrants (e.g., Beaver Valley area). Such locations may have other important planning constraints placed upon them. The Niagara Escarpment Development Plan is also a planning constraint that limits the licensing and development of the Queenston Formation in some locations along its geographic distribution.

As noted above, there is a limited

portion of the Queenston Formation that is potentially available for shale resource extraction.

However, while the focus of the above analysis has been on lands that have a drift thickness of up to 8 metres, there are other lands that have a drift thickness of between 8 and 15 metres in the Town of Halton Hills as well.

The following was then indicated in the 2012 OGS Shale Report with respect to the Queenston Formation in the Region of Halton:

Rowell (2008) reported that the overburden thickness overlying the Queenston Formation in the Regional Municipality of Halton (a prime shale producing area) can be extremely variable over short distances.

The Queenston Formation shale is very susceptible to weathering, erosion and downcutting, resulting in an extremely variable bedrock surface. In addition, many water well drillers, and indeed professional geoscientists, have a difficult time identifying the exact contact between the Queenston Formation bedrock surface and the overlying hard, reddish, clay-rich Halton Till that is present in this area. Therefore, overburden thickness can be quite variable within a single licensed property, leading to greater overburden stripping than the owner/operator may have anticipated.

Through the recent updating of the Region of Halton Official Plan, the location of potential resource areas south of Georgetown was updated based on ARIP #165 - REV.

Prior to the updating of the Region of Halton Official Plan in 2008 ('ROPA 38'), the Regional Official Plan was updated a few years prior in 2005 by ROPA 25.

In a Notice of Appeal of the adoption of ROPA 25 by the CBAC (received by the Region on July 19, 2004), the following was indicated:

The Clay Brick Association of Canada believes that the Region of Halton and an obligation and responsibility to act in the public interest and protect its increasingly scarce, accessible deposits of Queenston shale to ensure the sustainability of Ontario's clay brick industry.

In this regard, it was requested that Areas 8 and 9 shown on a map attached to the Notice of Appeal be protected, as shown below. It is noted that the map that was used at the time was based on ARIP 165, and as noted previously this mapping was later updated by ARIP 165 - REV in 2009.



Eventually, Minutes of Settlement were entered into between the Region and the CBAC with one of the terms being that the Region would carry out a more fulsome update as part of a broader Official Plan Review.

This broader Official Plan Review (known firstly as 'Durable Halton' and then as 'Sustainable Halton') eventually became ROPA 38 and ROPA 39.

As part of the ROPA 38 process, an analysis of the mapping provided to the Region of Halton by the OGS with respect to the location of shale resources was carried out.

On the basis of this analysis, it was determined that there were about 2,034 hectares included as potential primary shale resource areas on lands north of Highway 401.

After applying known Primary Constraints, about 1,785 hectares of shale resource area remained. Known Primary Constraints that could be mapped at the time included the following:

- Provincially significant wetlands;
- Escarpment Natural Area designation (Niagara Escarpment Plan);
- Escarpment Protection Area designation (Niagara Escarpment Plan);
- Floodways;
- Urban areas, hamlets and rural clusters;
- Minor urban centres (Niagara Escarpment Plan); and,
- Public lands (Niagara Escarpment Plan).

It was also noted that the habitat of endangered and threatened species and significant woodlands would also be considered primary constraints once their locations were determined and confirmed.

In this regard, secondary constraints included the following:

- Lands within 500 metres of an urban area, hamlet area or a minor urban centre;
- Lands within 120 metres of a provincially significant wetland;
- Lands within woodlands outside of the Greenbelt Plan;
- Lands within the natural heritage system in the Protected Countryside (not including provincially significant wetlands and significant woodlands);
- Lands designated Greenlands A and Greenlands B outside of the Greenbelt Plan (not including provincially significant wetlands and floodways);
- Other wetlands;
- Environmentally sensitive areas; and,
- Areas of natural and scientific interest.

A series of maps in the report (Maps 8A, 8B, 8C and 8D) identified the shale resource areas north of Highway 401 with all known primary and secondary constraints.

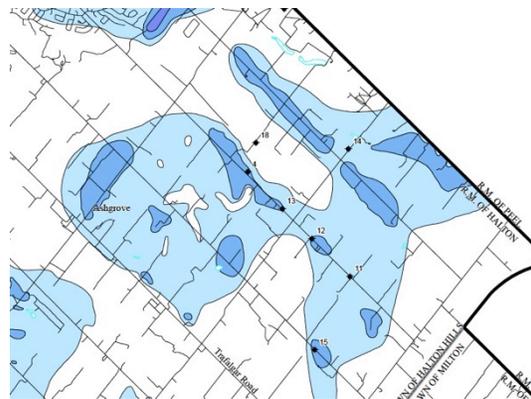
The mapping indicated that much of the land not subject to a Primary or Secondary constraint was in agricultural use, however there were certain areas that were also the site of homes on lots created by consent.

It was then indicated that some of these existing land uses might have an impact on the feasibility of extracting the resource. In this regard, mapping was also prepared (Map 8E) which identified the extent of the areas within 500 metres of every single detached dwelling in the rural area in relation to the shale resource areas. The mapping indicated that very little

land is not affected by this potential constraint.

However, it was also noted that Map 8E has only been prepared for illustration purposes and that the impacts of a shale quarry can often be mitigated in a manner that has an effect on the size of the setback.

Notwithstanding the above, it was determined that approximately 1,475 hectares of land was potentially suitable for shale extraction, net of all primary constraints and some secondary constraints. All of these lands were then identified in the ROP on Map 1F. However, the majority of the land so identified have a drift thickness of 8 to 15 metres, which is shown in the lighter shade of blue on the map below (the darker shade of blue applies to those lands where the drift thickness is 1 to 8 metres).



As the map above indicates, there are a few small pockets of lands with the lesser drift thickness throughout the area with one of the pockets being located on the west side of Winston Churchill Boulevard north of Steeles Avenue and another pocket located along the 10th Line between the 10th Sideroad and Steeles Avenue.

If it is assumed that only those areas that have a drift thickness of 8 metres or less are economically viable for

extraction, the amount of available land in Halton Hills and the Region of Halton is much less than the 1,475 hectares that were mapped in the Region of Halton Official Plan.

Notwithstanding the above, the shale resource mapping that was net of Primary Constraints was included on map 1F as a constraint in the Region of Halton Official Plan. In addition to Primary Constraints, an area within 500 metres of the Georgetown urban area was not included in the mapping, which means that ROPA 38 did not identify lands within 500 metres of the Georgetown urban boundary as a resource area. The Ministry of Municipal Affairs and Housing participated in the approval process of ROPA 38.

4.8 ACTIVE SHALE QUARRIES

The purpose of this section of the report is to review the existing shale quarries in operation in Southern Ontario and develop some conclusions on the amount of shale reserves in each.

Each of the active shale quarries in Southern Ontario is discussed below. An aerial image of each quarry is included at the end of Section 4.8.

4.8.1 CITY OF BURLINGTON

There are 3 shale quarry operations that are located in the City of Burlington. These are discussed below.

Meridian Brick (formerly Forterra Brick Ltd.) operates the Aldershot Quarries, which includes 3 quarry sites under one aggregate licence. Meridian Brick also operates 3 clay brick plants within the City of Burlington.

The Aldershot Quarries have been approved by the MNRF as a Class A Quarry with an unlimited maximum annual tonnage. The total licensed area is approximately 62.4 hectares.

With respect to reserves, the following was indicated in a report prepared for City of Burlington Council on July 20, 2016:

The Aldershot plant uses shale from the west quarry and the Burlington plant (Dundas Street) uses shale from the centre quarry. The west quarry is reported to have approximately 3-5 years of shale reserves while the centre quarry has approximately 6-8 years of reserves.

This report also indicates that the West quarry is still operational but has a limited lifespan.

According to the same Council report, in 2015 the City of Burlington was notified by Meridian Brick of their intent to begin preparing the east quarry for extraction. The east quarry is 16.4 hectares in size and approximately 10.8 hectares will be disturbed. The east quarry has a lifespan of approximately 25-30 years.

The Burlington Quarry is another shale operation that is operated by Meridian Brick and is located in the City of Burlington. This site is located at 5155 Dundas Street in the City of Burlington, south of the Highway 407 and is also the site of a brick-making facility.

The Burlington Quarry has been approved by the MNRF as a Class A Quarry with a maximum annual tonnage of 195,000 tonnes. The total licensed area is approximately 17.1 hectares. While the Burlington Quarry is still licenced for extraction, it is our understanding based on information provided by the CBAC that the

Burlington Quarry shale resource is now depleted and is undergoing rehabilitation.

The Tansley Quarry is also operated by Meridian Brick and it is also located in the City of Burlington. The Tansley Quarry is located north of Highway 407, west of Tremaine Road and south of No.1 Sideroad. It is approximately 38 hectares in size with an excavation area of approximately 30 hectares.

The Tansley Quarry has been approved by the MNRF as a Class A Quarry with a maximum annual tonnage of 300,000 tonnes. The total licensed area is approximately 37.8 hectares.

According to the Aggregate Impact Study (2015) prepared for the site, the Tansley Quarry has a lifespan of approximately 40 years. This lifespan is based on a licence capacity of 300,000 tonnes per year and truck activity of 40-45 trucks travelling in each direction per day to the Burlington Quarry brick plant located at 5155 Dundas Street (the same site as the Burlington Quarry discussed previously). The distance between the two locations is approximately 3.5 kilometres.

4.8.2 NIAGARA-ON-THE-LAKE

Meridian Brick (formerly Forterra Brick Ltd.) operates the St. David's Quarry which is the only shale quarry located in Niagara-on-the-Lake. The St. David's Quarry has been approved by the MNRF as a Class A Quarry with a maximum annual tonnage of 450,000 tonnes.

The total licensed area is approximately 41.43 hectares. Information was not readily available on the remaining lifespan of the quarry or the quantity of shale resource, if any, that are still being extracted today.

4.8.3 MUNICIPALITY OF NORTH MIDDLESEX

Brampton Brick Limited operates the Arkona Quarries in the Municipality of North Middlesex in Middlesex County. The Arkona Quarries include two areas. The North Quarry produced approximately 38,000 tonnes between 1963 and 1990 while the South Quarry produced approximately 87,000 tonnes between 1968 and 1990.

The two quarries obtained similar approvals with respect to their class and annual tonnage allowance for extraction, however the North Quarry is larger than the South Quarry. Both of the quarries produce deeper red shale that is utilized for products on industrial, commercial and/or institutional (ICI) types of buildings.

The North Quarry has been approved by the MNRF as a Class B Quarry with a maximum annual tonnage of 20,000 tonnes. The total licensed area is approximately 5.14 hectares. The South Quarry has been approved by the MNRF as a Class B Quarry with a maximum annual tonnage of 20,000 tonnes. The total licensed area is approximately 1.66 hectares.

In 2009, Paisley Brick and Tile Co. Ltd. quarried shale from the Arkona Quarries (owned by Brampton Brick) for its plant in the Village of Paisley. The brick plant is approximately 175 km north of the Arkona Quarries in the Village of Paisley. Brampton Brick has confirmed that they are not currently extracting shale resource from the Arkona Quarries.

4.8.4 TOWN OF HALTON HILLS

Limehouse Clay Products - a subsidiary of Jazbrick Group - operates the Limehouse Quarry in the Town of Halton Hills. The Limehouse Quarry is

the only shale quarry located in the Town of Halton Hills and it includes two licensed areas: the North quarry is under ARA Licence #5614 and the South quarry is under ARA Licence # 5711.

The North Licence (#5614) has been approved by the MNRF as a Class B Licence with a maximum annual tonnage of 20,000 tonnes. The total licensed area is approximately 12.8 hectares.

The South Licence (#5711) has been approved by the MNRF as a Class B Licence with a maximum annual tonnage of 20,000 tonnes. The total licensed area is approximately 3.24 hectares.

According to Halton Region's *State of Aggregate Resources, 2017 Report*, in March 2016, representatives of Jazbrick advised the agencies of a new proposal to amalgamate and replace the two Class B licences with one Class A licence. The intent of this change is to increase extraction depth by 10-15 metres, increase annual extraction limit to 150,000 tonnes (from current combined 40,000 tonnes) and to amend the ARA Site Plans to reflect the Class A licence requirements. However, it is noted in the Halton Region Report that the Region is not aware of a formal application submission on the above-noted proposed changes.

4.8.5 CONCLUSIONS ON RESERVES

Of the existing shale quarries described above, all but one of the existing quarries are extracting shale from the Queenston formation. The Arkona Quarries site, located in the Municipality of North Middlesex, is the only existing shale quarry that appears to be part of the Arkona shale formation.

There are three existing shale operations for which information was readily available on the remaining supply. As of 2013, the Cheltenham Quarry in the Town of Caledon was predicted to have approximately 30-40 years of remaining supply.

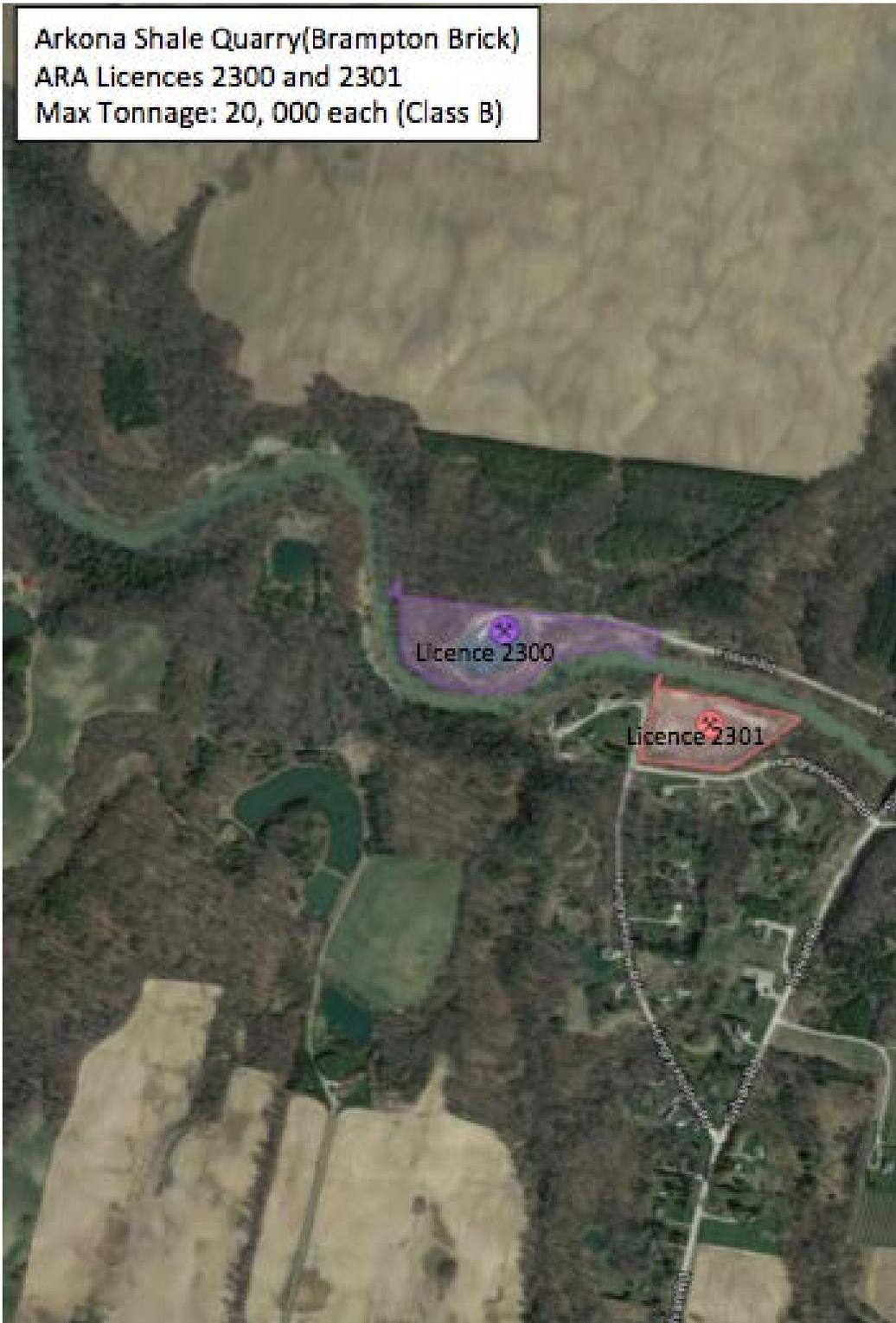
As of 2015, the Tansley Quarry in the City of Burlington had approximately 40 years of remaining supply. As of 2016, the Aldershot Quarries also located in the City of Burlington had a total remaining supply of 34-43 years.













5.0 BRICK MAKING

The purpose of this section of the report is to review the history of brick making in southern Ontario, the location of existing brick making plants and the economic value of the brick manufacturing industry to the economy of the Region and the relative importance of brick products in home building including an assessment of the installed costs of brick, and its relationship to transportation costs.

5.1 BRICK-MAKING

5.1.1 HISTORY OF BRICK-MAKING

A report prepared by the Ontario Geological Survey ('OGS') in 1993 entitled 'The Clay Products Industry and Shale Resources in Southern Ontario' provided an overview of brick making in Southern Ontario ('OGS 1993 Report'). In this regard the following was stated:

Brick making has been a feature of Ontario history from the time of the earliest settlement. The technology of brick making and building with natural stone was brought over from England and Scotland. Until the early part of this century, these materials were the most commonly used load-bearing materials for construction purposes.

For the period between 1910 and 1987, the following was stated in the OGS 1993 Report:

Significant changes have occurred in all aspects of the brick-making industry over the years. Brick production reached a peak in 1910 of 350 million bricks, but dropped sharply between the years 1910 and 1945 reaching a low in 1935 of 50 million bricks.

After World War II, production gradually recovered. Improved brick-making technology and increased efficiency of larger plants saw a dramatic decrease in the number of manufacturing plants.

In 1987, production from 10 plants (owned primarily by two companies) amounted to twice the volume (about 603 million bricks) of that produced by 186 plants in 1906 (Gartner Lee Limited et al. 1988).

The extract from the OGS 1993 Report below speaks to the use of bricks and alternatives to brick:

An estimated 90% of clay bricks (bricks made from shale are still referred to as "clay bricks") produced goes into residential construction (Guillet and Joyce 1989).

A high rate of construction and the building of larger prestige dwellings in suburban developments have increased Ontario consumption to its present level. In fact, large imports, at least 100 million bricks in 1987, from other provinces and the United States are required to satisfy the demand.

Recent trends in the development of the industry are discussed by the Institute for Research in Construction and Matex Consultants Inc. (1990).

In this paper (p. 102), it is stated that... "Unquestionably, the preferred exterior finish for housing in most of southern Ontario is clay brick. Elsewhere in the province, wood, stone, aluminum and plastic are alternative cladding materials which, for reasons of aesthetics or local availability, may be used in place of bricks".

Bricks no longer have a load bearing function in modern house construction; they serve as an aesthetic veneer to cover the structural frame and have an added value as insulation against rain and cold. Major competition to the use of clay brick is from imitation concrete brick, which is similar in most respects.

While the OGS 1993 Report indicated that bricks no longer have a load bearing function in modern house

construction, the CBAC has indicated that bricks continue to be the preferred exterior cladding for housing for aesthetic reasons, its superior durability and its thermal properties. While bricks used in residential construction do not have a load bearing function, the CBAC has indicated that the bricks have the capability of being load bearing.

In 2017, it has been estimated that approximately 240 million bricks are produced annually with an additional 40 million bricks imported to Ontario from other locations. These bricks are produced at 5 brick making plants in Ontario (discussed in next section).

Because of the presence of the Queenston Formation, there has been a long history of shale quarrying and brick making in Southern Ontario. The prevalence of the red shale from the Queenston formation is one of the reasons for the heavy use of brick in construction in comparison to other locations in North America.

Given the preferences of the market in support of brick construction, it is anticipated that demand will continue to be strong as population growth continues in the GTA, which is currently the fourth largest urban area in North America.

Given that a typical two-storey home is clad with about 12,000 bricks, the 280 million bricks consumed in Ontario would clad about 23,300 homes. In order to supply these bricks, capital-intensive quarries and brick making plants are required, which generates employment and induces additional indirect economic activity beyond the manufacturing component in the home building industry as well.

While there is some information on the economic impacts of brick making, it is limited to the publicly available information on how many are employed at the brick plants, which numbers approximately 150 employees in each. While every industry has spin-off effects, in terms of supporting other industries and businesses, a comprehensive analysis of the economic impacts of the brick making industry does not exist.

However, a review of the 4 brick making plants in Ontario is provided below.

5.1.2 BRICK-MAKING PLANTS IN ONTARIO IN 2018

A map of the brick-making plants in Ontario is below:



5.1.2.1 Jazbrick (1 Plant)

Century Brick Ltd., a subsidiary of Jazbrick, operates the Century Brick Plant in the City of Hamilton. The plant is located on the south side of Lawrence Road at the base of the Niagara Escarpment as shown below:



According to their website, Jazbrick is a leading manufacturer and distributor of bricks and stone products that are sold to both developers and single residential buyers.

According to their Company Profile on the Government of Canada website, their main product is veneer brick used in the construction of homes and buildings and their primary business activities include manufacturing, processing and producing bricks. It is also noted that the plant exports products as well.

5.1.2.2 Brampton Brick (1 Plant)

Brampton Brick Limited operates the Brampton Brick Plant and it is located in the City of Brampton. The plant is located on the south side of Wanless Drive just west of Hurontario Street as shown below.



According to their website, Brampton Brick's history as a company dates back to 1871. The plant is highly automated and it manufactures, processes and sells bricks mainly for residential construction.

According to Brampton Brick representatives, there are approximately 150 employees at the Brampton Brick plant. The website also indicates that in 2001, the plant was producing 300 million bricks a year making Brampton Brick North America's largest brick manufacturing facility under one roof. It is also the second largest brick producing plant in the world.

According to the Brampton Brick Limited Annual Report from 2016, the company is Canada's second largest manufacturer of clay brick, serving markets in Ontario, Quebec and the Northeast and Midwestern United States from its brick manufacturing plants located in Brampton and in Indiana.

With respect to risks and uncertainties, the Annual Report indicates the following:

The masonry products business is cyclical in that it fluctuates in accordance with the level of new residential and commercial construction within the company's primary market areas.

Sales of new homes are influenced by many factors, including general economic conditions, interest rates and the availability of serviced land in urban areas.

This business segment is also seasonal. Sales are greatest in the second and third quarters of each year and less in the first and fourth quarters.

The following is further indicated with respect to the raw materials required to produce clay bricks:

The principle raw material in the manufacture of clay bricks is shale. The company owns its own quarries in Cheltenham, Ontario and Farmersburg, Indiana, which it believes contains sufficient reserves to supply its requirements for these manufacturing plants for approximately the next 20 and 40 years, respectively.

In 2006, an additional 86-acre property was acquired in Brampton. The company is in the process of re-zoning and licensing this property for shale extraction. It is also noted that major productions costs include natural gas, labour, electricity and the depreciation of plant and equipment.

5.1.2.3 Meridian Brick (2 Plants)

Meridian Brick operates the Burlington Plant 1 & 2 in the City of Burlington. The plants are located on the north side of Dundas Street to the east of Appleby Line, with one of the plants shown below:



According to their website, Meridian Brick has a plant in Ontario and also has plants in a number of cities in the United States. Meridian Brick previously had a plant in Quebec, however that brick plant closed in January 2018. The plants process shale from quarries in the City of Burlington known as the Aldershot Quarries, Tansley Quarry and Niagara-on-the-Lake.

The website also indicates that Meridian Brick is the largest manufacturer and supplier of brick and masonry products in North America and produces about 55% of the clay brick manufactured in the Canada with 45% of that production taking place in Burlington. Meridian employs about 164 people at three clay brick plants and four quarries in Burlington.

The brick plant at the Aldershot Quarry was constructed in 2000 at a reported cost of \$60 million dollars.

5.2 BRICK MAKING AND HOUSE CONSTRUCTION

Based on a review of a number of home building sites, an average single storey home would require approximately 8,000 bricks. For a two-storey home that has a floor area of about 280 square metres, around 12,000 bricks would be required.

If it assumed that about 3.0 to 3.4 tonnes of shale are required to make 1,000 bricks, this means that about 40 tonnes of shale are required for an average two-storey home.

According to the Brick Industry of the Southeast Region (which is a trade organization representing a number of brick manufacturers in the southeast region of the United States) it has been estimated that the average installed cost of installing brick per square foot of wall area is \$8.38 (CDN). This

compares with vinyl at \$3.92, fibre at \$5.92 cultured/manufactured stone at \$16.26 and real stone at \$22.89 (all in Canadian dollars as of March 16, 2018).

In this regard, a typical 2,500 square foot two-storey house is estimated to have approximately 27,000 square feet of wall area, which assumes 15% of the wall being the site of openings such as windows and doors.

With this in mind, the installed cost of bricking a 2,500 square foot two-storey home would be about \$17,253.

In response to a request for information, Brampton Brick provided an approximate cost of bricks for a residential dwelling based on the current market in 2018. In this regard, Brampton Brick indicated that the approximate cost to brick the external walls of a 3,000 square foot house is between \$27,000 and \$30,000.

This cost is based on the use of 10,000 bricks (at standard residential size) and an installation cost of \$2.70 to \$3.00 per brick. It is noted that this cost includes both materials and installation.

According to the Ontario Contractors website, it is estimated that the cost to build a 3,000 square foot home (two-storeys) would be \$375,000, assuming that the cost per square foot is around \$125.

This cost does not include the price of the land, the servicing of the property and any other improvements required to the property. This means that the installed cost of the brick could range between 5.5% and 8.0% of the total construction cost of a home.

If it is assumed that the cost per square foot actually approaches about \$200

per square foot with higher end finishes (which admittedly could be slightly on the high end) this means that the cost of building a 3,000 square foot home would increase to \$600,000 meaning that the cost of the installed brick significantly decreases as a percentage to between 3.3% and 5.0%.

In terms of options, there are a few with respect to the exterior materials around a home. These include concrete/calcite brick, vinyl/aluminum or wood siding, stucco and adhered artificial stone.

It is clear that some additional research would be required on whether alternatives are being used in home building and whether substitute products would have market appeal in southern Ontario.

However, the Clay Brick Association of Canada does compare various products on its website and this information is presented on the next page.

Features of clay brick compared to other building materials (Source: Clay Brick Association of Canada website)

| Characteristics | Genuine Burned Clay Brick | Concrete or Calcite Brick | Vinyl, Aluminium or Wood Siding | Stucco and EIFS | Adhered Artificial Stone | What Clay means to You |
|----------------------------------|--|---|--|---|---|---|
| Colour | Enormous range of natural colours. | Limited range of pigment-added colours. | Limited colour range | Pastel monochromatic colours | Wide range of surface pigments | Improved resale value, lasting beauty. |
| Colour Retention | Never fades - colour fired in at 1040°C (1900°F). Look improves with age. | Colour fades over ten years time. | Depending on material, colours fade. Wood needs repainting. | Colour fades over time. | Colour fades over time. | Clay brick is virtually maintenance free and gives higher resale value. |
| Texture | Very wide range of bark, wire cut. Smooth antique textures in all colours. | Limited range. | Limited range. | Limited surface treatments. | Wide range of profiles that repeat. | Clay brick allows greater variety of design and beauty, resulting in higher resale value. |
| Strength | Typically 42-70 Mpa (6000-10000 psi) | Typically 20-28 Mpa(3000-4000psi) | Not load bearing. | Not load bearing. | Not load bearing. | Clay brick lasts for decades. |
| "M" Factor | Up to 8 hours for clay brick to transfer 17°C (30°F) difference from outside to inside wall. | Comparable to clay brick. | About 1 hour to transfer 17°C (30°F) difference. | Thin layer means minimal thermal mass. | Lightweight concrete and thin layer means minimal thermal mass. | Clay brick homes stay cooler in summer and warmer in winter. |
| Initial Rate of Absorption (IRA) | Approx. 20 gms/minute (.71 oz/minute) per 20,000 sq. mm. (30 sq. ins.) | 40-80 gms/minute (1.4-2.8 oz. minute) per 20,000 sq. mm. (30 sq. ins.) | N / A | Similar to concrete. | Similar to concrete | With Clay brick your home does not go through drastic colour change in rain. |
| Repair and Maintenance | Little or no maintenance required with proper design detailing and good clay brick practice. | Concrete eventually may require colour correction due to colour fading. | Replacement may be needed due to scratches, dents and warpage. Wood requires painting. | Caulking is critical and requires regular attention | Occasional units fall off, no mechanical anchors. | Clay brick looks better as it ages and requires virtually no maintenance |
| Impact Resistance | Resists everything from hail to golf balls to bullets with little or no damage. | Resists everything from hail to golf balls to bullets with little or no damage. | Dimples or punctures upon impact, bullets pass through unimpeded. | Minor disaggregation from hail, bullets pass through. | Minor disaggregation from hail, bullets pass through. | Clay brick protects you from hail, errant golfers and terrorists. |

5.3 COST OF TRANSPORTING SHALE

Brampton Brick has also provided some information on the costs associated with shipping shale resources from a quarry to a brick plant.

In this regard, Brampton Brick indicated that the normalized cost to ship one tonne over a distance of one kilometre is approximately \$0.08/kilometre. A full truckload is capable of holding 36 tonnes of raw shale, while a half truckload can carry 20 tonnes of raw shale.

If the distance between the resource and a brick plant was 20 kilometres, this means that the cost to transport a full truckload is approximately \$60.00 and approximately \$33.00 for a half truckload.

If it assumed that about 3.4 tonnes of shale are required to make 1,000 bricks, this means that about 34 tonnes of shale are required for an average two-storey home. This equates to about one full truckload.

This means it would cost about \$60.00 to transport the raw shale resource required for the bricks for an average two-storey home, and as mentioned previously, the installed cost of the brick can be as high as \$30,000. This means that the transportation cost of transporting the raw shale resource to a brick making plant that is 20 kilometres away is much less than 1.0% of the installed cost.

While the cost to the homeowner of transporting shale is relatively small, the CBAC has indicated that additional transportation costs could create competitive disadvantages for those suppliers who have to transport shale longer distances.

In a meeting with the CBAC on April 20, 2018, a question was raised about the cost of export shale products from the United States to Canada. It was indicated in response that the industry has been impacted by new cap and trade laws as well as new electronic truck travel logging requirements in the United States that have made exporting shale products to Canada more difficult.

Nonetheless, 40 million bricks were imported to Ontario from other locations in 2017.



6.0 CONSTRAINTS TO SHALE RESOURCE EXTRACTION IN THE NWBPA

The purpose of this section of the report is to identify an 'Area of Interest', which is the area within the NWBPA that may be viable for resource extraction.

The second purpose of this section is to identify the potential constraints to extraction in the revised 'Area of Interest' and to review the various studies on the viability of shale resource extraction prepared by some of the landowners in the NWBPA.

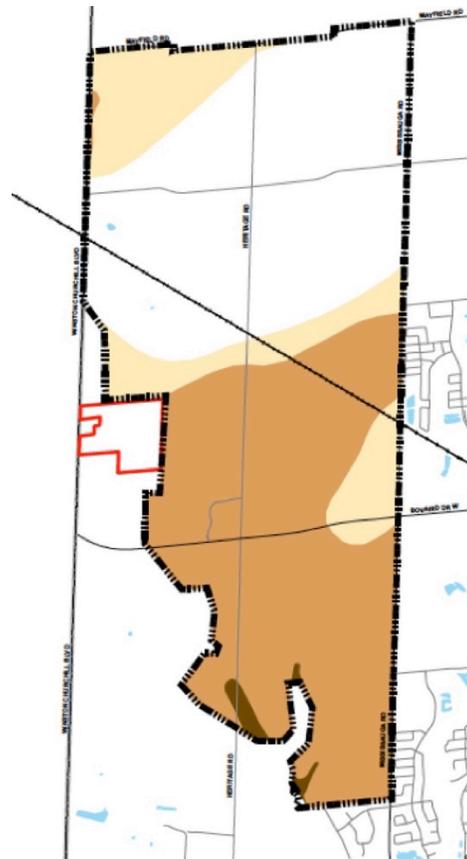
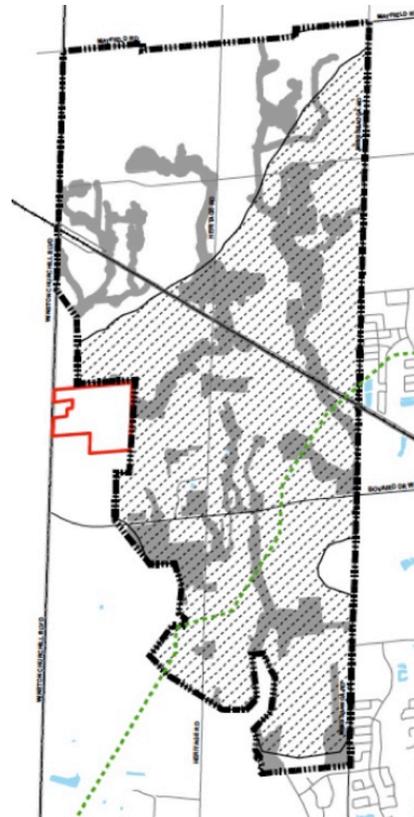
It should firstly be noted that, based on a review of available information, there is no evidence that the quality of the shale for brick making in the NWBPA is not suitable for brick making.

6.1 DETERMINING THE 'AREA OF INTEREST'

As noted in the previous section, the location of the HPMARA in the NWBPA was based on the mapping that was available at the time. In this regard, the upper map in next column shows the extent of the HPMARA in the NWBPA

This mapping was updated in the ARIP 165 - REV in 2009 as discussed in Section 4.4 of this report.

This new mapping released in 2009 changed the northern boundary of the shale resource area particularly adjacent to Mississauga Road as shown on the lower map in the next column.



The more recent map from 2009 identifies areas that have a drift thickness of between 1 and 8 metres in dark orange and areas with a drift thickness of between 8 metres and 15 metres in lighter orange.

The new mapping from 2009 confirms that portions of the existing HPMARA within the NWBPA are no longer considered to be viable for shale extraction.

However, the ARIP 165 - REV does identify an area at the northwest corner of the NWBPA that was not previously identified as HPMARA. The drift thickness in this area is between 8 and 15 metres.

As noted in Section 4.5 of this report, there was a considerable amount of discussion in the 2012 OGS Report on overburden thickness.

In this regard, the following was stated:

One of the fundamental and underlying principles of the aggregate resources inventory program is the assumption that aggregate producers can strip up to 8 metres of overburden and still produce an economically viable product.

The following was also stated in the 2012 OGS Shale Report:

In 2008, the maximum or preferred stripping limit of 8 m was reconfirmed verbally and in written correspondence to the author by brick industry representatives.

Once again, the stripping of less than 8 m of overburden is certainly preferred but resource areas with less than 8 m of overburden are becoming rare because of urban expansion and restrictive land-use planning policies.

Given the above, it is recommended that the lands in the northwest corner

of the NWBPA be excluded from a refined 'Area of Interest' in the NWBPA.

On the basis of the above, the 'Area of Interest' that is subject of this report, only includes lands within the central and southern portions of the NWBPA as identified by the OGS in the ARIP 165 - REV.

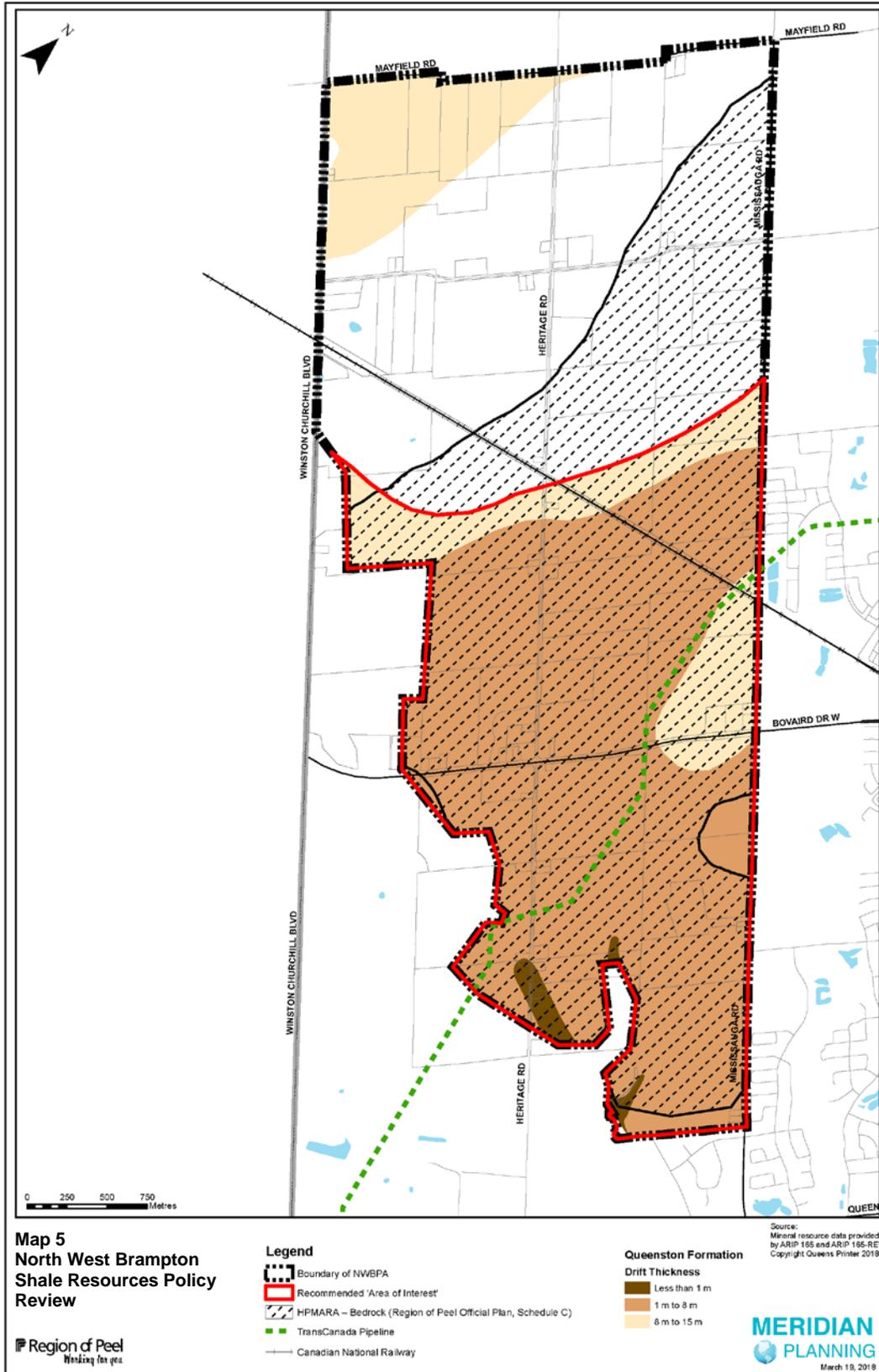
This means that at the very least, all of the lands north of the 'Area of Interest' should no longer be precluded from urban development.

This refined 'Area of Interest' also does not include lands that are subject to the Greenbelt Plan, since the lands within the Greenbelt Plan are not being considered for urban development.

It is recognized that the 'Area of Interest' identified above includes lands that have a drift thickness of between 8 and 15 metres that are located immediately adjacent to lands that have a drift thickness of 1 to 8 metres.

Given the proximity of the lands that have a drift thickness of 8 to 15 metres to the lands that have a drift thickness of 8 metres or less, it may be more viable to extract the resource from the lands that have a greater drift thickness if a quarry was located close by on lands where the drift thickness is less.

On the basis of the above, **Map 5** on the next page shows the 'Area of Interest' in red outline. The location of the HPMARA is also shown as well as the drift thickness mapping from the ARIP 165 - REV.



6.2 CONSTRAINTS TO EXTRACTION IN THE 'AREA OF INTEREST'

Following the delineation of the 'Area of Interest', the next task included a review of known physical constraints that exist within the NWBPA and the 'Area of Interest'.

A number of different GIS layers were utilized to identify where these constraints exist. Below is a list of the constraints:

- Core Areas of the Greenlands System (Region of Peel Official Plan, Schedule A);
- Lands within the TransCanada Pipeline right-of-way;
- Cemeteries;
- Woodlands (Region of Peel Woodlands data layer);
- Wetlands (Region of Peel, as obtained from the Land Information Ontario database);
- Valleys and Stream Corridors (Region of Peel data layer);
- Lands regulated by the Credit Valley Conservation Authority;
- Land in Public Ownership;
- Lands within the Canadian National Railway (CNR) right-of-way; and,
- Clusters of 3 or smaller properties with existing residential uses.

Map 6 on the next page identifies the 'Area of Interest' with the above noted constraints. It is estimated that the total land area of NWBPA is 1,688 hectares. Of this land area, 344 hectares are the site of constraints. The net developable land area is therefore 1,344 hectares. Of this net land area, about 527 hectares is within

the 'Area of Interest' as shown on Map 6. This means that the net land area that is not the site of a resource is 816 hectares.

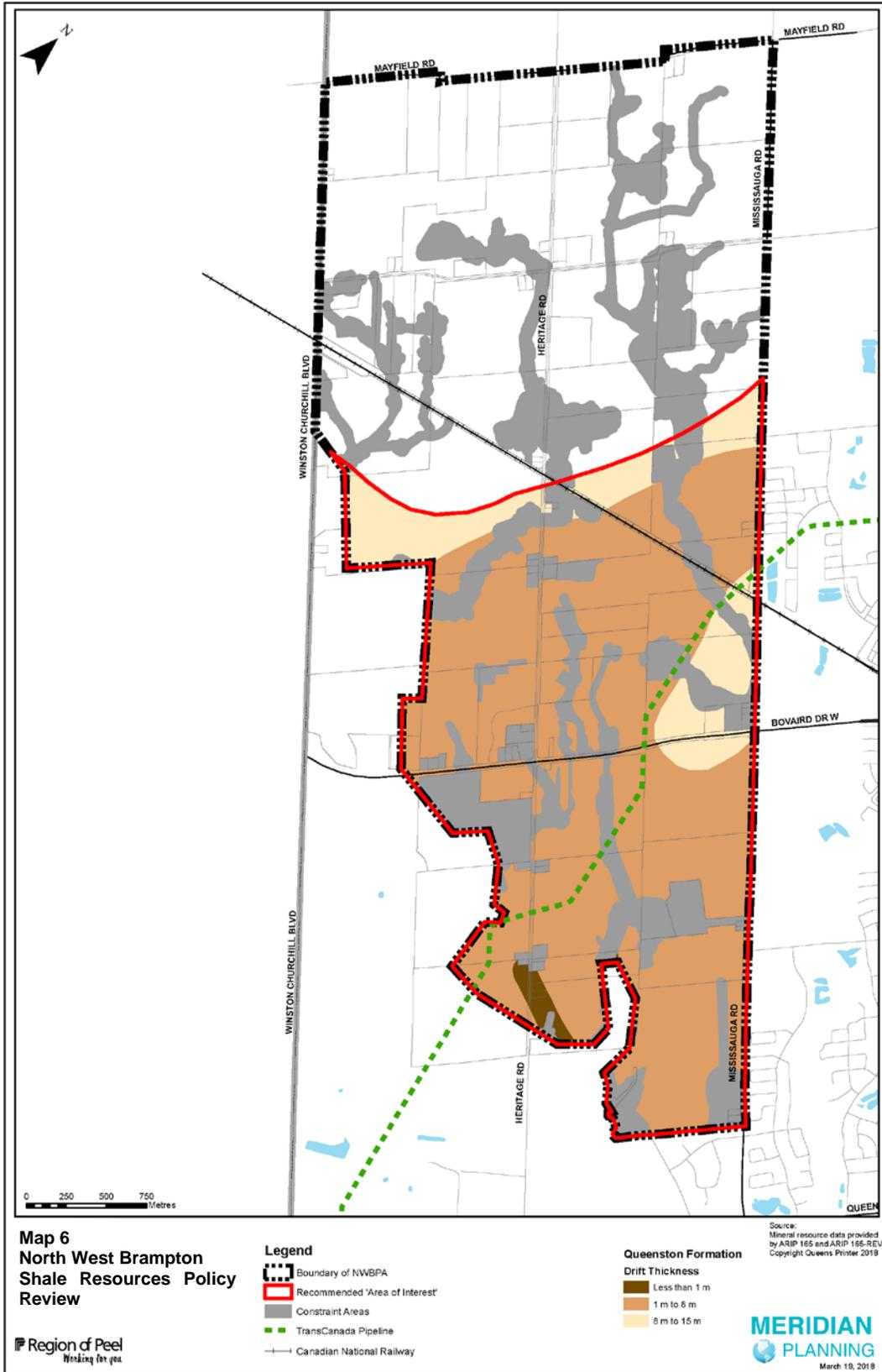
As recommended previously in this report, these lands no longer need to be precluded from urban development since the shale resource is not economically viable to extract.

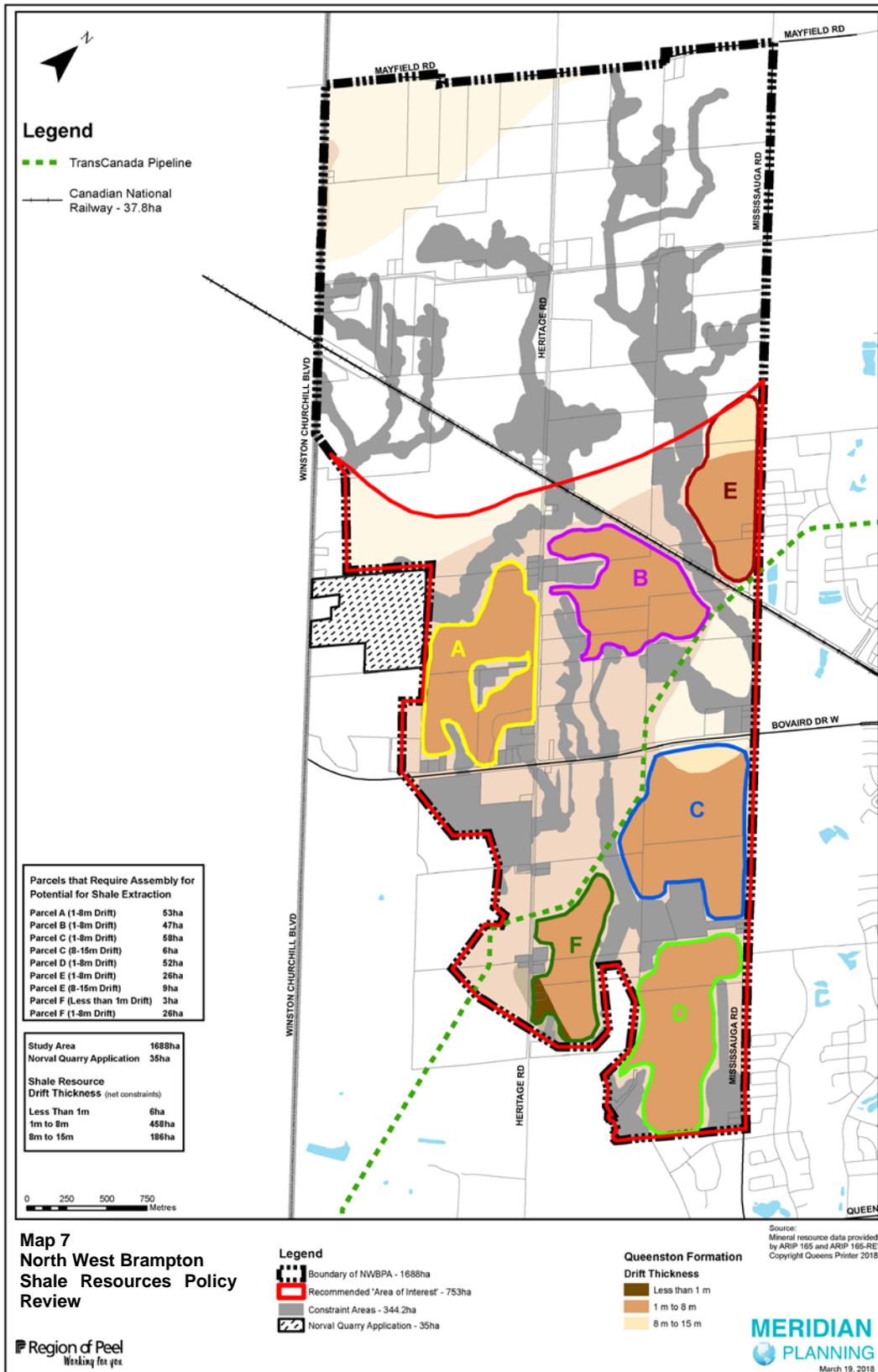
Based on the information contained on Map 6, the areas that have the greatest potential for shale extraction were delineated. In this regard, we identified such an area if:

- The area is not identified as a constraint;
- The area is identified with a drift thickness that is generally less than 8 metres; and,
- The potential extraction area is 20 hectares or greater in size.

On the basis of the above, Map 7 was prepared showing 6 groups of parcels that would require assembly to support a shale quarry (Map 7 follows Map 6 on the next page). The table below summarizes the drift thickness, land area and number of properties that would require assembly in each group.

| | Drift Thickness (m) | Area (ha) | | # of Properties for Assembly |
|------------------------|---------------------|---------------|-------|------------------------------|
| A | 1-8 m | 53 ha | | 3 |
| B | 1-8 m | 47 ha | | 5 |
| C | 1-8 m | 58 ha | 64 ha | 4 |
| | 8-15 m | 6 ha | | |
| D | 1-8 m | 52 ha | | 2 |
| E | 1-8 m | 26 ha | 35 ha | 5 |
| | 8-15 m | 9 ha | | |
| F | Less than 1 m | 3 ha | 29 ha | 4 |
| | 1-8 m | 26 ha | | |
| Total Area (ha) | | 280 ha | | |





As per Map 7, Group A, Group B and Group F would have access off of Heritage Road, while Group C, Group D and Group E would have access off of Mississauga Road.

It is our opinion that the 280 hectares of land within the 6 groupings of properties as illustrated on Map 7 represent the maximum area that should be considered for shale resource protection from a purely technical perspective that is solely based on amount of available land area and drift thickness.

The identification of the 280 hectares is based solely on drift thickness and the minimum land area net of constraints that is required for a typical shale quarry.

The identification of the 280 hectares does not take any other technical factor into account, most notably hydrogeology and does not presume that a quarry could be technically permitted.

The identification of the 280 hectares also does not consider the merits of a quarry in any of the locations identified from a land use compatibility perspective, nor does it take into account the impacts of quarry development on the desire to establish a complete community in the area. The analysis also does not factor in the difficulties that may exist in assembling land for quarry development.

6.3 SCENARIOS FOR CONSIDERATION

Based on the above analysis, below are the scenarios that have been identified for consideration.

It should be noted that for each scenario, the potential implications of the scenario on the ability of the

Region of Peel to plan for and accommodate about the 49,500 people and 24,000 jobs that could be accommodated in NWBPA is assessed. These numbers are based on the growth management work completed in support of the current Peel 2041 process as discussed in Section 7.2 of this report.

6.3.1 SCENARIO 1: PARTIAL PROTECTION

Scenario 1 includes the protection of all of Groups A, B, C, D, E and F as illustrated on Map 7. Essentially, this option involves protecting ALL the groupings of properties that have potential for shale resource extraction, without considering other factors (complete communities etc.).

This means that 280 net hectares of land (332 gross hectares) within the 'Area of Interest' would be protected for potential future shale extraction.

Of the entire NWBPA, less the constraints, this means that 1,064 net developable hectares of land (1,688 hectares - 344 hectares - 280 hectares) would no longer be protected for potential shale extraction going forward and these lands would be available for urban development.

Based on an analysis completed by Watson & Associates (which is based on the growth management work completed by the Region of Peel in support of the Peel 2041 process), this means that about 36,800 people and 13,300 jobs could be accommodated within the NWBPA. However, about 12,700 people and 6,400 jobs would most likely need to be accommodated on new DGA land elsewhere (which can only be in the Town of Caledon).

6.3.2 SCENARIO 2: FULL PROTECTION (STATUS QUO)

Scenario 2 includes continuing full protection of shale resources in the entirety of the NWBPA. This means that population and employment growth could not be accommodated on the DGA lands in the NWBPA until the issue is reviewed again in the future.

In terms of numbers, this means that about 49,500 people and 24,000 jobs would need to be accommodated on new DGA lands elsewhere in the Region.

6.3.3 SCENARIO 3: FULL PROTECTION UP TO 15 METRES OF DRIFT THICKNESS IN THE 'AREA OF INTEREST'

Scenario 3 includes full protection of all of the lands within the 'Area of Interest' as shown on Map 6.

This means that 527 net hectares of land (733 gross hectares) within the 'Area of Interest' would be protected for potential future shale extraction.

Of the entire NWBPA less the constraints, this means that 817 net developable hectares of land (1,688 hectares - 344 hectares - 527 hectares) would no longer be protected for potential shale extraction going forward and these lands would be available for urban development.

Based on an analysis completed by Watson & Associates (which is based on the growth management work completed by the Region of Peel in support of the Peel 2041 process), this means that about 21,000 people and 9,100 jobs could be accommodated within the NWBPA. However, about 28,500 people and 10,500 jobs would most likely need to be accommodated

on new DGA land elsewhere (which can only be in the Town of Caledon).

6.3.4 SCENARIO 4: FULL REMOVAL

Scenario 4 includes removing the moratorium completely. This means that all lands would be released for urban development.

Of the entire study area, less the constraints, this means that 1,344 net developable hectares of land (1,688 hectares - 344 hectares) would no longer be protected for potential shale extraction going forward and these lands would be available for urban development.

In terms of numbers, this means that about 49,500 people and 24,000 jobs could then be accommodated in the NWBPA.

6.4 CONSIDERATIONS

6.4.1 PRACTICAL CONSIDERATIONS

Given the nature and location of the constraints in the 'Area of Interest', as shown on Map 6, it is very likely that the assembly of land would be required for a quarry if Scenarios 1, 2 or 3 were selected.

In addition, given that the NWBPA has been within the Brampton urban area since 2006, many of the larger parcels of land within the NWBPA have been purchased by development interests who have funded numerous studies in support of urban development over the last ten years. This means that lands within the NWBPA would have to be acquired for quarry development.

The need to acquire multiple parcels of land in the NWBPA for quarry development is, in our opinion, a significant factor to consider.

Given that the NWBPA has been within the Brampton urban area since 2006, it is our opinion that it would be very unlikely for a landowner interested in urban development to consider foregoing the opportunity to develop their lands for a period of time that may exceed 50 to 70 years, which takes into account the time it takes to approve a quarry, extract the resources and rehabilitate the lands.

This also takes into account the fact that it is not feasible to extract more of the resource than required in any given year given the weathering that occurs when the resource is exposed to the elements.

In addition to the above, even if there were a willing seller, the cost of purchasing the land would be significant, and it is estimated that the purchase price for a 30-hectare parcel of land would be in excess of \$50 to \$60 million dollars.

As has been noted by the OGS in the OGS 2012 Shale Report, the economic viability of extraction is very much affected by overburden depth and it has been confirmed by the OGS that removing more than 8 metres of overburden is not economically viable.

Based on information provided by Brampton Brick, it has been estimated that it costs approximately \$1,258,902 to remove every 1 metre of overburden from a 35-hectare quarry site, which means it would cost approximately \$10,071,220 to remove 8 metres of overburden. This is significantly less than the cost of the land as noted above.

If it has been determined that the economic viability of a shale quarry is sensitive to overburden depth because of the cost to go below 8 metres, it

stands to reason that the cost of the land itself in the NWBPA would have a much greater impact on economic viability.

Given the above, it would be more economically viable to establish a shale quarry on lands that are not in an urban area that have a drift thickness of more than 8 metres, than it would be to extract the same resource from lands within an urban area.

It is our opinion that significant weight must be given to this very practical limitation when making an informed decision.

It is recognized that a public authority could expropriate certain lands within the NWBPA for the purposes of establishing a quarry, however, that would be without precedent in Ontario and it would cost the expropriating authority the full market value of the land. In addition, the decrease in value of the lands adjacent to the quarry would also have to be taken into account, with the litigation potentially taking years to resolve.

It is recognized however that the outcome would be different if the NWBPA was not within the urban area. However, the lands have been within the urban area since 2006.

However, the likelihood of any part of the NWBPA being taken out of the urban area would also be without precedent in Ontario and is considered to not be realistic.

With respect to the other impacts of Scenario 1, while a smaller area than Scenario 3 would be protected for shale extraction, the selection of this option would result in the development of a dis-jointed development pattern. This is because the irregular boundaries of

the areas that would be protected would not provide for a contiguous urban form. In addition, the ability to provide for a complete and interconnected complete community in the NWBPA would be compromised.

With respect to **Scenario 3** (which involves the protection of all lands within the 'Area of Interest'), there would be no technical justification for this scenario since lands that are not suitable for extraction (because of size and configuration) would be protected for extraction. In addition, the other practical limitations discussed above would also apply.

With respect to **Scenario 3**, there would be no technical justification for this scenario since lands that are not suitable for extraction (primarily because of the drift thickness) would be protected for extraction.

In addition to the above, the ability to plan for a complete community in the NWBPA would be significantly compromised because development in the central and southern portions of the NWBPA would be delayed.

6.4.2 INFRASTRUCTURE CONSIDERATIONS

Watson & Associates has also carried out a fiscal analysis of the four scenarios discussed above.

The fiscal impact analysis included operating and capital cost analyses.

The operating cost analysis involved calculating the Region's most recent tax rate calculation with the addition of the development that is to be accommodated (49,500 people and 19,630 jobs for which assessment would be generated).

On the basis of their analysis, Watson & Associates concludes that, since most of the current population and employment allocation would be retained in the NWBPA, **Scenario 1** would not warrant further transportation improvements elsewhere to accommodate the 12,700 people and 6,400 jobs that could not be accommodated in the NWBPA and further noted that transportation needs require further review in response to the Provincial decision to cancel the GTA West Corridor Environmental Assessment.

In addition, it has been concluded that selecting **Scenario 1** would continue to require the servicing of the NWBPA and add additional potential costs, up to \$140 million, to the Region's current water and wastewater servicing plan. This figure includes anticipated costs to service growth north of King Street. This is notwithstanding the fact that 12,700 people and 6,400 jobs would still need to be accommodated elsewhere in the Region, if this scenario was selected.

With respect to **Scenario 2 (full protection)**, about 1,300 hectares of new DGA land would be required to accommodate the 49,500 people and 19,630 jobs that have been allocated to the NWBPA.

Moving this growth allocation from the NWBPA to Caledon would require transportation upgrades in the form of two road widenings and a grade separation.

The first road widening would be required along Coleraine Drive from 4 lanes to 6 lanes between Healey Road and King Street. The cost to complete this widening would be approximately \$17,865,800.

The second road widening would be required along The Gore Road from 2 lanes to 4 lanes between Mayfield Road to Healey Road. The cost to complete this widening would be approximately \$18,969,900. For Scenario 2, the total approximate cost of road widening's alone would be approximately \$40,000,000. One new grade separation would also be required on King Street east of Humber Station Road with an approximate cost of \$20,000,000.

It has also been estimated that Infrastructure costs (water and wastewater) to service a new Greenfield area in Caledon would be approximately \$140 million. The estimated cost to service the NWBPA is \$167 million. The cost is slightly less in Caledon because the Region has already made significant investments in the eastern part of the system to service growth in Bolton, Tullamore and some areas in Mayfield West which in part offsets the cost of new infrastructure that may be required in this scenario.

With respect to Scenario 3, about 28,500 people and 10,500 jobs would most likely need to be accommodated on new DGA lands in Caledon. From a transportation perspective, this scenario would also require the widening of Coleraine Drive from 4 lanes to 6 lanes from Healey Road to King Street, and the required grade separation on King Street as is the case with Scenario 2. The cost to complete this widening is approximately \$17,865,800. The cost of completing the grade separation is estimated to be \$20,000,000.

With respect to servicing costs in Scenario 3, this scenario is similar to Scenario 1 in that it would not change the Region's current water and wastewater servicing plans for the NWBPA. However, since some

population and employment would need to be accommodated in Caledon, there would be an increase in the need for investment projects to service additional growth, particularly if such growth were to occur in areas north of King Street in Bolton.

Scenario 4 would develop on the basis of the approximate cost to service Heritage Heights, in the amount of \$167 million for water and wastewater servicing. Since the population and employment allocation is similar to the pre-existing transportation model, there would be no required changes to the Region's current Long Range Transportation Plan.

On the basis of the above, there do not appear to be any significant differences in the cost of providing the water and wastewater infrastructure required for 49,500 people and 19,630 jobs, whether the population and employment is expected to be accommodated in the NWBPA or Caledon. However the transportation costs increase by about \$20 million in Scenario 3 and about \$40 million in Scenario 2, because of the increment of additional growth that would have to be accommodated in Caledon. In addition to these transportation costs, a new grade separation would be required on King Street if either Scenarios 1, 2 or 3 were selected, with the cost of this grade separation being about \$20 million.

The analysis of infrastructure costs has also indicated that Scenario 1 (Partial Protection of selected properties) and Scenario 3 (Full Protection to 15 metres) require the highest investment due to the additional infrastructure that is required to service the additional growth in Caledon and the growth in the NWBPA.

The Watson and Associates Report is included in Appendix 1 to this report.

6.5 LANDOWNER SUBMISSIONS ON VIABILITY OF SHALE RESOURCE EXTRACTION IN THE NWBPA

Three shale assessments were provided as background information by landowners within the NWBPA. Below is a brief summary of their submissions, which have not been peer reviewed or analysed for accuracy. In addition, it is noted that the work completed by Gartner Lee in 2004 is also somewhat dated.

6.5.1 NORTHWEST BRAMPTON LANDOWNERS GROUP

In November 2004, Gartner Lee Limited prepared a Southern Ontario Shale Resources Assessment (Gartner Assessment (2004) for the Northwest Brampton Landowners Group.

The Gartner Lee Assessment (2004) used GIS technology to inventory the Queenston, Georgian Bay and Blue Mountain shale formations in southern Ontario (Niagara through to the Bruce Peninsulas, the Niagara Escarpment and the Golden Horseshoe in the western part of the GTA). It was indicated in the report that the potential quantities of shale in the area were calculated after removing lands with major land use and environmental constraints, such as:

- Urban boundary limits and approved expansions;
- Niagara Escarpment Plan classifications that exclude aggregate extraction;

- Oak Ridges Moraine Plan boundaries that exclude aggregate extraction;
- Provincially Significant Wetlands (PSW); and,
- Provincially Significant Life Science Areas of Natural and Scientific Interest (ANSI).

The Gartner Assessment (2004) indicated the following with respect to demand for shale:

The demand for shale in Ontario was about 1.7 million tonnes in 2002; this is relatively small compared to the overall production of all aggregates in Ontario, which totalled about 165 million tonnes in the same year (The Ontario Aggregate Resources Corporation, 2002).

It was later noted that the main purpose of shale is to serve the market for manufacturing of bricks. Below is an excerpt from the report that references an economic analysis carried out by Harry Cummings & Associates in 2002:

For the purposes of this assessment, all of the shale in southern Ontario is considered to be within a single market for the manufacture of bricks. This assumption is based on the economic analysis carried out in conjunction with the recent City of Brampton shale resources review by Harry Cummings & Associates (2002), which concluded that the cost advantages to locating the brick manufacturing plant in or near the GTA are "trivial", since the additional haulage distance to more remote sources of shale' adds up to 14% to the delivered cost of bricks in GTA, or an additional \$300 on a \$175,000 home.

It should also be noted that the additional transportation costs might be partially offset by lower land cost in locations further from the GTA. The fact that bricks produced in Ontario are currently being exported to other parts of Ontario and eastern Canada, as well as the north eastern United States, adds

further evidence to the assumption that it is economically viable to service a much larger regional marketplace.

The report also provides an overview of available supply in Southern Ontario:

The potential shale resources in the area are considerable, ranging upward to more than 46 billion tonnes with 15 m of surface, and up to 26,000 theoretical years of supply at the forecast demand of 1.79 to 1.93 million tonnes per year over the next 20 years.

With respect to shale resources in the City of Brampton, the Gartner Lee Assessment (2004) indicated that there are relatively few potential shale resources at a shallow depth of less than one metre. It was also noted in the report that shale deposits in northwest Brampton are poor to marginal quality for brick production. As noted previously in this report, there is no evidence to suggest that this is the case.

Below are additional excerpts from the Gartner Lee Assessment (2004) that speak to the quality of shale within the Northwest Brampton area:

The northwest Brampton shale deposit represents the middle portion of the Queenston Shale. It is generally lower-quality shale than elsewhere in the province and produces yellow-tan bricks, which are not as unique or valuable as the "red brick" shales. Lower quality yellow-brown bricks are currently in less demand, are primarily targeted at the industrial, commercial and institutional (IC&I) marketplace rather than residential, and can also be produced from elsewhere in the Golden Horseshoe and the northern shale belt areas.

The recent City of Brampton study (MHBC et al., 2002) confirmed that the quality of the Brampton shales is generally poor, with numerous hard bands (about 36% of the total in one core), high carbonate content and gypsum seams and nodules.

The CBAC does not agree with the statements that the shale in northwest Brampton is of poorer quality than other areas in the Province. In this regard, the CBAC indicated that the shale extracted from this formation enables the production of high quality clay brick.

Below are the conclusions reached in the Gartner Lee Assessment (2004) as it applies to shale resources in the City of Brampton.

- *The estimated resources and calculated years of supply would be reduced with the application of local environmental and land use constraints, perhaps to one-third of the amount noted above based on recent work prepared by the City of Brampton. The remaining quantities would remain substantial nonetheless.*
- *The City of Brampton's resources are estimated as only representing about 0.1% of these provincial resources at less than 1 m overburden depth, but this increases to slightly more than 2% of the estimated provincial resources at overburden depths of 8 m or 15 m.*
- *Some provincial resources may contain marketable sand and gravel deposits in the overburden, making deeper stripping operations more economically attractive. The northwest Brampton deposits do not.*

6.5.2 OSMINGTON REGIONAL CENTRE PROPERTY

In February, 2010, Genivar Consultants LP prepared a Shale Resource Extraction Assessment (Genivar Report (2010)) that describes the geology of the property, the quantity of overburden, and discusses the potential to mine the shale bedrock using an open pit excavation.

or short term approach.

- The majority of Osmington Regional Centre Property is confined by significant linear constraint features that restrict the amount of potentially available quarry land to approximately 22 ha.
- Above-normal costs will be incurred in developing a quarry on a site as a small and confined as the subject property. Costs will be significantly higher due to the need to move the overburden on several occasions.
- We conclude that it is not feasible to mine shale from the Osmington Regional Centre Property now or in the foreseeable future within the context of the Provincial Policy Statement, and therefore recommend that the Site be considered for other land uses.

6.5.3 HEATHWOOD HOMES (BRAMPTON) LIMITED AND MCN (HERITAGE) INC

In February, 2016, WSP Canada prepared a Shale Resource Extraction Assessment (WSP Report (2016)) for Heathwood Homes (Brampton) Limited and MCN (Heritage) Inc. that describes the geology of the property, the quantity of overburden, and discusses the potential to mine the shale bedrock using an open pit excavation.

The Heathwood/MCN properties are located at 10244 Mississauga Road and 0 Heritage Road, on the east side of Mississauga Road and to the south of the CN Railway.

The Heathwood property is approximately 19 hectares in size and the MCN property is approximately 7 hectares in size. The Heathwood/MCN properties are bordered by the CN Railway to the north and are traversed by an Enbridge Gas pipeline right-of-way, Transcanada Pipeline and the West Huttonville Creek. The WSP

Report (2016) also indicates that a proposed road/hydro corridor and proposed Lagerfield Drive extension encircle the property.



It is also noted in the report that a Scoped Environmental Study conducted by Dillon Consulting (2016) identified Huttonville Creek as a habitat for Redside Dace. The report indicates that the presence of this habitat on site would significantly constrain the ability to realign the watercourse to accommodate a quarry.

In addition to the above, the WSP Report (2016) also considered setbacks in order to determine the size of a potential shale extraction operation. These setbacks included:

- 30 metres from roadways;
- 15 metres from property boundaries;
- 30 metres from railways;
- 30 metres from the gas pipeline right of way; and,
- 10 metres from Huttonville Creek corridor.

The WSP Report (2016) indicates the following:

A geotechnical investigation conducted by AMEC in 2006 on the Heathwood

Homes property determined that overburden ranges from 3 m to greater than 5 m thick. Another earlier study (Guillet, 2007) had established that the overburden is approximately 7 m thick on the adjacent property to the south of the Site.

Statement, and therefore recommend that the Site be considered for other land uses.

This was investigated further in the WSP Report (2016) and the report utilizes the estimated average of 5 m of overburden on the properties.

Similar to the Genivar Report (2010), the WSP Report (2016) provides a discussion on overburden thickness and industry standards. Below are the conclusions and recommendations are provided in the WSP Report (2016):

- *The land is underlain by the Queenston and Georgian Bay Formations, and both units have the potential to be used for bricks. It is estimated that the shale is overlain at the Site by approximately 5 m of overburden that would have to be removed prior to excavating any shale.*
- *The quantity of overburden at the Site is greater than industry norms for removal and exceeds reasonable and practical limits for resource extraction and, therefore, may be uneconomical.*
- *The majority of the Site is confined by significant linear constraint features that restrict the amount of potentially available quarry land to approximately 14 ha.*
- *Above-normal costs will be incurred in developing a quarry on a site as small and confined as the subject property. Costs will be significantly higher due to the need to move the overburden on several occasions.*
- *We conclude that it is not feasible to mine shale from the Heathwood Homes (Brampton) Limited and MCN (Heritage) Inc. properties now or in the foreseeable future within the context of the Provincial Policy*

7.0 GROWTH MANAGEMENT

The purpose of this section of the report is to review the growth management decisions affecting the NWBPA by ROPA 24 and the implications of the Region's current review of the ROP in 2018.

7.1 PEEL ROPA 24

The ROPA 24 process began in 2009 with the release of the report entitled "Places to Prosper - Managing Growth in Peel Region" dated September 2009. The purpose of the report and the overall ROPA 24 process was summarized in Section 1.1 of the report as follows:

The fast pace of development in Peel Region has led to the creation of vibrant new planned communities with housing, employment and infrastructure and a mix of other characteristics. As this pace of growth continues, it has become increasingly important to chart a vision for the Region that makes the best use of infrastructure while planning for continued prosperity.

As a result, this document has been created. Places to Prosper is not simply a discussion paper about growth, it is a reflection on how to best manage growth in the context of the Peel Region Official Plan Review (PROPR) exercise.

This is to ensure that growth is a solid financial investment that occurs in a sustainable manner and creates significant economic opportunities, provides needed social services, protects and enhances the environment, while celebrating the cultural assets of the Region.

Within Appendix C to the above report, a number of assumptions were presented with respect to future population growth. In this regard, it was suggested that the adjusted 2031

municipal population targets be 807,000 for Mississauga, 727,000 for Brampton and 111,000 for the Town of Caledon.

Upon the adoption of ROPA 24, the amendment with all required documentation was submitted to the Ministry of Municipal Affairs and Housing (MMAH) for its approval. On October 27, 2010 the MMAH issued a draft decision containing 110 proposed modifications and two non-decision items.

However, MMAH indicated in its letter that it was open to further discussions to address its proposed modifications. One of the non-decision items was related to the allocation of growth to the area municipalities, particularly Caledon and Brampton.

A Land Budget Report in support of ROPA 24 was then released on June 16, 2011. With respect to the product of the land budget, the following was stated in this report:

The land budget is based on a comprehensive demand/supply analysis for residential and employment growth undertaken by each area municipality and the Regional consolidation and adjustment of the area municipal work performed to assure conformity with the Growth Plan. It must be emphasized that the Regional consolidation took into account not only the principles and policies of the Growth Plan but also considered the growth management objectives of each area municipality.

The resulting land budget demonstrates that the Region is planning to:

- *Accommodate the Growth Plan population and employment forecasts;*
- *Exceed the Growth Plan residential intensification target of 40%;*

- *Achieve the Growth Plan greenfield density target of 50 residents and jobs per hectare;*
- *Exceed the Growth Plan urban growth centre density target of 200 residents and jobs per hectare; and*
- *Justify the need for settlement expansions.*

With respect to the City of Brampton, the following was stated with respect to growth to 2031:

Of the three area municipalities, Brampton is forecasted to accommodate the most growth. Between 2006 and 2031 Brampton's population will grow by 274,000 residents. This growth will require 88,500 additional dwelling units by 2031.

Brampton's housing growth will account for 55.7% of the total Regional growth. Demand for housing in Brampton will be distributed among all four housing types.

Single detached dwelling units will still be the leading housing type representing 47.6% of the total municipal growth between 2006 and 2031 but other housing types will have significant shares.

Future population growth will also be housed in apartments - 16.9% of Brampton's new units; row houses - 17% and semi-detached - 18.5%. Most of Brampton's housing growth (70%) will be provided within the designated Greenfield area while 30% of the dwelling units are forecasted to be built within the built-up area.

With respect to development within existing DGA areas, the land budget anticipated that all of the DGA that existed at the time (which includes the NWBPA) would be almost fully developed by 2031. In this regard, the land budget allocated 43,000 people and 20,000 jobs to the NWBPA.

Multiple parties appealed ROPA 24 and a number of discussions were held with

various parties including the MMAH with respect to the wording of ROPA 24.

One of the appellants was the North West Brampton Landowners Group. In this case, Minutes of Settlement were entered into between the North West Brampton Landowners Group, the MMAH, the Region of Peel, the City of Mississauga and the City of Brampton in June 2012.

These Minutes of Settlement indicated that the parties agreed to request the Ontario Municipal Board to modify ROPA 24 by including the following sentence as a second paragraph to Policy 5.3.4.2.1 of the ROP:

The 2031 Population, Household and Employment Forecasts for the City of Brampton in Table 3 contemplate that two remaining Secondary Plan areas in North West Brampton will be planned to be built out by 2031, subject to Policy 5.4.3.2.2, in a manner that is in conformity with Policy 5.5.4.2.2 and all other applicable policies of this Plan.

It is noted that the reference to Section '5.4.3.2.2' above should be to Section '5.3.4.2.2' instead. The parties also agreed in Item 5 on the following:

The undersigned parties agree that ROPA 24, as proposed to be modified in accordance with these Minutes of Settlement, conforms with the Growth Plan for the Greater Golden Horseshoe made pursuant to the Places to Grow Act and the Greenbelt Plan made pursuant to the Greenbelt Plan Act; is consistent with the Provincial Policy Statement, 2005 and represents good planning for the Region of Peel and its constituent area Municipalities.

On the basis of the above, it was anticipated that the lands within the NWBPA 'will be planned to be built out by 2031', subject to the policies set out in Section 5.3.4.2.2 which in sub-

section f) includes policies that establish the criteria to be considered in removing the 10 year moratorium on development established in 2006. This policy is currently in effect by virtue of the Ontario Municipal Board decision issued on November 30, 2012 (PL101408).

7.2 PEEL 2041 PROCESS

On December 12, 2013, Region of Peel Council endorsed a work plan for the Peel 2041 Regional Official Plan Review (Peel 2041) process. Following the release of the 2014 PPS, this work plan was updated to reflect new requirements for growth management and age-friendly planning.

Since the last Regional Official Plan review was completed in 2012, the Province has introduced a number of legislative and policy initiatives. The Peel 2041 process identified ten areas for which the ROP is being reviewed.

In the fall of 2013, the Region established a Regional Growth Management Committee to address key issues associated with management growth within the Region. This Committee included staff from Planning, Water and Wastewater, Transportation and Corporate Finance divisions that have been working together towards an integrated approach to manage growth.

According to a Council Report from October 26, 2017, a key aspect of this approach to managing growth was integrating financing and servicing considerations into planning decisions early in the process.

On October 26, 2017 (October 2017 Report), Region of Peel staff delivered a report to Council that provided an update on the Region's 2041 Growth Allocation and Growth Management

Regional Official Plan Amendment. The October 2017 Report included the following appendices:

- Peel 2041: Planning for Growth and Managing Risk, Hemson Consulting, September 2017 (Hemson Report);
- Draft Growth Management Regional Official Plan Amendment (ROPA);
- Land Budget Report;
- Peel 2041 Population and Employment Summary by Planning Community, October 2017;
- Employment Strategy Discussion Paper, Cushman and Wakefield, September, 2017; and,
- Mayfield West Phase 2 Stage 2 Planning Justification Report for Settlement Area Expansion, Meridian Planning, August 2017.

The October 2017 Report indicated that the draft ROPA is based on a land budget methodology that reflected industry best practices and a robust approach to compliance with Growth Plan policies.

It was also noted that refinements might be required as a result of the Provincially mandated land budget methodology that will be released by the Province at a later date.

The table below from the Draft ROPA identified the estimated 2016 population and employment figures by municipality and the allocation for each to 2031 and 2041.

| | Brampton | Caledon | Mississauga | Peel |
|-----------------------|--------------------------|-------------------------|--------------------------|----------------------------|
| 2016: | | | | |
| Current Estimate | P: 614,000 E: 203,000 | P: 69,000 E: 28,000 | P: 746,000 E: 474,000 | P: 1,429,000 E: 705,000 |
| 2031: | | | | |
| 2017 Draft Allocation | P: 812,000 E: 285,000 | P: 116,000 E: 51,000 | P: 842,000 E: 534,000 | P: 1,770,000 E: 870,000 |
| 2041: | | | | |
| 2017 Draft Allocation | P: 890,000 E: 325,000 | P: 160,000 E: 80,000 | P: 920,000 E: 565,000 | P: 1,970,000 E: 970,000 |

P - Population
E - Employment

Based on the table above, the City of Brampton is forecasted to accommodate a population of 812,000 people by 2031 and 890,000 people by 2041. The City of Brampton is also forecasted to accommodate 285,000 jobs by 2031 and 325,000 jobs by 2041.

Between 2016-2041, the City of Brampton is forecasted to accommodate 205,160 people in the Designated Greenfield Area through the creation of 53,100 units. With respect to the NWBPA, a population of 49,520 has been allocated, which is greater than the 43,000 people allocated to the NWBPA by ROPA 24. The increase is due to the release of the new Growth Plan in 2017, which establishes higher minimum DGA densities.

In addition, the Designated Greenfield Area is also planned to accommodate 71,630 new jobs. With respect to the NWBPA, 24,000 jobs have been allocated.

It was noted that the majority of population and employment growth for the Designated Greenfield Areas within the Region is being planned to occur in the City of Brampton.

Until 2030, the Region is planning to achieve a minimum intensification target of 50%. The Draft ROPA introduced a new minimum residential intensification target of 60% for the Region of Peel for the 2031 to 2041 period.

The October 2017 Report indicated that the Draft ROPA excluded employment areas from the calculation of Greenfield densities. The Draft ROPA also indicated that the minimum density requirements were different for Designated Greenfield lands in effect before (60 residents and jobs per

hectare) and after (80 residents and jobs per hectare) July 1, 2017.

With respect to intensification, the 2016-2031 minimum intensification target for Brampton is 35% and is expected to increase to 38% in the 2031-2041 planning period. This target is much lower than the intensification target in Mississauga (91% and 98%), because a considerable amount of development is expected within Designated Greenfield Areas in Brampton.

In addition to the above, the table below identified the lands within the Designated Greenfield Area in the Region of Peel.

| | Brampton | Caledon ³ | Mississauga ⁴ | Peel |
|--|----------|----------------------|--------------------------|--------|
| Gross Area (ha) | 8,738 | 1,807 | 188 | 10,733 |
| Major Environmental Features¹ (ha) | 1,778 | 332 | 6 | 2,116 |
| Major Infrastructure and Existing Uses² (ha) | 96 | 25 | 0 | 121 |
| Total Exclusions (ha) | 1,874 | 357 | 6 | 2,237 |
| Developable Lands (ha) | 6,864 | 1,450 | 182 | 8,496 |

1 - Environmental take-outs.

2 - Non-environmental take-outs.

3 - Caledon's DGA includes Greenfield lands added through ROPA 30 adopted by Regional Council on December 8, 2016 (185 ha of developable lands - option 6 and triangle lands and 7 ha of Secondary School Property already developed).

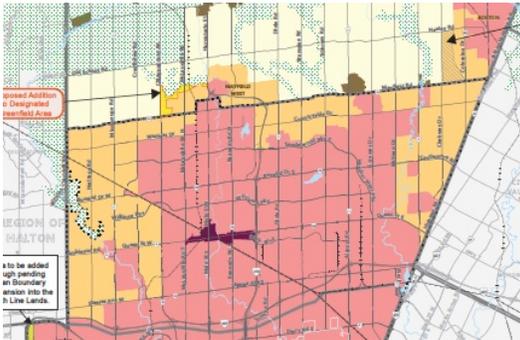
4 - Mississauga's DGA includes 350 ha of the Ninth Line Lands that are in the process of being added to the Urban System.

The table above shows that there are 6,864 hectares of developable lands (excluding major environmental features and major infrastructure/existing uses) within the City of Brampton.

Included within this land area was the entirety of the NWBPA (excluding lands subject to the Greenbelt Plan), where it was assumed that the all of the lands would be developed with residential and employment uses by 2041. As noted previously, ROPA 24 anticipated that the NWBPA will be planned to be built out by 2031.

With respect to employment uses, it was also expected that 300 net hectares of employment land would be planned for in the NWBPA.

Of the 6,864 net hectares of development land identified, about 1,344 net hectares exists in the NWBPA. With these assumptions, it was assumed that all of lands in orange on the map below would be developed by 2041.



It was also indicated by Hemson in one of the supporting reports that an additional settlement expansion beyond Mayfield West Phase 2 Stage 2 will be required to accommodate growth in Peel to 2041 in the order of 565 hectares for community areas and 650 hectares for employment areas.

If the NWBPA were not included as development lands, this means that there would be a need to plan for the development that could not be accommodated in the NWBPA elsewhere, with the only other probable location being the Town of Caledon.

The additional +/- 1,300 net hectares potentially displaced in Northwest Brampton would need to be planned as new Greenfield area in Caledon, subject to new Greenfield density policies of the Growth Plan (2017) and therefore the actual amount of Greenfield land needed to be accommodated would be something

less than the net +/- 1,300 hectares estimated in the study report for illustration purposes.

The Hemson Report also includes the following key specific employment development assumptions for the City of Brampton:

1. *Growth will continue in employment lands where there are vacant lands to development. The recommended scenario is based on an assumed 300 net ha of industrial-type employment lands in Heritage Heights.*
2. *Growth in population related employment will be largely by additions to where it currently exists and in planned locations in newly developing areas, with the greatest increases in the areas with the most population growth.*
3. *The growth scenario assumes that Brampton will attract two new regional institutions, providing 4,000 jobs. It is not known what the estimated employment level would be of the recently announced university campus in Brampton nor or a possible new hospital. For the purposes of the analysis, 2,000 jobs have been assumed for the campus in Downtown Brampton and 2,000 for the hospital assumed to be located in Northwest Brampton.*
4. *The office market will continue to be concentrated in the following areas: Bram West where significant development is occurring; Hurontario near the court house where significant development already exists; a new office centre in the vicinity of Bramalea GO Station to be supported by the RER investments; and the new UGC which could also be supported by new transit investments.*

As per the above, it has been assumed that the NWBPA will accommodate a minimum of 300 net hectares of land for industrial-type employment and 2,000 jobs for a future hospital.

The work completed by the Region of Peel will be potentially affected by the Provincial announcement on the GTA West Corridor, which was made on February 9, 2018.

On that date, the Province announced that it would be accepting the GTA West Advisory Panel recommendation that a proposed highway in the GTA West Corridor is not the best way to address changing transportation needs in the GTA.

On the basis of the above, the Province will now be protecting a narrower corridor (1/3 the size of the Environmental Assessment analysis area) identified as the Northwest GTA Corridor from development while infrastructure needs such as utilities, transit, and transportation options are assessed.

The transportation needs of the corridor will be assessed through the Greater Golden Horseshoe Transportation Plan study that is now underway. The Northwest GTA Corridor Study is being undertaken by the Ministry of Transportation, the Independent Electricity System Operator, with support from the

Ministry of Energy, and is not being conducted as an Environmental Assessment.

Due to the Provincial announcement, Regional staff indicated in a staff report dated February 22, 2018 that the Region will re-evaluate matters including corridor protection policies, population and employment growth allocation, employment strategies and transportation infrastructure.

The Provincial decision will cause delays in advancing the Growth Management and Transportation Regional Official Plan Amendments, infrastructure master plans and a new Development Charges By-law that had been planned for mid 2018.

Staff plan to report to Council once the impact of the announcement is fully assessed and discussed with stakeholders including local municipalities in Peel and adjacent municipalities in York and Halton Regions.

8. PLANNING HERITAGE HEIGHTS

As mentioned in Section 3.0 of this report, a key addition to the ROP through the Minutes of Settlement and ultimately by the OMB in 2006 involved the addition of Section 5.3.4.2.2 f) iii) to the ROP.

This section states the following:

Notwithstanding the protection of the shale resource that is provided by the provisions of the NWBPA and the Regional Official Plan, and Policy 5.3.4.2.2 (f)(v) in particular, all long range planning, including approvals, financing and construction of infrastructure during this 10-year period shall proceed on the basis that all lands within the NWBPA will ultimately be used for urban purposes.

In addition, land use planning steps prior to the adoption of amendments, including background studies, secondary planning and block planning, in relation to lands within the NWBPA may be undertaken on the same basis, and the Province and the Region shall actively participate, as appropriate, in any such infrastructure planning program or land use planning program for Northwest Brampton.

In addition to including the NWBPA lands in the urban boundary, three new secondary planning areas were created and they are Mount Pleasant (SP51), Huttonville North (SP52) and Mount Pleasant West (SP53) as shown on map at the top of the next column.



Both the Huttonville North and Mount Pleasant West were located in what was then called the 'Heritage Heights' community.

In a report dated November 4, 2009, Brampton staff recommended to the City's Planning, Design and Development Committee that the Secondary Plan process for the Heritage Heights community be initiated.

Soon after obtaining direction to initiate the secondary planning process for Heritage Heights, the City retained consultants to undertake the Heritage Heights Transportation Master Plan in accordance with the Municipal Class Environmental Assessment process. In addition, a Servicing and Infrastructure Study was also completed for Heritage Heights.

Between 2010 and 2014, the City initiated the following Secondary Plan

component studies for Heritage Heights:

- Subwatershed Study and Landscape Scale Analysis;
- Transportation Master Plan;
- Infrastructure Servicing Study;
- Employment Implementation Study;
- Community Visioning Study; and,
- Commercial/Institutional Land Use Study.

In a City of Brampton staff report dated February 13, 2013, it was stated that OPA93-245 established the planning framework for Heritage Heights as set out below:

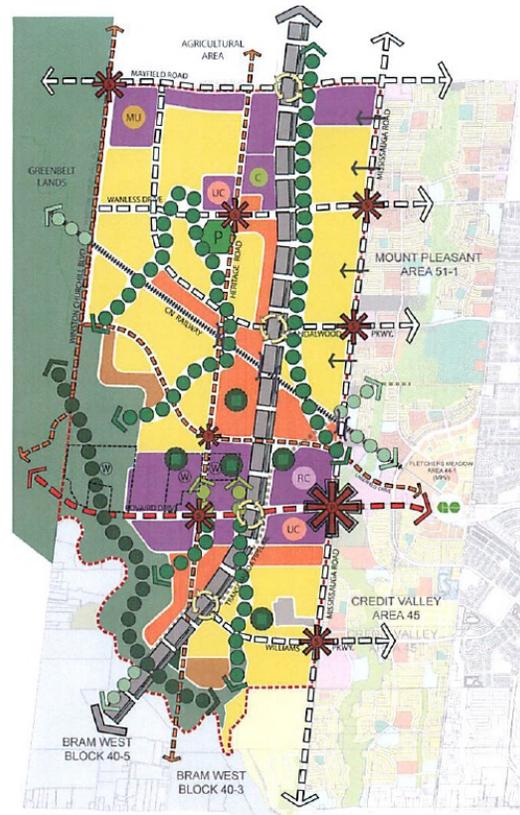
- Maximize opportunities for mixed-use and higher density development at appropriate locations;
- Create viable employment areas that provide a range of employment opportunities;
- Promote nodal development at appropriate locations;
- Protect and preserve local features; and,
- Promote complete communities that include nodes, neighbourhoods and corridors planned around transit and active transportation with an open space network complementing and integrating the natural environment.

As part of the Heritage Heights Community Visioning Study, further guiding principles for Heritage Heights were developed as set out below:

- Create a diverse community of varying housing types, forms and densities, while affording an opportunity to work close to where one lives;
- Connect logically and seamlessly to the planning and development that is taking place in Mount Pleasant;

- Create a sustainable development that preserves heritage resources as appropriate (natural and built);
- Ensure an appropriate balance between residential and employment uses; and,
- Develop a transit supportive, multi-modal environment facilitating major rail, bus, vehicular and cycling modes, that capitalizes on existing Metrolinx opportunities and GO facilities, and that connects to the Mount Pleasant Mobility Hub.

On the basis of the above, a preliminary concept plan was prepared in 2013 as shown below:



The preliminary concept plan was supported by the draft Transportation Plan that suggested that the new North-South Corridor be located to the east of Heritage Road as shown below:



allocated 43,000 people and 20,000 jobs. The large number of jobs is being planned for to support the North-South transportation corridor.

City of Brampton Council then endorsed an updated concept plan in principle in June 2014, as shown below:

One of the main elements of the preliminary concept plan involved the development of Gateways in key area. In this regard, the sketch below shows a highly urbanized gateway proposed in the vicinity of Highway 7 and Heritage Road.



The proposed Land Use Plan was endorsed by Council at that time for the purpose of moving forward with purpose of moving forward with public consultation and was intended to inform the evaluation of the Brampton Brick Shale Quarry Proposal and the review of the shale protection policies by the Region of Peel.

It was also noted in the February 13, 2013 staff report that through the resolution of the ROPA 24 appeals (discussed in Section 7.1 of this report) the Heritage Heights community was

On April 22, 2015, Brampton Council passed a resolution that directed staff to revisit the June 2014 proposed Land Use Plan given the uncertainty regarding various planning and infrastructure issues that were thought to significantly influence the land use decisions that needed to be made.

At that time, the City of Brampton was undertaking a Municipal Comprehensive Review and an Official Plan Review that included consideration of employment land needs. In addition, the Province of Ontario was conducting an Environmental Assessment for the GTA West Transportation Corridor and Metrolinx had also initiated an Environmental Assessment process for a proposed train layover facility in northwest Brampton to facilitate two-way all day GO Train service.

In a report dated February 17, 2016, City staff reported to the Planning and Infrastructure Services Committee on the consultation that was carried out.

There has also been a considerable amount of work completed on transportation enhancements in the area. In this regard, the Halton-Peel Boundary Area Transportation Study was undertaken in 2007 and its purpose was to review transportation needs within the Halton-Peel Boundary Area.

This study was completed in the Spring of 2010 and it confirmed the need for a north-south transportation corridor and recommended that it be constructed as a Halton-Peel freeway with connections to Highway 401 and 407 in Halton Region. The preferred location for the north-south transportation corridor was further confirmed with minor changes as part of the Heritage Heights Transportation Master Plan process. It is noted that the area identified for the north-south transportation corridor

largely coincides with a portion of the preliminary Root Planning Study Area for the GTA West corridor.

It was further noted in a Staff Report to Planning and Infrastructure Services Committee dated October 21, 2016 the following:

In accordance with the Region of Peel and Brampton Official Plans, the development of the Heritage Heights area is contingent on the provision of sufficient transportation infrastructure to meet future traffic demand. A major north-south transportation corridor represents the linchpin of future transportation infrastructure in the area. Technical information ensuing from the identification of a route alignment would help advance Municipal work on a north-south transportation corridor (e.g. major arterial road) in the area (built as either an interim road pending construction of a Provincial highway or as the ultimate north-south corridor).

The following was also further stated:

Timely identification of a route alignment and the unfreezing of lands not required for the corridor would help advance secondary planning in the Heritage Heights area. Delays in the development of this area could impact the cities and the Region of Peel's ability to meet the long-term growth targets in the Growth Plan for the Greater Golden Horseshoe.

The alignment of a highway or other major north-south transportation corridor is also an integral structure in consideration when planning the Heritage Heights Community. The location and layout of other land uses (e.g. employment and commercial lands) is contingent, to a large degree, on the location of a major north-south transportation corridor. Further, the corridor could serve as a multi-modal spine for an active transportation and transit network in the area (with

connections to the other areas inside and outside of Brampton).

As of March 2018, the Heritage Heights Secondary Plan process is on hold pending the consideration of the implications of the Provincial decision on the GTA West Highway.

On April 12, 2018, Regional Public Works Staff delivered a Report to Council titled 'Implications of the Current Provincial Planning Context on Major Planning Initiatives in Peel'. A section of this Report speaks to development in Northwest Brampton.

The following was also noted in the April 12, 2018 Report:

The cancellation of the GTA West Corridor Environmental Assessment means that the results of the long dormant Halton-Peel Boundary Area Transportation Study to plan for a north-south transportation corridor in the area will need to be revisited.

The following was also noted:

Regional staff is gathering information to develop a terms of reference for future studies which would include evaluation of the long-term transportation infrastructure needs for Northwest Brampton.

9. ANALYSIS OF REGIONAL OFFICIAL PLAN AMENDMENT CRITERIA

9.1 INTRODUCTION

The ROP as amended by ROPA 15 in 2006 indicates the following:

No amendment to the areal extent of the NWBPA or to the associated policy framework may be made for at least 10 years from the date of approval of this policy.

Following the expiry of this 10-year time period, the Region of Peel, in consultation with the Province and the City of Brampton, shall undertake a review to determine whether it is in the public interest to replace the NWBPA with general urban land use designations.

The factors to be considered in the review will be focused on a review of the following:

- *Whether any Licence under the Aggregate Resources Act has been issued for the extraction of shale on any lands in the NWBPA or whether any application has been made and is pending for such a Licence; and,*
- *An assessment of population and employment forecasts in the City of Brampton and the Region of Peel; and,*
- *Any relevant provincial policies then in effect.*

On the basis of the above, the key question to be answered by this report is whether it is in the public interest to replace the NWBPA (outside of the Greenbelt Plan area) with general urban land use designations. The

balance of this section of the report reviews the above factors.

9.1.1 ARA LICENSES IN THE NWBPA

As mentioned in Section 2.6 of this report, an application to extract shale from lands originally included in the NWBPA has been submitted. While the application was withdrawn on April 6, 2018, the submission of such an application is what the 10 year moratorium was designed to facilitate.

It is also noted that the Region has protected areas within the NWBPA for resource use since at least 1998, when the ARIP 165 was relied upon to establish the HPMARA on Schedule C of the ROP. However, only one application has been submitted in this area since 1998 (Norval Quarry) and no other lands within the remainder of the NWBPA have been acquired for shale resource extraction.

With respect to the Norval Quarry application itself, the City of Brampton and Brampton Brick entered into Minutes of Settlement on April 6, 2018 and withdrew its appeal of the City's non-decision on the re-zoning application and its referral of the license application to the OMB. Key elements of the Minutes of Settlement are below:

- The withdrawals are on a without prejudice basis, meaning that any future applications would have to be filed as completely new applications;
- The existing planning framework that identifies High Potential Mineral Aggregate Resources Area ('HPMARA') on the Norval Quarry lands will remain in place;

- The City of Brampton will consider whether any portion of the Norval Quarry lands may be appropriate for a request to the Province for potential removal from the Greenbelt Plan and, if so, to be considered by the City for inclusion as part of the NWBPA for urban uses; and,
- The City of Brampton, as part of its current Official Plan Review, would consider the staff recommended policies attached to the Minutes of Settlement. These recommendations propose to amend Section 4.15.4.1-4.15.4.11 and Section 3.2.9 of the City of Brampton Official Plan.

The policy changes are premised on the boundary of the NWBPA being amended through a future Regional Official Plan Amendment such that they coincide with the Greenbelt Plan boundary. In this regard, the policy changes indicate that:

1. The warning clause that was already required for new Plans of Subdivision within 500 metres of the boundary of the NWBPA would be potentially revised following a further review of the NWBPA;
2. Staging and sequencing strategies within or adjacent to the NWBPA (as may be revised following a further review of the NWBPA) shall continue to address issues related to future shale extraction;
3. Planned development abutting the NWBPA shall incorporate appropriate intervening land uses (roads, stormwater management facilities, open space uses or other non-sensitive land uses) between existing or future resource extraction operations and sensitive land uses; and,

4. The City in consultation with the Region of Peel will review whether portions of the Brampton Brick site within the Protected Countryside designation might be appropriate for a request to the Province for the potential removal from the Greenbelt Plan to be added to the urban boundary of the Regional and Brampton Official Plans.

In a meeting held with Brampton Brick on April 20, 2018, Brampton Brick indicated that while they may have an interest in pursuing a new application on the Norval Quarry lands, they have no interest in developing a shale quarry on the urban lands in the NWBPA. **In our opinion, this is a significant factor to consider since the extraction of shale is only possible if there is a brick maker interested in pursuing a license.**

9.1.2 POPULATION AND EMPLOYMENT FORECASTS

With respect to population and employment forecasts, it has already been confirmed through the approval of ROPA 24 in 2012 that the entirety of the NWBPA will be planned to be built out by 2031. In terms of the amount of development expected in the NWBPA, ROPA 24 allocated 43,000 people and 20,000 jobs to the NWBPA.

While the policies establishing a moratorium and the process to lift the moratorium applied when the 2012 OMB decision on ROPA 24 was made (with the full knowledge and support of the MMAH), the decision to allocate 2031 population and employment growth to the NWBPA has had the effect of making it very unfeasible from an economic perspective for landowners/developers to forego development and for a shale quarry operator to purchase/lease the land

required for a quarry, which may delay development on the affected lands for more than 50 years.

In addition, a 35-hectare site could cost between \$50 to \$70 million dollars to purchase, with this cost having an impact on the economic viability of extraction that far outweighs the impacts of removing the overburden to access the resource.

Given the in-effect policies of the ROP as amended by ROPA 24 that support the built out of the NWBPA by 2031, the current growth management process being undertaken by the Region continues to allocate population and employment to the NWBPA. In this regard, a population of 49,500 is proposed to be allocated to the NWBPA, which is greater than the 43,000 people allocated to the NWBPA by ROPA 24. The increase is due to the release of the new Growth Plan in 2017, which establishes higher minimum DGA densities. With respect to employment, 24,000 jobs are proposed to be allocated, which is also slightly greater than the ROPA 24 allocation.

To a very large extent, the Region has determined that it continues to be appropriate to allocate population and employment to the NWBPA because:

- Of its location adjacent to the developed area that extends to Mississauga Road;
- The long-range infrastructure and transportation work completed by the region have already taken into account the development of the NWBPA;
- Development in NWBPA will allow for the development of the last remaining undeveloped area in Brampton and provide the basis

for the development of additional employment uses and potentially a hospital that would support Brampton's evolution into a complete community; and,

- The NWBPA is already considered to be a Designated Growth Area as per the Growth Plan.

The latter point is important to consider because of the requirements of the Growth Plan that speak to where growth is to be accommodated going forward. In this regard, Section 2.1 of Growth Plan (2017) speaks to how municipalities should plan to accommodate future growth:

There is a large supply of land already designated for future urban development in the GGH. In some communities, there may be more land designated for development than is required to accommodate forecasted growth to the horizon of this Plan. It is important to optimize the use of the existing urban land supply as well as the existing building and housing stock to avoid further over-designating land for future urban development. This Plan's emphasis on optimizing the use of the existing urban land supply represents an intensification first approach to development and city-building, one which focuses on making better use of our existing infrastructure and public service facilities, and less on continuously expanding the urban area.

The above means that optimizing the use of land that is already within an urban area is more preferable than expanding the urban area to accommodate growth.

In addition to the above, Section 2.2.8.2 of the Growth Plan states that a settlement area boundary expansion may only occur where it is demonstrated that:

.... *Sufficient opportunities to accommodate forecasted growth to the horizon of this Plan are not available through intensification and in the designated greenfield area:*

9.1.3 PROVINCIAL POLICIES IN EFFECT

The last factor to consider involves the consideration of the Provincial policies in effect.

As noted above, the Growth Plan clearly prefers the optimization of lands within urban areas for development instead of continuously expanding the urban area. As a consequence, this is a significant factor to consider.

While a number of policies in the Growth Plan have already been referred to in this report, Section 4.2.8.6 of the Growth Plan states the following:

Except as provided by the policies of this subsection, decisions on planning matters must be consistent with the policies in the PPS that pertain to the management of mineral aggregate resources.

On the basis of the above, the following sections of the report include a fulsome review of the 2014 Provincial Policy Statement ('2014 PPS'). There is also a key policy in the 2014 PPS that establishes the framework for the consideration of alternative land uses in mineral aggregate resource areas (Section 2.5.2.5).

With the above in mind, and to establish an appropriate context, Section 9.2 provides a brief overview of the implications of the Planning Act on this matter and a review of the various Provincial interests that have a bearing. Section 9.3 then deals

primarily with the 2014 PPS and also contains references to the Growth Plan as well.

9.2 THE PLANNING ACT

9.2.1 PURPOSE

The Planning Act establishes the basic framework for making land use planning decisions. Section 1.1 of the Act states that the purposes of the Act are:

- (a) *To promote sustainable economic development in a healthy natural environment within the policy and by the means provided under this Act;*
- (b) *To provide for a land use planning system led by provincial policy;*
- (c) *To integrate matters of provincial interest in provincial and municipal planning decisions;*
- (d) *To provide for planning processes that are fair by making them open, accessible, timely and efficient;*
- (e) *To encourage co-operation and co-ordination among various interests;*
- (f) *To recognize the decision-making authority and accountability of municipal councils in planning.*

Sub-section (a) above is intended to support sustainable economic development while providing for a healthy natural environment.

Sub-section (b) clearly articulates the Provincial requirement that the 'land use planning system' in Ontario be 'led by Provincial policy'.

Sub-section (c) builds upon sub-section (b) by indicating that matters of Provincial interest should be integrated into Provincial and municipal planning decisions.

Sub-section (d) provides for open planning process while sub-section (e) encourages co-operation among various

interests. In the case of the NWBPA, these interests include the Province, the Region of Peel, the City of Brampton, landowners within the NWBPA and the clay brick industry.

There is also the broader public interest to consider.

Lastly, sub-section (f) recognizes the decision-making authority and accountability of municipal councils in making planning decisions. This will be an important factor in this case.

9.2.2 MATTERS OF PROVINCIAL INTEREST

Section 2 of the Planning Act sets out the responsibilities of the Council of a municipality and the Ontario Municipal Board.

Below is the full list of those Provincial interests with those that are particularly relevant to this report and the disposition of the NWBPA highlighted in grey:

The Minister, the council of a municipality, a local board, a planning board and the Municipal Board, in carrying out their responsibilities under this Act, shall have regard to, among other matters, matters of provincial interest such as,

- (a) *The protection of ecological systems, including natural areas, features and functions;*
- (b) *The protection of the agricultural resources of the province;*
- (c) *The conservation and management of natural resources and the mineral resource base;*
- (d) *The conservation of features of significant architectural, cultural, historical, archaeological or scientific interest;*
- (e) *The supply, efficient use and conservation of energy and water;*
- (f) *The adequate provision and efficient use of communication,*

transportation, sewage and water services and waste management systems;

- (g) *The minimization of waste;*
- (h) *The orderly development of safe and healthy communities;*
- (h.1) *The accessibility for persons with disabilities to all facilities, services and matters to which this act applies;*
- (i) *The adequate provision and distribution of educational, health, social, cultural and recreational facilities;*
- (j) *The adequate provision of a full range of housing, including affordable housing;*
- (k) *The adequate provision of employment opportunities;*
- (l) *The protection of the financial and economic well-being of the province and its municipalities;*
- (m) *The co-ordination of planning activities of public bodies;*
- (n) *The resolution of planning conflicts involving public and private interests;*
- (o) *The protection of public health and safety;*
- (p) *The appropriate location of growth and development;*
- (q) *The promotion of development that is designed to be sustainable, to support public transit and to be oriented to pedestrians;*
- (r) *The promotion of built form that,*
 - (i) *Is well-designed,*
 - (ii) *Encourages a sense of place, and*
 - (iii) *Provides for public spaces that are of high quality, safe, accessible, attractive and vibrant.*
- (s) *The mitigation of greenhouse gas emissions and adaptation to a changing climate.*

There are clearly a range of Provincial interests to consider in this matter, with items (e), (f), (h), (i), (j), (k), (l), (p) and (q) relating to the location of growth and development and item (c) dealing with the conservation and management of the mineral resource base. Item (s) is relevant because of

the implications of sourcing shale resources from longer distances if a local source does not exist.

9.2.3 IMPACT ON DECISION MAKING

Section 3(5)(a) of the Planning Act states the following:

A decision of the council of a municipality, a local board, a planning board, a minister of the Crown and a ministry, board, commission or agency of the government, including the Municipal Board, in respect of the exercise of any authority that affects a planning matter, shall be consistent with the policy statements issued under subsection (1) that are in effect on the date of the decision.

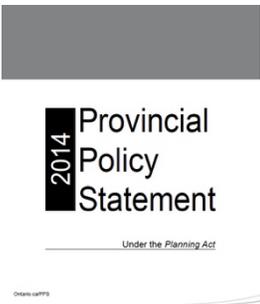
The Policy Statement that is currently in effect is the 2014 PPS, which came into effect on April 30, 2014.

9.3 PROVINCIAL POLICY STATEMENT

9.3.1 CONTEXT FOR DECISION MAKING

The overall context for municipal decision-making that is required to be consistent with the PPS 2014 is established in the first two paragraphs of the Part 1 Preamble to the PPS 2014:

The Provincial Policy Statement provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario's policy-led planning system, the Provincial Policy Statement sets the policy foundation for regulating the development and use of land. It also



supports the provincial goal to enhance the quality of life for all Ontarians. The Provincial Policy Statement provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The Provincial Policy Statement supports improved land use planning and management, which contributes to a more effective and efficient land use planning system.

The matters of Provincial interest mentioned in the first paragraph above are included within Section 2 of the Planning Act, as discussed in Section 9.2.3.

9.3.2 PROVINCIAL VISION

Part IV of the PPS 2014 establishes the vision for Ontario's land use planning system and it clearly indicates that one of the keys to the long-term prosperity and social well-being of Ontario residents is a strong economy. Below are those components of the vision that speak to the need for a strong economy, with those components that are particularly relevant to the disposition of the NWBPA highlighted in grey:

The long-term prosperity and social well-being of Ontario depends upon planning for strong, sustainable and resilient communities for people of all ages, a clean and healthy environment, and a strong and competitive economy.

The Provincial Policy Statement focuses growth within urban and rural settlement areas while supporting the viability of rural areas. It recognizes that the wise management of land use change may involve directing, promoting or sustaining development. Land use must be carefully managed to accommodate appropriate development to meet the full range of current and future needs, while achieving efficient development patterns and avoiding significant or

sensitive resources and areas which may pose a risk to public health and safety.

Efficient development patterns optimize the use of land, resources and public investment in infrastructure and public service facilities. These land use patterns promote a mix of housing, including affordable housing, employment, recreation, parks and open spaces, and transportation choices that increase the use of active transportation and transit before other modes of travel.

They also support the financial well-being of the Province and municipalities over the long term, and minimize the undesirable effects of development, including impacts on air, water and other resources. Strong, liveable and healthy communities promote and enhance human health and social well-being, are economically and environmentally sound, and are resilient to climate change.

The Province's natural heritage resources, water, agricultural lands, mineral resources, and cultural heritage and archaeological resources provide important environmental, economic and social benefits. The wise use and management of these resources over the long term is a key provincial interest. The Province must ensure that its resources are managed in a sustainable way to protect essential ecological processes and public health and safety, minimize environmental and social impacts, and meet its long-term needs.

Strong communities, a clean and healthy environment and a strong economy are inextricably linked. Long-term prosperity, human and environmental health and social well-being should take precedence over short-term considerations.

The fundamental principles set out in the Provincial Policy Statement apply throughout Ontario. To support our collective well-being, now and in the future, all land use must be well managed.

There clearly is a focus in the above vision on directing development to settlement areas and on the optimization of the use of land and public investment in infrastructure and public service facilities.

With respect to mineral resources, the vision indicates that the Province must ensure that its resources are managed in a sustainable way to meet its long-term needs.

The choice of words in the vision as it relates to mineral resources is of interest since the decision to be made with respect to the NWBPA involves making a choice between protecting a shale resource area or providing for urban development on the same lands. An additional consideration is whether the interim use of the land in the NWBPA for shale protection is feasible in light of the approved policy framework and the need to accommodate growth in a timely, logical and efficient manner.

In this regard, there are different types of mineral resources to consider in applying and understanding what the Provincial vision is based on, with shale resources being required for brick making (primarily for aesthetic reasons) and with other forms of bedrock being required for primarily roads and infrastructure.

In addition, there are alternatives to brick, in terms of the choice made on the exterior cladding of a home or other building. However, choices are very limited with respect to the raw materials used for infrastructure. In our view, this becomes a distinguishing factor to consider when applying Provincial policy.

With respect to the bedrock required for infrastructure, it is agreed that

there is an overall public interest in ensuring that the sources of aggregate are as close to market at possible (when this is realistic) to ensure costs are low and to ensure that there is competition in the marketplace.

Given that it is the public that generally pays for infrastructure through taxation from one level of government or another, there is a clear public interest in ensuring that the cost to the general public of infrastructure is kept low when feasible and practical. This same starting point does not apply as definitively to shale used in brick production.

In addition, it is only because the shale extracted from the Queenston Formation is located in the geography it is located in that there is a history of brick making in this part of Ontario where the cladding of new homes in brick has become the norm.

In other parts of Ontario and within the rest of Canada, bricks are not as common and if they are added to the projects, it becomes an added option that increases the cost of the product. What has happened in southern Ontario is that since virtually all new homes are constructed with brick, it has become a normalized part of the construction process.

9.3.2 USE OF WORDS IN THE 2014 PPS

The 2014 PPS significantly expanded upon Part III (How to Read the Provincial Policy Statement) from the PPS 2005.

There is now a discussion in Part III on the need to read the entire PPS, the need to consider specific policy language and the geographic scale of the policies.

This section also confirms that the policies represent minimum standards and it also articulates the relationship of the 2014 PPS with Provincial plans.

This new section also contains direction on defined terms and meanings and guidance material. There is one enhancement in Part III of interest that was made in 2014 and it deals with the language used in the 2014 PPS. This enhancement is reproduced below:

When applying the Provincial Policy Statement it is important to consider the specific language of the policies. Each policy provides direction on how it is to be implemented, how it is situated within the broader Provincial Policy Statement, and how it relates to other policies.

Some policies set out positive directives, such as "settlement areas shall be the focus of growth and development." Other policies set out limitations and prohibitions, such as "development and site alteration shall not be permitted." Other policies use enabling or supportive language, such as "should," "promote" and "encourage."

The choice of language is intended to distinguish between the types of policies and the nature of implementation. There is some discretion when applying a policy with enabling or supportive language in contrast to a policy with a directive, limitation or prohibition.

On the basis of the above, it is clear that the Province, in writing and updating the 2014 PPS, was very cautious and deliberate with respect to the words used.

Of particular interest to decision-makers is whether a particular policy incorporates the word "shall", "should", "promote" or "encourage". The latter three are enabling or supportive, while the first (shall) when

applied to a policy is a directive, limitation or prohibition.

This is supported by the statement in Part III of the 2014 PPS, which indicates that there is some discretion when applying a policy with enabling or supportive language in contrast to a policy with a directive, limitation or prohibition. In this regard, wherever the word 'shall' is used, it is a directive, limitation or a prohibition.

All of the 'shalls' mentioned in the 2014 PPS have to be balanced when considering how to move forward with the NWBPA.

As a consequence of the above, the focus of the analysis in this section of the report is on those policies that are considered to be a directive, limitation or a prohibition.

9.3.3 BALANCING OF POLICY

The word 'shall' was used on 96 occasions within PPS 2005. The number of 'shalls' in the 2014 PPS now totals 111.

Given the mandatory requirement in the 2014 PPS 2014 that comes with the use of the word 'shall', there clearly is a need to determine how the many mandatory policies in the 2014 are to be balanced against each other.

As a starting point, Section 4.4 of the 2014 PPS states the following:

This Provincial Policy Statement shall be read in its entirety and all relevant policies are to be applied to each situation.

A further consideration in making a determination on how policies should be balanced in Section 4.9 of the 2014 PPS which deals with minimum

standards and which states the following:

The policies of the Provincial Policy Statement represent minimum standards. This Provincial Policy Statement does not prevent planning authorities and decision makers from going beyond the minimum standards established in specific policies, unless doing so would conflict with any policy of this Provincial Policy Statement.

In addition, the following is also stated in Part III of the 2014 PPS:

The Provincial Policy Statement is more than a set of individual policies. It is to be read in its entirety and the relevant policies are to be applied to each situation. When more than one policy is relevant, a decision maker should consider all of the relevant policies to consider how they work together. The language of each policy, including the implementation and interpretation policies, will assist decision makers in understanding how the policies are to be implemented.

While specific policies sometimes refer to other policies for ease of use, these cross-references do not take away from the need to read the Provincial Policy Statement as a whole.

There is no implied priority in the order in which the policies appear.

Given the above direction from the 2014 PPS, there will always be challenges with the interpretation of how relevant policies are to be balanced and ultimately, which policy is more relevant than another policy.

For example, Section 1.1.3.6 of the 2014 PPS states the following:

New development taking place in designated growth areas should occur adjacent to the existing built up area and shall have a compact form, mix of

uses and densities that allow for the efficient use of land, infrastructure and public service facilities.

Section 2.1.1 then states the following:

Natural features and areas shall be protected for the long term.

In many parts of the Province, natural features and areas are located adjacent to the built up area and many disputes have arisen as a consequence with respect to which of these two policies should take priority, or alternatively, which policy should be given more weight when making a decision.

9.3.4 GROWTH MANAGEMENT CONSIDERATIONS IN THE PPS

Below are a number of policies on growth management in the 2014 PPS that include the word 'shall' to consider.

1.1.2 Sufficient land shall be made available to accommodate an appropriate range and mix of land uses to meet projected needs for a time horizon of up to 20 years...

This section directs municipalities to plan for a mix and range of uses over a 20-year planning horizon.

As mentioned previously, population growth (43,000 people) and employment growth (20,000 jobs) have already been allocated to the NWBPA through the ROPA 24 process in 2012, with the full support of the MMAH.

Given the in-effect policies of the ROP as amended by ROPA 24 that support the build out of the NWBPA by 2031, the current growth management process being undertaken by the Region continues to allocate population and

employment to the NWBPA. In this regard, a population of 49,500 is proposed to be allocated to the NWBPA, which is greater than the 43,000 people allocated to the NWBPA by ROPA 24. The increase is due to the release of the new Growth Plan in 2017, which establishes higher minimum DGA densities. With respect to employment, 24,000 jobs are proposed to be allocated.

To a very large extent, the Region has determined that it continues to be appropriate to allocate population and employment to the NWBPA because:

- Of its location adjacent to the developed area that extends to Mississauga Road;
- The long-range infrastructure and transportation work completed by the region have already taken into account the development of the NWBPA;
- Development in NWBPA will allow for the development of the last remaining undeveloped area in Brampton and provide the basis for the development of additional employment uses and potentially a hospital that would support Brampton's evolution into a complete community; and,
- The NWBPA is already considered to be a Designated Growth Area as per the Growth Plan.

It has also been determined as part of the current review of the ROP in accordance with the 2017 Growth Plan that an additional settlement expansion beyond Mayfield West Phase 2 Stage 2 will be required to accommodate growth in Peel to 2041 in the order of 565 hectares for community areas and 650 hectares for employment areas.

If the NWBPA were not included as development lands as per the ROPA 24 OMB decision, this means that there would be a need to plan for an additional amount of Greenfield area of up to about +/- 1,300 net hectares elsewhere, with the only other probable location being the Town of Caledon.

Adding an additional +/- 2,500 hectares of urban land in Caledon would be a significant increment of growth, all of which would happen in a prime agricultural area.

It is noted that the above allocations and the current review of the ROP are considering a time horizon of greater than 20 years from 2018 to 2041 (23 years), as permitted by the Growth Plan.

Given that the non-inclusion of the NWBPA in the land budget would mean that a larger settlement area expansion would be required, Section 2.2.8.2 (a) of the 2017 Growth Plan becomes particularly relevant. This section states the following:

A settlement area boundary expansion may only occur through a municipal comprehensive review where it is demonstrated that:

- a) *Based on the minimum intensification and density targets in this Plan and a land needs assessment undertaken in accordance with policy 2.2.1.5, sufficient opportunities to accommodate forecasted growth to the horizon of this Plan are not available through intensification and in the designated greenfield area:*

This means that sufficient opportunities to accommodate forecasted growth have to not be available through intensification and in existing

Designated Greenfield Areas ('DGA') before looking at other options, according to the Growth Plan.

As noted previously, population and employment growth has already been allocated to the NWBPA, which is within the DGA.

On the basis of the above, the Growth Plan clearly directs municipalities to focus their efforts as part of a Municipal Comprehensive Review on accommodating expected population and employment growth through intensification and in existing DGA areas before looking elsewhere.

This is supported by Section 1.1.3.1 of the 2014 PPS:

1.1.3.1 Settlement areas shall be the focus of growth and development, and their vitality and regeneration shall be promoted.

This section clearly prioritizes development in settlement areas over development outside of settlement areas. As mentioned previously, the NWBPA lands are within the Brampton settlement area and have been since 2006.

1.1.3.2 Land use patterns within settlement areas shall be based on densities and a mix of land uses which support a number of objectives...

This section requires municipalities to implement complete community principles when planning for lands within the settlement areas.

Much of the work completed by the City of Brampton since 2009 on Heritage Heights has been designed to implement this policy, and given the proximity of the NWBPA to higher order

transit and a major transit station (Mt. Pleasant GO) and a major north-south transportation corridor, the key ingredients in support of complete community development are already present.

Section 1.2 of the 2014 PPS provides direction to municipalities on coordination of planning matters that may include a number of agencies and different levels of government.

1.2.4 Where planning is conducted by an upper-tier municipality, the upper-tier municipality in consultation with lower-tier municipalities shall: e) identify and provide policy direction for the lower-tier municipalities on matters that cross municipal boundaries.

Section 1.2.4 e) requires the upper-tier municipalities to consult with their lower-tier municipalities on planning matters and provide policy direction to the lower-tier municipalities in the Region. This has already occurred in the form of ROPA 24, which has already allocated population and employment growth to the NWBPA.

Section 1.3 of the 2014 PPS provides direction to planning authorities on planning for employment uses.

1.3.1 Planning authorities shall promote economic development and competitiveness by: a) providing for an appropriate mix and range of employment and institutional uses to meet long-term needs.

In this regard, ROPA 24 has already allocated a significant amount of employment growth to the NWBPA in recognition of the location of an existing major transit station (Mt. Pleasant GO) and the future north-south transportation corridor. This

amount of employment growth in this area is a key component to ensuring that the NWBPA is planned to become a complete community.

Section 1.6 of the 2014 PPS establishes policies on infrastructure and public service facilities. Below are two key policies in this regard:

1.6.1 Infrastructure, electricity generation facilities and transmission and distribution systems, and public service facilities shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs.

1.6.7.2 Efficient use shall be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.

The Region has already considered this when it decided to allocate population and employment growth in ROPA 24. It was also on the basis of this decision that the Region has included the full development of the NWBPA in its long-range infrastructure and transportation planning.

In addition, there do not appear to be any significant differences in the cost of providing the water and wastewater infrastructure required for 49,500 people and 19,630 jobs, whether the population and employment is expected to be accommodated in the NWBPA or Caledon. However the transportation costs increase by about \$20 million in Scenario 3 and about \$40 million in Scenario 2, because of the increment of additional growth that would have to be accommodated in Caledon. In addition to these transportation costs,

a new grade separation would be required on King Street if either Scenarios 1, 2 or 3 were selected, with the cost of this grade separation being about \$20 million.

In addition, the analysis of infrastructure costs has also indicated that **Scenario 1 (Partial Protection of selected properties)** and **Scenario 3 (Full Protection to 15 metres)** require the highest investment due to the additional infrastructure that is required to service the additional growth in Caledon and the growth in the NWBPA.

As a consequence, the increased transportation costs are a factor to consider.

9.3.5 MINERAL AGGREGATE RESOURCES POLICIES IN THE PPS

Section 2.5 of the 2014 PPS includes policies that address mineral aggregate and petroleum resources.

Below is a review of the relevant policies that apply.

9.3.5.1 Section 2.5.1

Section 2.5.1 is the first section to appear in this section of the 2014 PPS.

2.5.1 Mineral aggregate resources shall be protected for long-term use and, where provincial information is available, deposits of mineral aggregate resources shall be identified.

Deposits of mineral aggregate resources is defined by the 2014 PPS as per below:

Deposits of mineral aggregate resources: means an area of identified mineral aggregate resources, as delineated in Aggregate Resource Inventory Papers or

comprehensive studies prepared using evaluation procedures established by the Province for surficial and bedrock resources, as amended from time to time, that has a sufficient quantity and quality to warrant present or future extraction.

The mapping contained within the ARIP 165 - REV and the 2012 OGS Shale Report identifies where shale resources with overburden depths of up to 15 metres are located. However, the ARIP 165 - REV does not identify the shale resource area in the NWBPA as a 'selected bedrock resource area', even though the predecessor ARIP (ARIP 165) did.

Notwithstanding the above, there is no question that 'Provincial information' has been made available. However, it should be noted that the 2012 OGS Shale Report clearly indicated that lands with an overburden of 8 metres or less warrant consideration for protection.

With respect to 'quantity', it is clear that the shale resource is present in the NWBPA. However, the quantity that is available is based on the depth of overburden, the assembly of property and the cost of acquiring lands for a quarry.

Given that the NWBPA has been within the Brampton urban area since 2006, and its value has increased significantly since that time, it is highly unlikely that a landowner would offer land for sale for quarry purposes and equally unlikely that the cost of the land would be reasonable enough for consideration. This then has an impact on the 'quantity' available.

With respect to 'quality' there is no evidence to suggest that the shale resources in the NWBPA do not have the quality required for brick making. In addition, while the bricks being

produced have the capability to be used for load bearing purposes, they are primarily being used in veneer applications.

9.3.5.2 Sections 2.5.2.1 and 2.5.2.2

There are two policies in particular in the 2014 PPS that have a significant impact on aggregate policy development and the review of applications since they require decision makers to consider how the Provincial interest in the "*conservation and management of natural resources and the mineral resource base (Sec. 2 of the Planning Act)*" will be balanced against other Provincial interests that relate to the protection of ecological systems, the orderly development of safe and healthy communities and the appropriate location of growth and development, among others.

These two policies are Sections 2.5.2.1 and 2.5.2.2, both of which are reproduced below:

2.5.2.1 As much of the mineral aggregate resources as is realistically possible shall be made available as close to markets as possible.

2.5.2.2 Extraction shall be undertaken in a manner that minimizes social, economic and environmental impacts.

Section 2.5.2.1 of the 2014 PPS recognizes that mineral aggregate resources are an integral component of the economy and that the transportation of this resource to market is cost sensitive. However, there is no definition of 'realistically possible' in the 2014 PPS.

The second component of the policy makes it clear that the demonstration of need for mineral aggregate resources

is not a factor in the development of resource strategies or in the consideration of individual applications, regardless of the municipality or location.

The intent of this policy is to require that any application be considered on its land use merits only.

However, in this particular case, the shale resource area is within an urban area that is planned to be fully built-out by 2031 as per ROPA 24. As a consequence, there are other public interest objectives to consider, with the starting point being entirely different if the NWBPA was not in the urban area.

It is my opinion that the presence of a shale resource area in an urban area establishes a very different context for decision-making than if the lands under consideration were outside of a settlement area.

Section 2.5.2.2 acts as the 'control' over where new resource uses are to be located and is intended to ensure that Section 2.5.2.1 is balanced against the expressed desire to minimize impacts.

In this regard, Section 2.5.2.2 provides the basis for the establishment of criteria to identify potential resource areas and to assess applications to establish resource uses. It is noted that the word 'shall' is also used in this section. This section also uses the word 'minimize' with no definition of 'minimize' provided.

As a result, the determination of whether extraction minimizes social, economic and environmental impacts becomes an important consideration in making a decision on an application to establish a new resource use. It is also noted that the use of the word 'minimize' assumes and recognizes that

some impacts will occur.

There are a number of other policies in the 2014 PPS that are directly or indirectly supportive of the mineral aggregate industry and the extraction of mineral aggregate resources, recognizing the important role that it plays in our economy and in the availability and efficient delivery of needed services and infrastructure.

However, there are other policies that indicate that development and land use patterns which may cause environmental or public health and safety concerns should be avoided and that uses such as resource extraction activities and sensitive land uses are appropriately designed, buffered and/or separated from each other to prevent adverse effects.

It is noted that Sections 2.5.1 and 2.5.2.1 of the 2014 PPS have been relied upon extensively by the industry, the Province and the Ontario Municipal Board in the consideration of aggregate resource policies or individual applications.

The use of the word 'shall' in the context of these two policies and the Planning Act requirement that planning decisions 'be consistent with' Provincial policy has played a significant role in the preparation of policy in other municipalities and in how applications are considered.

The addition of the policy in Section 2.5.2.1 in the 2005 PPS (and carried through into the 2014 PPS) on the 'need' issue indicates that the demonstration of need for mineral aggregate resources 'shall not be required' in the development of resource strategies or in the consideration of individual applications,

regardless of the municipality or location.

9.3.5.3 Section 2.5.2.5

However, this report is not about assessing whether a resource use can be developed in the NWBPA. Instead, this report is about whether alternative uses should be permitted. This means that the key section to consider then becomes Section 2.5.2.5, which is reproduced below:

In known deposits of mineral aggregate resources and on adjacent lands, development and activities which would preclude or hinder the establishment of new operations or access to the resources shall only be permitted if: a) resource use would not be feasible; or b) the proposed land use or development serves a greater long-term public interest; and c) issues of public health, public safety and environmental impact are addressed.

Firstly, there is no question that shale is considered to be a 'mineral aggregate resource' as per the definition of such in the 2014 PPS.

As set out in Section 2.5.2.5, an assessment of the impacts of proposed development on the feasibility of resource extraction is required to be carried out whenever development is proposed with development being defined as development requiring a Planning Act approval.

It is noted that items a) and b) in Section 2.5.2.5 are separated by the word "or".

This means that a case can be made that a proposed land use or development serves a greater long-term public interest than a proposed resource use even if it is determined that resource use would be feasible. While 'feasibility' is certainly a factor,

what is in the longer-term public interest is the key factor to consider. It is my opinion that as part of the consideration of what is in the longer-term public interest, the nature of the mineral aggregate resource becomes a factor.

This means that the relative value of protecting one type of resource over another to satisfy public interest objectives becomes a consideration.

It is agreed that it has long been the intent of mineral aggregate resource policy at the Provincial level to ensure that the aggregates required for infrastructure and building construction was available in close proximity to the market.

Given that over 60% of the aggregates extracted each year are used for infrastructure purposes with this infrastructure being paid for and developed by public agencies and ultimately funded by the public, there is a clear public interest in ensuring that this basic resource is firstly available and secondly economical.

While there are alternatives to bedrock resources used for infrastructure and recycling is very much being encouraged, the fact remains that most of the bedrock used by public authorities is bedrock.

In fact, the Ministry of Transportation requires that a minimum of 80% of the bedrock used for road building be made up of virgin materials. Many other public agencies do not permit the use of recycled materials for road building construction projects as well.

As a consequence, the element of choice that exists with respect to the use of shale for brick making does not exist at this time with other mineral

aggregate resources used for infrastructure. It is recognized however, that brick is clearly the veneer of choice and continues to be sought after by primarily the home-building industry.

While the thinking on the use of virgin materials for infrastructure is evolving, it is the current situation and in the future, the greater the choice with respect to the other types of bedrock resources, the need to protect these other bedrock resource areas for infrastructure may become a discussion item.

However, that discussion is not a part of this process. Instead, the use of shale resources for brick making is a choice and there are alternatives. This is clear.

One of the foundational elements of the Provincial policy framework on mineral aggregate resources is that resource areas need to be close to market to keep transportation costs low.

As noted previously in this report, MPC reached out to industry representatives to inquire about the costs associated with shipping shale resources to be processed at a brick plant.

In this regard, Brampton Brick indicated that the normalized cost to ship one tonne over a distance of one kilometre is approximately \$0.08/kilometre. A full truckload is capable of holding 36 tonnes of raw shale, while a half truckload can carry 20 tonnes of raw shale.

If it assumed that about 3.4 tonnes of shale are required to make 1,000 bricks, this means that about 34 tonnes of shale are required for an average

two-storey home. This equates to about one full truckload.

This means it would cost about \$60.00 to transport the raw shale resource required for the bricks for an average two-storey home, and as mentioned previously, the installed cost of the brick can be as high as \$30,000. This means that the transportation cost of transporting the raw shale resource to a brick making plant that is 20 kilometres away is much less than 1.0% of the installed cost (which could be as high as \$30,000).

It is recognized that there are limited locations for shale resource extraction in Southern Ontario and the discussion on transportation costs may not be as relevant.

However, if the locally sourced raw materials required for brick making become scarcer, this would make it more attractive to extract shale from further distances away given the low transportation costs and from sites that were once considered marginally attractive. These increased costs would have a negligible impact on the installed cost of brick as well.

However, the scarcity of a resource is also a prime motivator in the development of alternatives.

The pressure to be innovative is also recognized by the clay brick industry and is evidenced by the work being undertaken to explore other options to make clay brick products such as utilizing shale from large construction excavations, industrial mineral by-products, municipal waste streams and mine tailings.

9.3.6 PLANNING OPINION

Notwithstanding the above discussion, the tests in the 2014 PPS require that the resource use is either not feasible, or that the alternative use is in the greater long-term public interest.

9.3.6.1 - Feasibility

With respect to feasibility, there are two factors to consider - technical and practical.

From a technical perspective, there is no evidence to suggest that a well-planned shale quarry cannot be technically supported in the NWBPA. However, it is recognized that the technical issues can be significant, as was evidenced by the positions taken by both the City of Brampton and the Region of Peel on the proposed Norval Quarry.

On the practical side, it is my opinion that there has to be some likelihood that lands could be assembled for quarry purposes to determine that resource use is feasible.

Given the nature and location of the constraints in the 'Area of Interest', as shown on **Map 6**, it is very likely that the assembly of land would be required for a quarry if **Scenarios 1, 2 or 3** were selected.

In addition, given that the NWBPA has been within the Brampton urban area since 2006, many of the larger parcels of land within the NWBPA have been purchased by development interests who have funded numerous studies in support of urban development over the last the years. This means that lands within the NWBPA would have to be acquired for quarry development.

The need to acquire multiple parcels of land in the NWBPA for quarry

development is, in our opinion, a significant factor to consider.

Given that the NWBPA has been within the Brampton urban area since 2006, it is our opinion that it would be very unlikely for a landowner interested in urban development to consider foregoing the opportunity to develop their lands for a period of time that may exceed 50 to 70 years, which takes into account the time it takes to approve a quarry, extract the resources and rehabilitate the lands.

This also takes into account the fact that it is not feasible to extract more of the resource than required in any given year given the weathering that occurs when the resource is exposed to the elements.

In addition to the above, even if there were a willing seller, the cost of purchasing the land would be significant, and it is estimated that the purchase price for a 30-hectare parcel of land would be in excess of \$50 to \$60 million dollars.

As has been noted by the OGS in the OGS 2012 Shale Report, the economic viability of extraction is very much affected by overburden depth and it has been confirmed by the OGS that removing more than 8 metres of overburden is not economically viable.

Based on information provided by Brampton Brick, it has been estimated that it costs approximately \$1,258,902 to remove every 1 metre of overburden from a 35-hectare quarry site, which means it would cost approximately \$10,071,220 to remove 8 metres of overburden. This is significantly less than the cost of the land as noted above.

If it has been determined that the economic viability of a shale quarry is sensitive to overburden depth because of the cost to go below 8 metres, it stands to reason that the cost of the land itself in the NWBPA would have a much greater impact on economic viability.

Given the above, it would be more economically viable to establish a shale quarry on lands that are not in an urban area that have a drift thickness of more than 8 metres, than it would be to extract the same resource from lands within an urban area.

It is our opinion that significant weight must be given to this very practical limitation when making an informed decision.

It is recognized that a public authority could expropriate certain lands within the NWBPA for the purposes of establishing a quarry, however, that would be without precedent in Ontario and it would cost the expropriating authority the full market value of the land. In addition, the decrease in value of the lands adjacent to the quarry would also have to be taken into account, with the litigation potentially taking years to resolve.

It is recognized however that the outcome would be different if the NWBPA was not within the urban area. However, the lands have been within the urban area since 2006.

However, the likelihood of any part of the NWBPA being taken out of the urban area would also be without precedent in Ontario and is considered to not be realistic. **On the basis of the above, it is my opinion that resource use is not feasible in the NWBPA.**

9.3.6.2 - What is in the Long Term Public Interest

On the basis of a review of all of the materials, it is my opinion that it has been clearly demonstrated since the year 2000 that the NWBPA lands are appropriate for urban development and would in fact represent the last development area in the City of Brampton.

This was confirmed by the Ontario Municipal Board in 2006, confirmed through Minutes of Settlement entered into between the MMAH, the Region and its municipalities in 2012 as part of ROPA 24 and continues to be the case as part of the current ROP review process that is designed to ensure that the ROP is in conformity with the Growth Plan.

In fact, significant growth is expected in the Region of Peel and even if all of the lands within NWBPA continue to be included as development land, there would still be a requirement to designate an additional 565 hectares for community areas and 650 hectares for employment areas to accommodate expected population and employment growth to 2041.

If the lands within NWBPA were not available for development, the amount of additional land required to accommodate expected population and employment growth in the Region of Peel is significant and would be about +/- 2,500 hectares.

Given the absence of any other opportunities, all of this additional urban land would have to be found in the Town of Caledon. This would be a significant increment of growth in the Town of Caledon, all of which would be located on prime agricultural land, and would trigger the need for new

infrastructure with respect to **Scenario 1 (Partial Protection of selected properties)** and **Scenario 3 (Full Protection to 15 metres)**. These scenarios potentially represent the greatest servicing cost implications to the Region as servicing is potentially needed in both the NWBPA and Caledon.

There is also a time factor to consider as well. The time it will take to go through the process of identifying new urban lands in Caledon through a MCR would most likely take between two and three years. This would then need to be followed up by local Official Plan Amendments and Secondary Plans that are supported by detailed technical studies. This could add another two to five years to the process. Going through the more detailed Plan of Subdivision process adds to the length of time it would take before development could actually proceed. This means that it could be in excess of 10 to 12 years before development actually occurs on new urban land in Caledon. In addition, the larger the increment of growth, the more complex the process is.

In contrast, development within the NWBPA has already been factored into the Region's long term infrastructure and transportation planning efforts, and considerable time has already been spent by the City of Brampton on the development of a land use plan for Heritage Heights. This means that needed development lands in the Region could be opened up much sooner if the NWBPA is released for development.

It is my opinion that the ultimate release of the lands within the NWBPA at the end of the 10-year period was and is a logical and supportable conclusion based on the wording of the

policies included within the ROP and the City of Brampton Official Plan by the OMB in 2006 and by virtue of the policy changes made by ROPA 24 which anticipated the full build out of NWBPA by 2031.

To a very large extent, the Region has determined that it continues to be appropriate to allocate population and employment to the NWBPA because:

- Of its location adjacent to the developed area that extends to Mississauga Road;
- The long-range infrastructure and transportation work completed by the region have already taken into account the development of the NWBPA;
- Development in NWBPA will allow for the development of the last remaining undeveloped area in Brampton and provide the basis for the development of additional employment uses and potentially a hospital that would support Brampton's evolution into a complete community; and,
- The NWBPA is already considered to be a Designated Growth Area as per the Growth Plan.

The latter point is important to consider because of the requirements of the Growth Plan that speak to where growth is to be accommodated going forward. In this regard, Section 2.1 of the Growth Plan indicates that optimizing the use of land that is already within an urban area is more preferable than expanding the urban area to accommodate growth.

In addition to the above, Section 2.2.8.2 of the Growth Plan states that a settlement area boundary expansion may only occur where it is demonstrated that:

.... *Sufficient opportunities to accommodate forecasted growth to the horizon of this Plan are not available through intensification and in the designated greenfield area:*

As a consequence of the above, and with consideration to the Growth Plan, it is my opinion that the full urbanization of the NWBPA serves a greater long-term public interest than protecting the lands for shale resource extraction.

9.3.6.3 - Consideration of the 1997 Non-Renewable Resources Training Manual

Through the course of preparing this report, representatives from the Province suggested to the Region that the Province's 1997 Non-Renewable Resources Training Manual (1997 Manual) be reviewed.

The introduction to the 1997 Manual states the following:

The manual is intended to facilitate the transfer of technical information and highlight approaches that may be used to ensure the provincial interests regarding how: i) the protection of mineral aggregate and petroleum resources; ii) the protection of extraction and processing operations and associated facilities; and iii) the protection of public health and safety in relation to existing, future or former operations, are addressed in land use planning.

It is further stated that the 1997 Manual is intended to be advisory in nature and is not intended to add or subtract from the policy statement. It is noted at the beginning of the 1997 Manual that clay and shale production combined with building and dimension stone production represents about 3 per cent of production.

Of interest to the subject of this report is a section in the 1997 Manual on what is in the greater long-term public interest. In this regard, the 1997 Manual states the following:

Before development is approved in or adjacent to a known deposit area, it must be demonstrated the development meets a high level of public need and that alternative locations for the proposed development are not available.

The 1997 Manual then includes examples of high public need such as hospitals, major roads, utility corridors and sanitation works.

The 1997 Manual then goes on to state the following with respect to the above uses:

Even in these cases, every attempt should be made to locate the development to areas away from or in such a manner that the impact on the aggregate resource is minimised or that as much of the resource is removed prior to or during the proposed incompatible development.

Lastly, the 1997 Manual states that the following:

Due to the inter-regional and provincial importance of aggregates, before development that may preclude or hinder access to aggregate deposits it must be demonstrated that the proposed incompatible provides a significant advantage to the general public of the province and not just those in close proximity to the proposed development or in a particular community. In this context, the public interest should not be interpreted include opposition to aggregate extraction operations and associated activities.

It is my opinion that the 1997 Manual does not specifically deal with the circumstance that is the subject of this report, which involves making a decision on whether it is in the long term public interest to permit development on land that is already within a settlement area.

Instead, the 1997 Manual focuses on circumstances that are application driven in determining how to assess an application to develop an alternative land use. In other words, the 1997 Manual is designed to assist municipalities in dealing with site-specific requests to develop alternative uses on lands that have been identified as the site of a resource.

With the above in mind, it is recommended in the 1997 Manual that every attempt should be made to locate alternative land uses elsewhere in order to satisfy the Provincial requirements that mineral aggregate resources be protected from incompatible development so that they can eventually be extracted.

In this particular case and with respect to the NWBPA, the OMB with the support of the Province of Ontario included the lands within the NWBPA within an urban area.

This means that the intended land use has been confirmed. It is recognized that the policies included within the ROP in 2006 also established a moratorium on future development but nonetheless permitted the carrying out of all of the studies required to prepare for the urbanization of the NWBPA.

In 2008, the Ministry of Municipal Affairs and Housing also supported a modification to the ROP that had the effect of allocating population and employment to the NWBPA with the

population and employment growth expected to occur by 2031. This further confirms that there is an expectation on the part of the Province that the NWBPA would be built out or substantially developed by 2031.

Lastly, the lands within the NWBPA (outside of the Greenbelt Plan area) are considered to be a Designated Greenfield Area and there is a clear expectation in the Growth Plan that the

optimization of lands within settlement areas are preferred over expanding settlement areas outwards.

On the basis of the above, it is my opinion that the development of urban uses on the whole of the NWBPA is in the greater long-term public interest than protecting these same lands for shale extraction.

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