



Appendix K
Evaluation of Growth Concepts
February 2021
Regional Official Plan Review



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1. EVALUATION WILL INFORM THE PREFERRED GROWTH CONCEPT

In May 2020, Council considered Attachment 1 of Staff Report No. LPS44-20, resulting in the endorsement of an Evaluation Framework to evaluate four Growth Concepts as part of the IGMS process. The framework was developed through consultation with the local municipalities. The outcome of this consultation was the decision that the evaluation criteria/measures in the Evaluation Framework, would be utilized together with detailed technical analyses, to evaluate each Growth Concept in relation the other Growth Concepts, but that the Growth Concepts would not be scored and evaluation measures would not be weighted. The following reasons for not weighting the measures were identified in Staff Report No. LPS44-20:

- All municipal land use planning decisions are required to conform to provincial planning policy. The provincial policy direction is not weighted, and it is the responsibility of municipal Councils to appropriately consider all relevant provincial policies in any land use planning decision from a zoning by-law amendment to a municipal comprehensive review (MCR). In the case of an MCR, the broad suite of provincial policy would apply, although certain policies are specific to certain geographic areas or planning contexts (i.e. Urban Growth Centres or settlement boundary expansion);
- The Evaluation Framework is intended to provide a coherent structure for the evaluation of the Growth Concepts, but the evaluation is not a quantitative exercise. The Growth Concepts will be assessed against each measure of the key themes. A concept that is assessed most favourably against the measures will not necessarily be selected as the Preferred Growth Concept. This exercise has been designed to better understand the trade-offs involved in making choices on allocating growth. In this regard, it is expected that a Preferred Growth Concept will be generated using elements from more than one Growth Concept, as well as additional elements that are identified through the community engagement and evaluation process;
- The input of the local municipalities with respect to their long-term vision and land use planning objectives is critically important to the IGMS process, and will be very important to the evaluation of the Growth Concepts;
- The evaluation of the Growth Concepts will utilize the Evaluation Framework, but will be augmented by additional information and analysis with respect to each of the criteria (i.e. climate change impact, financial impact, agricultural impact) which will assist in the

evaluation of the Growth Concepts based on that criterion. This information will be presented in a transparent manner in order that Regional Council, and Halton residents, will be able to understand how the evaluation results were obtained; and,

- The development of a set of Growth Concepts and the evaluation of those Growth Concepts will be followed by an opportunity for local municipal councils, residents of Halton, Region advisory committees, and other public agencies and interest groups to provide input that will inform the development of a Preferred Growth Concept at the next stage of the IGMS process.

The evaluation is based on achieving the policy requirements as set out in the Growth Plan, Provincial Policy Statement (PPS) and Regional Official Plan.

The evaluation measures have been updated for the purposes of this report to reflect minor wording changes to add clarity.

A. FOUR THEMES ARE USED IN THE EVALUATION OF THE GROWTH CONCEPTS

There are four themes within the Evaluation Framework. Each theme contains a series of evaluation measures and sub-measures used to evaluate the Growth Concepts.

- Theme 1: Regional Urban Structure & Local Urban Structure
- Theme 2: Infrastructure & Financing
- Theme 3: Agriculture, Environment & Climate Change
- Theme 4: Growing the Economy and Moving People and Goods

This report provides a summary of the evaluation completed by a team of technical experts with input from Regional staff, local municipalities, and key external agencies. Technical matter experts who completed the assessment include:

- **Hemson Consulting** – Lead Consultant for the project specializing in growth management, land use planning as well as municipal finance and is responsible for developing the Growth Concepts and completing the Fiscal Impact Assessment.
- **GM Blue Plan** – Water and wastewater infrastructure technical experts.
- **EIISO & Paradigm** – Technical experts in transportation and transit infrastructure.
- **Meridian Planning** – Responsible for the agricultural impact and aggregate analysis as well as assessment of the North Aldershot Policy Area.
- **DHB Soil Services** – Agricultural Impact Assessment Expertise.

- **North South Environmental** – Natural Heritage System and water resource system experts.
- **Laura Taylor Designs** – Specialist in climate change and growth management policy.

B. PURPOSE OF THE EVALUATION

The Evaluation Framework is intended to evaluate the four Growth Concepts using themes and criteria, it is not intended to identify which concept is “preferred” to accommodate growth to 2051. As such, a Growth Concept that is determined to “best achieve” the greatest number of measures will not be selected as the Preferred Growth Concept. Rather, the exercise is used to understand the trade-offs in growth management decisions when allocating growth.

The Preferred Growth Concept will be generated using elements from more than one Growth Concept, as well as comments identified through the consultation process.

Table 1 describes what the evaluation is intended to do and what it does not do.

Table 1: What the Evaluation Does and Does Not Do

WHAT THE EVALUATION DOES	WHAT THE EVALUATION DOES NOT DO
<ul style="list-style-type: none"> ▪ Address input from local municipalities ▪ Achieves consensus, where possible ▪ Communicate input of all technical experts involved ▪ Compares concepts relative to each other ▪ Identifies key growth management choices necessary to inform the development of the Preferred Growth Concept 	<ul style="list-style-type: none"> ▪ Selects the Preferred Growth Concept from the four Growth Concepts described in this report

C. HOW TO READ THE EVALUATION

This Appendix provides a summary of the evaluation by theme and provides a discussion of which Growth Concept(s) best achieve an evaluation measure and how they compare to

each other. Additional details on the technical analysis which supports the evaluation can be found in the technical appendices of the IGMS Growth Management Discussion Paper and include:

- Appendix A – Climate Change Lens
- Appendix B – Land Needs Assessment Methodology & Local Municipal Allocations
- Appendix C.2 – Employment Area Conversions: Initial Assessment Summary
- Appendix D – Transportation Infrastructure Assessment
- Appendix E – Water & Wastewater Infrastructure Assessment
- Appendix F – Fiscal Impact Assessment
- Appendix G – Agricultural Area Assessment
- Appendix H – Natural Heritage and Water Resource Assessment
- Appendix I – Mineral Aggregate Resource Assessment

General commentary on the policy direction of each theme is provided. Each concept is tested to determine whether and how each concept meets the measure identified in the Evaluation Framework.

Summary tables identify the concept or concepts that would best achieve a particular measure as supported by the assessment. Check marks show which concept “best” achieves the evaluation measure. As shown in the sample table below, measure 1.1.1 identifies checkmarks for Concept 2 and 3 meaning that these concepts would best achieve the measure. However, this does not mean that Concept 1 and 4 do not achieve this measure; it simply means that Concept 2 and 3 would better achieve it, relative to Concepts 1 and 4.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 1.1.1 Best meets or exceeds transit supportive densities in UGCs, MTSAs, and potential transit priority corridors		✓	✓	

For each measure, a description of how the evaluation was undertaken and the variables that could influence how a particular Growth Concept could achieve a measure are discussed and key findings are also presented. Finally, the evaluation identifies considerations for how a particular measure could best be achieved.

D. CLIMATE CHANGE LENS HAS BEEN INCORPORATED INTO THE EVALUATION MEASURES

The effects of climate change have been considered in establishing the measures for all four themes in the Evaluation Framework. Measures specific to climate change adaptation and mitigation of greenhouse gas emissions are included in Theme 3.

Appendix A details the climate change lens review which confirms that climate change has been taken into account through the evaluation. Four major climate change planning objectives related to planning and growth management have been identified and include:

- Compact Built-Form;
- Sustainable Transportation System;
- Protection of Agricultural Land and Soils; and
- Protection of Natural Heritage and Healthy Watersheds

These objectives show how the Growth Concepts can reduce GHG emissions from buildings and transportation, build resiliency, and the table in Appendix A highlights the importance of protecting and enhancing the agricultural system and natural heritage system in response to climate change.

Evaluation measures that have been identified as addressing climate change mitigation and adaptation are denoted with the following symbol:



2. THEME 1: REGIONAL URBAN SYSTEM & LOCAL URBAN STRUCTURE

Regional policies that address the urban structure, employment land supply, and healthy and complete communities are evaluated in Theme 1. This theme also addresses the Region’s obligation to provide a market-based supply of housing in accommodating the Schedule 3 population forecasts to 2051.

Healthy Communities

A key goal of the Regional Official Plan is to build healthy communities that foster the well-being of residents, provide a full range and mix of housing, employment, recreation and community services, provide access to multi-modal transportation, and embrace the principles of sustainability.

Local Identity

It is the objective of the Region to accommodate growth while retaining the local identity of communities, promoting economic prosperity, and maintaining a sustainable natural environment (ROP 72). In keeping with this objective, Theme 1 evaluates each Growth Concept based on how best it reflects the physical character of local urban communities.

1.1 Support Regional and Local Urban Structure

The following measures address the appropriate levels of intensification, access to employment areas, commercial uses, and community services as well as Regional and local urban structure.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 1.1.1 Best meets or exceeds transit supportive densities in UGCs, MTSAAs, and potential transit priority corridors		✓	✓	
 1.1.2 Locates primarily office employment development close to existing or potential priority multi-modal corridors and provides opportunities for multi-modal access	✓		✓	

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 1.1.3 Locates new residential development close to existing or potential priority corridors and provides opportunities for multi-modal access		✓	✓	
1.1.4 Best reflects the intent of the local urban structure	✓	✓	✓	✓

1.1.1 Best meets or exceeds transit supportive densities in UGCs, MTSAs, and potential transit priority corridors

Different densities and some variation in the location of growth is tested amongst the concepts. Growth Concepts that allocate the greatest amount of population and employment growth to Strategic Growth Areas (SGAs) such as Major Transit Station Areas (MTSAs) and Urban Growth Centres (UGC), which are typically serviced by transit, were considered to best achieve this measure.

- Concept 2 and 3 best meet transit supportive densities as they allocate the greatest amount of growth to UGCs and MTSAs.
- In accordance with the Growth Plan (2019), UGCs are planned to accommodate a density of 200 person and jobs per hectare by 2031. Growth attributed to MTSAs to 2051 is informed based on the local urban structure and build-out potential of sites. However, the development potential of these sites well exceeds growth in the Region to 2051. As a result, none of the concepts achieve the full build-out potential of the identified MTSAs within the 2051 planning horizon meaning that the density target will be achieved after this time. Thus, there would remain surplus capacity to accommodate growth beyond 2051.
- As described in Appendix A of this paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also that growth is directed away from agricultural and natural heritage system lands.

1.1.2 Locates more primarily office employment development close to existing or potential priority multi-modal corridors and provides opportunities for multi-modal access

“Employment” for the purposes of this measure relates to office uses and its proximity to multi-modal corridors (i.e. GTA West Corridors, Highway 407 transitway). Opportunities for multi-modal access affects all employment. In order to determine the most appropriate location for future employment, the concepts test different locations of Employment Area land (see preliminary settlement area boundary expansion maps for Concepts 1-4 in IGMS Growth Concepts Discussion Paper, Chapter 7). This measure is related to measure 4.4.1 which addresses the proximity of Employment Area lands to highways such as the GTA West Corridor, Highway 403, Highway 401, QEW etc.

- Concept 1 and 3 better achieve this measure than the other two concepts as a greater proportion of employment growth is directed towards multi-modal corridors.
- Opportunities for office employment is examined in all concepts. More industrial type employment areas have multi-modal access (such as lands located adjacent to Highway 407 will have access to the Highway 407 transit way). Importantly, many of the employment areas are accessible via GO Stations.
- As described in Appendix A of this paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also directs growth away from agricultural and natural heritage system lands.

1.1.3 Locates new residential development close to existing or potential priority corridors and provides opportunities for multi-modal access

Different residential densities were tested amongst the Growth Concepts. The quantum of population and location of future potential Community Area lands are described in Chapter 6 and 7 of the IGMS Growth Concepts Discussion Paper and Appendix B – Land Needs Assessment.

- Concept 2 and 3 allocate the greatest amount of growth to corridors over the 2031-2051 planning period when compared to the Concepts 1 and 4. This is largely a function of the intensification rates for Concepts 2 and 3 (70% and 80%, respectively).

- As described in Appendix A of this paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also directs growth away from agricultural and natural heritage system lands.

1.1.4 Best reflects the intent of the local urban structure

The four Growth Concepts were developed using the “Local Plans and Priorities” scenarios originally developed as part of the IGMS Regional Urban Structure Discussion Paper, June 2020 (as found in Attachment 1 of staff report LSP56-20). All the Growth Concepts have been prepared to reflect the local urban structure, to the extent possible recognizing the Region’s urban structure in the context of 2051 population and employment Growth Plan forecasts. However, it is noted that the urban structure elements for future settlement areas are not yet in place as the location of such areas are to be determined by the Region through the IGMS process.

For example, the Growth Concepts assume the adjusted Downtown Burlington UGC boundary (recently brought forward by City Council). The UGC boundary is adjusted to generally align with the boundary of the MTSA at Burlington GO and a portion of the lands within the exiting UGC boundary closest to the Burlington GO. However, not all the key urban structure elements are achievable within the planning period as the development capacity within these areas exceed the fixed amount of population and employment growth in the Region to 2051. Therefore, all concepts achieve this measure in part and in all cases plenty of potential remains to accommodate growth beyond 2051.

1.2 Protect Overall Employment Land Supply

The following measures address adapting to changes in employment trends and balancing the need to achieve the vision for MTSA’s and the increased emphasis on mixed-use development without compromising employment land supply.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
1.2.1 Protects existing employment and supports opportunities for new employment forms	✓	✓		

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
1.2.2 Best accommodates the target population and jobs for the gross developable area within MTSAs			✓	
1.2.3 Best protects critical existing employment uses while accommodating demand for mixed use development	✓			✓

1.2.1 Protects existing employment and supports opportunities for new employment forms

The term “new employment forms” relates to new innovative employment uses, many of which could be attracted to emerging mixed-use environments. The assumptions relating to the location of future employment lands and the testing of employment conversions is intended to foster future employment growth in the Region and to allow for innovation in those sectors. For example, office and other relatively intensive employment uses that are attracted to the amenities of a mixed-use community, distinct from office buildings that occur in employment areas. All Growth Concepts provide for the same amount (quantum) of employment growth, although there is a relatively small variation in the mix between the concepts. A wide range of locations are tested through the concepts to determine the potential implications of future employment.

- Concept 3 has the greatest quantum of employment land conversions. Whereas Concept 4 has the lowest.
- All Growth Concepts provide significant opportunity for new employment forms, but Concept 4 has somewhat less than the others because it directs less employment growth to mixed-use locations. Regarding the protection of existing designated employment areas, Concept 3 does not achieve the measure as well as Concepts 1, 2 and 4 given that it has the greatest amount of employment land conversions and the least amount of new employment Designated Greenfield Area.

1.2.2 Best accommodates the target population and jobs for the gross developable area within MTSAs

The MTSA boundaries and gross developable land areas have been defined as part of the IGMS process through consultation with the local municipalities. The require proportion of population and employment for each MTSA are proposed as part of the Scope Urban

Structure Regional Official Plan Amendment (ROPA). Target population and employment are identified in the Scope ROPA, which extends beyond 2051; however, this measure is intended to only address growth to 2051. The Growth Concepts have considered these proportions in allocating future population and employment growth.

- Concept 4 protects more employment land, but allocates less employment growth to nodes and corridors (i.e. MTSAs). None of the concepts achieves full build-out as the development potential of these sites well exceeds growth in the Region to 2051, thus there will be surplus capacity within these areas at the end of the 2051 planning period.
- Concept 3 has the greatest intensification rate (about 80% from 2031-2051), coupled with the greatest allocation of growth to Strategic Growth Areas (SGAs) (which includes MTSAs). Therefore, Concept 3 best achieves this measure.

1.2.3 Best protects critical existing employment uses while accommodating demand for mixed use development

The evaluation examined which Growth Concept best achieved a balance between protecting employment uses and providing opportunity for mixed-use development on employment lands through careful consideration of employment land conversions.

- Concept 1 and 4 better achieve this measure compared to Concept 2 and 3. The lower rate of intensification and the greater land need required in Concept 1 and 4 protects existing employment uses as fewer employment conversions are needed to accommodate growth within existing settlement areas. There is substantial opportunity for mixed-use development in all Growth Concepts.

1.3 Provide a Range of Identifiable, Inter- Connected, Complete Communities

The following measures address support for logical and orderly progression of urban growth and support for an open space corridor or urban separator.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 1.3.1 Supports locating new urban development contiguous with existing urban areas	✓	✓	✓	✓

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
1.3.2 Supports maintenance of contiguous Natural Heritage and Agricultural lands	TBD	TBD	TBD	TBD

1.3.1 Supports locating new urban development contiguous with existing urban areas

The tested locations of future settlement area boundary expansions in the Growth Concepts are contiguous with the existing urban boundaries. Additional information is provided in the IGMS Growth Concepts Discussion Paper, Chapter 7.

- All Growth Concepts support contiguous development. Therefore, all concepts achieve this measure.
- As described in Appendix A of the IGMS Growth Concept Discussion Paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also directs growth away from agricultural and natural heritage system lands.

1.3.2 Supports maintenance of contiguous Natural Heritage and Agricultural lands

This measure addresses the issue of Natural Heritage System and Agricultural System fragmentation, and the relationship between these two systems. At the Preferred Growth Concept stage of the IGMS, a Natural Heritage System and Water Resources Screening and Options Assessment will further examine the components of the Region’s Natural Heritage System in terms of its effect on development potential within the Preferred Growth Concept settlement areas.

It is important to note that the Region’s Natural Heritage System could be further refined or enhanced through an Area-Specific Plan subwatershed study that would be completed for a new Designated Greenfield Area. Also at the Preferred Growth Concept stage of the IGMS, an Agricultural Impact Assessment will address the maintenance of a contiguous Agricultural System. The importance of the relationship of the two systems within the rural landscape will also be considered.

1.4 Provide the Opportunity to Develop Healthy Communities

The following measures address patterns of development that supports health and well-being including public and personal safety.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
1.4.1 Part 1: Supports the greatest opportunity for a diversity of land uses, appropriate mix and densities of housing; and	✓			✓
1.4.1 Part 2: Promotes a multi-modal transportation system that supports active transportation and transit use		✓	✓	

1.4.1 Supports the greatest opportunity for a diversity of land uses, appropriate mix and densities of housing, and promotes a multi-modal transportation system that supports active transportation and transit use

Part 1 of measure 1.4.1 addresses the notion of “market-based housing supply” required by the Province’s Land Needs Assessment (LNA) Methodology. The four Growth Concepts test different scales of the housing market shift. The estimated 2021 housing mix in the Region is 80% ground-related housing and 20% apartment housing. Over the past decade, new housing in Halton has been about 30% apartments which is about the same housing mix as a market-based demand would provide. To 2051, that market-based forecast would shift the apartment share upward from the current 20% of units to 24% of units. Meeting the minimum Growth Plan intensification target of 50% means a housing market shift such that about 48% of new units in Halton would need to be apartments, which would shift the total 2051 housing mix to 32% of all units in apartments.

- Concepts 1, 2 and 3 embrace intensification and higher-density mixed-use development and would result in a range of 55% to 65% of apartment units in the growth increment and at 2051 the total housing stock of the Region would be a range from 35% to 40% of all units in apartments.
- Concept 4 with 50% intensification, already represents a significant shift from the Region’s current level of intensification (approximately 30% in recent years). Concept 4 would achieve a total 2051 housing mix of 32% of all units being apartments.
- Concepts 1 and 4 better achieve a balanced unit mix (e.g. ground-related and apartments). Given the higher rates of intensification in Concepts 2 and 3, there is less

diversity in land uses and housing mix, thus these concepts did not achieve this measure as well as Concept 1 and 4.

Part 2 addresses multi-model transportation system (including support for active transportation and transit use).

- From a land-use perspective, Concept 3 best supports active transportation and transit use followed by Concept 2. This is due to the higher levels of intensification and growth directed to Strategic Growth Areas (SGAs) supported by planned transit infrastructure (e.g., GO Transit stations located within MTSAs).

1.5 Provide a Range of Choice for Housing, Jobs and Leisure

The following measures address demonstrated opportunities for a mix of jobs, services and housing including a market-based housing supply.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
1.5.1 Supports a greater degree of access and choice for housing, employment and leisure	✓			✓

1.5.1 Supports a greater degree of access and choice for housing, employment and leisure

The evaluation examined the future growth associated with each of the Growth Concepts and the ability to create access and choice for housing, employment and leisure. Similar to measure 1.4.1, this measure embodies decisions relating to a “market-based housing supply” required by the Province’s Land Needs Assessment (LNA) Methodology. The amount and choice of employment and access to leisure are relatively consistent throughout the concepts.

- Concept 2 and 3 have the least amount of housing choice because of high intensification rates (post-2031 intensification rates of 70% and 80%, respectively) resulting in a high reliance on one form of housing.

- Concept 1 and 4 still propose a significant shift away from the Region's current levels of intensification but support a greater degree of access and choice relative to Concepts 2 and 3.

3. THEME 2: INFRASTRUCTURE & FINANCING

The measures identified under this theme are based on Provincial policy directions and address financial impact and the efficient use of infrastructure.

Efficient Use of Existing or Planned Infrastructure

Provincial policies direct that communities be sustained by necessary existing or planned infrastructure to meet current and projected needs (PPS 1.1.1). To avoid the need for unjustified and/or uneconomical expansion of infrastructure, land use patterns within settlement areas are to be based on densities and a mix of land uses that efficiently use existing or planned infrastructure (PPS 1.1.3.2). To manage forecasted growth, the Region must provide direction for an urban form that optimizes infrastructure, particularly along transit and transportation corridors (GP 2.2.1.3). For the purposes of the evaluation under this theme, separate analysis is presented for Transportation and Water/Wastewater infrastructure.

Promote Intensification and Transit Use

To support the achievement of intensification targets, the Region must identify appropriate locations and promoting opportunities for intensification and redevelopment. This exercise must take into account the availability of suitable existing or planned infrastructure required to accommodate projected need (PPS 1.1.3.3, GP 2.2.2.3).

Financial Viability

In considering a settlement boundary expansion the Region must demonstrate that existing and planned infrastructure is suitable for the long term and that infrastructure and public service facilities needed is financially viable over the life cycle of these assets (PPS 1.1.3.8, GP 2.2.8.3).

2.1 Optimize the Current Infrastructure Capacity

The following measures address the efficient and best use of water/wastewater and transportation infrastructure and effective expansions in accordance with approved Master Plans and studies.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
Transportation				
2.1.1 Maximize the use of existing capacity prior to the upgrade or expansion of infrastructure	✓	✓	✓	✓
Water/Wastewater				
2.1.1 Maximize the use of existing capacity prior to the upgrade or expansion of infrastructure	✓	✓	✓	✓
Transportation				
2.1.2 Best use of existing or planned infrastructure and that can be most easily expanded to service new development areas	✓	✓	✓	✓
Water/Wastewater				
2.1.2 Best use of existing or planned infrastructure and that can be most easily expanded to service new development areas	✓	✓	✓	✓

2.1.1 Maximize the use of existing capacity prior to the upgrade or expansion of infrastructure

The Growth Concepts test different locations and amount of growth (see Chapter 6 and 7 of the Growth Concepts Discussion Paper and Appendix B – Land Needs Assessment). Transportation and water/wastewater infrastructure modelling was completed to test how infrastructure capacity is used and when new infrastructure is needed to service growth.

Transportation findings:

The Transportation assessment is based on the Region’s travel demand model and provided for comparative purposes only. Additional details on the Transportation Technical Assessment are provided in Appendix D of the IGMS Growth Concepts Discussion Paper.

- No single Growth Concept stands out from a Transportation perspective. This is because the Region’s model is a strategic model that looks at transportation demand at a boarder regional level (rather than at a specific intersection/point). There is not enough significant net change among the Growth Concepts to be captured by the model’s analytical methods. Further, by 2031, the current Regional

system, as identified by the *Regional Transportation Master Plan – The Road to Change*, is built-out. All Growth Concepts will use the existing capacity prior to identification of any capacity expansion, as the modelling tool uses up available capacity prior to triggering a need for new infrastructure or other transportation solutions. All Growth Concepts use up the available capacity first.

- Therefore, the Transportation analysis indicates that all concepts maximize existing capacity prior to infrastructure upgrades.

Water/Wastewater findings:

Infrastructure deficiencies identified for the water and wastewater systems are common across all concepts with minor deficiencies in capacity and pipe size requirements. The location of growth in Milton, Halton Hills 401 Corridor and South Georgetown has a direct impact on the capacity and size requirements of future water and wastewater infrastructure. Growth planned in the south portion of the lake-based system will generally require less new infrastructure than similar growth planned further north.

- All Growth Concepts maximize use of wastewater infrastructure prior to expansion. Similarly, all Growth Concepts maximize the east water system which is generally located east of Bronte Creek servicing Oakville and Milton. However, none of the concepts maximize the west water system which is generally located west of Bronte Creek primarily servicing the City of Burlington.
- Concept 3, which has no new Community Area lands, has more potential to maximize the use of existing water and wastewater trunk infrastructure when compared to the other concepts.

2.1.2 Best use of existing or planned infrastructure and that can be most easily expanded to service new development areas

All the Growth Concepts propose settlement boundary expansion areas that are contiguous with the existing urban area where servicing already exists. Generally, all Growth Concepts use existing and planned infrastructure equally well; however, Growth Concepts with a greater quantum of land would require additional expansion.

Transportation findings:

By 2031, the current Regional system, as identified by the *Regional Transportation Master Plan – The Road to Change*, is built-out. All Growth Concepts will use the existing capacity prior to identification of any capacity expansion. All four Growth Concepts exhibit the same deficient screenlines where Regional improvements are feasible.

- Although all Growth Concepts would achieve this measure, Concepts 3 and 4 exhibit one additional regional screenline deficiency in 2051 than the other Growth Concepts but the required infrastructure to support the travel demand does not differentiate these concepts from the others given the order-of-magnitude of the analysis.
- In Concept 3, there is a screenline deficiency in 2051 (SL 74 – east Halton Hills). Addressing this deficiency would rely primarily on the widening of 5 Side Road.
- In contrast, Concept 4 exhibits a screenline deficiency in 2051 (SL 54 – Mid-North Milton) due to the allocation of more employment in the Regional Road 25 / James Snow Parkway area. This deficiency would be addressed primarily through improvements to James Snow Parkway.

Water/Wastewater findings:

Intensification has the potential to better utilize existing infrastructure and will provide opportunities for integration with state of good repair programs.

The water distribution and wastewater collection systems, as outlined in the current Water and Wastewater Master Plan, are designed to enable future extension/expansion into new proposed Designated Greenfield Area lands. However, growth planned in the south portion of the lake-based system (Burlington/Oakville) will generally require less new infrastructure than similar growth planned further north (Milton/Halton Hills). This is due to increased pumping and conveyance requirements to move water north to supply upper pressure zones and convey wastewater from north to south for treatment.

2.2 Cost-effective Replacement and/or Expansion of Infrastructure

The following measures address coordinated construction of water/wastewater and transportation infrastructure for cost-effective replacement and expansion.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
Transportation				
2.2.1 Best supports coordinated construction of transportation and water/ wastewater infrastructure to meet development demands	✓	✓	✓	✓

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
Water/Wastewater				
2.2.1 Best supports coordinated construction of transportation and water/ wastewater infrastructure to meet development demands	✓	✓	✓	✓

2.2.1 Best supports coordinated construction of transportation and water/ wastewater infrastructure to meet development demands

As the Region grows over the planning horizon to 2051, so will the demand on infrastructure and need to provide services to meet this demand. The planning and construction of major transportation and water/wastewater infrastructure is typically done through the Region’s various master plans and annual capital budgets. This measure examines the ability to coordinate transportation and water/wastewater in each of the Growth Concepts.

Transportation findings:

- All Growth Concepts present similar opportunities to integrate transportation planning. This includes coordination of location, phasing, timing, and funding of transportation infrastructure projects with other infrastructure requirements such as water and wastewater; required to maintain current levels of service and meet future growth demands.
- None of the Growth Concepts require infrastructure that would be implemented in a piece-meal manner or non-coordinated way.
- Therefore, all Growth Concepts meet this measure.

Water/Wastewater findings:

- All Growth Concepts present similar opportunities to integrate water and wastewater infrastructure planning. This includes coordination of location, phasing, timing and funding of water and wastewater infrastructure projects with other infrastructure requirements such as transportation, transit, community services and others; required to maintain current level of service and meet future growth demands.
- Therefore, all Growth Concepts meet this measure.

2.3 Sustainable Long-range Financial Planning and Asset Management

The following measures analyze financial impacts of water/wastewater and transportation infrastructure on capital and operating projects.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
Transportation				
2.3.1 Lowest capital cost for water/wastewater and transportation infrastructure required, while achieving a balance between community development costs and benefits	✓	✓	✓	✓
Water/Wastewater				
2.3.1 Lowest capital cost for water/wastewater and transportation infrastructure required, while achieving a balance between community development costs and benefit	✓	✓	✓	✓
Transportation				
2.3.2 Lowest operating and maintenance costs	✓	✓	✓	✓
Water/Wastewater				
2.3.2 Lowest operating and maintenance costs	✓	✓	✓	✓
2.3.3 Least negative (most positive) net financial impact on the Region and its Local Municipalities*	✓			✓

*Based on separate fiscal impact analysis see section 2.3.3 and Appendix F of the IGMS Growth Concepts Discussion Paper

2.3.1 Lowest capital cost for water/wastewater and transportation infrastructure required, while achieving a balance between community development costs and benefits

Transportation and water/wastewater modelling was undertaken for the four Growth Concepts. This modelling includes estimated capital costs for servicing future growth

arising from each of the concepts. Additional details on the anticipated capital costs are provided in Appendix D – Transportation Analysis and Appendix E – Water & Wastewater Analysis of the IGMS Growth Concepts Discussion Paper.

Transportation findings:

- Concept 3 and Concept 4 have potential for a marginally higher transportation capital cost, depending on the transportation solution (e.g. roads and transit), but not significant enough to distinguish them from other concepts.
- More detailed transportation modelling will be undertaken as part of the Preferred Growth Concept.

Water/Wastewater findings:

- Concepts 2 and 3, which have low or no new Community Designated Greenfield Area lands beyond the 2031 horizon, require less capital investment mainly because of the limited need to extend servicing to new areas. However, the cost differential between all Growth Concepts is relatively minor (less than 15% difference with respect to the average cost between the four concepts).
- No Growth Concept stands out from a cost perspective given the order of magnitude of the analysis.

2.3.2 Lowest operating and maintenance costs

The evaluation findings for this measure are generally consistent with measure 2.3.1 as the operating and maintenance costs are closely related to the emplacement of future capital infrastructure.

Transportation findings:

- For Transportation, the same observations are noted for operating and maintenance costs for all four Growth Concepts.

Water/Wastewater findings:

- Concepts 2 and 3, which have low or no new Community Designated Greenfield Area lands beyond the 2031 horizon, require less operations and maintenance costs because of the limited need to extend servicing to new areas. However, the cost differential between all Growth Concepts is relatively minor.

2.3.3 Least negative (most positive) net financial impact on the Region and its Local Municipalities

The net financial impact on the Region and its local municipalities was determined through a Fiscal Impact Assessment (FIA) and related model. The base parameters of the model includes capital and operating budgets as well as long-range financial planning policies. Other key inputs to the model include growth forecast projections for each of the Growth Concepts as well as capital and operating cost drivers. Independent models were developed for the Region and each of the four local municipalities; however, the analysis includes an evaluation, and discussion, of the cumulative impacts of the Growth Concepts.

The FIA model also accounts for municipal revenues generated from assessment (property taxes) and non-tax revenues. The model assumes that costs and revenues increase in proportion to increased needs associated to growth to maintain current levels of service. The net impact of the expenditures less revenues results in the tax rate impact, which is used to assess the fiscal effect in any given Growth Concept. Additional details on the FIA are provided in Appendix F of the IGMS Growth Concepts Discussion Paper.

- At a Regional level, there are some variation between concepts. There is only a small tax funded cost differential between all four Growth Concepts because there is minimal variation in infrastructure costs (see measure 2.3.2).
- Preliminary analysis suggests that Concept 1 and 4 would have a marginally better financial impact when compared with Concept 2 and 3. This is a function of assessment growth (i.e. property tax revenue) as a greater amount of revenue is generated from ground-related units when compared to apartments. This is driven by the rates of densification and intensification tested between the four Growth Concepts. Concepts 2 and 3, which have higher rates of densification, have a greater share of apartments and therefore slightly less assessment revenue when compared to Concept 1 and 4 which have more ground-related units. However, the tax revenue potential of high-density development may improve over time. Higher rates of intensification in Concepts 2 and 3 would likely result in changes to sizes and configuration of apartment units as a greater share of families would need to accommodate these units. Such shifts in housing configuration may increase the assessment for Concepts 2 and 3.
- At the local municipal level, the impacts are similar. Concepts with higher levels of low-density units and higher employment display better fiscal outcomes. All fiscal impacts are above 2%, with many in excess of 3%, which is beyond core inflation and current budget targets.

2.4 Support Regional Planning

The following measures assess effective phasing of infrastructure that integrates both transportation and water/wastewater infrastructure.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
Transportation				
2.4.1 Best opportunity for phasing and scheduling with other planned infrastructure projects	✓	✓	✓	✓
Water/Wastewater				
2.4.1 Best opportunity for phasing and scheduling with other planned infrastructure projects	✓	✓	✓	✓

2.4.1 Best opportunity for phasing and scheduling with other planned infrastructure projects

The evaluation considered infrastructure needs related to intensification occurring within existing urban areas versus infrastructure needs required to service new Designated Greenfield Area lands. Generally, infrastructure associated with growth occurring in both areas allow for phasing and scheduling with planned infrastructure projects to occur.

Transportation findings:

- All four Growth Concepts provide for the opportunity for phasing and scheduling of transportation infrastructure with other planned infrastructure projects.

Water/Wastewater findings:

- All four concepts provide opportunities for phasing and scheduling with other planned infrastructure projects.
- Intensification areas offer greater opportunity for integration with other services.
- Growth directed within existing urban areas would better provide opportunities to integrate with other services that are already established in these areas.

2.5 Sound and Sustainable Infrastructure Planning

The following measure assess support for a sustainable, long term infrastructure planning strategy that promotes good infrastructure planning approaches such as maximizing wastewater gravity systems and operational flexibility. In particular, this measure also addresses the overall sustainability of infrastructure planning to ensure that the current needs of the Region while safeguarding the environment and resources for the future as supported by the Halton Region Strategic Business Plan themes of “Environment Sustainability and Climate Change” and “Effective Government”.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 Transportation 2.5.1 Best supports a sustainable, long term infrastructure planning strategy	✓	✓	✓	✓
 Water/Wastewater 2.5.1 Best supports a sustainable, long term infrastructure planning strategy	✓	✓	✓	✓

2.5.1 Best supports a sustainable, long term infrastructure planning strategy

Regional infrastructure needs are determined through master plans and supporting analysis. In determining the infrastructure needs arising from future development in the four Growth Concepts, the ability to integrate these assets into a long-term infrastructure planning strategy was considered. Consideration was also given to the overall sustainability of the infrastructure planning strategy.

Transportation findings:

- All Growth Concepts present equal opportunities for sustainable long-term infrastructure planning strategy as well as operational flexibility and reliability. Therefore, from a transportation perspective, all Growth Concepts achieve this measure.
- This measure relates to the climate change planning objective of a sustainable transportation system (see Appendix A of the IGMS Growth Concept Discussion

Paper for details). Sustainable transportation system mitigates climate change by reducing GHG emissions from vehicles by reducing car dependence.

Water/Wastewater findings:

- From a water/wastewater perspective, all Growth Concepts provide the same opportunities for sustainable long-term infrastructure planning strategy and constraints for operational flexibility and reliability.
- However, Concept 3 best maximizes wastewater gravity systems and minimizes pumping when compared to other concepts. As well, given that Concept 3 requires the least amount of new Designated Greenfield Area, there is less potential for new infrastructure to be built through the Natural Heritage System or other protected greenspace.

4. THEME 3: AGRICULTURE, ENVIRONMENT AND CLIMATE CHANGE

The measures identified under this theme are based on Provincial policy directions and address impact on the agricultural land base and system, protection of natural heritage features and areas, and climate change mitigation, adaptation and resiliency.

Protecting the Natural Heritage System and Prime Agricultural Areas

In considering a settlement area boundary expansion the Region must demonstrate that the Natural Heritage System, key features, and prime agricultural areas are avoided where possible and any adverse impacts on the agri-food network are avoided, or otherwise minimized and mitigated (PPS 1.1.3.8, GP 2.2.8.3).

Improving Resiliency to Climate Change Impacts

To support the achievement of complete communities, the Region is directed to mitigate and adapt to climate change impacts, improve resilience, and reduce greenhouse gas (GHG) emissions (PPS 1.1.1, GP 2.2.1.4).

Minimize Impacts on Region's Mineral Resource Area

To protect resources needed to support future growth, the Region shall develop policies to protect and conserve mineral aggregate resources (PPS 2.5, GP 4.2.8).

3.1 Protect the Integrity and Minimize Impact on the Agricultural Land Base and System

The following measures address fragmentation of agricultural lands, protection of prime agricultural land and protection of the agricultural system and agri-food network.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 3.1.1 Retains the largest amount of contiguous agricultural land possible			✓	
 3.1.2 Protects and avoids Prime Agricultural Land to maintain the most productive and fertile soils for agriculture			✓	

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
3.1.3 Maximizes the amount of agricultural lands to support the Agricultural System			✓	
3.1.4 Limits proximity of land uses sensitive to agricultural operations (e.g. noise, odour)*	TBD	TBD	TBD	TBD
 3.1.5 Recognizes the interconnectedness of agricultural and food assets and has the least impact on the Agricultural System	TBD	TBD	TBD	TBD

* This measure will be evaluated at the Preferred Growth Concept stage

3.1.1 Retains the largest amount of contiguous agricultural land possible

The potential locations of future settlement area boundary expansions were considered when evaluating the Growth Concepts (see IGMS Growth Concepts Discussion Paper, Chapter 7). Whitebelt lands that are potentially available for urban development adjacent to the Milton and Georgetown (Halton Hills) urban areas are within the Region’s prime agricultural areas and as a consequence 99% of the lands in the four Growth Concepts consist of prime agricultural lands. Further analysis is provided in Appendix G – Agricultural Area Assessment.

The largest contiguous area of prime agricultural land within the Whitebelt area is located to the west and south of Georgetown (Halton Hills) extending south to the Highway 401/407 employment area. Much smaller areas of contiguous prime agricultural land are located to the south and west of Milton and to a lesser extent between the Milton urban area and Highway 407, which is also identified as a Future Strategic Employment Area (FSEA).

- Concept 3 would best support this measure because the proposed Halton Hills expansion area is limited to some lands that front onto the portion of Winston Churchill Boulevard that is already identified as FSEA (in the vicinity of the GTA West highway) and a small band of land extending westwards along the north side of the Highway 401/407 Employment Area. As a result, the large contiguous area of prime agricultural land in Halton Hills would be left mostly intact. In addition, the Milton expansion area in Concept 3 only affects lands on the east side of the Milton urban area, which as noted above, has already been identified as a FSEA.

- After Concept 3, this measure would be best achieved by Concept 2 because the incursion into the Halton Hills prime agricultural area is less than with Concepts 1 and 4. Concept 1 would follow because the incursion into the Halton Hills prime agricultural area is less than Concept 4. Concept 4 would least support this measure because of the significant incursion of this Concept into the prime agricultural area in Halton Hills.
- The measure relates to the climate change planning objective of the protection of agricultural land and soils (see Appendix A of the IGMS Growth Concepts Discussion Paper for details). Agricultural land and soils support climate change mitigation as these area sequester carbon and allows the Region to adapt to climate change as it increases local food security and resiliency in response to potential disruption in the food system.

3.1.2 Protects and avoids Prime Agricultural Land to maintain the most productive and fertile soils for agriculture

The evaluation considered the potential settlement areas tested under of the four Growth Concepts (see IGMS Growth Concepts Discussion Paper, Chapter 7). Recognizing almost all of the lands tested in the four Growth Concepts are prime agricultural, concepts which require the least amount of land would best achieve this measure.

- Concept 3 would best support this measure since it consumes the least amount of land with Class 1 prime agricultural soil.
- The measure relates to the climate change planning objective of the protection of agricultural land and soils (see Appendix A of the IGMS Growth Concepts Discussion Paper for details). Agricultural land and soils support climate change mitigation as these area sequester carbon and allows the Region to adapt to climate change as it increases local food security and resiliency in response to potential disruption in the food system.

3.1.3 Maximizes the amount of agricultural lands to support the Agricultural System

The evaluation considered how much prime agricultural land in each Concept is utilized for development.

- Concept 3 would support this measure to the greatest extent as it utilizes the least amount of land (1,025 hectares). Concept 2 is next best at 2,313 hectares, followed by Concept 1 with 2,924 hectares. Concept 4 would be least supportive as it utilizes the most land (3,507 hectares).

- The measure relates to the climate change planning objective of the protection of agricultural land and soils (see Appendix A of the IGMS Growth Concepts Discussion Paper for details). Agricultural land and soils support climate change mitigation as these area sequester carbon and supports climate change adaptation as it increases local food security and resiliency in response to potential disruption in the food system.

3.1.4 Limits proximity of land uses sensitive to agricultural operations (e.g. noise, odour)

This measure will be evaluated once the second phase of the Agricultural Assessment is completed. This analysis will inform the development of the Preferred Growth Concept.

3.1.5 Recognizes the interconnectedness of agricultural and food assets and has the least impact on the Agricultural System

This measure will be evaluated once the second phase of the Agricultural Assessment is completed. This analysis will inform the development of the Preferred Growth Concept.

The measure relates to the climate change planning objective of the protection of agricultural land and soils (see Appendix A of the IGMS Growth Concepts Discussion Paper for details). Agricultural land and soils support climate change mitigation as these area sequester carbon and allows the Region to adapt to climate change as it increases local food security and resiliency in response to potential disruption in the food system.

3.2 Enhance the Natural Heritage System to Strengthen Key Features and Areas and Reduce the Impact of New Development

This measure addresses the protection of the Natural Heritage System from disturbance.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 3.2.1 Retains the greatest overall area possible of natural heritage lands	✓	✓	✓	✓

3.2.1 Retains the greatest overall area possible of natural heritage lands

Halton’s draft proposed refined Natural Heritage System (NHS) developed through the Regional Official Plan Review (ROPR) process was overlaid on the four Growth Concepts. None of the Growth Concepts propose removals from or encroachments into the Natural Heritage System. As such, all four Growth Concepts would fully achieve this measure. However, consideration is given to opportunities through each of the concepts to provide improvements to the form of the Regional NHS through implementation (i.e., planting / establishment) of these areas over time:

- Concept 1 provides the largest total area of linkage / enhancement (117 ha) and is also the highest proportion of the concept land area at 4%.
- Concept 2 has the second largest area (59 ha), substantially smaller than Concept 1 and represents 3% of the concept land area. Concept 2 provides a slightly smaller area than Concept 2 (50ha) and comparable percentage of the concept land area (3%).
- Concept 3 has the lowest amount of linkage and enhancement area (23 ha) and has the lowest percentage relative to concept land area (2%).
- The measure relates to the climate change planning objective of the protection of natural environment/watershed health (see Appendix A of the IGMS Growth Concept Discussion Paper for details). The protection of the natural environment and supporting healthy watersheds support climate change mitigation because natural areas sequester carbon and other pollutants from the air. It also supports climate change adaptation as natural heritage systems act as “green infrastructure” supporting the management of water quality and quantity.

3.3 Reduce Carbon Emissions and Address Air Quality

The following measures address minimizing emissions through intensification and compact development and transportation efficiency and alternatives.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 3.3.1 Best creates opportunities for residential uses, employment uses, and community services to be located in close proximity to one another and		✓	✓	

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
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supported by existing or planned transit service

 <p>3.3.2 Generates the fewest lane kilometres, provides transit-supportive densities, and generates opportunities for multi-modal access</p>			✓	
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3.3.1 Best creates opportunities for residential uses, employment uses, and community services to be located in close proximity to one another and supported by existing or planned transit service

Compact built-form allows for different land uses to be located in close proximity to each other. In doing so, this allows for greater levels of intensification which also support transit infrastructure.

- Concept 3 would best achieve this measure as it has the largest amount of growth located in Strategic Growth (SGA) Areas serviced by existing or planned transit infrastructure. Concept 2 would then follow Concept 3 in best achieving this measure. This evaluation measure is generally consistent with measure 1.4.1 Part 2.
- As described in Appendix A of the IGMS Growth Concept Discussion Paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also directs growth away from agricultural and natural heritage system lands.

3.3.2 Generates the fewest lane kilometres, provides transit-supportive densities, and generates opportunities for multi-modal access

The transit analysis used in the evaluation of the Growth Concepts compared passenger demand in the peak hour along high priority corridors and demand to the capacity of the service. The base service used for 2051 was as recommended by the *Defining Major Transit Requirements in Halton* report for the 2041 planning horizon.

- All four Growth Concepts exhibit the same level of emissions measured as vehicle-kilometres travelled and average speed. However, the assessment differs in context of densities and mixed-uses in support of transit.
- Similar to measure 3.3.1, Concept 3 would better achieve this measure relative to the other concepts given that a greater amount of future growth is allocated to Strategic Growth Areas (SGAs).
- The measure relates to the climate change planning objective of a sustainable transportation system (see Appendix A of the IGMS Growth Concept Discussion Paper for details). Sustainable transportation system mitigates climate change by reducing GHG emissions from vehicles by reducing car dependence.

3.4 Maintain Resiliency to Impacts of Extreme Weather Events

These measures address protection of the Natural Heritage System to mitigate the impacts of extreme weather events and to reduce the risk of flooding.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 3.4.1 Emphasizes NHS protection within settlement areas and the rural area	✓	✓	✓	✓
 3.4.2 Supports a contiguous Natural Heritage System	✓	✓	✓	✓

3.4.1 Emphasizes NHS protection within settlement areas and the rural area

Similar to measure 3.2.1, Halton’s draft proposed refined Natural Heritage System developed through the Regional Official Plan Review (ROPR) process was overlaid on the four Growth Concepts. None of the Growth Concepts propose removals of or encroachments into the Natural Heritage System. As such, all four Growth Concepts would fully achieve this measures. However, consideration is given to the presence of high, medium and low constraint features within each concept to consider their potential impact and/or influence on development:

- Concept 2 has the greatest amount of High and Medium constraint by area (57%), followed by Concepts 1 and 3 (47% each) and with Concept 4 having the lowest amount by area (41%).

At the Preferred Growth Concept stage of the IGMS work, a Natural Heritage System and Water Resource System Constraints and Impacts Assessment will be completed that will further examine the components of the Region’s Natural Heritage System in terms of affecting development potential within the lands areas proposed through the Preferred Growth Concept. It is important to note that the Region’s Natural Heritage System could be further refined or enhanced through an Area-Specific Plan subwatershed study that would be completed for a new Designated Greenfield Area. Additional NHS/Water Resource System analysis will be undertaken to determine the desired elements to be included in the Preferred Growth Concept.

- The measure relates to the climate change planning objective of the protection of natural environment/watershed health (see Appendix A of the IGMS Growth Concept Discussion Paper for details). The protection of the natural environment and supporting healthy watersheds support climate change mitigation because natural areas sequester carbon and other pollutants from the air. It also supports climate change adaptation as natural heritage systems act as “green infrastructure” supporting the management of water quality and quantity.

3.4.2 Supports a contiguous Natural Heritage System

The evaluation completed as part of measure 3.4.1 is consistent with this measure. Therefore, the same findings apply to this measure.

3.5 Consider Impacts on Region’s Mineral Resource Areas

The following measures address minimizing impact of mineral extraction of new development and protecting agricultural areas that support aggregate extraction.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
3.5.1 Limits proximity of incompatible uses to mineral aggregate operations and mineral extraction areas			✓	

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
3.5.2 Retains areas for mineral extraction, which can be rehabilitated to high value agricultural areas			✓	

3.5.1 Limits proximity of incompatible uses to mineral aggregate operations and mineral extraction areas

The shale resource identified by the Regional Official Plan is limited to the Town of Halton Hills. Appendix I provides the detailed analysis of the amount of shale resource area that would potentially be lost in each Growth Concept.

- Concept 3 would best support this measure because it affects the least amount of shale resource lands. However, Concept 2 is very close behind, which is then followed by Concept 1 and Concept 4, which would support this measure the least because of the higher amount of shale resource land that would be affected.
- It is noted however that if the higher priority lands having a drift thickness of 1 metre to 8 metres was considered instead, Concept 2 would marginally support this measure the best, since a lesser drift thickness means that shale resource extraction is more feasible, practical and economical, with Concept 3 being very close behind.

3.5.2 Retains areas for mineral extraction, which can be rehabilitated to high value agricultural areas

This measure is about how much shale resource area is retained, based on the selection of each Growth Concept, and in consideration of both Aggregate Resource Inventory Papers (ARIP) 184 and Regional Official Plan Amendment (ROPA) 38 mapping.

- Concept 3 would support this measure the best on the basis of ARIP 184 mapping, because it affects the least amount of shale resource lands. Followed by Concept 2 and then Concept 4, with Concept 1 least supporting the measure.
- Concept 3 would support this measure the best, based on ROPA 38 mapping, because it affects the least amount of shale resource lands. However, Concept 2 is very close behind, which is then followed by Concept 1 and Concept 4, which would support this measure the least because of the higher amount of shale resource land in Halton Hills that would be affected.

5. THEME 4: GROWING THE ECONOMY AND MOVING PEOPLE AND GOODS

The measures identified under this theme are based on Provincial policy directions and address multi-modal transportation and transit-supportive densities, goods movement and employment areas.

Planning for Multi-modal Transportation

As identified in the PPS and the *Growth Plan*, areas with existing and planned frequent transit and Major Transit Station Areas are to be planned and designed to be transit-supportive with multi-modal access to stations and connections (GP 2.2.4.8, 2.2.4.10).

Planning for Employment

In terms of economic development, the Growth Plan directs municipalities to make more efficient use of employment areas and vacant and underutilized employment lands (GP 2.2.5.8).

Planning for Efficient Movement of Goods

For goods movement, facilities and corridors should be linked to employment areas to facilitate efficient goods movement (GP 3.2.4.1).

4.1 Promote Transit-Supportive Densities

The following measure address growing transit ridership demand through transit-orientated development and mixed-use directed to nodes and corridors.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 4.1.1 Directs new mixed use and residential development to nodes and corridors			✓	

4.1.1 Directs new mixed use and residential development to nodes and corridors

All four Growth Concepts direct a significant amount of residential and mixed-use growth to existing and proposed nodes and corridors. However, Growth Concepts with higher levels of intensification and densification direct more growth to these areas.

- Comparatively, Concept 3 best meets transit supportive densities as there is limited to no new Community Designated Greenfield Area lands. The higher levels of intensification in Concept 3 allows for a greater amount of growth to be concentrated in Strategic Growth Areas (SGAs) such as MTSA's and priority corridors where transit infrastructure is located.
- As described in Appendix A of the IGMS Growth Concept Discussion Paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also directs growth away from agricultural and natural heritage system lands.

4.2 Promote Multi-Modal Transportation Network that Supports all Modes of Transportation

The following measure addresses multi-modal transportation supported by residential development close to nodes and corridors.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 4.2.1 Locates new residential development closest to nodes and corridors			✓	

4.2.1 Locates new residential development closest to nodes and corridors

The measure is similar to measure 4.1.1 in that it evaluates the location of residential development in relation to nodes and corridors. However, this measure is focused on transit-supportive densities.

- Concept 3 would best achieve this measure as it directs the greatest concentration of residential growth to nodes and corridors.
- As described in Appendix A of the IGMS Growth Concept Discussion Paper, this measure relates to the climate change planning objective of compact built form. Compact built form addresses climate change mitigation and adaptation because compact form and a mix of uses and densities allow for the efficient use of land, infrastructure and public service facilities and also directs growth away from agricultural and natural heritage system lands.

4.3 Facilitates Goods Movement

The following measures address efficient use of existing Regional roads and accommodation of land extensive and freight dependent employment with direct access to rail and highways.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
4.3.1 Supports connectivity between Regional roads, rail and highways	✓	✓	✓	✓
4.3.2 Enhances the connectivity of goods related and land extensive employment areas located adjacent to or near major goods movement facilities and corridors	✓	✓	✓	✓

4.3.1 Supports connectivity between Regional roads, rail and highways

All four Growth Concepts were developed with connectivity between future growth and the Region’s transportation network (e.g. roads, rail and highways) in mind. Therefore, all Growth Concepts equally achieve this measure.

4.3.2 Enhances the connectivity of goods related and land extensive employment areas located adjacent to or near major goods movement facilities and corridors

The Growth Concepts provide equal opportunities to enhance the connectivity of goods movement and the location of Employment Areas adjacent to major goods movement facilities and corridors (e.g. GTA West Corridor, Highway 407, Highway 401 and Highway 403). Preliminary future Employment Areas for each concept are located within the Region’s existing Future Strategic Employment Areas (FSEA). These areas were identified for future

employment growth because they have appropriate access to current and future goods movement corridors. Therefore, all Growth Concepts equally achieve this measure.

4.4 Ensure the Availability of Sufficient Lands to Accommodate Forecasted Employment Growth

The following measure addresses protection of employment areas around highway corridors, rail corridors and transit.

Concepts that best achieve each measure are shown with a ✓ below.

EVALUATION MEASURES	CONCEPT 1	CONCEPT 2	CONCEPT 3	CONCEPT 4
 4.4.1 Employment areas have direct access to rail and highways and are near existing or planned transit facilities	✓	✓	✓	✓

4.4.1 Employment areas have direct access to rail and highways and are near existing or planned transit facilities

All the Growth Concepts locate Employment Areas with direct access to rail and highway infrastructure. The preliminary Employment Areas identified in each of the Growth Concepts are located within the Region’s existing Future Strategic Employment Areas (FSEA). These areas are located within proximity to major transportation infrastructure investments (e.g. GTA West Corridor, Highway 407, Highway 401 and Highway 403). Therefore, all Growth Concepts equally achieve this measure.

This measure relates to the climate change planning objective of a sustainable transportation system (see Appendix A of the IGMS Growth Concept Discussion Paper for details). Sustainable transportation system mitigates climate change by reducing GHG emissions from vehicles by reducing car dependence.

6. NEXT STEPS

The results of the evaluation will be used to inform the development of the Preferred Growth Concept and in doing so, further technical assessment will be undertaken.