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Strategic Management in Ontario Regional Government: Evaluating the Factors for Successful Policy Implementation for Intensification and Infrastructure Investment

Valerie Hendry
Western University

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By Valerie Hendry, *MPA candidate, GDPA, MCIP, RPP*

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Abstract

In this study, I identify the strategic management factors for successful policy implementation for intensification and infrastructure investment in regional governments. These factors include organizational capacities, administrative leadership within government, and administrative governance. To examine these themes, I employed a qualitative case study analysis to evaluate how certain strategic management factors and processes influence regional government decisions and outcomes related to the prioritization of water and sewer infrastructure investment in intensification areas to comply with the provincial 2006 Growth Plan for the Greater Golden Horseshoe. The case study uses strategic management theory to help to analyze and explain observed data researched from three regional municipalities: Halton, Peel and York in Ontario, Canada, by evaluating five best management practices recommended by the Federation of Canadian Municipalities and the National Research Council. My results suggest that there are certain best management practices that support growth management policy and implementation. These results imply that strategic planning, information management, public support and acceptance, innovation for continuous improvement, and prioritization models can be leveraged by regional municipalities in the Greater Golden Horseshoe to prioritize water and sewer infrastructure to meet new Growth Plan targets.

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1. Introduction

1.1. Statement of Purpose and Scope of Study

The primary focus of this research is to evaluate what strategic management factors and processes influenced an upper-tier municipality's ability to implement the 2031 intensification targets within intensification areas mandated by the 2006 Growth Plan. Specifically, this paper will evaluate, using an interpretivist approach, how certain strategic management decisions and outcomes influenced regional government decisions and outcomes related to the prioritization of new water and sewer infrastructure in intensification areas. Strategic management in public administration is defined as "an approach to strategizing…which integrates strategy formulation and implementation and typically includes strategic planning to formulate strategies, ways of implementing strategies, and continuous strategic learning" (Bryson & George, 2020: 8).

1.2. Organization of the Study

The research is organized into four sections. The first section sets the stage for the study along with a description of the purpose of applying strategic management concepts and principles to infrastructure planning for growth with the aim of the study to identify best management practices that support growth management policy implementation. The first section also articulates three principal reasons why municipalities struggle with policy implementation and the importance of aligning land use and infrastructure planning for successful implementation. The second section of this paper defines strategy, strategic planning and strategic management theories in a local government context. Then, various land use and infrastructure planning theories and best practices are explored as a response to evaluate how certain strategic management factors and processes influence regional government decisions and outcomes. The final section of this paper operationalizes the concepts through a literature review and case study

analysis of regional municipalities in the Greater Golden Horseshoe (GGH) related to their prioritization of water and sewer infrastructure investment to meet density targets in intensification areas. The paper concludes with a research summary and recommendations for further study.

1.3. Research Scope

This research contributes to the existing body of knowledge by demonstrating how certain strategic management factors and processes can influence regional government decisions and outcomes related to the prioritization of new water and sewer infrastructure in intensification areas through a comparative case study analysis of three regional governments: Halton, Peel and York. The purpose of applying strategic management concepts and principles to infrastructure planning through a deductive approach is intended to identify best management practices that support growth management policy implementation since the inception of the 2006 Growth Plan. The lessons learned from these past experiences will complement the existing body of knowledge of how to prioritize infrastructure investment as shown in the best practices guide for "Planning and Defining Municipal Infrastructure Needs" (FCM & NRC, 2003). And by reflecting on these past experiences, the lessons learned can also be leveraged to look ahead and apply the best strategic management approaches to meet the new growth plan targets set by the 2020 Provincial Policy Statement (2020) and the 2020 provincial plan, A Place to Grow: Growth Plan for the Greater Golden Horseshoe.

1.4. Statement of the Policy Implementation Challenges

Strategic planning and management are important to investigate for policy administrators because there are several policy implementation challenges when integrating land use and infrastructure planning in regional government to achieve the goals of the growth plan and meet

intensification targets in intensification areas in the GGH. Growth management is a complex issue within the Ontario planning system. In fact, it could be described as a wicked problem. "Wicked problems are those found in the domain of public policy (e.g., urban renewal, crime, and water resources)…They involve multiple definitions as to their nature, because they are the object of multiple and conflicting criteria for defining solutions…" (Freeman, 2000, : 483). In 2006, the Province of Ontario projected the GGH to grow to 11.5 million people and 5.5 million jobs by 2031 (Ontario, 2006). Then in 2020, the Growth Plan was updated projecting the GGH to grow to almost 15 million people and 7 million jobs by 2051 (Ontario, 2020). The population projections were established in a regional planning document entitled the Growth Plan for the Greater Golden Horseshoe (the Growth Plan) as an attempt to allay the growth pressures municipalities are facing and set the stage by establishing the long-term direction of where and how municipalities will grow (Ontario, 2020). To tackle this complex issue, the Growth Plan includes 'intensification-first' policy goals to direct growth to intensification areas and requires municipalities to set density targets in intensification areas (Ontario, 2006).

Along with intensification goals, the Growth Plan also includes broad infrastructure goals in order to support and accommodate the projected density increase. In fact, land use and infrastructure planning are the cornerstone of growth management because the location and design of infrastructure improvements has a direct correlation with the density, built form and location of future uses within communities (City of Ottawa, 2019: 1). In order to advance the intensification and infrastructure goals and leverage infrastructure investment in accordance with policy 3.2.1 of the Growth Plan, municipalities are required to co-ordinate infrastructure planning, land use planning and infrastructure investment. Sufficient infrastructure capacity

must be allocated, full life-cycle costs must be considered and options to pay for these investments must be identified (Ontario, 2006).

Effective implementation of the broad policy goals of the Growth Plan by municipalities is a key step in the growth management policy cycle, especially delivering infrastructure to support the development of intensification areas. The Regional Public Works Commissioners of Ontario, Ontario Regional and Single Tier Treasurers, and Regional Planning Commissioners of Ontario commissioned a report in 2015 identifying key challenges and opportunities for the Province of Ontario and the municipalities in the Greater Golden Horseshoe to implement the 2006 Growth Plan (RPWCO et al., 2015; Crawhall and Associates, 2015). In particular, the study analysed the "misalignment of provincial plans, policies and investments with municipal planning and infrastructure implementation to conform with the Growth Plan" (RPWCO et al., 2015: 12).

Policy implementation is a challenge for many local governments for three reasons: the lack of coordination and competing goal expectations among organizational departments in the implementation stage of the policy cycle, economic and political factors, and risk adverse organizational cultures. Each of these challenges is described in detail.

1.4.1 Problem 1 – Municipal Governance Dynamics in Policy Implementation

Policy implementation is one of the most critical factors in the policy cycle, yet it is often most overlooked (Peters, 2015: 83). Policy implementation can be undermined by several factors: "inter-organizational complexity and conflict" (Stoker, 1991 as cited in Khan, 2016); "lack of specified know-how, lack of administrative capabilities, prevalence of self-serving goals of street-level bureaucrats, and absence of administrative willingness" (Verdung, 1997 as cited in

Khan, 2016: 9); and finally, “increased demand for services; vague, ambitious, or conflicting goal expectations; difficulties in goal achievements; and involuntary clients” (Lipsky, 2010 as cited in Khan, 2016: 9). To implement policy successfully, Fox and co-authors (2006 as cited in Khan, 2016: 9) specify that the complex and dynamic environment within government must be recognized.

To understand the complex and dynamic environment within government is to analyze the design framework in which infrastructure policy is implemented. The steps in ‘water infrastructure planning frameworks’ are often “linear, rational and expert driven” for “goal setting, identification and evaluation of options, and implementation of decisions” (Furlong et al., 2016, :2). Policy planners develop the vision, goals and direction for intensification and growth to be achieved, capital infrastructure planners conduct analysis for where to build assets, financial planners determine the cost, and politicians decide, by “exerting either their direct or indirect influence”, on what infrastructure should be built and where (Furlong et al., 2016, :2).

While there is some predictability and control when the governance, structure and processes are hierarchical and rigid, Peters (2015: 3) cautions that decisions made in silos do not address fundamental policy issues, such as conflicting goal expectations and difficulties in goal achievements within local government (Peters, 2015; Lipsky 2010, as cited in Khan, 2016: 9).

Furlong et al. (2016: 4) identify a lack of coordination between land use and infrastructure planning affecting the planning process and policy implementation outcomes. The reason for this gap is the premise that infrastructure planning is ‘top-down’ and hierarchical whereas policy

planning requires a 'sociocratic' approach (Furlong et al., 2016: 4). Policy planning is not always rational as planning recommendations are multi-disciplinary and influenced through stakeholder engagement. As such, according to Rittel and Webber (1973, as cited in Head, 2010: 10), solving wicked major urban and social problems through an 'engineering' approach will fail. Further, as Head points out "expert scientific knowledge cannot fix difficult policy problems that are really based on competing value perspectives" (Schon and Rein, 1994 as cited in Head, 2010: 10). Furlong et al. (2016: 4) recommend that "planning for complex systems should be done in a way that recognizes that (1) politicians and the public influence planning, (2) planning processes are cyclical rather than linear, and (3) planning decisions are inherently subjective and political, rather than objective and scientific". Without acknowledging these factors local governments will not achieve many of the intensification and infrastructure goals of the Growth Plan.

1.4.2Problem 2 – Economic and Political Factors that Affect Policy Implementation

Other reasons that contribute to why intensification and infrastructure policy implementation has been ineffective in local government are a lack of sufficient economic resources (Lipsky as cited in Khan, 2016: 9) and the impact of economic and political conditions (Meter & Horn, 1975 as cited in Khan, 2016:9; Furlong et al., 2016). As York Region (2018a: 22) noted: "Growth, especially population, has a major impact on infrastructure. It requires significant investment, and its geographical distribution affects costs and the ability to deliver service." In many upper-tier municipalities, to fulfil the requirements of the OP and provincially forecasted growth projections, major water and wastewater infrastructure requirements are reviewed annually in servicing and financing studies, in the business plan and budget process, as well through a Regional Development Charge By-law renewal process reviewed at least every five years

(Durham Region, 2019). Regional municipalities use Development Charges to fund the design and construction of the majority of sanitary sewer and water supply infrastructure required to service the land. Development Charges (DCs) are fees that are paid by new development to fund new infrastructure and services (Durham Region, 2019). But as the Crawhall and Associates (2015:9) and RPWCO et al. (2015:14) studies point out, development charges are inadequate to pay for growth in intensified urban developments. In order to reduce the risk of carrying substantial debts to pay for the gap in funding, some municipalities are using alternative financing tools, while others are deferring capital projects to service the growth altogether (Crawhall and Associates, 2015:9). The massive upgrades to water and wastewater treatment systems to support intensification are the most difficult to finance due to the limitations of the Development Charges Act and are the "greatest financial burden" to municipalities (Crawhall and Associates, 2015; RPWCO et al., 2015: 14). Further, the McKinsey Global Institute economic think tank estimate the cost to build and maintain infrastructure investments is not sufficient as the infrastructure gap continues to widen (City of Ottawa, 2019:4). The RPWCO et al. (2015:17) and Crawhall and Associates (2015:10-11) reports recommend the Development Charges Act be amended to align growth revenues with growth costs and that municipalities be given new taxation authority. Even if such policy changes occur, it is still prudent municipalities plan strategically to implement the goals of the Growth Plan to deliver infrastructure servicing to intensification areas by aligning land use and infrastructure planning.

1.4.3Problem 3 – Risk Averse Culture in Local Government

The third reason infrastructure policy implementation has failed to be realized is a risk-averse culture in local government administration. According to Chapman, (2004 as cited in Valkama et al., 2013: 124) "the two most important obstacles to organizational learning are fear of failure

and avoidance of diversity/variety both of them leading to risk aversion." The choice of policy instruments exercised through legitimate coercion or "sticks" (i.e. the developer pays through DCs) and incentives or "carrots" (such as alternative financing tools) (Head, 2010: 13) are some tools municipalities are using to achieve the goals of the Growth Plan to build infrastructure in intensification areas. The current evidence-based process is rational (Head, 2010:10, 13) and low-risk to many municipalities. Municipalities that choose not to carry debt to build infrastructure services put the onus on private developers. The primary risk for municipalities contemplating investment in capital projects is that they may not see the return on their investment – the economy could slump, or developers may not start and complete their projects for several years – all of which would strain the municipal budget and burden taxpayers. On the other hand, many developers are not willing to take financial risks or may not meet strict financing criteria imposed by lenders. Further, developers may have to wait until capital plans are included in the budget cycle – 5, 10 and even 20 years to tender. There is also no guarantee that the regional capital plans will not be deferred during the next update to the DC by-law, further compounding the issue. Intensification and infrastructure policies may not be implemented as intended in regional governments that use the principle that 'growth pays for growth'. Developers will walk away from intensification proposals that meet many of the goals of the Growth Plan and OP policies because the projects are too risky or not financially viable. In turn, municipalities will be frustrated that complete communities have not been realized as planned. Consequently, if public service delivery of water and wastewater infrastructure remains linear and rational, municipalities may have to raise taxes, user rates, and/or DCs to pay for the increased demand for services (Furlong, 2012: 2736). As Head (2010: 14) stresses: "the consequences of ignoring or avoiding complex issues are perilous". By understanding some of

the root causes of the Growth Plan policy implementation, policy implementors can make better decisions to effect change and achieve their planned goals (Peters, 2015: 29).

2. Literature Review: Strategic management in local government

A review of the literature was undertaken to obtain a general comprehension of strategic planning and management in local government and empirical best practices for successful policy implementation. Case study research have identified reoccurring key themes and factors that affect how local government managers successfully implement strategic planning and management. The reoccurring themes in the literature are: organizational capacities, administrative leadership within government, and administrative governance.

2.1. Key distinctions between strategy, strategic management and strategic planning

2.1.1 What is strategy?

Strategy is a broad concept, especially in the context of local government (Johnsen, 2016: 335). Bryson & George (2020: 3) define strategy as "a concrete approach to aligning the aspirations and the capabilities of public organizations or other entities in order to achieve goals and create public value". Johnsen defines the concept of strategy in public management as "a broad concept that serves different actors, spans different management processes and encompasses several management tools" (Johnsen, 2016: 335). Wechsler and Backoff (1987, as cited in Johnsen, 2016: 335) breakdown strategy in the context of process and content. They define process strategy as the tools public service managers use to comprehensively plan which include strategic planning, human resource management strategies, performance management, and financial management. Whereas content strategy refers to "the ways in which the organization seeks to achieve the objectives that have been selected" (Walker, 2013: 676).

2.1.2What is strategic planning?

Strategic planning theory is defined as "a systematic process for managing the organization and its future direction in relation to its environment and the demands of external stakeholders including strategy formulation, analysis of agency strengths and weaknesses, identification of agency stakeholders, implementation of strategic actions, and issues management" (Berry & Wechsler 1995:159 as cited in Johnsen, 2016: 35). Strategic planning frameworks have been defined "as the process by which organizations determine and establish long-term directions and formulate and implement strategies to accomplish long-term objectives while taking into account relevant internal and external environmental variables" (Hax & Majluf, 1990 as cited in Ugboro et al., 2011: 89).

2.1.3What is strategic management?

Strategic management theory is defined by Bryson et al. (2010) as "the appropriate and reasonable integration of strategic planning and implementation across an organization (or other entity) in an ongoing way to enhance the fulfillment of its mission, meeting of mandates, continuous learning, and sustained creation of public value" (Bryson et al., 2010: 495 as cited in Johnsen, 2016: 338). It can be broken down into four core management processes: planning, resource allocation, control and evaluation (Vinzant & Vinzant 1996: 140 as cited in Johnsen, 2016: 336) and performance management (Poister and Streib, 1999 as cited in Johnsen, 2016: 336).

In sum, strategy links capabilities to aspirations, and strategic planning and strategic management are approaches that integrate strategy formulation and address challenges and implementation. Collectively, strategy, strategic planning and management are "a set of

concepts, processes, procedures, tools, techniques, and practices…that must be drawn on selectively and adapted thoughtfully and strategically to specific contexts if they are to help produce desirable results." (Bryson & George, 2020: 1).

3. Case Study Research

Preliminary case study research has identified key themes and factors that affect how local government managers successfully implement strategic planning and management.
Poister and Streib's strategic planning theoretical framework identifies nine common dimensions of strategic management in the public sector: political regime, political uncertainty, environmental instability, environmental heterogeneity, financial resources, organizational size, administrative organization, strategy content, and stakeholder involvement (Poister and Streib, 2005 as cited in Johnsen, 2016: 339).

Ugboro et al., (2011) designed an approach to determine the characteristics of an effective strategy planning system in American transit agencies. The characteristics are organizational, financial, and attitudinal support, and commitment variables. The study found that certain principles must be followed for strategic management planning to be effective in public transit systems including leadership roles by senior management, organizational mission and strategic objectives as the basis for of the strategic plan, and a collaborative organization culture and climate to develop strategic goals. Another key finding of their study was the establishment of an action-planning team in various units for successful implementation. Lastly, procedures should be developed but be flexible to allow adaptations to different organizational environments.

Johnsen (2016) studied the impacts of strategic planning and management in Norwegian local government over three decades. Similar to the Ugboro et al. (2011) study, the research is based on top management's perception of the practices and the impact of internal strategic processes and management tools on the organization. The researcher determined that strategic management tools are commonplace in Norwegian local government with municipal management playing a dominant role as well as politicians and lower-level staff.

3.1. Strategic Management for Successful Policy Implementation

To achieve the provincial mandate of the Growth Plan and implement the intensification and infrastructure goals and OP policies efficiently and effectively, it is imperative that local governments plan strategically. Due to the complexities of growth management, there is no one best approach to implement smart growth policies (Furlong et al., 2016: 6). Applying a strategic management lens to urban planning and infrastructure planning enables the better assessment of growth infrastructure requirements to determine where the most intensified growth should occur. It is easy for municipalities to lose focus on what goals they want to achieve with so many competing priorities and goals mandated by the province often leading to policy failure (Khan, 2016: 7). A strategic plan can help a municipality select which goals are top priority, and which one are more mid- and long-term aspirations (Mitchell, 2018: 212).

While there is considerable research on strategic management in the public sector, there is little evidence to support prior case study research applied to the research problem within Ontario's municipalities. One of the aims of this research is to fill the gap about which strategic planning and management approaches work best under certain circumstances pertaining to intensification and infrastructure planning. This research will be leveraged to help to establish certain criteria

needed to prioritize regional investment and resources to further intensify to meet projected density targets to 2051 as set by the Growth Plan.

The strategic framework was applied to evaluate these three goals to meet Growth Plan objectives:

1. *Meet Growth Plan projections and targets in intensification areas:* By developing intensification strategies, they can be used to fill in the intensification gaps between fixed density targets and economic conditions.
2. *Pay for Growth:* Development charges are proving to be inadequate for paying for growth in intensified urban areas (Crawhall and Associates, 2015: 9; RPWCO et al., 2015: 14). For Regions that choose not to take on debt or defer growth-related capital projects, what alternative financial instruments are used to reduce the risk associated with carrying considerable debt?
3. *Promote infrastructure efficiency* to reduce costs, minimize risk and promote public value, while balancing other operational, environmental and societal objectives.

Strategic management of policy issues allow municipal departments to solve problems collaboratively and achieve set goals, thereby aligning land use and infrastructure planning (Ugboro et al., 2011:89). Further, a regional municipality can design effective strategic action plans and processes by identifying the impediments to intensify key locations.

3.2. Empirical Best Practices

The recurring key themes – organizational capacities, administrative leadership within government, and administrative governance – in strategic management are found within the FCM & NRC's 2003 National Guide to Sustainable Municipal Infrastructure (FCM & NRC,

2003). The guide was prepared "by stakeholders from Canadian municipalities and specialists from across Canada, based on information from a scan of municipal practices and an extensive literature review" (FCM & NRC, 2003: vii). In their framework, the five best practices for municipal infrastructure implementation are:

1. Strategic planning: development of integrated vision and strategy
2. Information management: asset management systems
3. Building public support and acceptance
4. Exploring new and innovative methods for continuous improvement
5. Prioritization models:
    a. Weighting and ranking systems
    b. Linking capital with operations and maintenance (O&M) budgets in planning
    c. Business case approaches (FCM & NRC, 2003: 1)

The evaluation of these best practices can help guide regional municipal decision makers in the strategic management of water and sewer infrastructure assets by emphasizing and prioritizing areas for improvement within the organization as well as by exploring innovative approaches to solving implementation problems. The report states that:

> Good planning methods promote efficient and effective municipal spending by providing a framework to focus financial and staff resources where they are most needed. These methods, profiled in the next section, facilitate the sustainability of municipal infrastructure which, in turn, maintains a certain level of provided services. (FCM & NRC, 2003: 7)

3.2.1 Strategic planning: development of integrated vision and strategy

The first step in successful strategic plan implementation is to create a strategic plan with a clear purpose, a set of values and priorities to achieve desired outcomes within a set period of time (FCM& NRC, 2003: Boland et al., 2018; Ugboro et al., 2011). The successful execution of the

strategic plan will “allow organizations to deliver on that purpose by setting priorities, aligning resources and mobilizing and measuring action” (Boland et al., 2018). Turning these goals into actions is described in detail below.

A Clear Purpose for Executing the Purpose of the Plan

Strategic plans are typically carried out in three- to five-year increments to ensure that the plan is flexible and adaptable. They usually follow the election cycle of municipal governments (Halton, 2018; Ugboro et al., 2011). A clear purpose is the first action that will direct staff to carry out their tasks in line with the goals of the plan. And a clear vision in a strategic plan help to align siloed departments to implement the goals and priorities of the plan.

A vision statement is a critical component in strategic planning as it sets the stage for how to prioritize a limited number of resources (time, staff and money) between a variety of improvement initiatives and to set short- and long-term goals for the organization in key performance areas (Faucher, 2021a). It is usually “a dream statement” of what you want the organization to be. Equally important is a mission statement that describes what an organization intends to achieve in the future (Faucher, 2021b).

Establish Corporate Values to Drive the Organizational Culture

Another vital component of a strategic plan are the values of the municipality and its residents. McDavid and Hawthorn (2019: 496) write that: “Values are statements about what is desirable, what ought to be, in a given situation. Values can be personal or more general. Values can be part of an ethical framework. They can be about choices but not necessarily about right or wrong.” A set of values should be created and agreed upon by the municipality, residents and

stakeholders. Values drive organizational culture and behaviour in delivering the vision and mission of the strategic plan and should be weaved throughout the set of priorities and goals.

Set Clear Strategic Priorities to Achieve The Vision

Successful strategic plans require the organization to develop priorities and goals to ensure that the vision of the strategic plan is implemented (Boland, et al. 2018; Ugboro et al., 2011). Staff will play a key role in setting the priorities with careful consideration and trade-offs among competing priorities (Ugboro et al., 2011). After all, a strategic plan that is too ambitious can result in diluted efforts with a lack of capacity and resources to achieve set goals (Faucher, 2021c).

As the FCM and NCR (2003:11) report states: "The vision is often incorporated into an official plan, an infrastructure plan, and economic plan and a financial plan". The OP would determine the most strategic intensification areas to grow and the infrastructure master plan and budget would determine what capital infrastructure projects should be chosen over others to realize growth intensification in these priority areas. The goals should also consider the costs, benefits and risk exposure to planning and decision making as well as creative solutions to remain competitive. The FCM & NRC report (2003: 11) stresses that it is imperative that the goal-setting priorities in a strategic plan be integrated "within all aspects of municipal decision-making. The strategic plan subsequently drives all development and operational plans for the municipality, including departmental prioritizing processes. Departmental plans should reflect the objectives of the strategic plan and show how their planning priorities are linked with a strategic outcome of the vision". By having a prioritization framework, a municipality has clear

objectives with which to align their priorities and invest in infrastructure improvements. By setting clear strategic priorities, the vision for the strategic plan is more likely to be achieved.

Metrics

Best practices for setting goals include strategic plans with a clear purpose, vision and values, desired outcomes, and a set time period. Equally important is the integration of the strategic vision into the official plan, infrastructure plan, economic plan and financial plan.

3.2.2 Build Public Support and Acceptance

The next best practice to successful intensification and infrastructure investment is to build public support and acceptance by engaging internal and external stakeholders and build buy into the plan and ensure accountability. In order to be successful in strategic plan implementation, FCM & NRC (2003), Boland et al. (2018) and Peters (2015) recommend the strategic plan be communicated vertically and horizontally within multi-level governance models and outward with the residents and stakeholders in order to have an impact on deliverables. A key element in implementing strategy efficiently and effectively is a clear process for working with various stakeholders including other levels of government, area municipalities, and community leaders to secure the necessary resources for the strategic objectives (Boland et al., 2018). After all, as the FCM & NRC (2003: 19) report points out: "the public uses, owns and pays for infrastructure …Consultations as input to strategic planning usually take place at the start of the decision-making process, and can be used to gather input into the community vision, or as a feedback mechanism for developed strategies".

Consequently, in the absence of a collective strategy, staff often work in isolation, pursuing their own departmental objectives (Korosec, 2006: 222; Ugboro et al., 2011). Conversely, when

strategic plans are put in place, constant collaboration internally and externally has been known to increase job satisfaction, build buy-in from all levels of staff within the organization, and the community and stakeholders and improve team dynamics (Kim, 2002 as cited in Ugboro et al., 2011). Further, Ugboro et al., (2011: 94) write that with a firm understanding of the strategic direction of a plan through constant communication it "could also allay the fears of employees who may resist the changes brought by the strategic plan and prevent possible labor–management conflicts".

Lastly, Boland et al. (2018: 8) recommend that a communication strategy can help convey key messages and progress consistently throughout the length of the strategic plan. As a result, the gap between governance and action would be narrowed if a municipality's purpose was leveraged through clear messaging, strategic priorities, and constant communication. Consequently, by including external stakeholders into the decision-making process, obstacles to implement to goals and objectives of the strategic plan can be identified, the plan is more agile to adjust to change and it will be more resilient.

Metrics

Best practices for internal and external consultation include polls, mail or phone surveys, open houses, steering committees, public meetings and focus groups.

3.2.3Asset Management

While there is no universal definition, Grigg (2003: 53) describes asset management for infrastructure as "an information-based process for life-cycle facility management across organizations.". It includes the following key components:

- "Viewing infrastructure components and systems as 'assets'

- Life-cycle management
- Management across organizations, or enterprisewide use of asset management
- Use of information-based process or tools"

Asset management combines different municipal functions to minimize costs of ownership, maintain service levels and sustain infrastructure. There are 5 main asset management activities as described in Table 1.

Table 1: Asset Management Activities

	Functional Management Area	**Type of Asset Management Activity**
1.	Budget and finance	Capital budget and accounts
2.	Planning	Needs Assessment
3.	Engineering and Construction	Capital improvement program
4.	Operation and Maintenance	Maintenance management system
5.	Information Systems	GIS, databases, inventory

(Grigg, 2003: 54)

In sum, FCM & NRC (2003: 15) write that an asset management system "allows municipalities to plan their needs and investment priorities for the long term, plus it allows them to have on-demand information on detailed systems. Most systems would use the inventory as a baseline and input parameters (e.g. usage, risk weighting) on an annual basis. Then, the program would prioritize infrastructure needs based on established criteria, and forecast them for the next planning cycle and beyond".

The Infrastructure for Jobs and Prosperity Act, 2015 requires municipalities to "establish mechanisms to encourage principled, evidence-based and strategic long-term infrastructure planning that supports job creation and training opportunities, economic growth, protection of the environment, and incorporate design excellence into infrastructure planning" (S.O. 2015, s. 1). Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17) sets out the methods to improve the way municipalities plan for their infrastructure through a standardized framework.

Specifically, regulation 3f and 4h in O. Reg 588/17 specifies that Municipal Asset Management Plans must:

- Include population and employment forecasts (from Growth Plans, official plans, etc.), and the lifecycle costs required to maintain current levels of service in order to accommodate projected increases in demand caused by growth, and
- Estimated lifecycle costs to achieve proposed levels of service in order to accommodate projected increases in demand caused by population and employment growth, the funding projected to be available (by source) as a result of increased population and economic activity, and an overview of risks associated.

The purpose of evaluating this benchmark is to explore if the regional municipality understood the benefits of integrating asset management within a strategic framework before O. Reg. 588/17 required Ontario municipalities to develop a Strategic Asset Management policy by, July 1, 2019. These benefits would include such insights as full justification for project prioritization using established criteria for knowledge sharing into decision making (FCM & NRC, 2003: 17).

3.2.4 Explore new and innovative methods for continuous improvement

The third step in successful strategic infrastructure implementation is to provide continuous improvement opportunities for innovation by utilizing various management approaches. As the FCM & NRC (2003: 23) report writes: "By building capacity through staff resources or pilot projects, a municipality demonstrates its commitment to strategic issues within the organization…There is a greater chance of cross-training staff inter-departmentally on a municipal strategic objective when a municipality focusses on capacity building through strategic allocations of staff".

In order to be more innovative, it is important to recognize that the governance model centred on hierarchical control needs to be shifted to one that is more flexible and adaptable to change (Valkama et al., 2013). Boland et al. (2018) recommends two approaches for local governments to be more effective and efficient in service delivery for optimal continuous improvement.

Modifying organizational behaviour by establishing strategic groups and teams

One of the ways to improve service delivery and implement the goals of the Growth Plan is to create cross-departmental teams to overcome the siloed organizational structure between organizational departments. Mills et al. (2011: 267) describes groups and teams in organizations as "clusters of individual employees with a shared social identity, which influences each other's behaviour and contributes to fulfilling each other's needs". The Ugboro study (2011: 110) recommends that a "team must be established at the organizational level, and it should be well staffed and placed close to top leadership for it to be visible. This team should be responsible coordinating strategic planning activities within the organization, and it should be responsible for combining the action plans from various units into an organization-wide strategic plan. It must

be emphasized that the role of the planning staff at the organizational level is to facilitate and coordinate the strategic planning process whereas division or unit manager are responsible for developing the actual plans". For example, an inter-disciplinary growth management team comprised of land use planners, engineers and financiers could help improve organizational performance toward achieving the goals the growth management policy. The synergies of a smaller team with expertise from key regional departments compared to siloed departmental decision making and policy implementation would provide for a more collaborative working environment to solve problems more efficiently and effectively as the team is more aligned to achieve specific goals and targets (Mills et al., 2011: 267). With the population in the GGH expected to grow, it is essential for the governance and structure be aligned within local governments to support growth and achieve the provincial density targets of the Growth Plan.

Managing risk in the strategic-planning process

Risk is a significant threat to goal implementation. The second component to improve organizational innovation is to integrate risk management into the strategic planning process so that municipalities can anticipate and prepare for "potential problems and opportunities that could arise during execution" (Boland et al., 2018: 9). Cost-benefit analysis is one analytical tool that policy implementers should use in risk management (FCM & NRC, 2003; Peters, 2015). Boland et al., (2018) articulate that "effective risk management requires looking at the organization's entire interrelated portfolio of programs, rather than addressing only risks that are within silos or that are perceived as external to the organization" (Boland et al., 2018: 9). Furthermore, Boland et al., (2018: 9) recommend rewards and protection for those employees who take risks in order to overcome the "conservative mindset that some government organizations cultivate in employees". As Barry Farber once said: "There is no reward in life

without risk." Effective leadership would make clear that senior staff "would own the decision should public backlash be directed at any staff" (Boland et al., 2018: 7). Organizational innovation is necessary to overcome strategic plan implementation barriers in local government requiring stakeholder engagement and collaboration, and managing risk (Valkama et al., 2013).

Accountability

Other key aspect of building public support and acceptance for intensification and infrastructure planning and investment is to ensure the right type of data is monitored, organizational values include accountability, and performance measurement is adaptable. First, Hildebrand & McDavid (2011) state that the main purpose of performance management is to inform the electorate to make decisions. The use of performance indicators can be benchmarked against the goals of the strategic plan. Boland et al. (2018: 10) assert that it is imperative that organizations only "measure what matters…[and] it must be available, reliable and timely". Simply put, if the data is not useful to a local government's goals, then benchmarking is an exercise in compliance rather than meeting objectives and public value (Ammons, 2007; Hildebrand & McDavid, 2011).

Secondly, Boland et al. (2018) and Poister (2010) assert that accountability is vital to the success of implementation of the strategic plan. Rather than quarterly or annual reviews that often take place for corporate strategic plans, frequent status updates with unit managers responsible for implementing the priorities of the strategic plan will help to ensure the plan's successful execution (Boland et al., 2018: 10).

The final component is to ensure that the right data are collected and reported on to help the organization be more agile and adaptable and lead to the strategic plan's success (Boland et al.,

2018: 10). For instance, if the performance measurement data indicate that the objectives of the strategic plan are not being realized as planned, then further analysis or the manner in which the objectives are being achieved can be altered (Boland et al., 2018; Hildebrand & McDavid, 2011). When things do not go as planned, find a different route, adapt and continue to move forward. By stating which priorities are not meeting planned objectives, performance measurement is more effective at achieving results rather than scoring public relation points.

The FCM & NRC (2003: 23) best practice assert that corporate perspectives are created, and corporate priorities are included into decision making at the departmental level when new and innovative methods for continuous improvement approaches are explored through groups and teams, risk taking and ensuring accountability.

Metrics

Best practices for new and innovative methods for continuous improvement of administrative governance include pilot projects, public/private partnerships, risk management, and monitoring, regular reporting to Council on program checkpoints and milestones and budget targets.

3.2.5 Prioritization models

The final best practice that FCM & NRC, 2003 recommend are three types of prioritization models: (1) weighting and ranking systems, (2) Linking capital with Operating and Management (O&M) budgets and (3) business case approaches and these are explored more in detail.

Weighting and Ranking Systems

Corporate prioritizing processes through weighting and ranking systems would require "micro-level decision making that often takes place at the departmental level, following a technical assessment or macro level of decision making at a corporate level" (FCM & NRC, 2003: 25). It

is a technical and qualitative process that prioritizes planned projects within the asset management system as well as within municipal department programs and goals. This tool includes weighting factors in a prioritization system. Public input can be included in the analysis prior to Council approval (FCM & NRC, 2003: 25). FCM & NRC (2003: 17) assert the benefits of a prioritization tool could "save the municipality time and expense in decision making each year. Such a tool can allow for flexibility for Council's decision making (e.g., fast growth versus aging infrastructure)".

Metrics

Social, economic and environmental goals are linked to strategic goals in a prioritization system using formal and informal methods.

Linking Capital with O&M Budgets in Planning

The FCM & NRC (2003: 29) best practice state this process can be undertaken through the asset management review at the onset of the project planning phase where "the full life-cycle cost of a capital investment is reviewed, and any estimated increases or decreases in the operation and maintenance budget are considered". As such, for the purposes of the case study analysis, this best practice is measured if the regional municipality has an asset management plan and process prior to 2019 before the province mandated municipalities to have an asset management plan in place.

Metric

The municipality has an asset management program and process in place pre-2019.

Business Case Approaches

The final best practice is adopting a traditionally private sector approach to investment planning through a business case approach. FCM & NRC (2003: 33) state that such an approach can

highlight to Council and the public "the best technological option at the best price, or best value for money". Business case analysis can occur during departmental prioritization and budgetary planning and can be presented to senior department level staff and Council. A business case compares and evaluates a series of options, including doing nothing. Furthermore, the Lawrence National Centre for Policy and Management write: "[e]vidence-based business cases prepared by project proponents can propose different solutions depending on the nature of the problem, including regulatory reform, governance reform, better asset use reform, or capital investment, instead of immediately jumping to fill a need with a financial investment. Additionally, many countries (including Australia and New Zealand) use these arm's-length bodies to develop and support long-term infrastructure plans which span several decades. If Canada were to adopt a similar model, the benefits would be two-fold: (1) private investors would see long-term continuity beyond the constraints of the political cycle, and (2) infrastructure could be more efficiently constructed by prioritizing the highest national needs first." (Fenn et al., 2019: 18).

Metric

The municipality uses a business case approach in growth and infrastructure planning.

4. Research Design

4.1. Case Study Criteria and Selection

The case study analysis provides evidence of how land use and infrastructure planning has been aligned in upper-tier governments by looking at how certain strategic management factors and processes affected regional government decisions and outcomes related to their water and wastewater infrastructure investment to implement the intensification policies of the 2006 Growth Plan.

To achieve the goals of the Growth Plan, land use planning must align with infrastructure implementation. The lack of coordination among municipal departments, economic and political factors, and risk adverse organizational cultures are three reasons why some local governments may have had difficulty in implementing the intensification policies of the Growth Plan. By using a comparative analysis between regional governments, it will provide an opportunity to potentially reveal important insights and recommendations that support improved strategies for regional municipalities within the GGH to prepare plans to prioritize infrastructure investment to meet the 2020 Growth Plan density projections to 2051.

There are fifteen (15) upper and single-tier municipalities in the Greater Golden Horseshoe with four upper-tier municipalities within the Greater Toronto and Hamilton Area (GTAH). The research design is a most-similar system comparison – i.e., why do different things happen in similar contexts? To do this analysis, the units of analysis are from regional programs and policy implementing growth management policy related to infrastructure investment from 2006-2019 (i.e., prior to the 2020 Growth Plan density projections coming into effect).

Investigation of the upper-tier regional municipalities of Halton, Peel and York were chosen because they share similar biophysical and socio-economic characteristics and summarized in Table 2.

Table 2: Biophysical and Socio-economic characteristics of Halton, Peel and York

	Halton	Peel	York
Geography			
Size:	964.05 km^2	1,242.40 km^2	1,761.84 km^2
Location in Greater Toronto Area:	Abuts Lake Ontario, east of Region of Peel	Abuts Lake Ontario, east of City of Toronto, and Region of York	Abuts Lake Simcoe, north of City of Toronto, east of Region of Peel, west of Region of Durham
Local Area Municipalities	Four: Burlington, Halton Hills, Milton, Oakville	Three: Mississauga, Brampton, Caledon	Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan, Whitchurch-Stouffville)
Major Highways	Highway 401, 403 407, Queen Elizabeth Way	Highway 401, 403, 407, 410, 427, Queen Elizabeth Way	Highway 400, 404, 407, 427
Airport	No	Pearson International Airport	No
Size			
Population 2006	439,256	1,159,405	892,712
Projected Population Growth Rate (2031)	780,000	1,640,000	1,500,000
Employment 2006	247,200	638,920	492,530
Projected Employment Growth Rate (2031)	390,000	870,000	780,000
Economy			
Most common industry (2006)	Manufacturing	Manufacturing	Manufacturing
Most Common Occupation (2006)	Sales and service	Business, finance and administration	Sales and service
Median Household Income of Private Households (2005)	$83,496	$72,655	$81,928
Growth Challenges	Rapid growth in Burlington, Oakville and Milton Rural Lands Protected areas within Provincial Greenbelt and Niagara Escarpment Plan	Rapid growth in Mississauga, Brampton and Caledon. Protected areas within the Provincial Greenbelt and Oak Ridges Moraine Plans	Rapid growth has caused groundwater reserves to drop significantly. Protected areas within the Provincial Greenbelt and Oak Ridges Moraine Plans
Public Infrastructure			
Water	Lake-based system (Oakville, Burlington, new urban areas of Milton, Halton Hills 401 Corridor)	Lake-based system (Mississauga, Brampton and parts of Caledon)	Lake-based system (Markham, Vaughan and Richmond Hill)

	Halton	Peel	York
	Groundwater/stream-based systems (Acton, Georgetown and Old urban areas in Milton	Groundwater/stream-based systems (parts of rural Caledon) Interconnected system from Peel and York Region (services north of Peel)	Groundwater /stream-based system (Balance of area municipalities). Water discharged into York Durham Sanitary Sewer System through Region of Durham to Lake Ontario.
Sewer	Lake-based system (Oakville, Burlington, new urban areas of Milton, Halton Hills 401 Corridor) Groundwater/stream-based systems (Acton, Georgetown and Old urban areas in Milton	Lake-based system (Mississauga, Brampton) Groundwater/Stream-based System (Caledon) Services parts of York Region and City of Toronto.	Lake-based system (Markham, Vaughan and Richmond Hill, Aurora, Newmarket, King City, Queensville and East Gwillimbury) through Region of Durham Groundwater /stream-based systems (Balance of area municipalities)

Halton: Halton (2021a); Halton (2021b); Statistics Canada (2006a). Sustainable Halton, (2007).

Peel: Statistics Canada (2006b); Peel Region (2019a). Peel Region (2021).

York: Statistics Canada (2006c); York Region (2021).

4.2. Methodology

My methodology entails the collection and analysis of each case's approach to developing, analyzing, and communicating the needs for infrastructure to support growth and intensification. Rooted in strategic management theory, the five best practices in the FCM & NRC (2003) report are applied to each case to evaluate how certain strategic management factors and processes influence regional government decisions and outcomes related to the prioritization of water and sewer infrastructure investment in intensification areas.

The empirical data were transcribed, and content and thematic analysis was conducted for each best practice outlined by FCM & NCR (2003). Each best practice was examined through qualitative analysis to gain an understanding of the possible impacts of strategic management on organizational performance related to intensification and infrastructure planning.

Content analysis was undertaken using primary and secondary material for three reasons: it is unobtrusive, replicable and flexible (Van Theil, 2014: 107). This research strategy was also chosen because using existing data is cheaper and more efficient than reproducing and conducting a survey and the results were anticipated to present the findings of the possible impacts on strategic management. Print and electronic data, such as journal articles, newspapers and municipal websites, are also publicly accessible (Van Theil, 2014: 108).

The data collection for the best practice analysis within the three regional municipalities consisted of documentation collection, document review, and data inventory and observational notes. Strategic Plans, OPs, infrastructure plans and reports, financial reports and websites were the typical documents collected to compare which best practices were utilized by the regional municipality.

For each regional municipality, the goals being pursued for the infrastructure investment were then qualitatively assessed, including if each criterion as outlined in the best practice were achieved and how. These best practice criteria provide a general comprehension of a regional municipality's performance of successful outcomes that support the 2006 growth management policy implementation. By identifying the impediments to intensify key locations, a regional

municipality can design/redesign effective strategic action plans and processes to addresses those challenges to implement the updated goals of the 2020 Growth Plan.

5. Findings

The purpose of using strategic management best case model is not to test the validity of a conceptual model from the expository literature but to use the strategic management best cases to guide the review of the evaluative research.

5.1. Strategic Planning: Development of integrated vision and strategy assessment

Halton

Clear purpose of the strategic plan

Halton Region's Strategic Action Plan 2015-2018 "Shaping Halton's Future" (2015a) is guided by the following statement:

> Halton Region's vision is to preserve for the current and future generations a landscape that is rich, diverse, balanced, productive and sustainable and a society that is economically strong, equitable and caring. The Region must plan for communities where urban spawl is minimized, where infrastructure is maximized, where natural heritage spaces and farmland are preserved. The overall goal is to enhance the quality of life for all people of Halton, today and into the future.

It is apparent that Halton's vision and mission statement for the future is ambitious. It sets the stage for the next four years and the future by describing how they intend to plan for the future including growth and infrastructure.

Corporate values

The Region of Halton does not declare its corporate values in its current or previous strategic plan. Consequently, it is difficult to discern how the corporate values (if any) align with the

organizational culture of the municipality. Values act as a compass to guide the organization in performing their work. Arguably, without an agreed upon set of corporate values, the organization may have conflicting sense of common purpose and as a result could be less efficient in delivering infrastructure services.

Strategic priorities

The infrastructure and growth-related priority goals and objectives that are set out in Halton's Strategic Action Plan are:

- "Planning healthy complete communities by developing policies to advance Halton's distinct approach to manage responsible growth and develop policies and deliver infrastructure to support growth in the existing urban areas."
- "Governing for the future by maintaining the Region's strong long-term financial position and promote a culture of public accountability, transparency and engagement" (Halton, 2015a: 6).

Plan integration

Integration of the strategic vision into the official plan, infrastructure plan, economic plan and financial plan occur in the following ways:

- The OP is reviewed every 5 years, including population allocation to 2041 based on established principles and infrastructure master plans in priority growth areas (Halton Region, 2018).
- The Infrastructure Allocation Program is developed in consultation with development industry (Halton Region, 2018).
- Development of a joint infrastructure plan with the Province and Local Municipalities to identify all infrastructure required to support planned growth (Halton Region, 2018).

- Timing of development is coordinated with financing and delivery of related infrastructure through allocation programs (Halton Region, 2016).
- Identify and update policies to facilitate the development and redevelopment of intensification areas through Regional Program for Community Improvement Plans (Halton Region, 2018).
- Prior to proceeding to developing program specific technical levels of service, technical key performance indicators, life cycle, asset risk and growth management of the asset management plan and strategic plan were incorporated into the development of the capital program for the annual Budget and Business Plans (Halton Region, 2017).

Peel

Clear purpose of the strategic plan

Peel Region's 2015-2035 Strategic Plan is guided by a "Community for life" vision and "Working with You to create a healthy, safe and connected community" mission statement (Peel Region, 2015a). The Peel Region Strategic Plan is ambitious. It sets the stage for how the Region will be shaped for the next 20 years.

Corporate values

"Our Regional Values define how we work together and drive our daily interactions and decisions:

- We are empowered to make a difference
- We are genuine and transparent
- We are all leaders in the work we do
- We care about everyone's well-being and success

- We provide excellent customer service every time
- We pursue and embrace purposeful change
- We find and implement solutions together" (Peel Region, 2015a).

The Region of Peel's values appear to drive organizational culture and behaviour in delivering the vision and mission of the strategic plan.

Strategic priorities

The values of the Region are weaved throughout the set of priorities and goals.

"Living: People's lives are improved in their time of need; Thriving: Communities are integrated, safe and complete; and Leading: Government is future-oriented and accountable" (Peel Region, 2015a).

Infrastructure and growth-related strategic plan priority goals are:

- "promotes economic sustainability and future investments in Peel
- where growth is well-managed
- sustainability and long-term benefits to future generations are considered
- the Region of Peel is a model and progressive employer
- co-ordination and partnerships occur
- a systematic approach to innovation is in place
- community voice and participation are welcome
- the Region of Peel is a well-managed government" (Peel Region, 2015a)

Plan integration

The Region of Peel's strategic plan vision and goals are embodied in an integrated growth management framework to plan for, manage and finance growth. The growth management

program includes OP updates, water and wastewater planning and servicing plans, and financial and policy inputs to the development charge by-law. Its chief outcome is to achieve a financially sustainable complete community, where location and servicing growth is optimized through: "internal and external collaboration, managing revenues and expenditures, planning and managing the location and servicing of growth, and leveraging business intelligence" (Peel Region, 2021). Lastly, a 20-year strategic plan is logical given that the decision-making for long-term water and wastewater infrastructure investments go beyond the 4-year term of council.

York

Clear Purpose of Strategic Plan:

York Region has two Strategic Plans: one that looks at trends and how those trends could be addressed in a long-term 40-year strategy, as well as shorter strategic plans over four year increments that is intended to "bridg[e] the gap between strategy and day-day operations" (York Region, 2011). The 'From Vision to Results: 2011 to 2015' Strategic Plan is intended to "align Regional departments with council's goals by establishing a hierarchy of planning processes that direct department plans and budgets, as well as individual performance plans" (York Region, 2011).

York Region's Vision, "Creating strong caring safe communities", and mission statement, "York Region staff are committed to providing cost effective, quality services that respond to the needs of our rapidly growing communities" (York Region, 2011: 4), guide both the shorter and longer term strategic plans for the municipality. The Peel Region Strategic Plan is ambitious. It sets the stage for how the Region will be shaped for the next 30 years by establishing goal and action plans to achieve the long-term vision.

Corporate values

York Region (2011: 4) has the following corporate values: "**I**ntegrity: Do what you say, trust, be honest, do the "right" thing for the right reason; **C**ommitment: Commit yourself to public service, have positive interactions with both internal and external customers, be dedicated and professional; **A**ccountability: Be responsible for your own words and actions, be reliable, do not 'pass the buck'; **R**espect: Consider others (i.e. other opinions, ideas, jobs/roles), resolve conflicts in a non-threatening manner; and **E**xcellence: Do a good job, possess a high standard of performance, continue to improve, produce quality work". It appears the corporate values "***ICARE***" acronym would be easy for staff to remember and apply and subsequently driving the organization culture to deliver the vision and mission of the strategic plans.

Strategic priorities

The strategic plan goals are robust and contain specific infrastructure and growth-related priority goals and objectives:

- "continue to deliver and sustain critical infrastructure
    - continue to prioritize new capital infrastructure projects to support managed growth and optimize community benefit
    - identify and leverage capacity available in existing infrastructure to complete the build-out of developing communities
- Focus growth along Regional Centers and Corridors
    - increase the intensified mixed-use development in Regional Centres and Corridors consistent with intensification targets.
- Manage the Region's Finances Prudently
- Strengthen Organizational Capacity

- Maintain a dynamic, high calibre and innovative workforce today and into the future
- Apply continuous improvement activities to core business systems and processes
- Support organizational change" (2011: 13, 25)

Plan integration

Through a collaborative approach, the regional official plan and fiscal strategy are aligned with population and employment growth for water and wastewater infrastructure delivery in detailed master servicing plans. "The timing of population and employment growth assigned to each local municipality should capitalize on infrastructure that is already available, and stage growth with the delivery of new infrastructure. Optimizing on existing infrastructure investments before triggering the need for new infrastructure results in a better return on investment." (York Region, 2019a).

The Region of York's 2011-2015 strategic plan priorities are very progressive and specific, especially for how and where to achieve growth and infrastructure. The strategic plan includes details about the current state for each priority including cross references to the Growth Plan and its OP. It also includes detailed objectives and indicators for success and the values of the region are weaved throughout the set of priorities and goals. Lastly, like Peel Region, an overarching 40-year strategic plan is advantageous given that the decision-making for significant water and wastewater infrastructure investments surpass the 4-year term of council.

5.2. Build Public Support and Acceptance

The next best practice to successful intensification and infrastructure investment is to build public support and acceptance by engaging internal and external stakeholders and buy-in into the strategic management plan and ensure accountability.

As required by the Planning Act, amendments to OPs to implement growth and infrastructure policies mandated Growth Plan require public meetings. Additionally, Municipal Class Environmental Assessments also require public consultation before preferred alternatives are selected. Public consultation is often in the form of open houses, public meetings and project information is available on dedicated webpages on municipal websites for public review.

Halton

The Halton Strategic Plan was prepared in consultation with stakeholders, including residents, businesses, community partners and staff to promote transparency and accountability for select initiatives. Stakeholder session on key issues, community leader forums, community roundtable events, online feedback, and a telephone survey. It is unclear, however, if the plan was prepared in collaboration with local area municipalities (Halton, 2015b). The public were extensively consulted with during the Municipal Class Environmental Assessment process regarding the servicing strategies identified in the Halton Water and Wastewater Master Plan to support the implementation of the Region's growth management objectives (Halton Region, 2011).

Other stakeholder involvement included workshops with The Halton Area Planning Partnership steering committee, Building Industry and Land Development (BILD) group (City of Burlington,

2016), and the Regional Public Works Commissioners of Ontario, Ontario Regional and Single Tier Treasurers, Regional Commissioners of Ontario (RPWCO et al., 2015).

Peel

The preparation of water and wastewater master planning was a collaborative approach that involved local municipal partners and the development industry. Examples include detailed communication and consultation plans for Environmental Assessments where the primary objective was for "two-way communication with the community, regulatory agencies and Region staff" (Peel Region, 2015b).

Other stakeholder involvement included workshops with inter-regional steering committees such as the Regional Public Works Commissioners of Ontario, Ontario Regional and Single Tier Treasurers, and Regional Commissioners of Ontario (RPWCO et al., 2015). Informal public engagement of the infrastructure master plans took place across the Region including major commercial shopping malls, local festivals and farmers markets (Peel Region, 2017).

York

York Region developed the "YorkInfo Partnership", which ties to "A Culture of Cooperation, Coordination and Collaboration" strategic plan priority. The Partnership was created for coordinated "water and wastewater infrastructure, parcels, road and addresses" data sharing among participating municipalities. The data sharing has saved over $150K per year for water and wastewater infrastructure (Pietryszyn, 2021).

Additionally, York Regional staff are also members of the inter-regional steering committees of the Regional Public Works Commissioners of Ontario, Ontario Regional and Single Tier Treasurers, and Regional Commissioners of Ontario (RPWCO et al., 2015).

5.3. Asset Management

Halton

Halton Region has implemented a Computerized Maintenance Management System (CMMS) to manage their Asset Management System (Halton Region, 2007: 3). This "strategic and fundamental technology system" replaced an outdated paper-based work order system and numerous in-house independent software applications. Work efficiencies were reported, and enhanced data capture provided analytical and reporting tools. In 2018, Halton Region's business plan reported its "Corporate Asset Management Plan demonstrates sound stewardship of the Region's existing assets to support services at desired levels and to ensure financial sustainability. It also supports decision making for future investments regarding the construction, operation, maintenance, renewal, replacement, expansion and disposal of infrastructure assets while minimizing risk, and cost to the Region and its residents... The targeted 4.5% rate increase is lower than the 5.2% forecast largely driven by adjustments to the capital financing based on the Asset Management Plan" (CNAM, 2019a: 8).

Peel

In 2007, Peel introduced an asset management program shortly after the 2006 Growth Plan. The Enterprise Asset Management system is integral to their strategic long-term growth and financial planning which is guided by their strategic plan priority for continuous improvement. The program is also guided by industry best practice and regulatory requirements which helps to constantly leverage opportunities and addresses challenges. The asset management assessments are based on evidence-based investments and capital financing of the current state and projected future needs of the region's capital assets (Peel Region, 2019b).

York

York Region uses a “Line of Sight” model for its asset management program tied to its strategic plan. The principles of the Corporate Asset Management Policy align with the Vision 2051 Strategic Plan. The strategic objectives, risk and goals are defined in the asset management strategy. The Corporate Asset Management Plan (York Region, 2018a: 66) states: “The Region’s 2016 Water and Wastewater Master Plan, which was updated as part of the Municipal Comprehensive Review, identifies the most viable long term servicing strategy and determines new infrastructure and non-infrastructure solutions required to support growth, sustainably.” The departmental prioritizing processes are then set out in management plans including level of service targets and timelines, forecasts and resource requirements. Further, the region has a centralized data collection including a portal which uniformly displays information for all service areas and stakeholder sources (CNAM, 2019b).

5.4. Continuous improvement – Teams

Halton

The Region created two new construction ambassador roles for the implementation of the large water and wastewater and road construction projects identified in the servicing master plans. Their role is to act as a one-window point of contact and provide proactive public engagement with the public and internal and external stakeholders. The creation of the ambassador roles is an example of how a municipality can increase the collaboration between various stakeholders and facilitate communications of the corporate strategic growth management goals (Halton, 2021c).

Peel

The Region realized that it needed an integrated, transparent, agile and collaborative approach, both internally and externally, to manage growth issues in Peel. A new approach to growth management was endorsed by Council in March of 2016 because of the rising debt levels associated with growth related infrastructure in the Region and provincial growth management policies emphasized intensification principles. In 2017, Peel Region's "[p]revious practice entailed a more linear approach where growth allocations were prepared with less up front consideration of infrastructure and financial implications. Servicing plans were then prepared and input to financial models and the development changes background documentation" (Peel Region, 2017: 3). Staff from Planning, Water and Wastewater, Transportation and Corporate Finance divisions worked collaboratively to integrate all work related to growth management including cost-benefit analysis and risk associated with growth and to identify financing and serving options to support sustainable growth. The new approach adopted the following key aspects:

I. "The Region needs to reduce the growth cost-revenue gap;
II. The Region needs to integrate financing and servicing considerations into planning decisions early in the process;
III. Together with the local municipalities and the development sector, the Region needs to be more agile in its approach to the changes and uncertainty that accompany growth and development;
IV. The Region needs to adopt a growth-focused, risk-based financing strategy" (Peel Region, 2017: 3).

York

The Region of York is recognized as a one of Canada's Top 100 Employers. The Region "strives to be a leader in public service delivery and fosters a culture of continuous improvement. In 2013, the Environmental Services department held focus group sessions with staff to identify critical areas for leadership development to help build more cohesiveness and align day-to-day actions with strategic priorities. Feedback from these sessions identified three main areas for improvement: the need for better communication across the department; increased opportunities for collaboration to strengthen relationships and break down natural silos; and additional opportunities for staff development" (Szeptycki & Edwards, 2015). The Sustainable Leadership Plan was developed and provided staff with formal leadership training and staff are expected incorporate the new tools and techniques they learned into their work. Communication, collaboration and innovation training spans three years aligned with corporate programs and strategic goals. Finally, "an internal website was created for staff to share their experiences with the learning program and the information posted on the site became a barometer for evaluating the program impact on organizational culture and gauging the uptake and relevance" of the training (Szeptycki & Edwards, 2015).

5.5. Continuous improvement – Managing risk

Halton

The Region of Halton developed an alternative financing tool to reduce debt burden to help finance infrastructure related to growth. The financing and allocation program requires developers to pay for the cost of infrastructure before it is built. It was developed to protect "taxpayers from the costs and risks of financing growth related infrastructure. While the growth related infrastructure is ultimately funded by DCs, the Financing Plan addressed the timing

difference between when the infrastructure must be built and when the DCs are ultimately collected" (Peel Region, 2013: 5). It is important to note that the allocation program is for greenfield development and not the intensification within the built-up area of the Region. "Despite Halton Region's rigorous planning processes, a significant amount of growth-related costs cannot be recovered under the current Development Charge Allocation. Halton Region's DC revenues are estimated to be, at minimum, $14.1 million per year lower than a calculation based on a growth pays for growth principle. This cost represents the growth-related infrastructure funding gap, which needs to be financed to support the provincially mandated by the growth plan. The costs of servicing growth that cannot be recovered through DCs will need to be funded by Halton taxpayers" (Halton Region, 2018b: 13).

Peel

The Plan and Manage Growth Term of Council Priority program in Peel was developed "to successfully manage and reduce the cost revenue gaps associated with growth related infrastructure" (Peel Region, 2017: 3). The outcome of the program is aimed to "reduce the financial risk to the Region associated with issuing debt to pay for growth infrastructure that could impact future utility and property tax rates should development not occur as forecast" (Peel Region, 2017: 3). Some of the strategies include managing growth allocations, infrastructure investments and revenues. Another key outcome of the programs is the formation of formal Interdisciplinary Growth Management Core Team from various Regional divisions and departments including Corporate Finance, Water and Wastewater, Integrated Planning, and Transportation divisions. Working groups with local municipal staff and the development industry were also established as a method to reduce the cost-revenue gap (Peel Region, 2017: 3).

York

Every year, the Commissioner of the Environmental Services Department updates York Region Council on the innovative achievements of the past year and anticipated challenges related to water and wastewater (York Region, 2019b). Since 2008, the Department has adopted a research and innovation framework "with strategic partnerships with regulators and agencies, industry experts, consultants, public utilities and universities" to leverage and implement the latest technologies and manage risk in the operations of water and wastewater facilities (York Region, 2019b: 1). In a 2019 report to Council (York Region, 2019b:11) the Commissioner wrote: "Research and innovation initiatives have and will continue to improve plant operations, asset management programs and inform capital projects. Staff engagement with industry experts has created opportunities to modify practices to meet regulatory requirements as well as develop new programs and tools to anticipate the needs and challenges the industry faces..."

5.6. Continuous improvement – Accountability

Halton

Halton Region annually reports on the "Strategic Action Plan Achievements" in an easy-to-read infographic that summarizes the achievements under each of the 6 strategic priority areas (Halton, 2018). However, the Halton Strategic Plan does not include organizational values for staff to align their personal values with the values of the corporation.

Peel

Regular reporting to Council includes progress updates on outcomes and each strategy as well as growth trends and development charge performance which informs growth related infrastructure financing decisions. A dedicated webpage for its growth management framework is on the Region's website (Peel Region, 2021). Finally, the Region of Peel has developed an online

dashboard for the public to monitor the progress of a number of strategic metrics including water and wastewater services and growth management (Peel Region, 2018).

York

York Region not only reports regularly to council on its achievements of its strategic plan, but it also annually reports on the progress of achieving its density targets of its OP to ensure that the plan policies remain relevant and effective and to identify emerging trends and issues and adjustments where required. Key indicators related to growth management include intensification in centers and along corridors, wastewater inflow and infiltration and water conservation. Reporting is in the form of easy to read infographics with a description of each indicator, the source of the data and why the indicator is important to the reader (York Region, 2018b).

5.7. Prioritization models

5.7.1 Weighting and ranking systems

Research of online print material did not uncover the weighting and ranking systems other than the typical budget allocation through the budget process and Council deciding what will be funded. In 2015, Halton invested a total of $2.95 million into water, wastewater and transportation projects with another $3 billion planned to be invested to 2025. (Halton, 2015). In 2013, Peel Region reported $1.273 billion of debt to fund their DC capital program and estimated borrowing to increase to an estimated $2.6 billion to be repaid by 2031 mainly related to the expansion of water and wastewater program to accommodate its growth (Grewal, 2013). In 2014, Regional council supported the need to take on debt where Mississauga Mayor Hazel McCallion stated: “The property tax is not sustainable for municipalities across the country” before approving a tax hike in her local municipality (Grewal, 2013). York Regional Council

approved a $2.4 billion investment in water and wastewater projects over 10 years in 2017 (Water Canada, 2017). It appears from the empirical research that there is policy goal alignment between management, senior leadership and council on approving the debt loads to achieve intensification in each regional municipality of the case studies.

5.7.2Linking Capital with O&M Budgets in Planning

All of the Regional municipalities link capital with their operation and maintenance budgets through their capital asset management plans. This best practice is not relevant any longer given the mandatory reporting required by O. Reg. 588/17.

5.7.3 Business Case Approaches

No business cases approaches were discovered during the online research for water and wastewater infrastructure projects. The FCM & NRC (2003) best practices report also did not discover many municipalities who utilized business case approaches to examine ways of funding projects. FCM & NRC (2003: 34) suggest: "strategic thinking, better decision making and time saved by Council in debate through a sound department proposal process" by utilizing a business case approach would be especially beneficial for those managing large debt loads, such as Halton, Peel and York.

5.8. Summary of Findings

Several conclusions can be drawn based on how the best practices were utilized by the regional municipalities in the case research. Each of the findings provides some insight into the research question: What is the role of strategic management in effective policy implementation as it relates to a regional municipality's ability to achieve intensification and investment in water and wastewater infrastructure? Table 3 summarizes how well each municipality employed the FCM

& NRC best practices for growth management and infrastructure planning. A simple ranking system of 1 to 5 was applied, where 1 is the weakest and 5 is the strongest.

Table 3: Summary of Findings Scorecard

FCM & NRC Best Practice	Halton Region	Peel Region	York Region
1. Strategic planning: development of integrated vision and strategy	3	5	5
2. Information management: asset management systems	5	5	5
3. Building public support and acceptance	3	4	5
4. Exploring new and innovative methods for continuous improvement	4	4	5
5. Prioritization models: a) Weighting and ranking systems	3	3	3
b) Linking capital with operations and maintenance (O&M) budgets in planning	5	5	5
c) Business case approaches	1	1	1
Total	**25**	**28**	**30**

5.8.1 Finding 1: Development of an integrated vision and strategy is required

The importance of a clear purpose and corporate values weaved within strategic priorities was revealed in each case regional municipality. Broad growth-related goals were included in a corporate strategic plan, and further actions were detailed in integrated OP, infrastructure and economic and financial plans to implement growth related issues. Growth related issues are complex and require the collaboration among various disciplines. The goals and action items of the growth management strategy were specifically designed to achieve cooperation among government departments and break down regional silos (Peters, 2015). And further, it is

apparent that the growth management strategy goals were specifically designed to set clear objectives for how each department and division will achieve the fundamental policy issues. Without such alignment, growth goals could be 'watered-down', weak and idealistic if they were only incorporated into a corporate-wide document. Evidently, the regional municipalities laid the foundation for successful policy implementation. They were successful because they aligned their departmental goals with their strategic plans, OPs, master servicing plans, asset management plans, development charge studies and budgets. Staff collaborated with each other, identified what future investments were required and devised a plan of how to prioritize infrastructure improvements to ensure adequate service delivery.

5.8.2 Finding 2: Engaging with internal and external stakeholders builds public support and acceptance

The assessment of stakeholder engagement was revealed in each regional municipality. A variety of internal and external input was gained into the decision-making process to help identify obstacles to implement the goals and objectives of the strategic plan and implementing documents. Additionally, regional staff must have educated the public and decision-makers to fully understand the complexities of growth management and approve of substantial infrastructure investments to reach long-term intensification goals.

5.8.3 Finding 3: Asset management systems provide public value in growth and infrastructure planning

All three municipalities saw the value in developing an asset management framework before it was mandated by O. Reg 588/17. The FCM & NRC (2003:17) best practice state that the success of the asset management systems is "predicated on many factors not least of which are: (1) asset understanding in the context of life cycle, and (2) integration within a strategic framework which allows for constant decisions for individual asset components". The case municipalities aligned

themselves to achieve the goals of the Growth Plan by using estimated lifecycle costs to achieve the proposed level of service in order to accommodate projected increases in service demand resulting from population and employment growth including source funding and the associated risks.

5.8.4 Finding 4: Developing teams, managing risk and being accountable are some of the innovative methods for continuous improvement

The ambassador staff roles in Halton Region showcases an innovative collaboration technique and an attempt to improve communication of its infrastructure goals and related programs. The assessment of a teams-approach to implement the goals of the Growth Plan in York and Peel Regions demonstrates their organizational commitment to collaboration to achieve the goals and objectives of the strategic plan, OP, and infrastructure plans while showing strong leadership. Further, the Region of York's unique approach to cross-departmental training further embodies the municipality's strategic goal for continuous improvement.

Managing risk in the strategic planning process was also evident as a best practice for continuous improvement. The Region of Peel and York formed various collaborative teams that included staff from across various departments, agencies and industry experts to identify and solve problems together and manage risk in the operations of water and wastewater facilities. The regions have also explored alternative financing tools such as those used in Halton Region as a means to help pay for the debt financing gap.

Finally, all three regions were accountable by reporting on the success of implementing their strategic plans. However, if the Halton Strategic Plan included organizational values it would strengthen its effectiveness by ensuring staff align their personal values with the values of the

corporation and deliver services more efficiently and effectively. Lastly, to be more authentic and accountable, the regional municipalities should not only highlight their municipal achievements but also describe the challenges and obstacles that arise and a plan to overcome them.

5.8.5 Finding 5: Prioritization models were not a prevalent best practice

Even though empirical research did not discover specific weighting and ranking of systems, other than budget reporting, or business case examples in the case study, future research using an inquiry approach via interviews and surveys may uncover such best practices. As stated, linking capital with O & M budgets in infrastructure planning in intensification areas is no longer a relevant best practice because of the legislated requirements in O. Reg 588/17.

6. Conclusion and Future Work

A literature review of strategic management concepts and principles revealed certain factors for successful policy implementation for intensification and infrastructure investment. The purpose of this research was to fill a literature gap by analyzing which strategic planning and management approaches work best under certain circumstances to ensure that land use planning aligns with infrastructure implementation to successfully achieve the goals of the 2006 Growth Plan. By linking strategic planning and management theory with land use planning and infrastructure implementation, the principal goal of this research was to provide regional public administrators with a suite of best practices to better prioritize regional investment and resources to further intensify to meet projected density targets set by the 2020 Growth Plan.

The exploration of strategic planning and management theory literature review identified key themes and factors that affect how local government managers successfully implement strategic planning and management. The reoccurring themes are: organizational capacities, administrative leadership within government, and administrative governance. These themes were reinforced in the best practices by the Federation of Canadian Municipalities and National Research Council for planning and infrastructure decision-making.

A comparative case study analysis between three regional governments, Halton, Peel and York, was completed to analyze how these best practices support growth management policy and implementation. A review of municipal websites, municipal reports and newspapers were some of the empirical resources used to evaluate how the best practices were observed within the case regional municipality. These are strategic planning, information management, public support and acceptance, innovation for continuous improvement, and prioritization models. It is not just the application of one of the best practices that made these regional case municipalities successful at policy implementation for intensification and infrastructure investment. Rather it was the collective application of the five best practices that were utilized and adapted within each region's local context.

The research was a conscious, rational approach to the collection and analysis of data to ensure that results were valid and reliable. However, subjective interpretations using the qualitative ethnography approach include certain biases as a practicing professional planner and public administrator. These biases should be taken into account in the findings of the case study analysis (Van Theil, 2014: 140). The intent of this research is not necessarily for the research to

be replicated. The aim is to comprehensively inform other regional municipalities within the GGH, professionals and researchers through the evaluation of possible impacts of strategic management on organizational performance and successfully implement the 2020 Growth Plan (Van Theil, 2014: 151, 152). The design of this study did not include human subjects for their perception and opinions about the research question. Future work could include surveys and interviews with public administrators and councillors which would provide further insight into the strategic planning and management process, political acceptance or opposition, as well as inter-departmental collaboration and the alignment of policy goals with strategic outcomes. Research of other best practices that were not identified in this study could uncover other possibilities for improved policy implementation for intensification and infrastructure investment within regional municipalities.

In conclusion, the best practices can be leveraged by regional municipalities in the GGH as they work towards conformity with the 2020 Growth Plan. It appears from the observations of the case study research that certain strategic management factors and processes influence regional government decisions and outcomes related to the prioritization of water and sewer infrastructure investment in intensification areas. Future research informed by first-hand knowledge by public administrators could unveil other strategic management factors and best practices that could improve organizational performance. For these reasons, regional municipalities in the GGH can achieve growth in intensification areas to meet 2051 Growth Plan projections. It starts by recognizing the barriers to policy implementation, leveraging the lessons learned and adopting some of the innovative and strategic management best practice techniques to efficiently align land use and infrastructure planning.

7. References

Ammons, D. N. (2007). Performance measurement: A tool for accountability and performance improvement. *County and municipal government in North Carolina*, *16*(4), 1-12.

Boland., M, Thomas, T. & Werfel, D. (2018). Four Steps to High-Impact Strategic Planning in Government. The Boston Consulting Group Inc. May 2018. https://www.bcg.com/publications/2018/four-steps-to-high-impact-strategic-planning-in-government.aspx

Bryson, J., & George, B. (2020). Strategic management in public administration. In Oxford Research Encyclopedia of Politics.

Canadian Network of Asset Managers (2019a). The What, Why, and How For Your Community. https://www.cnam.ca/wp-content/uploads/2018/05/CNAM_MAMP_BOOKLET_2018_EN_HIRES-v1.1.pdf

Canadian Network of Asset Managers (2019b). Keeping the Pace. Continuing our Success on the Asset Management Journey. CNAM 2019 Conference. May 6-9, 2019. Kelowna, B.C. https://www.cnam.ca/wp-content/uploads/2019/05/12D-Line-of-Sight.pdf

City of Burlington (2016). Halton Area Planning Partnership (HAPP) Joint Submission related to the Provincial Land Use Plans Coordinated Review. Development and Infrastructure Committee. Planning and Building Department. Report PB-71-16. City of Burlington. September 13, 2016. https://burlingtonpublishing.escribemeetings.com/filestream.ashx?DocumentId=4773

City of Ottawa (2019). New Official Plan. Infrastructure and Waste Management. City of Ottawa. Planning, Infrastructure, and Economic Development. https://documents.ottawa.ca/sites/documents/files/op_discuss_paper_infrastructure_en.pdf

Crawhall and Associates (2015). Implementing the Growth Plan: Seeking Provincial and Municipal Alignment to Support a Prosperous Ontario. http://www.rpco.ca/files/Implementing_the_Growth_Plan_Executive_Summary_May19.pdf

Durham Region (2019). Growth Management Urban System -Discussion Paper. Planning and Economic Development Department.

Federation of Canadian Municipalities and National Research Council (2003). Decision Making and Investment Planning: Planning and Defining Municipal Infrastructure Needs. National Guide to Sustainable Infrastructure. Federation of Canadian Municipalities and National Research Council. Government of Canada. Issue No. 1.0. April 2003.

Faucher, K. (2021a), Preparation for Strategic Planning, Slide deck, Course PA9923 Strategic Planning and Management. Western University.

Faucher, K (2021b), Writing the Strategic Plan, Slide deck, Course PA9923 Strategic Planning and Management. Western University.

Faucher, K, (2021c), Why Plans Fail, Slide deck, Course PA9923 Strategic Planning and Management. Western University.

Fenn, M., Nanji, M., Rolfe, J., & Sussman, A. (2019). Moving Canada's Economic Infrastructure Forward.

Freeman, D. M. (2000). Wicked Water Problems: Sociology and Local Water Organizations in Addressing Water Resources Policy1. JAWRA Journal of the American Water Resources Association, 36(3), 483-491.

Furlong, K. (2012). Good water governance without good urban governance. *Regulation, service* delivery *models, and local government Environment and Planning A*, *44*(2), 721-41. Furlong, C., De Silva, S., Guthrie, L., & Considine, R. (2016). Developing a water infrastructure planning framework for the complex modern planning environment. *Utilities Policy*, *38*, 1-10.

Grewal, San. (2013). Mississauga passes 6.1% city tax hike, takes on more debt. The Toronto Star. December 11, 2013. https://www.thestar.com/news/gta/2013/12/11/mississauga_boosts_debt_level_to_keep_tax_hike_at_61_per_cent.html

Grigg, N. S. (2003). *Water, wastewater, and stormwater infrastructure management*. CRC Press.

Halton Region (2007). PPW11-07/CS-18-07 - Proposal Award - Supply, Delivery, Installation, Implementation, Ongoing Service and Support of a Computerized Maintenance Management System. Report to the Planning and Public Works Committee. April 4, 2007. http://sirepub.halton.ca/councildocs/pm/10/Apr%2011%202007%20Planning%20and%20Public%20Works%20PPW1107CS1807%20%20Proposal%20Award%20%20Supply%20Deliv%20%20PPW1107doc%20119817.pdf

Halton Region (2011). Infrastructure Master Plans - Water and Wastewater, and Transportation - Implementation of Sustainable Halton. Letter to Region of Peel. Adoption of Council Resolution. Dated October 6, 2011. https://www.peelregion.ca/council/agendas/pdf/rc-20111124/communication-pw-f1.pdf

Halton Region (2015a). Halton Region. Strategic Action Plan 2015-2018. Shaping Halton's Future. https://www.halton.ca/Repository/Halton-Region-Strategic-Action-Plan

Halton Region (2015b). Halton Region Economic Review 2015. https://www.slideshare.net/bethanyp/halton-economic-review-2015-71044552

Halton Region (2016). 2017 Development Charges Update Water, Wastewater and Transportation Infrastructure Project. Development Charges Advisory Committee

October 20, 2016. https://www.halton.ca/Repository/DCAC-Presentation-October-20,-2016

Halton Region. (2017). Budget and Business Plan 2017. https://www.halton.ca/Repository/2017-Budget-and-Business-Plan

Halton Region (2018a). Strategic Action Plan Achievements. Attachment #1 to CA-08-18. Halton Region. https://www.halton.ca/getmedia/0f514078-2199-440a-bfb2-b66ca1714af1/CAO-strategic-action-plan-achievements.pdf.aspx

Halton Region (2018b). 2018 Annual Financial Report. https://www.halton.ca/Repository/2018-Annual-Financial-Report

Halton Region (2021a). Community Profile. https://www.halton.ca/The-Region/About-Halton-Region#01

Halton Region (2021b). Regional Official Plan Viewer. https://www.halton.ca/The-Region/Regional-Planning/Regional-Official-Plan-(ROP)-(1)/Regional-Official-Plan-Viewer

Halton Region (2021c). Construction Ambassador. https://acuspire.ai/jobs/Construction-Ambassador-758d3341ac98b7ef.

Head, B. W. (2010). How can the public sector resolve complex issues?. *Asia-Pacific journal of* business *administration*.

Hildebrand, R., & McDavid, J. C. (2011). Joining public accountability and performance management: A case study of Lethbridge, Alberta. *Canadian Public Administration*, *54*(1), 41-72.

Johnsen, Å. (2016). Strategic planning and management in local government in Norway: Status after three decades. *Scandinavian Political Studies*, *39*(4), 333-365.

Khan, A. R. (2016). Policy implementation: Some aspects and issues. *Journal of Community Positive Practices*, (3), 3-12.

Korosec, R. L. (2006). Is department-based strategic planning more effective than organization-wide strategic planning?: Empirical evidence from senior managers. Public Performance & Management Review, 30(2), 221-244.

McDavid, J. C., Huse, I., & Hawthorn, L. R. (2018). Program evaluation and performance measurement: An introduction to practice. Sage Publications.

Mills, A. J., Mills, J. C. H., Bratton, J., & Forshaw, C. (2011). *Organizational behaviour in a global context*. University of Toronto Press.

Mitchell, D. (2018). To monitor or intervene? City managers and the implementation of strategic initiatives. *Public Administration*, *96*(1), 200-217.

Ontario (2006). The Growth Plan for the Greater Golden Horseshoe. *Issued by the Ministry of Municipal Affairs and Housing.* Province of Ontario.

Ontario (2020). A Place To Grow: Growth Plan for the Greater Golden Horseshoe. *Issued by the Ministry of Municipal Affairs and Housing.* Province of Ontario. Office Consolidation.

O. Reg. 588/17: Asset Management Planning For Municipal Infrastructure. https://www.ontario.ca/laws/regulation/r17588

Pahl-Wostl, C., Holtz, G., Kastens, B., & Knieper, C. (2010). Analyzing complex water governance regimes: the management and transition framework. *Environmental science & policy*, *13*(7), 571-581.

Poister, T. H. (2010). The Future of Strategic Planning in the Public Sector: Linking Strategic Management and Performance. *Public Administration Review*, 70, s246-s254.8

Peel Region (2013). Capital Financing of Growth Infrastructure. Regional Council Report. November 7, 2013. https://www.peelregion.ca/council/agendas/pdf/rc-20131128/report-ma-a2.pdf

Peel Region (2015a). 2015-2036 Strategic Plan. Peel Region. Working with you. https://www.peelregion.ca/strategicplan/

Peel Region (2015b). Communication and Consultation Plan East to West Wastewater Diversion Strategy Class Environmental Assessment Study. June 22, 2015. https://www.peelregion.ca/pw/water/environ-assess/ewwds/appendix/vol2/vol-2-a.pdf

Peel Region (2017). Peel Growth Management Strategy Overview Report – An Integrated Approach to Managing Growth To 2041. Regional Council Report. October 11, 2017. https://www.peelregion.ca/planning/officialplan/pdfs/peel-growth-management-strategy-overview.pdf

Peel Region (2018). Regional Service Dashboard. Peel Region. https://www.peelregion.ca/strategicplan/dashboard/

Peel Region (2019a). Vulnerability Assessment Summary: Water infrastructure Systems in the Region of Peel. https://cvc.ca/wpcontent/uploads/2020/05/rpt_PeelWaterSystems VASummary_f_20191101.pdf

Peel Region (2019b). Enterprise Asset Management Program. Regional Council Report. January 2, 2019. https://www.peelregion.ca/budget/2019/pdf/enterprise-asset-management-program.pdf

Peel Region (2021). Official Plan Review, Peel2041: Growth Management Strategy. https://www.peelregion.ca/planning/officialplan/growth-management-strategy.htm.

Peters, B. G. (2015). *Advanced introduction to public policy*. Edward Elgar Publishing.

Pietryszyn, Matt (2021). YorkInfo Partnership: A Culture of Cooperation, Coordination and Collaboration. Esri Canada. https://resources.esri.ca/news-and-updates/yorkinfo-partnership-a-culture-of-cooperation-coordination-and-collaboration

Regional Public Works Commissioners of Ontario, Ontario Regional and Single Tier Treasures, Regional Planning Commissioners of Ontario. (2015). Delivering the Greater Golden Horseshoe Growth Plan: Aligning Municipal and Provincial Policy and Practices. March 20, 2015.

Sancton, A. (2011). *Canadian local government: An urban perspective*. Oxford University Press.

S.O. 2015, s. 1. *The Infrastructure for Jobs and Prosperity Act*, 2015. https://www.ontario.ca/laws/statute/15i15

Statistics Canada (2006a). Census Profile, 2006 Census. Halton. https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CD&Code1=3524&Geo2=PR&Code2=35&Data=Count&SearchText=halton&SearchType=Begins&SearchPR=01&B1=All&Custom=

Statistics Canada (2006b). Census Profile, 2006 Census. Peel. https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CD&Code1=3521&Geo2=PR&Code2=35&Data=Count&SearchText=peel&SearchType=Begins&SearchPR=01&B1=All&Custom=

Statistics Canada (2006c). Census Profile, 2006 Census. York. https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CD&Code1=3519&Geo2=PR&Code2=35&Data=Count&SearchText=york&SearchType=Begins&SearchPR=01&B1=All&Custom=

Sustainable Halton (2007). Sustainable Halton. Water and Waste Water Infrastructure. May 2007. https://www.halton.ca/getmedia/2b193626-fa68-415a-9c16-5e06f100e315/LPS-sustainable-halton-water-wastewater-infrastructure.aspx

Szeptycki, D. & Edwards, L. (2015). Implementing a Sustainable Leadership Plan. HR Professional Now. February 2015. http://hrprofessionalnow.ca/leadership-matters/171-implementing-a-sustainable-leadership-plan

Ugboro, I. O., Obeng, K., & Spann, O. (2011). Strategic planning as an effective tool of strategic management in public sector organizations: Evidence from public transit organizations. *Administration & Society*, *43*(1), 87-123.

Valkama, P., Bailey, S., & Anttiroiko, A. (Eds.). (2013). *Organizational innovation in public services: Forms and governance*. Springer.

Van Thiel, S. (2014). Research methods in public administration and public management. Routledge.

Walker, R. M., Andrews, R., Boyne, G. A., Meier, K. J., & O'Toole Jr, L. J. (2010). Wakeup call: Strategic management, network alarms, and performance. Public Administration Review, 70(5), 731-741.

Walker, R. M. (2013). Strategic management and performance in public organizations: findings from the Miles and Snow framework. Public Administration Review, 73(5), 675-685.

Water Canada (2017). York Region to Invest $2.4B in Water and Wastewater. April 21, 2017.

York Region (2011). From Vision to Results: 2011 to 2015 Strategic Plan. Regional Municipality of York. https://www.york.ca/wps/wcm/connect/yorkpublic/a18cb1fe-3a27-493b-8606-5ca16fbedc9c/2011to2015StrategicPlan.pdf?MOD=AJPERES&CVID=mu8D6Ke

York Region (2018a). York Region Corporate Asset Management Plan. Regional Municipality of York. Regional Council Report. May 17, 2018. https://www.york.ca/wps/wcm/connect/yorkpublic/2547467d-711b-482e-8602-0456b02bc96a/may+3+corporate+ex.pdf?MOD=AJPERES

York Region (2018b). York Region Official Plan Monitoring Report. Regional Municipality of York. Regional Council Report. April 19, 2018. https://www.york.ca/wps/wcm/connect/yorkpublic/3bb9680b-77d9-40f3-9094-5decdcdeb3f2/apr+12+official.pdf?MOD=AJPERES

York Region (2019a). Growth and Infrastructure Alignment. Committee of the Whole. Report of the Commissioner of Corporate Services and Chief Planner. Regional Municipality of York. June 13, 2019. https://yorkpublishing.escribemeetings.com/filestream.ashx?DocumentId=7787

York Region (2019b). Update on Water and Wastewater Research and Innovation. Committee of The Whole. Memorandum. Regional Municipality of York. January 22, 2019. https://yorkpublishing.escribemeetings.com/filestream.ashx?DocumentId=3666

York Region (2021). Appendix 1: York Region. https://www.pembina.org/reports/York_Appendix+Summary.pdf