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Item No. 9.1.5
Transportation Standing Committee
January 22, 2015

TO: Chair and Members of Transportation Standing Committee

SUBMITTED BY: Original Signed

Jane Fraser, Director Operations Support

DATE: 12 January, 2014

SUBJECT: **Parking Roadmap**

ORIGIN

Planning and Infrastructure 2013/14 approved operating budget and business plan, ecoMOBILITY Project: Second Initiative (item 10.3.1) Halifax Regional Council June 28, 2011 and Regional Parking Strategy (item 4) Committee of the Whole February 3, 2009.

April 1, 2014 Halifax Regional Council approved the motion put forward by the Transportation Standing Committee to direct staff in Planning and Infrastructure to review the 2008 Regional Parking Strategy Functional Plan and to come forward with a roadmap that addresses the implementation considerations in the August 2008, Halifax Regional Municipality, Regional Parking Strategy Functional Plan.

And further, that the review specifically address the recommendations of: governance, use of technology for parking payment (such as pay by plate technology) and the management of parking in high-demand residential neighbourhoods.

LEGISLATIVE AUTHORITY

Section 70(1)(d) of the HRM Charter states that the Municipality may establish or maintain parking facilities. Sections 153 and 154 of the Motor Vehicle Act allow Regional Council, by by-law, to restrict or regulate parking.

RECOMMENDATION

It is recommended that the Transportation Standing Committee recommend Regional Council to approve:

1. The approach to parking as outlined in the Parking Roadmap contained in Attachment 1.

RECOMMENDATION CONTINUED PAGE 2

a. Identify parking as a defined municipal service operation and assign governance to Planning and Development for clear accountability, responsibility, coordination and decision-making.
b. Approve the Phase 1 GIS Mapping Project and the Handheld Device Replacement Project in 2015-16 for an estimated cost of $80,000 covered by existing operating funds.
c. Direct staff to commence development of supply demand management policy framework based on active parking management strategies including supply management, pricing, demand management and other supporting strategies to optimize parking.
d. Direct staff to investigate parking technology options to be presented to Regional Council for consideration and approval.

2. Direct staff to return to Regional Council for approval of each of the future year projects contained within the Parking Roadmap prior to project implementation.

BACKGROUND

The Parking Strategy was one of the five functional plans prepared as a deliverable of the 2006 Regional Plan.

As outlined in the 2008 Regional Parking Strategy Functional Plan[1], parking is closely linked to land use, economic development, and active transportation. Having the right amount of properly managed parking is essential to commercial development and the residents of HRM.

The 2008 Regional Parking Strategy is a 25 year plan to ensure that parking in the HRM will be designed, supplied and managed to:

- **Support a choice of integrated travel modes** emphasizing active transportation, public transit and carpooling.
- **Encourage alternatives to the single occupant vehicle trip.**
- **Help mitigate traffic congestion** in the Regional Centre and outlying employment and retail centres.
- **Promote efficient land use and support the development of mixed**-use, transit and pedestrian oriented centres as outlined in the Regional Plan.
- **Operate efficiently and equitably** and be affordable to the Municipality and its citizens.
- **Support local business, tourism and service sectors** and the community's economic development.
- **Protect the environment** by minimizing impacts of parking facilities on air, water land and other natural resources.
- **Link with other ongoing studies,** such as the Urban Design Study, Public Transit Functional Plan and Transportation Demand Management Functional Plan[2]**.**

HRM's past practice has been to identify and implement deliverables on parking and parking related initiatives individually by Business Unit. As part of the implementation of the 2008 Regional Parking Strategy staff in Planning and Infrastructure (P&I) had three key deliverables identified in the 2013-14 Business Plan:

P&I 1.4 Implement Parking Strategy:

- Provide more parking opportunities to residents in high demand areas (Parking by Permit Pilot)
- Improve functionality of paid on street parking (Pay by Plate Stations Pilot Program)

[1] Link to full report: http://www.halifax.ca/TDM/parkingstrategy/RegionalParkingStrategyFinalReport.php
[2] HRM's Transportation Demand Management Plan provides the general direction for reducing reliance on single occupancy vehicle usage by encouraging sustainable transportation choices. Link to full report: http://www.halifax.ca/TDM/index.php

- Governance review of Parking Authorities

As staff proceeded with developing a project charter for a pilot project on pay-by-plate technology it was recognized that there were a number of questions that needed to be answered in order to move forward with this initiative as directed by Regional Council. Answering these questions required decisions on parking governance, such as: what is the best use of technology and how broadly should it be applied, what was the best mix of parking in the urban core, and what is the pricing strategy for parking? At the March 5, 2014, Transportation Standing Committee meeting, a staff recommendation report titled, "Parking Strategy Project Roadmap" and dated February 16, 2014 was before the Committee for consideration. Transportation Standing Committee approved the report, which was then presented to Regional Council at the April 1, 2014 meeting.

At the April 1, 2014 Regional Council meeting staff were directed by Regional Council to prepare a roadmap that addresses the implementation considerations in the August 2008, Halifax Regional Municipality Regional Parking Strategy Functional Plan specifically addressing the recommendations of governance, use of technology for parking payment and the management of parking in high demand residential areas. The Parking Roadmap was developed to address the following recommendations in the Parking Strategy Project and which are directly linked to one or more of the three streams of governance, parking technology, and supply-demand management:

1. Strategies that Increase Parking Capacity and Efficiency: revise the parking zone standards, improve user information, optimize on-street parking management, and expand municipally owned public parking supply.

2. Strategies that Reduce Commuter Parking Demand: improve transit options, promote active transportation, encourage ridesharing and Transportation Demand Management, and parking pricing.

3. Supporting Strategies: updated parking governance structure, funding parking management and development, parking payment technology, and urban design.

To give some context to the issue, in the urban core there are estimated to be 2995 municipally owned paid parking spaces, 1717 are on-street metered spaces and 1278 are located in off-street parking lots and at Metro Park. On-street parking is solely a municipal responsibility and, while there is a role for municipal government in its provision, off-street parking is predominantly market driven and provided by the private sector. There is no way to determine the adequacy of the existing parking supply as utilization rates of municipally owned parking spaces are not available due to a combination of factors including outdated technology, lack of reporting capacity, processes that reduce meter availability, and the lack of a single point of accountability for parking decision making.

DISCUSSION

Residents in Halifax view parking as a limited resource. Its perceived unavailability influences travel decisions and evokes a response of frustration from those seeking to find a vacant meter or parking space. Concerns about access to and parking conditions in the business districts are often expressed. Despite the implementation of some tactical measures, parking continues to be perceived as a problem.

The municipality's disparate approach to parking inadvertently contributes to the public's perception that parking is in limited supply, particularly in downtown areas. Fundamental aspects of parking are provided by different business units – land use and enforcement by Planning and Development, parking meters by Finance, parking regulations and maintenance by Transportation and Public Works, and off-street parking facilities by Operations Support. Coordination is lacking and initiatives are based on the interests and priorities of each Business Unit.

The Parking Roadmap was developed to address the issues noted above in a streamlined and organized manner, with clear lines of accountability and responsibility. It is a multi-year plan that provides the structure to guide progress towards the provision of coordinated and effective parking services for Halifax. The initiatives identified within each of the critical streams for effective parking management serve as building blocks to create a comprehensive parking service structure. The Parking Roadmap provides the framework for Halifax to lead parking decisions and service delivery by proactively identifying and implementing appropriate solutions instead of simply reacting to the changing needs and expectations of citizens and businesses. It also sets the foundational conditions to develop a policy framework that will allow for evidence-based decision making and result in an integrated and well-managed parking solution.

Parking is more than just a place to park it is a critical element of Halifax's integrated mobility system. Decisions around parking influence individual travel choices and impact transportation modes. Halifax, like other cities, wants to develop its Regional Centre as "the economic, social and government engine of our city" (Halifax Economic Strategy). Other jurisdictions have demonstrated tremendous success on advancing their downtown development strategies by managing the approach to parking[3].

Technology currently used to provide parking (parking meters) and to support the parking related initiatives of enforcement (handheld ticketing devices and parking ticket management system) and residential parking permits (permitting system) are all at end of life and require replacement. The existing technology also no longer meets business or citizen needs. The opportunity exists to invest in modern parking technology that will improve the data available to drive decision making and improve the customer experience around parking. Implementing new technology in these areas has a direct revenue return to the city and cost recovery over time.

Currently in HRM, parking is not identified as a clear municipal service and no one owns or has responsibility for parking. Every jurisdiction researched or consulted provides parking as a municipal service and has assigned ownership/responsibility to a particular "owner" for full accountability and decision making capability. The opportunity exists to address this current gap by establishing a clear governance structure and to develop a parking management framework for long-term sustainability of the service.

Parking is continually and consistently cited as a key barrier to visitation to the Regional Centre, negatively impacting on the areas economic health and vibrancy. Preliminary results from the 2014 Citizen Survey indicate that 70% of citizens surveyed are of the opinion there is not adequate parking available downtown[4]. The results also indicate concerns with parking predominantly occur on weekdays and during special events. With 70% of citizens reliant on their vehicle for transportation parking availability is a focal topic.

Parking Roadmap

The proposed Parking Roadmap (Attachment 1) provides the framework to plan and coordinate parking-related initiatives and technology developments. It defines, prioritizes, and depicts a sequence of recommended projects that, when completed, will encompass the establishment of a governance model and policy direction for the effective and efficient management of parking services. The Roadmap introduces new approaches to parking to optimize parking operations and services as well as ensuring such activity is aligned with overarching strategic priorities.

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1. [3] References include: Parking Best Practices *www.nyc.gov/html/dcp/pdf/transportation/**parking_best_practices**.pdf,* the Victoria Transport Institute: "Parking Management Strategies, Evaluation and Planning" www.vtpi.org/park_man.pdf and Calgary's report www.**calgary**.ca/PDA/pd/.../**revisions-to-the-downtown-parking-strategy**.pdf citing downtown success based on 30 years of parking management

[4] For the purpose of the survey questions at they related to parking, `downtown` refers to Downtown Halifax and Dartmouth, Spring Garden Road, Quinpool Road, and North End Halifax (and the areas in between that compete for parking in multiple areas.)

The Parking Roadmap is a phased, multi-year plan that identifies the necessary process, governance and technology related projects required to address parking in the Regional Centre. In addition to outlining the rationale for the approach, it provides details regarding the phasing, breadth and depth of initiatives, project dependencies, and high level cost estimates for each project. The Parking Roadmap provides the support to Regional Council to determine how far and how fast to proceed with the identified initiatives necessary to realize the goals and objectives for parking.

The Parking Roadmap will initially focus on the Regional Centre, where there is the most demand for parking, the greatest perception of a supply shortage and public debate regarding supply/ demand and where there is a significant need for a managed parking service. The Parking Roadmap focused on three broad streams:

- Governance;
- Parking technology; and
- Supply-Demand management

Approach

The Parking Roadmap process included extensive consultation and collaboration with internal and external stakeholders including academic institutions, Business Improvement Districts (BIDs), Waterfront Development Corporation, other government agencies, as well as information collected about parking from developers and private sector on other recent HRM strategic initiatives. Based on the information shared, a gap analysis between current state and future desired state was conducted identifying new projects and activities for consideration to further improve the delivery of parking services.

Extensive jurisdictional and market scans were conducted to identify governance models, parking solution/product market leaders, best practices, trends, technology systems and solutions being utilized, policy direction, recent strategy development, enforcement approaches, payment options and lessons learned.

The Parking Roadmap provides a recommended approach to shift from the current state to delivering coordinated parking services in the future and outlines a project /program approach for parking services in the three streams as outlined below.

Governance

The primary purpose of the governance stream was to research and identify a model for Halifax's parking environment that clearly defines authority, decision making and accountability/responsibility for parking and parking related initiatives. The three governance models most commonly used in Canada (and many US-based cities) to deliver parking services include:

- **Municipal Service Operation model**: generally used when emphasis is on service and broader corporate objectives, such as implementation of operation plans and transportation management policies (including Hamilton, Ottawa, Winnipeg, Edmonton, Moncton, etc.).
- **Parking Authority**: generally used when emphasis is on running the service like a business, typically to maximize revenue generation, and building substantial new parking capacity while operating at arms-length from the municipality. Success tends to rely on a large and mature supply of parking and increasing demand (including Calgary, Toronto, etc.).
- **Parking Commission**: generally used when there is an emphasis on providing parking services through the guidance of a board of directors for the operation and where Council has some influence by having to approve budgets and business plans (including Saint John).

The survey of other jurisdictions included discussion about the benefits and drawbacks of the various governance models employed. The information collected was presented to internal stakeholder groups for discussion and review of the governance model options.

The recommended governance model is to provide parking as a defined municipal service operation within Planning and Development to ensure service accountability, responsibility, coordination of operations/activity, and decision-making.

Parking Technology

Technology based solutions are recommended where there is a business improvement need or where process efficiency and/or effectiveness can be realized or where the customer experience is improved. Of the seven (7) technology projects identified below, four (4) projects are for technology that has reached the end of its useful life and are required to be completed regardless of the approach taken on parking.

The identified technology projects are linked to and in support of all other service delivery improvements and recommendations identified in both the governance and supply-demand management sections. The projects are outlined below and the detailed descriptions are included in the Roadmap.

- **Parking Enforcement Handheld Devices*** –replacement of existing parking enforcement ticketing handheld devices that are reaching end of life. Current operational need.
- **Parking Payment Solution (Parking Meter Replacement)*** – replacement of existing parking meters with a modernized parking payment and parking management technology solution that improves accessibility, convenience and functionality as well as a variety of different payment methods. This project provides support to active parking management strategies.
- **Parking Ticket Management Replacement System*** – retirement of the existing system that has reached end of life and replacement of technology and functionality to support parking ticket payment and enforcement.
- **Technology System Interconnectivity*** –There are multiple corporate and business technology solutions that contribute to operational management aspects of parking. As a result, system interconnectivity and/or integration are critical to ongoing operational and organizational success.
- **Parking GIS Mapping** – to map in GIS all available parking supply inventory of HRM-owned and non-HRM owned on-street and off-street pay parking and on-street non-pay parking stalls within the Regional Centre. This project supports active parking management strategies and provides baseline data for evidence based decision making.
- **Parking Permit Tracking and Customer Service** – implementation of a technology solution to manage and improve the issuance, tracking and reporting of residential parking permit program.
- **Digital Signage** – Project is to implement digital static parking directional signage and digital variable lot/garage parking space availability by location. Opportunity for partnership contribution.

*Projects identified are required to be completed regardless of the approach taken on parking going forward as these are existing operational technology systems currently used and at end of life.

Supply – Demand Management

The vision for parking is to support the economic development of the Regional Centre and support other strategic initiatives by managing both short and long term parking supply while influencing choice towards alternative transportation options. Active parking management, as outlined in the Parking Roadmap, is an important instrument used to optimize parking in support of activity in and around the Regional Centre.

To support this type of active parking management approach, parking supply inventory and utilization projects must be completed to determine and assess the existing supply inventory, to understand the ratio of public to private parking available, and to establish baselines of how the existing parking supply is currently utilized (i.e.: demand). Essentially, this is the creation of a parking supply and utilization database(s) that are routinely managed and form the foundation for active parking management and is the basis for the following supply-demand projects:

Parking and Centre Plan

The Centre Plan project represents an opportunity to begin the work required to move the Municipality toward Active Parking Management. The Centre Plan will amalgamate the best of three existing plans for the former Cities of Halifax and Dartmouth into a single, comprehensive Municipal Planning Strategy and allow for a unified Land Use By-Law for the Regional Centre. This work will be completed in 2016 and requires intense effort

The direction to integrate HRM's Transportation Demand Management Functional Plan and associated Parking Strategy has opened the door to consider components of Supply Management, Supporting Strategies, and Demand Management within the Centre Plan. Aspects of Active Parking Management must be studied and integrated with the Centre Plan through the project to ensure that the Centre Plan project meets the goals set out for the project in Chapter 6 of the 2014 Regional Plan.

Benefits of Roadmap Implementation

Approaching parking through the holistic service approach recommended will optimize parking supply, improve the delivery of services to the public, enact parking strategies to achieve core initiatives, and enable the achievement of other strategies. Citizens will have access to information to help inform their travel decision making resulting in the indirect benefits of increased transit ridership, greater active transportation and improved traffic flow. All contribute to greater access to the Regional Centre.

Evidence from other jurisdictions demonstrates parking is a strategic tool that if managed effectively and in a coordinated manner, will help to create a successful vibrant Regional Centre that is accessible, connected and safe. Further, parking is a platform that supports other strategic priorities including RP+5, Transportation Demand Management (TDM), Active Transportation, Economic Development, Downtown I'm IN and Halifax Transit by influencing travel choices people make and promoting a behaviour shift from driving to alternative transportation modes to automobile use.

Next Steps

The immediate next steps after Council approval of the Parking Roadmap will be as follows:

Year 1:

Service Management: Establish interim service management responsibility based on recommended governance structure. Develop and implement a service operation plan.

Foundation and Framework for Parking: Explore and confirm the fundamentals of the parking as a service – its role and objectives and how the objectives should be balanced – before proceeding to develop policies, strategies and guidelines that will address current issues while planning for the future.

Stakeholder Engagement: Engage public and stakeholders in focus group(s) and discussion sessions, consult with established Committees, and establish opportunities to further consult on parking with representatives from a broad range of perspectives and is integrated with the Centre Plan. A more comprehensive review of accessible parking, in the context of on-street parking standards, is to be undertaken as a component of the engagement discussion and done in collaboration with the Accessibility Committee.

Initiatives and Best Practices: Building on the research and analysis conducted for the Roadmap, determine the current issues that impact parking service elements including inventory, utilization, market share statistics, parking system revenues and operational expenses, parking policies, zoning by-law policies, financial costs of public vs. private spaces, cash-in-lieu practices, tourism needs, and transportation demand management initiatives related to parking.

Service Improvement: Implement service improvement initiatives including defining and developing a process for meter bagging, developing parking brand and way-finding signage, and creation of a single parking portal for information in conjunction with other parking providers.

Parking Technology: Two technology related projects will be delivered in the first year of implementation of the Parking Roadmap by using existing resources: 1) the replacement of non-working enforcement handheld devices and 2) the completion of a map based inventory of public parking spaces.

Year 2

In addition to building further on the outcomes of year 1, the following are initiatives identified for implementation in year 2.

Foundation and Framework for Parking: Develop Parking Strategy and active parking management framework and commence implementation of parking related policies and guidelines that will begin to address current issues while planning for the future

Customer Service and Communication: Regularly share project status, research findings and planned initiatives for comment by stakeholders and Council. Improve public access to parking information through a variety of media methods including through signage, website, social media, and awareness campaign.

Strategic Alignment: Ensure parking initiatives and parking roadmap projects are aligned with other organizational strategies in support of Council's goals and objectives. Parking Strategy, policy and standards must strike a balance between competing strategies and/or contradictory objectives.

Parking Supply Improvement: Using data collected on parking utilization implement recommended short term improvements to parking supply including reallocation of on-street parking, increasing/decreasing paid and unpaid parking based on demand, pricing, and enforcement practices.

Parking Technology: The Parking Payment Solution Project (Parking Meter Replacement) will have an opportunity assessment (i.e. business case) and option evaluation process, which includes the potential of a Parking Permit Tracking and Service solution, completed. The project to map the private parking supply in GIS will also be completed.

Year 3 and onward

Service Management: Parking management responsibility will be transitioned for permanent operation. Annual Parking Services Operational plans will be developed in conjunction with the annual business planning cycle**.** Annually report on successes and performance to standards.

Optimize parking: Full implementation of active parking management framework and continued identification of implementable parking strategies to optimize both short and long term parking including tiered rates, adjusting parking limits, reallocating of parking based changing demand, implementing preferred user parking options while improving integration with the mobility system.

Service Excellence: Identify and implement new and innovating initiatives and partnerships to continually improve the customer experience and that integrate with other transportation options. Improve access to parking information and further improve enforcement practices in alignment with other strategies.

Parking Technology: Continue implementation of Parking Payment Solution Project until complete. Additional technology projects will be analyzed and brought back to Regional Council for approval until all required projects are completed. As the service becomes more established, additional initiatives and projects will be identified and brought forward for consideration.

FINANCIAL IMPLICATIONS

The Parking Roadmap is a multi-year Program consisting of a portfolio of projects estimating a total of $14.7 million (a combination of both operating and project budgets) over 5 years. Of this cost estimate, $8.3 million is identified to modernize and replace existing technology that has or will be reaching end of life and requires replacement. The remaining $6.4 million is associated with new projects, initiatives and technology, to improve the provision of parking services. There is currently no request for funding associated with the Parking Roadmap approval.

The costs estimates for each identified project and for the total delivery of the Parking Roadmap program are based on: worst case scenario contingencies, resource rates assume external resources (unless otherwise stated), full lifecycle costs of ongoing capital costs and provision for all aspects of project and product delivery. These costs are not adjusted for inflation, cost of living or supplier increases. The cost estimates presented are high level cost estimates for the Roadmap and initial planning purposes only. These funds are not being requested for approval. The project estimate is merely meant to provide the fullest information possible and what potential future cost is associated with the Parking Roadmap.

Implementing parking payment and related technology and actively managing parking services generate a return on investment. There is substantiating research and jurisdictional experience that was used to conservatively calculate the return on investment overall and also for each of the projects. Based on return on investment noted in other jurisdictions after implementing modernized parking payment technology the anticipated revenue increase is $500,000 annually. Additionally, implementing this technology improves operational efficiency and provides the data analytics necessary to make quality decisions on which parking management strategy implementation. The calculated overall return on investment of implementing the Parking Roadmap is between $1.3 and $2 million annually and is based on a combination of improved operational efficiency and revenue (includes revenue previously noted from parking payment technology).

There is $200,000 identified within the proposed 2015-16 Capital Budget under project account no. CI990031 – Parking Technology Initiative-PTMS to keep existing technology function to support operations and to commence the Opportunity Assessment (OA) process. This process will further evaluate available options and identify benefits realization that will help to clarify the type of preferred solution. This funding is associated with the 2015-16 Capital Budget and will only proceed upon approval by Regional Council.

The OA is a business case process through which all technology projects must proceed. It further refines the business opportunity (or business problem) that can be further supported by technology, identifies potential solution types/options with recommended approach, and a more detailed cost/benefits analysis. The projects identified in the Parking Roadmap that require Project funding will proceed through the OA process and return to Regional Council for consideration and approval as an identified project in a subsequent Project Budget.

The potential for partnership and/or sharing resources was briefly discussed through the external consultation process. There is definite interest in partnering together specifically to provide an online parking portal, a recognizable parking brand and associated way-finding signage as well as on the

provision of dynamic signage on main corridors indicating real-time parking location and availability. There are likely opportunities for additional partnerships that would be identified through ongoing collaborative parking stakeholder discussions and business case development.

The initiation of the interim governance structure, the foundation for the Parking Roadmap being delivered, has existing funding for up to 18 months from Planning and Development's operating budget. Other existing staff and operational resources will be identified and allocated as required to further support initial governance implementation on an as needed basis.

COMMUNITY ENGAGEMENT

The original 2008 Regional Parking Strategy Functional Plan was led by a Committee Working Group comprised of HRM staff, community representatives, business associations, hospital and university representatives, the Waterfront Development Corporation and the Ecology Action Centre. In addition to the input from the Committee Working Group there were public consultation sessions in various areas of HRM.

Projects under the ecoMOBILITY fund also underwent significant public consultation. As part of the consultation, focus groups and an online survey were used to generate public input.

The Parking Roadmap project involved direct conversations with key external stakeholders such as: five Business Improvement Districts, academic institutions, healthcare institutions, Waterfront Development Corporation, and community groups.

The Parking Roadmap is also engaging the public through the 2014 Citizens Survey currently underway. The results are intended to contribute to the formulation of a public engagement plan for the development of the Parking Strategy and policies utilizing a number of different engagement mechanisms including the use of HRM's portal Shape Your City, social media, focus groups and surveys.

Stakeholder and community engagement will continue to be an important success factor for the parking service as the policy framework is developed. Future public and stakeholder engagement will be tailored to address the issue or opportunity that arises. Additionally, a more comprehensive review of the accessibility of parking in the context of on-street parking standards will be undertaken and done in collaboration with the Accessibility Committee.

ENVIRONMENTAL IMPLICATIONS

No direct environmental impacts can be quantified at this time from moving forward with the Parking Roadmap. It is anticipated environmental benefits would be realized, either directly or indirectly, over time through the holistic approach to parking. The reduction in traffic circulating in the downtown searching for available parking, brought about by improving on-street parking turnover, is known to reduce greenhouse gas emissions by up to 8%. There are also quantifiable environmental benefits associated with the municipality not having to/or reducing the need to construct additional parking garages or surface lots including no additional stormwater runoff considerations and not contributing to the urban heat effect.[5]

ALTERNATIVES

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http://tigger.uic.edu/depts/ovcr/iesp/Publications/Faculty%20Publications/Davis/Davis_TheEnvironmentalAndEconomicCostsSprawling.pdf

1) Regional Council could choose to not endorse the Parking Roadmap as presented and continue to provide parking in the current manner with no clear governance model. This is not recommended as the provision of parking would continue to be disjointed, inefficient, costly to the Municipality, and the benefits of a managed parking service would not be realized.

2) Regional Council could choose to endorse a different phased project delivery approach than what is recommended. The projects identified in the Roadmap are interconnected yet are designed in such a way it provides the opportunity for delivery to be as much or as little as is desired. The projects with clearly identified return on investment calculations will not have that return realized until the project is delivered. This is not the recommended approach as the projects are currently sequenced in such a way as to maximize the return on the investment and to ensure operational requirements are met due to aging technology systems.

ATTACHMENTS

Attachment 1 – Parking Roadmap

A copy of this report can be obtained online at http://www.halifax.ca/commcoun/index.php then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

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Parking Roadmap

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November 17, 2014

Revised: January 13, 2015

HALIFAX

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Introduction

Parking is currently an untapped opportunity for Halifax. Managed effectively, and as a coordinated service element of the integrated mobility system, parking is a strategic tool that can help to create a successful and vibrant Regional Centre that is accessible, connected and safe.

In Halifax's Regional Centre, concerns have been raised about access to parking and parking conditions in the business districts. There is competition for on-street parking in residential areas around the hospitals and academic institutions as well as other residential areas near large employers. Some tactical measures, like residential parking permits and changes in parking time restrictions, have been implemented in response to public or business requests. Parking and parking related matters are often raised by citizens to Council and the media reports regularly on parking issues, concerns and challenges. The fact that concerns continue to be expressed demonstrates the need for a more active and coordinated approach to parking management be taken.

Halifax needs a coordinated parking management system, particularly within the Regional Centre, that contributes to short- and long-term development goals of a variety of high level policies including The Regional Plan and associated functional plans. This Parking Roadmap is a multi-year plan that provides the framework to guide progress towards the provision of an effective parking service for Halifax within three specific streams for parking managment of governance, use of technology for parking payment and parking supply-demand management.

The Parking Roadmap will provide context to the current state for parking. Through jurisdictional research and the identification of current best practices, the Parking Roadmap outlines the initiatives that are recommended for implementation in the three topic areas. The focus is primarily on the Regional Centre but the benefits of this planned approach will be realized, over time, throughout the municipality.

Parking In Halifax - Current

In Halifax, parking is perceived to be in short supply. Preliminary results from the 2014 Citizen Survey indicates that 70% of citizens surveyed are of the opinion that there is not adequate parking available downtown[1]. Parking is continually and consistently cited as a key barrier to visitation to the Regional Centre, ultimately impacting on the areas economic health and vibrancy. Businesses are lobbying for better access to parking and some have cited access to parking for customers and employees as a significant influencing factor to recent decisions to

[1] For the purpose of the survey questions at they related to parking, `downtown` refers to Downtown Halifax and Dartmouth, Spring Garden Road, Quinpool Road, and North End Halifax (and the areas in between that compete for parking in multiple areas.)

re-locate. Business Improvement Districts, Academic Institutions, Capital District Health care facilities, and Developers have also raised parking as a concern within the Regional Centre.

The notion that parking is in short supply in downtown Halifax and other key business areas within the Regional Centre means that there is a genuine problem with parking that needs to be addressed. These notions and perceptions are primarily anecdotal, as there is no reliable source for comprehensive parking data to support or refute the issues. If perception is reality, then there is a Parking problem. When parking is thought to be in short supply, decisions around parking influence an individual`s travel choice and has an impact on transportation modes, all of which impact on the vitality, accessibility, and connectedness of the Regional Centre and surrounding areas.

> *"You can't rely on bringing people downtown, you have to put them there."*
> - Jane Jacobs, The Death and Life of Great American Cities

In order to determine the best solution to address parking related issues it is important to understand the current state in the three foundational aspects of parking management: governance, use of technology for parking payment and supply-demand management.

Governance/Service

Currently in Halifax there is no governance model for parking. This means no one business unit "owns" or is accountable for parking. Parking is organizationally dispersed and multiple business/management units oversee various aspects of on-street parking and off-street parking facilities, enforcement, IT infrastructure and metering.

Transportation and Public Works (TPW), as the Traffic Authority, has responsibility for the allocation of on-street parking including allocation of parking, meter pole installation and maintenance and signage. TPW also provides the winter maintenance activities around parking meters and on streets. Operations Support is responsible for off-street parking facility management. Planning and Development is responsible for by-law enforcement including parking meters and the residential parking permit program. Regional Police play an assistive role in enforcement. Finally, Finance is responsible for parking meter operation, maintenance and revenue collection and counting. There are also those units that provide support services including Legal Services for by-laws and ICT for the information technology systems and programs necessary for various aspects of parking. Additionally, Halifax Transit is responsible for the administration and enforcement of the park & ride lots provided to riders to encourage use of the service for commuters. The table below presents the complexity of responsibility for the current provision of parking related services:

Table1: Parking Responsibility Breakdown

	Administration	Policy/Direction	Enforcement	Service
Transportation & Public Works	Allocation of on-street parking Parking regulations Residential parking permits Parking meter pole maintenance Parking signage	Traffic authority Motor Vehicle Act Parking limits P-1000 Residential parking permits P-500 Parking Meters		On-street parking Parking meter bags Snow clearing – meters and on-street
Finance	Metro Park Management Contract Parking meters operation and maintenance	Meter pricing		Meter collection Metro Park
Information, Communications & Technology	GIS Mapping Parking ticket management system Hansen – Licensing and Permitting System interconnectivity	Parking Roadmap support	Handheld Enforcement devices	Parking meter system Parking Permits - Hansen
Operations Support	Management of off-street parking lots	Parking Roadmap development		Off-street Parking lots
Planning & Development	Enforcement management and ticketing Policy development	Land Use Regional and Centre Plans P-500 Parking Meters	Parking tickets on-street and off-street parking lots (HRM owned and as contracted)	Enforcement
Police Services	Enforcement and ticketing		Parking Tickets	Enforcement

	Administration	Policy/Direction	Enforcement	Service
Halifax Transit	Park & Ride lot administration and enforcement		Park & Ride lots	Park & Ride Lots
Legal Services		By-laws and legislation	Parking related legal proceedings	

As a result of the traditional approach to parking, coordination of initiatives is lacking, service delivery is inefficient, and parking decisions are made tactically with little consideration given to the impact on other services, initiatives and/or corporate priorities. The lack of clear accountability means that opportunities, like the ability to collaborate and partner with private parking owners and/or other government entities, are missed.

Technology:

Technology is currently used to provide parking (parking meters and pay stations) and to support the parking related initiatives of enforcement (handheld ticketing devices and parking ticket management system) and residential parking permits (permitting system). All are nearing or at the end of life and require replacement to meet business requirements and/or citizen needs. For example, parking meters lack the capability for customers to utilize modern payment methods and the only means of monitoring supply-demand is via manual processes.

The opportunity exists to invest in modern parking technology solutions that will improve data availability to drive decision making and improve the customer experience. Implementing new technology, if deployed properly, will have a direct revenue return to the city allowing for cost recovery of implementation over time.

Supply-Demand Management:

As previously stated, parking is perceived to be in short supply in business/shopping areas within the Regional Centre. Citizens are making choices not to travel to these business/shopping areas as a result. Preliminary results from the 2014 Citizens Survey indicate that 71% of respondents believe that there is inadequate parking downtown. Businesses are lobbying for better access to parking and some businesses have cited parking as a significant area of concern that influenced the decision to re-locate.

Although it is unlikely that Halifax has a significant parking supply issue, in absence of critical supply and utilization data the perception that parking is a problem cannot be corrected or changed. Halifax is unable to accurately measure it's owned and managed on and off-street parking supply and occupancy/utilization. Without this information it is impossible to develop appropriate parking management strategies or to make relevant decisions.

Halifax provides a total of 2995 paid parking spaces within the Regional Centre of which 1758 are on-street metered parking spaces and 1278 are located in off-street surface lots and garages.

Revenue

The 2013/14 net revenue position for Halifax on parking is $6.9 million. Figure 1 demonstrates the percentage breakdown of the annual revenue from paid parking (both on-street and off-street) of $5.1 million and parking enforcement of $4 million. Figure 2 demonstrates the percentage breakdown of annual operating costs (as reportable) of $2.2 million.

Figure 1

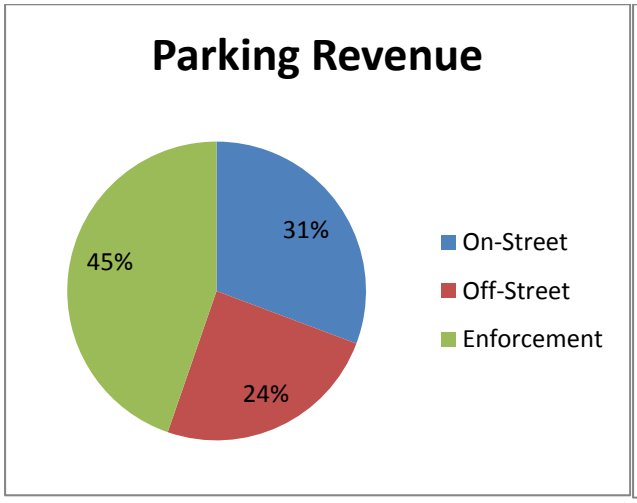
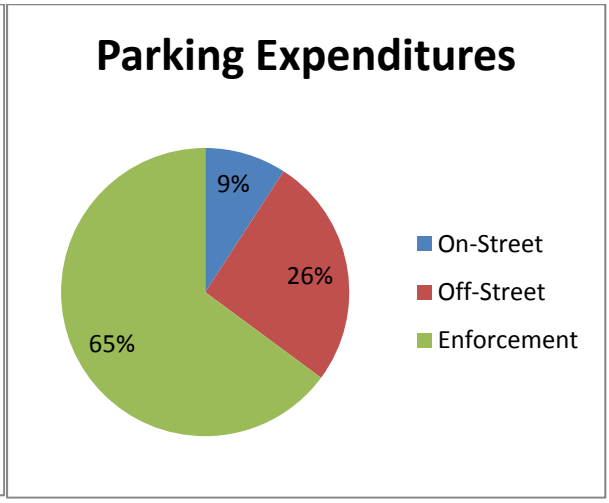


Figure 2



Summary

A gap analysis conducted identifies gaps in governance/service, supply/demand information and technology. The main challenges that arise as a result of these gaps are outlined below.

- Service, process and technology gaps
- Business intelligence and analysis capability
- Supply inventory and utilization data

Parking in Halifax – Future

The vision for the future of parking, as developed through the internal and external consultation process for the Parking Roadmap, is “to optimize parking as a service component of mobility in Halifax contributing to the livability, economic health and accessibility of the city.” The intended parking outcome is to provide and maintain appropriate parking supply that is accessible and safe, supports local businesses, institutions and tourism and encourages residents to consider alternate transportation options.

Through the consultation process the following long term goals for parking were identified:

- **To optimize short-term parking supply** both on- and off-street in support of the needs of local businesses, residents, institutions and tourism by encouraging turnover.

- **To optimize the supply of long-term parking** for commuters and extended length parkers in a manner that balances Halifax Transit ridership, Active Transportation and Transportation Demand Management objectives with the needs of automobile users and in collaboration with other parking providers.
- **To improve the customer experience** through support strategies such as way-finding and/or pricing that provide options and a variety of choices.
- **To work collaboratively with other public and private parking operators and stakeholders** on an integrated approach to parking that supports other strategic initiatives while improving the user experience for those who need/desire to park.
- **To encourage use of alternate transportation** by residents and visitors to the downtown.

The following guiding principles are aligned with a smart, innovative and balanced Halifax. They will guide parking going forward and were used to guide development of the Parking Roadmap.

Principle	Description
Accessibility	Parking accommodates a variety of needs, is safe, convenient and promotes options and choices (i.e. permits, off-street, variable durations, access for disabled, various types of vehicles, etc.).
Economic vitality	Parking is an economic development tool promoting the movement of persons, goods, and services in support of a safe and vibrant City and local businesses/institutions.
Connectivity	Parking is a component of an integrated mobility system and balanced with other strategic initiatives to promote alternatives to driving, sustainable travel options, competing demands for land and street space, traffic flow patterns, safety, costs and environmental impacts while aligning to provide options and efficiency.
Coordination and management	Parking is efficiently operated as a component of an integrated mobility strategy with clear governance and accountability that promotes adherence to strategic and corporate direction and creates opportunities for improvement, alignment, management of supply, safety, enforcement and partnerships.
Modernization	Technology solutions will be implemented to better the user experience, maximize reporting on service, contribute to the smooth transition between modes of travel, inform users and integrate with other systems/solutions.
User-friendly	Parking services are safe, easy to access, simple to use, communication is clear and unambiguous, and supported by education and awareness programs.
Consultation	Key stakeholders including businesses, residents, developers, private parking suppliers and institutional representatives consulted and involved in developing appropriate solutions.

Parking Roadmap

The Parking Roadmap is a dynamic and responsive plan that connects the identified strategic activities to the vision, principles and objectives of the service. It also identities the technology needs that will enhance and/or modernize the business processes and provide access to data that will shape decision-making to improve service.

The Parking Roadmap defines, depicts and prioritizes a sequence of recommended projects that, together, will lead to the achievement of the future desired state for parking and parking related initiatives. The recommendations included provide possible opportunities / options within the three streams of:

- Governance;
- Parking Technology; and
- Supply-demand management

The projects identified in the Roadmap are interconnected yet are designed in such a way that allows for a phased delivery approach and provides the opportunity for delivery to be as much or as little as is desired. It is important to note that projects with clearly identified return on investment calculations will not have that return realized until the project is delivered.

The three key streams initially identified for assessment are – governance, parking technology and supply-demand management. Recommendations are provided within each of the streams. The initiatives/actions set forth in this Parking Roadmap will increase Halifax's role in the effective management of parking services which is a key part of fulfilling the vision for parking.

Roadmap Goals and Objectives

The **goals** of the Parking Roadmap are:

Governance: To identify and assess an appropriate governance model for Halifax that clearly defines the authority, decision-making and accountability for parking and parking related initiatives support documentation necessary to enhance parking services in Halifax.

Parking Technology: To identify parking technology solutions that improve business processes, integrate with other corporate/organizational technologies/systems, improve customer experience and enables improved decision making.

Supply/Demand Management: Collaborate with internal and external stakeholders to optimize parking to increase accessibility and prosperity in the Regional Centre where parking demands are the highest.

The **objectives** of the Parking Roadmap are:

- Develop a framework plan to coordinate parking related initiatives and technology
- Streamline and coordinate parking operations to improve operational efficiencies
- Recommend projects / activities to improve parking service delivery and the customer experience
- Consider improvements to customer experience and communication
- Provide education and awareness of parking options and alternative transportation choices
- Link with existing organizational strategies and objectives
- Program and projects are delivered within project management framework
- Internal and external stakeholder consultation and collaboration

Benefits

There are a number of direct and indirect benefits that will be realized as result of the implementation of the Parking Roadmap. These benefits will begin to be realized immediately as a result of the change in managing parking as a municipal service:

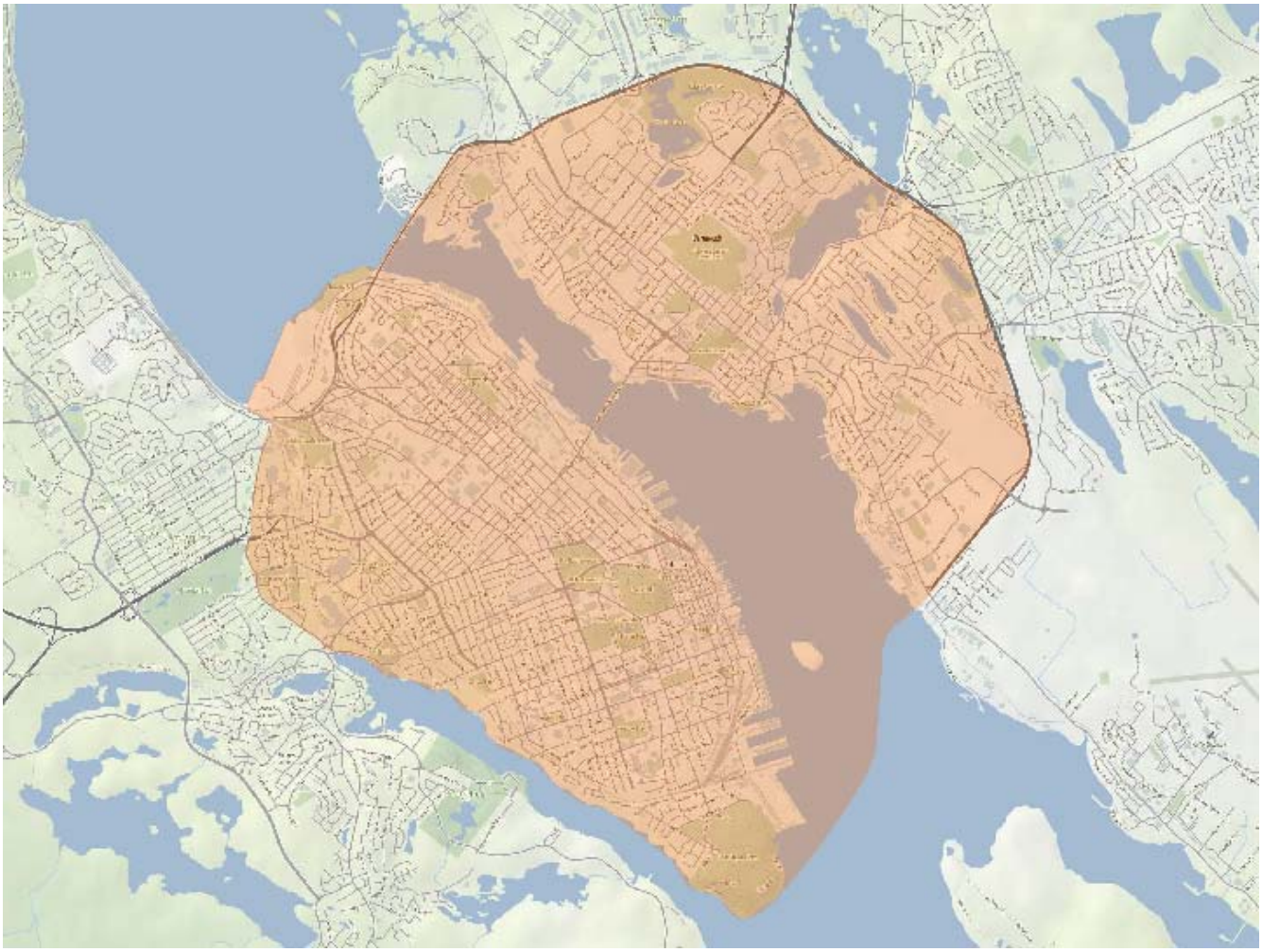
- Services are delivered more efficiently and effectively
- Citizens and visitors have a better parking experience and access to comprehensive parking information.
- Business intelligence data informs decision making
- Enhanced asset utilization
- Stakeholder cost sharing on improvement initiatives
- Increased revenue
- Enabled technology/system connectivity and data sharing
- Parking supply optimized for maximum effectiveness

There are also service efficiency benefits that will be realized that have a positive impact on other municipal services and on the Regional Centre as a whole. These efficiency related benefits are:

- Greater access to downtown, Business Improvement Districts and parking challenged residential areas
- Improved economic vitality of businesses, shops and restaurants
- Improved street safety
- Decreased traffic volume by as much as 8% in peak times
- Reduced green-house emissions
- Support Halifax Transit improve speed and reliability
    - Reduce traffic congestion and competition for street space
    - Control parking related issues on primary streets during peak times
    - Help increase ridership through parking strategies

Roadmap Boundary

The Regional Centre was defined as the geographic boundary for the project. This area includes five Business Improvement Districts (BIDs) and residential neighborhoods that are experiencing parking challenges.



Jurisdictional and Market Scans

Jurisdictional and market scans were conducted to identify governance models, parking solution/product market leaders, best practices, trends, technology systems and solutions being utilized, policy direction, recent strategy development, enforcement approaches, payment options and lessons learned. The following municipalities shared their experiences in parking services and management and they provided valuable insight such as lessons learned. This worthwhile information has helped to shape the results of the Roadmap.

- Victoria, BC;
- Edmonton and Calgary, AB;
- Saskatoon, SK;
- Winnipeg, MB;
- Guelph, Barrie, Mississauga, Hamilton and Ottawa, ON;
- Montreal, QC;
- Charlottetown, PE;
- Moncton and Saint John, NB;
- St. John`s, NF; and
- San Francisco, CA.

> *"The successful implementation of an aggressive Downtown Parking Strategy over the past 30 years has been a very significant contributor to the success of Downtown Calgary and the Inner City"*. Revisions to the Calgary Parking Strategy

All jurisdictions contacted and researched approach parking as a municipal service and manage the provision of the parking service in one of the following ways: as a direct municipal operation, through an arms-length authority or as a commission.

It also became evident that the jurisdictions focused on the development of their downtown areas and / or urban centres through enabling strategic plans augmented these plans with specific detailed parking management plans or strategy documents. These documents outlined the active parking management approach for the municipality and identify technology solutions for consideration to improve service delivery. In addition to providing parking as a municipal operation, other jurisdictions recommended projects to accurately identify supply and utilization be considered as a priority along with the modernization of parking payment technology.

The market scan provided up to date information about products and solutions in the areas of:

- Parking payment technology
- Enforcement solutions and technology
- Parking permitting and tracking technology
- Digital static and variable signage
- Parking space information technology

The jurisdictions contacted also shared their successes, challenges and failures/lessons learned with technology solutions and systems. Municipalities who have recently or are in the process of implementing new technologies have and continue to share their experiences around implementation for consideration.

Governance

The primary purpose of the governance stream was to research and identify a model for Halifax's parking environment that clearly defines authority, decision making and accountability/responsibility for parking and parking related initiatives. The three governance models that are most commonly used in Canada (and many US-based cities) to deliver parking services include:

- **Municipal Service Operation**: generally used when emphasis is on service and broader corporate objectives, such as implementation of operational and strategic plans and transportation management policies.
- **Parking Authority**: generally used when emphasis is on running the service like a business, typically to maximize revenue generation, and building substantial new parking capacity while operating at arms-length from the municipality. Success tends to rely on a large and mature supply of parking and increasing demand.
- **Parking Commission**: generally used when there is an emphasis on providing parking services through the guidance of a board of directors for the operation and where Council has some influence by having to approve budgets and business plans.

The survey of other jurisdictions included discussion about the benefits and drawbacks of the various governance models employed. The information collected was presented to internal stakeholder groups for discussion and review of the governance model options. **The recommendation is to identify parking as a defined municipal service operation and assign governance to Planning and Development for clear accountability, responsibility, coordination and decision-making.**

The establishment of an integrated parking group would consolidate all parking functions into a single point of responsibility/accountability for service management, optimize the coordination of all parking activities and address over-arching parking management issues. Other benefits include minimizing the duplication of efforts between different groups (different business processes will be necessary even within a single organization) and there would be appropriate coordination between curbside parking, residential parking permits and other parking regulations and thereby improving communication, decision making and efficiencies in parking management.

The first step is to create an interim parking coordination unit that will focus on developing the strategy, policy, and framework for active parking management while conducting extensive public and stakeholder engagement and consultation sessions. Once the framework is established, the parking service will be transitioned to operations for ongoing management.

The following short, medium and long term initiatives are also recommended to be implemented as part of the governance model to further improve parking operations and the overall user experience.

Initiatives

	Short Term (year 1)	Medium Term (1-3 years)	Long Term (3 + years)
GOVERNANCE	1. An interim parking structure in place to establish parking as a municipal service operation defining accountability, responsibility and decision-making. Supported by a change management and communications plan. • Elimination of duplication • Operational efficiencies 2. Framework to actively manage parking is developed and implementation has commenced. • Parking meter bag process established • Increased revenue and reduction of losses 3. Parking brand developed and way-finding signage in place • Improved customer satisfaction • Improved turnover 4. A comprehensive parking website is available providing both public and private parking information. • Public can access all parking related information in one location 5. Extensive external and public consultation and engagement sessions have occurred. • Public and stakeholder satisfaction	6. Parking Strategy and active parking management framework support services delivery and alignment with organizational goals and strategic plans. • Increased revenue • Decreased expenses • Improved use of alternative transportation modes 7. Internal and external collaboration occurs on a quarterly basis. • Increased customer satisfaction 8. User friendly options are available for the purchase of residential parking permits (multi-month purchase, print at home, etc.). • Increased revenue • Improved service 9. Program management office established supporting project management of technology based projects. • Project rigour • On-time, on budget delivery 10. Existing by-laws reviewed	11. Parking is functioning as a municipal service operation with defined accountability, responsibility, decision-making and benefits realization. All parking initiatives are coordinated and designed to support transportation choices. The structure • Improved services • Increased revenue • Improved access and mobility in regional centre 12. Pricing strategies and new measures implemented. • Increased transit ridership • Increase use of off-street private parking • Increased active transportation use 13. Strategic priorities in response to emerging issues identified. • Improved service • Increased transit ridership 14. Performance measures and service targets established. • Improved satisfaction

The development of all parking services, policy, and support documentation must take into consideration the following critical elements:

- **Short term parking** – shoppers, business visitors, loading (when not able to use a specified loading zone), residential visitors, tourism visitors, and other parkers that encourage turnover and limit longer stays.
- **Long term parking** – business employees, commuters, and other parkers that require longer term stays.
- **Parking for specific user groups** – taxis, charter buses (should seek long-term parking in off-street locations), opportunities for other specific parking space users (i.e. CarShare, motorcycles, etc.) may be established but likely on a case-by-case basis and should not make up more than a small specifically assigned percentage of total managed street space.
- **Adequate supply of accessible parking** that provides reasonable opportunities – perhaps by identifying a specially assigned percentage of total managed street space to be allocated to accessible priced parking and/or a review of time limit restrictions; a more comprehensive review of accessible parking in the context of on-street parking standards should be undertaken and done in collaboration with the Accessibility Committee.
- **Parking for bicycles** to support active transportation.
- **Parking Regulations** that are easy to understand and consistently applied.

External stakeholders agree there is an urgent need to work in partnership on a fully integrated parking approach that supports efficient transportation options and improves the parking experience, both real and perceived. Working collaboratively provides the opportunity to create on-street parking turn-over, improve use of off-street parking, provide comprehensive information on parking and support the vitality of the Regional Centre.

Parking Technology

The following technology initiatives will contribute to meeting the long term vision for parking services. All projects identified for implementation are noted in the table below. The short term projects are required for operational/business continuance or are the foundation for all other initiatives. **The recommendation is to approve the Phase 1 GIS Mapping Project and the Handheld Device Replacement Project in 2015-16 using existing operating funds.**

The recommendation is also to investigate additional/alternative parking technology options to be presented for consideration and approval.

It is also recommended that each of the future year project contained herein be presented for approval prior to project implementation.

Initiatives

Short Term (1 year)	Medium Term (2-3 years)	Long Term (3+ years)

TECHNOLOGY	**1. Parking Enforcement handheld device replacement** (does not include expansion to other enforcement officers). Objectives include: • Identification of appropriate • replacement device • Provision of testing, training and implementation support • Development of process documentation.	**3. Parking payment solution (parking meter replacement) t**o modernize parking payment and parking management to improve customer experience, collect utilization data and to support active parking management strategies including dynamic pricing and flexibility (includes the expansion of enforcement to other enforcement officers). (Year 2 and 3) Objectives include: • Modernization of payment options • Increased functionality and reporting capability • Improved accessibility • Parking management capability • Wireless electronic capability to change price, time limit, and • Integration with Police in vehicle ticketing system • Expansion of electronic enforcement ticketing to Special Constables in other service areas	**6. Parking ticket management system replacement** and the replacement of technology and functionality to support parking ticket payment and enforcement while ensuring data integration between HRM and the Province. (Year 4) Objectives include: • Parking ticket management solution • Interface with Province • Electronic payment • Connectivity and integration with other enterprise systems (SAP, etc.) • Payment Card Industry (PCI) compliance • Performance reports • Standardized and customizable reports
	2. Phase 1 Mapping in GIS of full inventory of owned parking supply, on and off-street, paid and unpaid. Objectives include: • Parking supply inventory • One system/repository for both public and private inventory data	**4. Parking Permit Tracking and Service Solution** (Year 3) Objectives include: • Electronic permit issuing Electronic payment • Electronic application • Reporting and tracking	**7. Digital static and variable signage** for directions to parking locations and available parking information. (Year 4) Objectives include: • Wireless capability to update and provide messaging

		• Link to parking payment solution project	• Links with existing parking technology in private lots
		5. Phase 2 Mapping in GIS of full inventory of privately owned paid parking supply. (Year 2) Objectives include: • Parking supply inventory • One system for both public and private inventory	**8. Technology System Interconnectivity** with multiple corporate and business technology solutions to ensure integration for ongoing operational and organization success. (Year 5) Objectives include: • Integration plans for each solution • Architecture diagrams • Process documentation • Connectivity and integration with other enterprise systems (SAP, etc.) • Testing and training plans • Performance metrics and measure

Supply – Demand Management

To be effective, existing parking resources must be used efficiently. For this to occur in Halifax the **recommendation is to commence development of supply demand management policy framework based on active parking strategies including supply management, pricing, demand management and other supporting strategies to optimize parking.**

It is also recommended that the identified short, medium and long term supply demand management initiatives are implemented as part of the overall approach to parking supply-demand management.

The strategies and actions included in the active parking management framework are outlined in the table below:

Table 2: Active Parking Management

Active Parking Management			
Demand Management	**Pricing Strategies**	**Supply Management**	**Support Strategies**
- Bicycle infrastructure - Transit - Car/ride sharing - Integrated mobility	- Time of day rates - Event rates Tiered rate structure based on location - Enforcement practices - Uniform rates	- Maximum parking limits - Maximum parking requirements - Reallocation of on-street parking spaces - Short vs long term spaces	- Preferred user parking - Timed parking zones - Residential parking permits - Awareness campaign - Way-finding

The Centre Plan project represents an opportunity to begin the work required to move the Municipality toward Active Parking Management. The Centre Plan will amalgamate the best of three existing plans for the former Cities of Halifax and Dartmouth into a single, comprehensive Municipal Planning Strategy and allow for a unified Land Use By-Law for the Regional Centre. This work will be completed in 2016 and requires intense effort

> "If cities deregulate off-street parking and charge the right price for curb parking, market forces will improve transportation, land use, the environment, and urban life. You will not pay for my parking, and I will not pay for yours. Instead of planning without prices, we can let prices do the planning."
> Donald Shoup, The High Cost of Free Parking

The direction to integrate HRM's Transportation Demand Management Functional Plan and associated Parking Strategy has opened the door to consider components of Supply Management, Supporting Strategies, and Demand Management within the Centre Plan. Aspects of Active Parking Management must be studied and integrated with the Centre Plan through the project to ensure that the Centre Plan project meets the goals set out for the project in Chapter 6 of the 2014 Regional Plan.

However, to support this approach, the creation of a parking supply and utilization database(s) that are routinely managed and form the foundation for active parking management also must be completed. The following table includes initiatives that support improved Supply / Demand Management with respect to the universe of Parking.

Initiatives

	Short Term (1 year)	Medium Term (2-3 years)	Long Term (3+ years)
SUPPLLY / DEMAND MANAGEMENT	1. Accurate supply and utilization data captured, including private, and used to drive decision making. • Standardized metrics established and used by both public and private sector. 2. GIS records full inventory of all on and off street publically owned parking supply. • Open access to data 3. GIS records full inventory of all off street privately owned parking supply. • Open access to data 4. Collaboration plan with other parking supply providers on way-finding signage for parking. • Increased visits downtown 5. Collaboration with Planning to inform land use planning changes on parking. • Supply optimization • Increased Transit use • Increased active transportation use • Improved walkabiilty	6. Inventory of all current and known-future impacts / influences on supply used for continuous improvement. • Operational efficiencies • Proactive planning 7. Continued communications with internal and external stakeholders to remain current • Improved satisfaction • Improved accessibility 8. Utilization measured and price /time adjustment implemented. • Increased turnover • Supply optimization 9. Best approach plan in place to determining pricing strategies and the actual price of parking based on usage and to influence choice behaviour • Increased Transit use • Increased active transportation use • Pricing influences choice	10. Active parking management framework and implementation plan implemented • Operational efficiency • Increased revenue • Increased Transit use • Increased active transportation use 11. Collaboration with the Traffic Authority occurs to allocate, regulate and distribute space in the road right of way in accordance with policies and by-laws • Improved accessibility 12. Collaboration plan with other parking supply providers on, pricing strategies and utilization targets. • Improved accessibility • Increased visits downtown • Improve satisfaction • Supply optimization 13. Collaboration with Planning to inform land use planning changes on parking. • Supply optimization • Increased Transit use • Increased active transportation use • Improved walkabiilty

Future consideration should be given to shared parking concepts which are meant to maximize the efficient use of all existing parking supply whether owned/operated by the municipality or by other privately owned or public entities.

Project Objectives, Expenditure and Return on Investment

The cost estimates for each identified technology project, and for the total delivery of all initiatives in the governance and supply/demand management projects as outlined in the below table are based on: worst case scenario contingencies, resource rates assume external resources (unless otherwise stated), full lifecycle costs of ongoing capital costs and provision for all aspects of project and product delivery. The costs are not adjusted for inflation, cost of living or supplier increases. The cost estimates presented are high level cost estimates (+/- potentially up to 100%) for the Parking Roadmap and initial planning purposes only. When projects are confirmed for implementation, more refined and detailed project cost estimates will be provided prior to approval.

There are a total of nine (9) projects identified – one for governance, one for supply/demand management and seven (7) technology based projects. Of the seven (7) technology projects, four (4) are projects that are required to be completed regardless of the approach taken on parking going forward as these are existing operational technology systems currently used and that are at end of life. The cost of these projects makes up over 50% of the total costs associated with the Parking Roadmap. For a consolidated view of projects see Appendix 1.

Parking management literature, published parking management results and feedback from other municipalities provided a range of direct return on investment results for a variety of parking strategies. Where applicable, the estimated return on investment is reported with the identified project. The reported values are based on the average percentage of return as reported and calculated using Halifax's available data. The estimated annual additional revenue, once all projects are implemented, is anticipated to be in the range of between $1.3 million and $2 million.

Table: Project Breakdown

	Objectives	Resources Required / Available	Time	Required Regardless of approach to parking
GOVERNANCE	Interim parking structure in place to establish parking as a municipal service operation defining accountability, responsibility and decision-making. Supported by a change management and communications plan. Includes transition plan from interim structure to operations.	Existing staffing resources identified and dedicated $120K ongoing operating cost once transition to operations occurs *ROI: $520K annually (results process/service improvement)*	Interim immediate commencement 15 - 18 months	Yes

	Objectives	Resources Required / Available	Time	Required Regardless of approach to parking
TECHNOLOGY PROJECTS (in order of priority)	1. Replacement of Enforcement Handheld Devices (project is currently in flight)	$50K operating costs for asset replacement	Current, immediate operational need	Yes, operational requirement to replace non-working devices.
	2. Parking Payment Solution (Replacement of parking meters)	$5.2 M Capital costs *ROI: $550 – 970K annually (increased payment for parking revenue)*	Years 2 to 4 (Opportunity assessment in year 2; implementation years 3 and 4)	Yes, meters at end of life
	3. Parking Mapping GIS	$30K operating costs for internal GIS Technician	Year 1 to 3	Yes
	4. Parking Permit Tracking System	$34K capital cost	Year 3	No
	5. Parking Ticket Management System	$2.2M Capital (includes $100K in 15/16 for remediation of existing system)	Year 3 to 4	Yes, end of life and transfers data with Province
	6. Digital Signage	$460K Capital	Year 3	No
	7. Technology Interconnectivity	$2.2 M Capital	Year 5	Yes, this is a required organizational activity that needs to occur for all technology implementations
	To support the implementation of the technology projects a Program Management Office is required.	$1.9M Capital (4 years program management)	Years 2 to 5	Yes, required to support technology projects

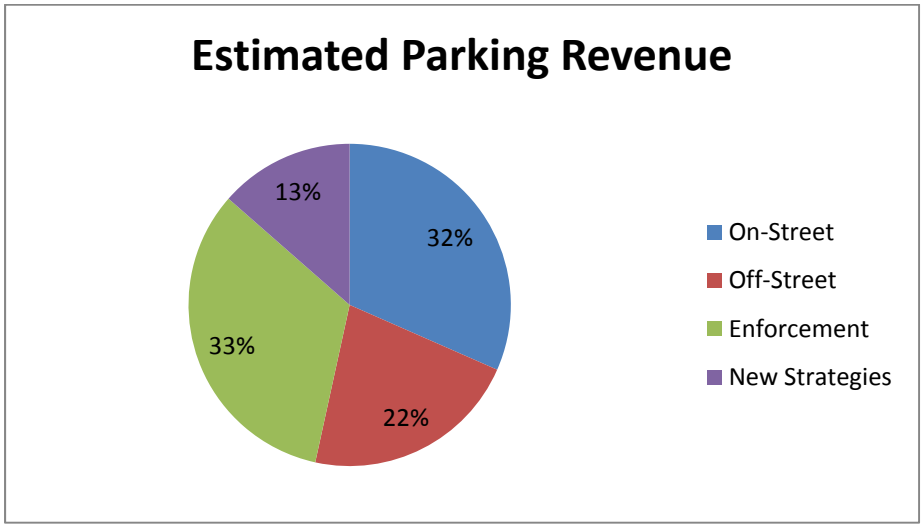
	Objectives	Resources Required / Available	Time	Required Regardless of approach to parking
SUPPLY/DEMAND MANAGEMENT	To collect and accurately inventory of on and off-street parking. Create a management plan to optimize parking based on collected data.	$800 K Capital *ROI: $0.9 – 2.3 M annually (additional increased revenue from active parking management activities)*	Year 1 to 3	Yes

Detailed project descriptions and project costing spreadsheets are contained in separate project summary reports and found in Appendix 2.

The total estimated budget needed to implement all projects in the Parking Roadmap is $14.7 million, spread over five years. This is a high level cost estimate for the roadmap and initial planning purposes only. When projects are confirmed for implementation, a more detailed project cost estimate will be provided prior to approval.

As a comparative to the current state, Figure 3 below demonstrates the future state percentage breakdown of the estimated annual revenue from paid parking based on the implementation of the recommendations outlined in this roadmap.

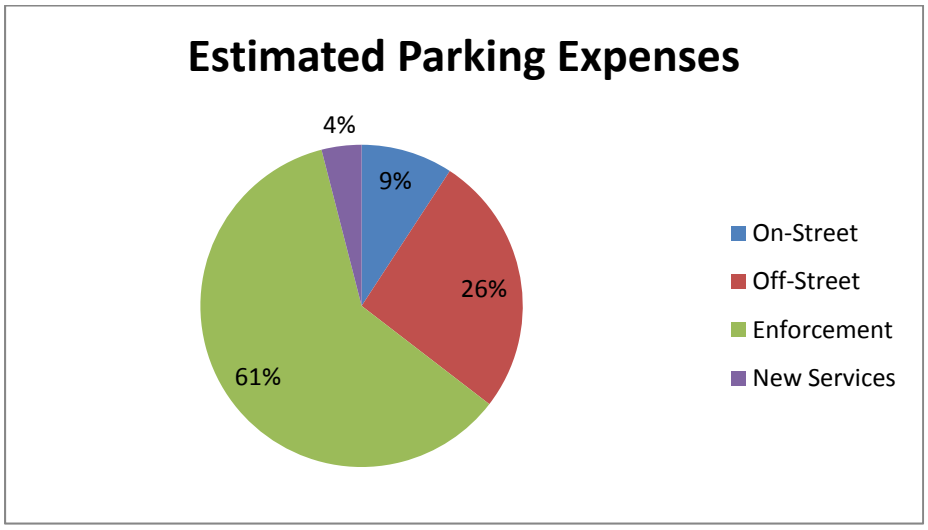
Figure 3



Figures 5 demonstrates the percentage breakdown of the estimated annual expenditures from parking based on the implementation of the recommendations outlined in this roadmap. The

future state presented depicts the identified expenditures for parking. There are existing gaps in the way data is recorded. The full position of expenses will be better able to be represented in the future.

Figure 5



Summary of Recommendations

Recommendations for changes in current approach to parking will optimize the efficiency of existing parking operations and will allow for parking operations to be more closely tied to overarching strategic policies. Additional mid- and longer-term strategies are also recommended for consideration. The projects recommended in this report are intended to provide a template for action that would assist the City to more effectively manage its parking supply in an organized fashion. Although all projects are recommended for implementation, it is possible for projects to be approved and delivered individually provided that they are developed in consideration of a coordinated parking service.

The recommendations are as follows:

Governance

The recommendation is to identify parking as a defined municipal service operation and assign governance to Planning and Development for clear accountability, responsibility, coordination and decision-making.

It is also recommended that the identified short, medium and long term governance initiatives are implemented as part of the governance model.

Technology

The recommendation is to approve the Phase 1 GIS Mapping Project and the Handheld Device Replacement Project in 2015-16 using existing operating funds.

The recommendation is to investigate additional/alternative parking technology options to be presented for consideration and approval.

It is also recommended that each of the future year project contained herein be presented for approval prior to project implementation.

> *"When appropriately applied parking management can significantly reduce the number of parking spaces required in a particular situation, providing a variety of economic, social and environmental benefits. When all impacts are considered, improved management is often the best solution to parking problems."* Victoria Transport Policy Institute, Parking Management Strategies, Evaluation and Planning

Year 1 – Parking Enforcement Handheld Devices and Phase 1 Mapping Supply in GIS

Year 2 – Parking Payment Solution/Replacement of parking meters (opportunity assessment) and Phase 2 Mapping Supply in GIS

Year 3 – Parking Permit Tracking Solution (link to parking payment solution)

Year 4 – Parking Ticket Management Solution and Digital Signage

Year 5 – Technology System Interconnectivity

Supply-Demand Management

The recommendation is to commence development of supply demand management policy framework based on active parking management strategies including supply management, pricing, demand management and other supporting strategies to optimize parking.

It is also recommended that the identified short, medium and long term supply demand management initiatives are implemented as part of the overall approach to parking supply-demand management.

Implementation Program

Next Steps

It is also recommended that the year 1 and year 2 recommended next steps be approved.

Year 1 – 2014/15

Service Management: Establish interim service management responsibility based on recommended governance structure and to outline the roles and objective of the parking service. Create an organizational change management plan.

Foundation and Framework for Parking: Explore and confirm the fundamentals of the parking as a service – its role and objectives and how the objectives should be balanced – before proceeding to develop policies, strategies and guidelines that will address current issues while planning for the future.

Stakeholder Engagement: Engage public and stakeholders in focus group(s) and discussion sessions , consult with established Committees, and establish opportunities to further consult on parking with representatives from a broad range of perspectives and is integrated with the Centre Plan. A more comprehensive review of accessible parking, in the context of on-street parking standards, is to be undertaken as a component of the engagement discussion and done in collaboration with the Accessibility Committee. Working collaboratively

Initiatives and Best Practices: Building on the research and analysis conducted for the Roadmap, determine the current issues that impact parking service elements including inventory, utilization, market share statistics, parking system revenues and operational expenses, parking policies, zoning by-law policies, financial costs of public vs. private spaces, cash-in-lieu practices, tourism needs, and transportation demand management initiatives related to Parking. Implement service improvements including defining and developing a process for meter bagging, developing parking brand and wayfinding signage, and creation of a single parking portal for information.

Parking Technology: Using existing resources and staffing capacity, the replacement of non-working enforcement handheld devices and the Mapping of HRM Parking Inventory in GIS are supported to completion.

Year 2 – 2015/16

In addition to further building on year 1 initiatives, the following are initiatives for implementation in year 2.

Service Management: Develop an active parking management framework and service evaluation plan. Develop a parking strategy, policy and standards. Develop a transition plan to transfer to operations.

Communication: Regularly share project status, research findings and planned initiatives for comment by stakeholders and Council. Create a single on-line information centre for all things parking. Improve public access to parking information through a variety of media methods including through signage, website, social media, and awareness/education campaign.

Program Management: Establish Program Management Office support for the delivery of Parking Roadmap Projects.

Strategic Alignment: Ensure parking initiatives and parking roadmap projects are aligned with other organizational strategies in support of Council's goals and objectives. Parking Strategy, policy and standards must strike a balance between competing strategies and/or contradictory objectives.

Parking Technology: The Parking Payment Solution Project (Parking Meter Replacement) will have an opportunity assessment and option evaluation process, which includes the potential of a Parking Permit Tracking and Service solution, completed. The project to map the private parking supply in GIS will also be completed.

Year 3 and onward

Building on the foundational parking service framework developed in the transition period of years 1 and 2, the operational plans for year 3 and onward will be developed in conjunction with the annual business planning cycle. As the service becomes more established there will be additional initiatives that must be considered.

Conclusion

Parking is a municipal asset and its capacity to influence change in the Regional Centre is significant. The Roadmap initiatives provide Halifax with an opportunity to be a leader…an opportunity to be bold, to do something new, to work in collaboration with partners and to bring people back downtown and to create a Regional Centre that is accessible, vibrant and safe. The downtown Halifax that we know it can be. Providing parking as a municipal service, coordinating the activities and allocating resources to improve the way the service is provided and supported is not only the right thing to do for Halifax but it is what is best for the public good.

Appendices and Attachments

Appendix 1 – Consolidated View of Parking Roadmap

Attachment 1 – Parking Roadmap Supplementary Report – Detailed Project Descriptions

Reference Documents

City of Barrie Parking Strategy and Rate Review Report(2012)
*www.barrie.ca/.../Documents/**Parking**_Services_Rate_Review_Report.pdf*

City of Calgary Revisions to the Calgary Parking Strategy www.**calgary**.ca/PDA/pd/.../**revisions-to-the-downtown-parking-strategy**.pdf

City of Victoria Parking Strategy (2007)
www.**victoria**.ca/assets/Departments/.../2007%20**Parking**%20**Strategy**.pdf

City of Winnipeg Downtown Parking Strategy http://www.winnipeg.ca/ppd/planning_downtown.stm

Chicago Metropolitan Agency for Planning (2012) Parking Strategies to Support Livable Communities
http://*pipta.org/wp-content/uploads/2014/04**Parking-Strategies-to-Support-Livable-Communities**-CMA.pdf*

Davis, Pijanowski, Robinson and Engel (2009) The Environmental and economic costs of sprawling parking lots in the United States. Elsevier Land Use Policy Journal
http://tigger.uic.edu/depts/ovcr/iesp/Publications/Faculty%20Publications/Davis/Davis_TheEnvironmentalAndEconomicCostsSprawling.pdf

Jacobs, Jane (1961) *The Death and Life of Great American Cities*

OMBI (2012) 2012 OMBI Performance Measurement Report – Parking
http://www.ombi.ca/articles/parking/2012-ombi-performance-measurement-report-parking/

Parking Best Practices *www.nyc.gov/html/dcp/pdf/transportation/**parking_best_practices**.pdf*

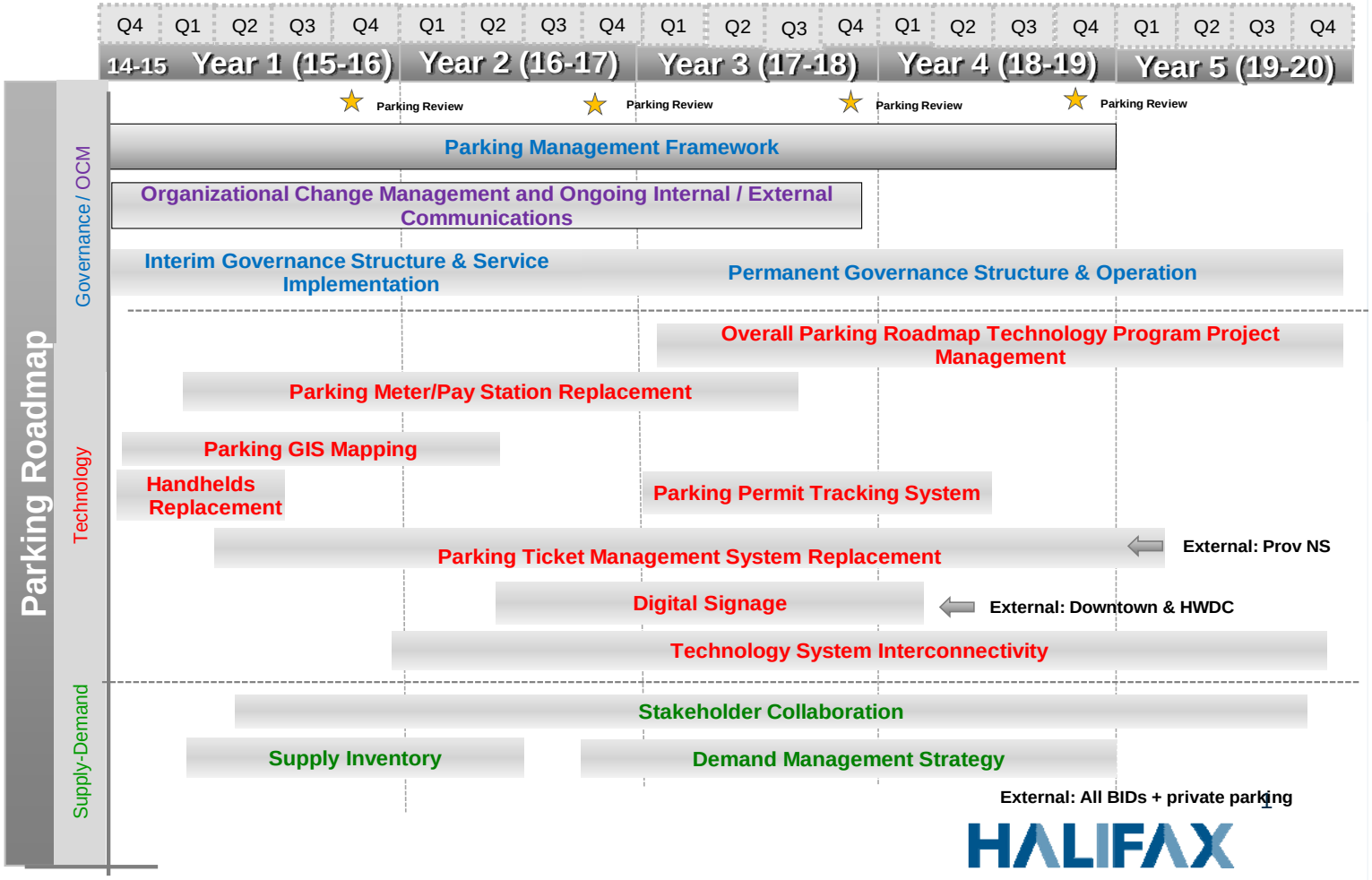
Parking Reform http://www.parkingreform.org/index.html

SF Park (2014) SF*park* Pilot Project Evaluation Summary – A summary of the SFMTA's evaluation of SF*park* pilot project http://sfpark.org/wp-content/uploads/2014/06/SFpark_Eval_Summary_2014.pdf

Shoup Donald, *(2011)The High Cost of Free Parking* http://shoup.bol.ucla.edu/Chapter1.pdf

Litman, T. (2013) Victoria Transport Policy Institute *Parking Management:Strategies, Evaluation and Planning* www.vtpi.org/park_man.pdf

Appendix 1 – Consolidated View of Roadmap



Attachment 1 – Parking Roadmap Supplementary Report

Parking Roadmap Supplementary Report

Detailed Project Descriptions

Prepared by:

Erin Flaim
Operations Support
November 21, 2014

HALIFAX

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Detailed Project Descriptions

Project ID: Gov	Parking Governance
Project Description	Establish parking as a municipal service operation and create a management division/unit to provide clear accountability, authority, decision making and coordination for parking and all parking related initiatives. *Key Deliverables*: Parking aligned as a service delivered by the municipality; creation of a management structure and supporting processes; Parking service governance (including clearly defined accountability, authority, decision-making, roles and responsibilities); supporting parking policy framework; Parking Strategy; Parking service strategic planning process; integration of parking objectives into annual reporting, Council focus areas, and staff performance plans; technology solutions for tracking, analyzing, sharing and improving parking services to the public; communications campaign; and Organizational Change Management Plan.
Objectives	• Transition parking operations to a single point of sustainable management accountability. • Establish interim and permanent leadership and coordinated parking management structure in support of parking and related initiatives. • To set up a governance structure within a framework that recognizes the strategic and multidisciplinary nature of parking. • Define and document service outcomes, policy, standards, operational plans and strategic alignment while enhancing accessibility.
Anticipated Benefits	• Established accountability, coordination and decision making for parking. • Central coordination point; provide oversight and direction for all parking and parking related projects. • Centralized point for tracking, monitoring, evaluating and reporting on performance. • Collaborative stakeholder engagement (internal and external) and improved collaboration with businesses, developers, private parking suppliers and institutions. • Policy framework to enable decision making on parking • Enhanced accessibility and continuous improvement of parking services. • Quantifiable benefits may include increased revenue, rationalization of costs, and increased staff productivity to be realized from coordination of activities, operational effectiveness, and improved provision of service.
Preliminary Identification of Risks	• Availability of resources – this is a new service and program office requiring new organizational resources. • Resources assigned require project and program management experience which will require a combination of dedicated internal (organizational awareness and service management) and external (project and program management) resources. • Resistance to acceptance of formalized structure, strategy, policy and standards. • Resistance to change due to implementation of new service accountability, governance structure, processes and

	technology.

Resource Types Required	Estimated Budget Range
Capital Costs: ***$0K - External expertise resources for project delivery*** ***Internal Resources: $350K - Internal subject matter experts and business resources*** ***Operating Cost of Capital: $140K – Operating costs***	**$140-$160K** **Estimated Project Duration** ***30 months***

Project Dependencies	• Approval of Parking Roadmap. • Implementation of recommendations from other strategies including Active Transportation, Transportation Demand Management, Economic Development, RP+5 and Transit Network Re-design. • Other projects in Roadmap.
Project Assumptions	• Commitment and support from Executive Sponsor, CAO and SMT for the significant depth and scope of change. • Organizational commitment and support to formalize strategy, operations, policies and standards. • The Program Manager will be leveraged to manage and oversee Parking Roadmap program and project activities. • All HRM strategies and plans, affecting parking and the Regional Centre have an impact on Parking or are impacted by parking decisions and must be factored.

Project ID: Tech 1	Parking Technology 1 – Parking Enforcement Handheld Devices
Project Description	Replacement of existing parking enforcement ticketing handheld devices. *Key Deliverables*: Replacement of existing parking enforcement ticketing handheld devices including testing, training and implementation support; elimination of existing handheld devices.
Objectives	• Replace existing parking enforcement ticketing handheld devices.
Anticipated Benefits	• Improved delivery of services. • Improved access to information and reporting of performance. • Increased operational efficiency in issuance and tracking of parking tickets.
Preliminary Identification of Risks	• Available resources. • Clear processes for ticketing and use of hand held devices will need to be established. • New technology adoption and utilization curve requires ongoing support.

Resource Types Required	**Estimated Budget Range**
Capital Costs: ***$5K - Vendor*** ***$100K - Technology Solution*** ***$29K – Project Contingency*** ***Operating Cost of Capital*** ***$6K – Operating costs of solution***	**$130k - $150k**
	Estimated Project Duration
	4 months

Project Dependencies	• Parking payment technology / meter replacement project.
Project Assumptions	• 15 handhelds used by Planning & Development enforcement staff require immediate replacement. • Capability to interface with Police system exists. • Existing hand held devices used for enforcement will be retired with implementation of a new parking payment solution.

Project ID: Tech 2	**Parking Technology 2 – Parking Payment Solution**
Project Description	Replacement of existing parking meters with advanced parking payment technology and/or in some cases with smart meters that improves accessibility, convenience and functionality through a variety of different payment methods. Integration of existing Police in-vehicle ticketing capability with enforcement ticketing system. Expansion of use of parking enforcement ticketing hand held devices to identified Special Constable staff that enforce parking areas and write parking tickets (i.e. Halifax Transit, etc.) *Key Deliverables*: Replacement of existing parking meters with parking payment technology including testing and implementation; retirement of existing parking meters; implementation of customer service support program post implementation; implementation of convenient customer payment options; implementation of consistent parking ticketing system throughout the organization; and, supporting process documentation.
Objectives	• Replace on-street parking meters with a convenient and user-friendly parking payment technology system. • Enhance customer payment options. • Improve system functionality and reporting capabilities. • Improve accessibility and convenience for customers. • Coordinate ticketing system with Police Services to use existing Police in-vehicle technology to issue parking tickets. • Provide hand held devices to identified Special Constables enforcing parking areas and writing parking tickets.
Anticipated Benefits	• Improved functionality and increased convenience of patrons for increased payment options: coin, credit card, or cell / smart phone (online account); • Improved/easier enforcement capability and sharing of real-time ticketing information with Province. • Foundation of accurate utilization of data and information to support decision making and enhance parking services. • Improved reporting. • Reduced manual inputting of data. • Reduced duplication of services and input errors by reducing need for manual inputting of data. • Quantifiable benefits may include improved revenue generation and positive Return on Investment (ROI) as well as increased enforcement revenue and decreased operational costs.
Preliminary Identification of Risks	• Availability of identified resources. • Parking payment technology is rapidly changing/advancing which could have an impact on project scope, budget and/or schedule.

Resource Types Required	**Estimated Budget Range**
Capital Costs: ***$1.86M - External resources for project design and delivery*** ***$10K - Vendor charges***	**$5.0 - $6.0 million**
	Estimated Project Duration

$2.2M - Hardware ***$100K - Technology Solution*** ***$1.0M – Project Contingency*** ***$190K - Internal subject matter experts and business resources*** ***Operating Cost of Capital: $92K – Operating costs of solution repairs and***		***30 months***
Project Dependencies	• Governance model in place to support system change.	
Project Assumptions	• Requirement to purchase of 185 parking payment machines for total meter replacement of approx. 1850 parking meters in Regional Centre and not assuming "like for like" replacement of meters. • Requirement to purchase 20 additional single or double-head smart meters. • Cost estimates include two signs per Machine zone for customer service information - one larger ($1000), one smaller ($500.) • 30 tablets, 30 printers, and associated hardware costs to support enforcement. • Capability to use existing parking meter posts and not remove existing parking meter posts. • Cost does not include any necessary road, construction, or By-law modification work. • Includes data integration between parking gates systems and parking payment system for parking lots/garages. • Existing ticketing system coordinated with Police Services allowing use of existing Police in-vehicle technology to issue parking tickets. • Hand held devices are used by other business unit Special Constables enforcing parking areas and writing parking tickets. • Enforcement aspect of parking payment system will also include enforcement for unpaid parking areas. • Retirement of existing hand held devices for parking enforcement.	

Project ID: Tech 3	**Parking Technology 3 – GIS Mapping**
Project Description	To map in GIS all available supply of HRM-owned and non-HRM owned on-street and off-street pay and on-street non-pay parking stalls with the Regional Centre. Key deliverables: Parking supply inventory mapped in GIS including testing and layer implementation.
Objectives	• Mapping of HRM parking supply. • Process for ongoing management of data.
Anticipated Benefits	• Improved access to parking supply data. • Improved access to supply data through on-going data management. • Improved operational reporting and decision making. • Capability to provide open data as per the Open Data Administrative Order. • Quantifiable benefits may include revenue generated through applications that leverage GIS data.
Preliminary Identification of Risks	• Information collected through supply demand project may be in a format that requires high degree of manipulation. • Availability of GIS resources as project based on priority decision making.

Resource Types Required	**Estimated Budget Range**
Capital Costs: ***$0*** ***Internal Resources: $30K - Internal subject matter experts and business resources*** ***Operating Cost of Capital: $5K – Operating costs of solution***	***$25k -$35k***
	Estimated Project Duration
	5 months

Project Dependencies	• Supply – Demand project.
Project Assumptions	• Internal GIS resources available • Supply – Demand project outcomes (data) are in format required for entry into HRM's Esri GIS system. • Establishment of common zones for supply measurement and enforcement.

Project ID: Tech 4	Parking Technology 4 – Parking Permit Tracking System
Project Description	To implement a technology solution to manage issuance, tracking, and reporting of Residential Parking Permits. Key deliverables: Permit system design, testing and implementation; implementation of customer service processes.
Objectives	• Implement a reliable parking permit management system.
Anticipated Benefits	• Improved customer service. • Improved customer satisfaction. • Improved organizational reporting and access to data to support decision making. • Quantifiable benefits may include revenue increases and operational cost savings.
Preliminary Identification of Risks	• Availability of resources. • Identification of requirements.

Resource Types Required	Estimated Budget Range
Capital Costs: ***$0*** ***Internal Resources: $29K - Internal subject matter experts and business resources*** ***Operating Cost of Capital: $5K – Operating costs of solution repairs and maintenance***	***$34k***
	Estimated Project Duration
	6 to 8 months

Project Dependencies	• Approval of Parking Roadmap. • Corporate Permitting, Licensing and Compliance System project (Hansen replacement).
Project Assumptions	• Leveraging existing technology (either Hansen or potential corporate replacement solution). • "User-friendly" assumption directly tied into clients being able to access online and print. Fully dependent on other HRM system plans.

Project ID: Tech 5	Parking Technology 5 – Parking Ticket Management System (PTMS)
Project Description	Retirement of existing Parking Ticket Management System (PTMS) that has reached end of life, and replacement of technology and functionality to support parking ticket payment and enforcement. This project is complex because the existing system is a custom built system that performs many functions including a data repository and transmission centre meant to ensure data integration between HRM and the Province. A detailed assessment of the business needs, requirements and processes is needed to help determine the best solution for the future. Project dependencies and detailed intricacies of the necessary system connections are yet to be fully understood/defined; these are beyond the scope of the Parking Roadmap but would be flushed out during the Opportunity Assessment. The approach that has been taken in the identification and estimation of this project is as "a worse-case scenario" that includes complete, like-for-like replacement. *Key Deliverables:* Parking ticket management technology and functionality replacement, testing and implementation; retirement of existing PTMS; implementation of standard reporting; integration/interfaces with SAP, Provincial RMV and Justice systems; compliance with privacy legislation and Payment Card Industry (PCI) Data Security Standards; establishment of Service Level Agreement(s) with Province and vendor(s).
Objectives	• Replace existing PTMS with a modern solution that meets business requirements and simplifies the technology environment. • Improve system reliability and functionality. • Implement a system that seamlessly interfaces with necessary Provincial systems (Justice, RMV).
Anticipated Benefits	• Improved data accuracy, and decreased errors and issues encountered with data transfer. • Enhanced relationship with the Province through Service Level Agreement. • Improved operational efficiency and reporting capability. • Capability to measure performance and report on key service indicators. • Quantifiable benefits may include improvements to parking ticket revenue stream through reduced errors and incomplete data transfer, as well as decreased operational costs.
Preliminary Identification of Risks	• Availability of resources. • Potentially complex integration points/interfaces with other systems (SAP, Provincial RMV and Justice systems). • Project details will become more defined through the Opportunity Assessment and results could impact project scope, budget and/or schedule.

Resource Types Required	**Estimated Budget Range**
Capital Costs: ***$1.5M - External resources for project design and delivery*** ***$75K - Vendor charges***	**$2.0 – $2.4 million**
	Estimated Project Duration

$10K - Hardware ***$100K - Technology Solution*** ***$421K – Project Contingency*** ***Internal Resources: $55K - Internal subject matter experts and business resources*** ***Operating Cost of Capital: $58K – Operating costs of solution and personnel back-fill***		**24 months**
Project Dependencies	• Initiation of Parking governance project. • Integration and interfaces with other systems (SAP, Provincial RMV and Justice systems). • Financial information (revenue) processing systems and processes (currently Hansen and SAP). • Parking meter replacement with parking payment technology. • Other HRM technology solution projects that have integration points with PTMS and replacement solution.	
Project Assumptions	• "Like for like" replacement is assumed Note: there exists a strong likelihood that new Corporate solutions may address some or all requirements of this PTMS replacement project, which would not result in a "like-for-like" replacement scenario. Depending on these other projects, the scope and cost of this project may be reduced (or eliminated). • Interim Program Manager, as defined in Governance project has oversight of this activity.	

Project ID: Tech 6	Parking Technology 6 – Digital Signage
Project Description	To implement digital parking directional signage and digital variable lot/garage parking space availability by location. Key deliverables: Digital parking signage installation including testing and implementation.
Objectives	• Installation of digital parking direction signs and any necessary software/hardware.
Anticipated Benefits	• Improved customer service. •
Preliminary Identification of Risks	• None identified.

Resource Types Required	**Estimated Budget Range**
Capital Costs: ***$36 - External resources for project design and delivery*** ***$10K - Vendor charges*** ***$153K - Hardware*** ***$60K - Technology Solution*** ***$76K – Project Contingency*** ***Internal Resources: $54K - Internal subject matter experts and business resources*** ***Operating Cost of Capital: $71K – Operating costs of solution and repairs and maintenance***	***$420k - $500k***
	Estimated Project Duration
	24 months

Project Dependencies	• Collaboration with private and other government agency parking lot/garage suppliers. • Traffic authority approval of variable digital signage adjacent to key roadways.
Project Assumptions	• Capability of live supply data capture, via GIS (ESRI or ReGIS) and/or Parking payment technology (machines) and collaboration (where application)/partnership with private suppliers. • Capability of connectivity to Traffic Flow eSignage (pending future state). • PM-Lite methodology. • Supply - data information sharing by external suppliers. • Wireless data transmission, no "sign-header," double-sided, LED, outdoor. • Total quantity of 5 signs; installation only where existing communications infrastructure exists (e.g. traffic signals, facility, public wifi).

Project ID: Tech 7	Parking Technology 7 – System Interconnectivity
Project Description	Multiple corporate and business technology solutions contribute to operational management aspects of parking, therefore interconnectivity and/or integration is critical to ongoing operational and organizational success. *Key deliverables*: integration plans for each technology solution; SLAs – internal and external; security and privacy impact assessments; architecture diagrams; process identification and documentation; interface customizations – "plans and as-built drawings"; testing, training and implementation; change management; data modelling; and establishment of metrics and measures with supporting report capability.
Objectives	• Ensure data integration and interconnectivity between corporate wide technology solutions/systems.
Anticipated Benefits	• Integration and connectivity among corporate, business and external technology solutions/systems. • Improved reporting capability and decision making support. • Operational and work flow efficiencies. • Improved data security. • Quantifiable benefits may include positive ROI.
Preliminary Identification of Risks	• Unidentified integration points or systems at time of Roadmap completion. • Existing "spaghetti" architecture. • Immediate operational needs may conflict with ideal future state. • Conflicting priorities within organization and with external priorities. • Current system integrity may result in interim solution implementation.

Resource Types Required	Estimated Budget Range
Capital Costs: ***$2.85M - External resources for project design and delivery*** ***$210K - Vendor charges*** ***$770K – Project Contingency*** ***Internal Resources: $24K - Internal subject matter experts and business resources***	***$3.6 – $4.0 million*** **Estimated Project Duration** ***48 months***

Project Dependencies	• All corporate technology projects that integrate or interface with any of the parking related elements. • Assuming 6-month interface builds per solution and testing.
Project Assumptions	• Direct tie-in to Hansen phased replacement including new licensing, permitting and compliance software; interconnectivity to six existing corporate/business solutions (SAP, AIMS/Hand held device software, NS Justice, NS Registry of Motor Vehicles, Hansen/Hansen Replacement(s), and Bell custom ePayment solution) and for future Application integration required with police car technology, fire technology, "Smart City" interconnectivity, and single access Web portal for user (Citizen Relationship Management). • Assuming 6-month interface builds per solution and testing. • Resource time, effort, and cost will change depending on corporate systems adopted by HRM. • Assuming with this option PTMS replacement is incorporated, and therefore some PTMS replacement options (implementation) can be discounted.

Project ID: Tech 8	**Parking Technology 8 - Project Management**
Project Description	To provide oversight, coordination and financial governance of projects identified through the Parking Roadmap. *Key Deliverables*: Technology solutions for tracking, analyzing, sharing and improving parking services to the public; Project Management office; project management of all technology projects; and deliverables for all technology projects on the Roadmap.
Objectives	• Apply project management rigour for delivery of parking projects identified in Roadmap.
Anticipated Benefits	• Projects delivered to scope, on time and on budget • Quantifiable benefits may include increased revenue, rationalization of costs, and increased staff productivity to be realized from coordination of activities, operational effectiveness, and improved provision of service.
Preliminary Identification of Risks	• Resources assigned require project and program management experience which will require a combination of dedicated internal (organizational awareness and service management) and external (project and program management) resources. • Resistance to acceptance of formalized structure, strategy, policy and standards. • Resistance to change due to implementation of new service accountability, governance structure, processes and technology.

Resource Types Required	**Estimated Budget Range**
Capital Costs: ***$1.5M - External resources for project design and delivery*** ***$630K – Project Contingency***	**$1.8 - $2.1 million**
	Estimated Project Duration
	42 months

Project Dependencies	• Approval of Parking Roadmap. • Implementation of recommendations from other strategies including Active Transportation, Transportation Demand Management, Economic Development, RP+5 and Transit Network Re-design. • Other projects in Roadmap.

Project Assumptions	• Commitment and support from Executive Sponsor, CAO and SMT for the significant depth and scope of change. • Organizational commitment and support to formalize strategy, operations, policies and standards. • The Program Manager will be leveraged to manage and oversee Parking Roadmap program and project activities. • All HRM strategies and plans, affecting parking and the Regional Centre have an impact on Parking or are impacted by parking decisions and must be factored.

Project ID: SDM	Supply Inventory and Demand Management System
Project Description	Create a management plan to optimize utilization of parking in line with policy framework. To collect and accurately inventory on- and off-street parking supply within the Regional Centre. To define how to manage the data once collected. The supply data and information collected and managed in this project is critical to future decision making and supports other strategies by influencing travel choices through the implementation of sound parking management strategies. Key deliverables: Accurate inventory of HRM-owned on-street paid and unpaid parking supply within Regional Centre; accurate inventory of private paid parking supply inventory; development of supply-demand strategy including pricing strategy and implementation plan; development of parking standards to support parking and alternative transportation choices; collaboration plan with other parking supply providers including wayfinding, pricing, percentage of day/hourly mix, etc.; standardized static signage for parking locations; parking meter bag process improvement and system management; standardized parking metrics; and utilization measurement.
Objectives	• Full supply inventory of HRM-owned on- and off-street paid parking. • Full supply inventory of HRM-owned on-street un-paid parking. • Full supply inventory of private or other-owned, publically available off-street paid parking. • Support decision making with complete, accurate and up-to-date parking supply data.
Anticipated Benefits	• Accurate on-street and off-street supply inventory for the Regional Centre. • Complete understanding of total available parking supply within the Regional Centre and the percentage of parking that is supplied by HRM. • Standardization of zones for complete and accurate reporting. • Utilization data to support decision making around increasing/decreasing HRM supply. • Quantifiable benefits may include optimized revenue generation and economic benefits supporting other HRM strategies.
Preliminary Identification of Risks	• Accuracy of data collected and process for ongoing maintenance. • Standardized approach to parking stall measurement may not be possible resulting in compromised reporting. • Complete data may not be available as private or other suppliers are not required to share information.

Resource Types Required	Estimated Budget Range
Capital Costs: ***$309K - External resources for project design and delivery*** ***$200K - Vendor charges*** ***$7K - Hardware*** ***$393K – Project Contingency***	***$750k – $850k***
	Estimated Project Duration
	48 months

Internal Resources: $909K - Internal subject matter experts and business resources ***Operating Cost of Capital: $150K – Staffing and operating costs of solution repairs and maintenance***	
Project Dependencies	• Approval of Parking Roadmap. • Establishment of parking policy framework. • Implementation of parking governance structure. • GIS mapping project.
Project Assumptions	• Capability of live supply data capture, via HRM's Esri GIS and/or Parking payment technology (machines) • Collaboration/partnership with private suppliers. • Supply - data information sharing by external suppliers. • Senior BA is the same as for Governance and PTMS activity, time can be used for this activity as well. • RFP or SOW for supply and utilization project.