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# Predicting the end of Canada's oldest settlement:

A guide to risk management

Matt Stickland • 21.Aug.2024

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# Overview

-A councillor's role in risk management

-How risk management should work

-Barriers to successful risk management in the HRM

-Suggestions for the ongoing risk management refresh

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# A councillor's risk assessment

## Tactical: The Budget

- Does this budget have a surplus or deficit?
- How do we fund the things we want to do this year?
- How will this affect my constituents this year?

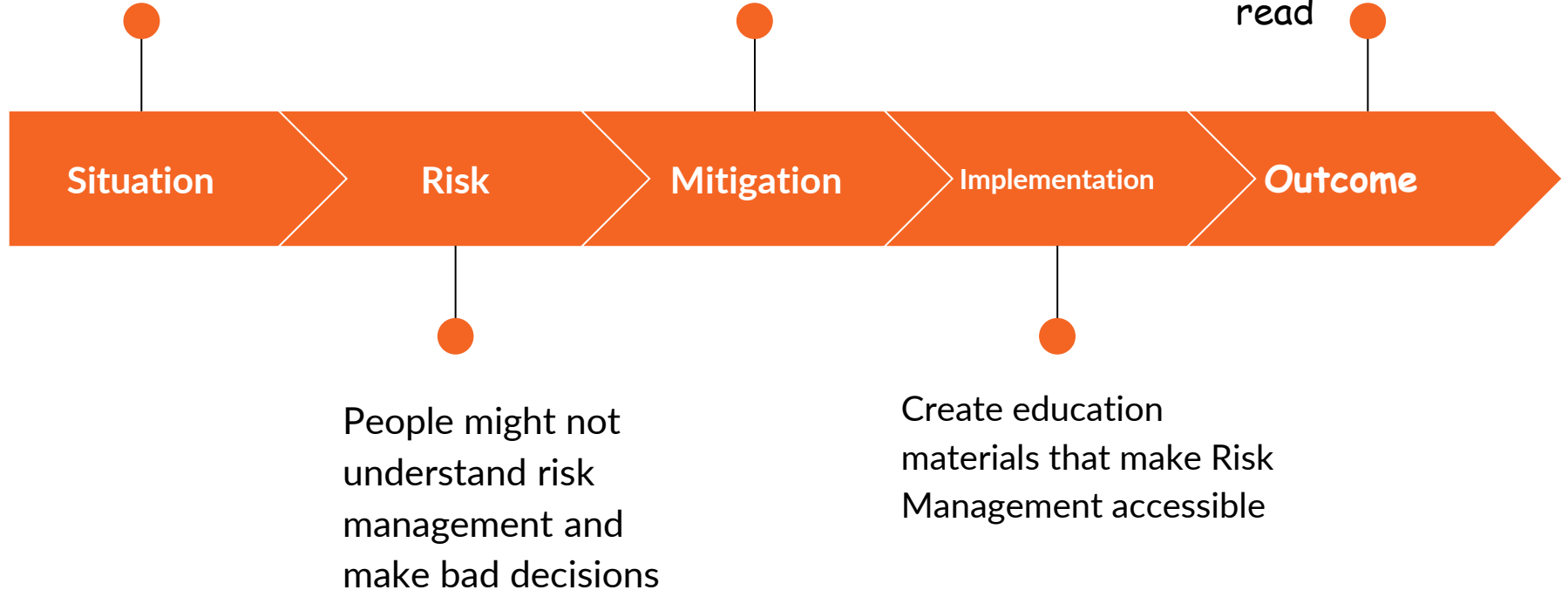
## Strategic: The future

- How can we get more surpluses?
  - How do we fund things we want to do in 20 years?
  - How will this affect my successors' constituents?
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Risk assessment is complex and confusing

Teach people to understand risk management

Success? Comic Sans, like many sans serif fonts, is more accessible for dyslexic people to read



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# HRM's barriers to success

## Risk Management Framework

Is insufficient to serve the needs of councillors

## Risk identification

The Enterprise Risk Register is routinely ignored

## Implementation

Auditor General's reports 2015, 2024

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# Insufficient framework: What's missing?

## FINANCIAL IMPLICATIONS

The applicant will be responsible for all costs, expenses, liabilities and obligations imposed under or incurred in order to satisfy the terms of this development agreement. The administration of the development agreement can be carried out within the approved 2024-2025 operating budget for Planning and Development.

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PLAN APP 2023-00563: Development Agreement  
Supplementary Report: Herring Cove Road  
Community Council Report

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July 16, 2024

## RISK CONSIDERATION

There are no significant risks associated with the recommendations contained within this report. The references to the existing dwellings were included in the original development agreement to prevent a non-conforming situation. The removal of those references is not anticipated to have any impacts on the proposed development. This application may be considered under existing MPS policies. Community Council has the discretion to make decisions that are consistent with the MPS, and such decisions may be appealed to the N.S. Utility and Review Board. Information concerning risks and other implications of adopting the proposed development agreement are contained within the Background/Discussion section of this report.

Municipal risk framework narrowly  
focused on annual budgets.  
Fine for staff, councillors need more.

1. What are the fiscal risks of suburban developments?
2. How does this development increase or decrease that risk?
3. What are predictable outcomes from that change in risk?

# HRM Risk Identification:

## Ignoring Enterprise Risks

### Project Risks

#### Budget:

- Current project costs included in Capital Budget
- The percentage of funding required by HRM has increased
  - Design concept and scope changed to meet objectives
  - Unprecedented inflation and cost increases since 2019
- Other external funding may be considered in future budget updates; no further funding available through NTCF

#### Schedule:

- NTCF requires substantial completion by 2027 (pending approval)
- NTCF funding is at risk if design is not advanced

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Windsor Street Exchange

HALIFAX

### Project Risks

#### Design

Risks related to the proposed configuration include the following:

- Traffic Volume Projections: Population growth is now projected to be higher than anticipated travel demand model used to develop the traffic volumes used in the design. This could result in less improvement in traffic operations than anticipated, most likely through the extension of hour volumes.
- Transit Priority: Given the traffic capacity constraints within the existing road network, traffic were not reallocated for other uses such as transit only. Space constraints did not allow for addition of lanes for dedicated transit use. Dedicated transit priority for all movements through the project area would be ideal to future proof the design against increases in traffic volume.
- Goods Movement: Improvements have been made to road geometry and distance travel trucks accessing the Fairview Cove Container Terminal. Trucks will continue to use shared lanes, and therefore are likely to experience delays during peak hours.
- Active Transportation: Given space constraints within the project area, separated pedestrian cycling facilities will not be included through the entire project area. Shared facilities can have potential conflicts between differing modes of active transportation.

The project team has evaluated many alternative design options to meet the project objectives within the design constraints, and have determined that the proposed functional design presents the best results with consideration for impacts and trade-offs for all modes of transportation. There is the potential for upgrades to the regional road network that could complement the proposed upgrades at the Windsor Street Exchange; these options are expected to be evaluated through the Regional Transportation Plan.

#### Windsor Street Exchange Redevelopment Project: Functional Design Recommendation Report

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June

#### FINANCIAL IMPLICATIONS

Estimated project costs are \$103,865,000, which is based on a Class 'D' construction estimate (a 25% contingency). The estimated costs are preliminary in nature and would be revised based on design. The estimated costs include estimated design fees, property acquisition, and construction. The construction costs include integrated planned capital work to be completed by Halifax Water a transmission main and upgrade the storm sewer system; the cost sharing agreement for this work finalized as part of the detailed design process.

Using the Progressive Design Build process, a Phase 1 contract for the design and early works issued to the successful proponent; the contract is estimated to have a value of \$6 million. The advancement of the design under the Phase 1 contract, the project team will develop further detail costs, including for property acquisition and construction costs. The design-build team will develop and submit a proposal for the Phase 2 contract (the construction of the project), which HRM will have to accept and issue the Phase 2 contract or reject and complete a traditional construction tender.

The Value Engineering (VE) Study completed in 2023 evaluated performance measures of the alternatives considered, as well as the cost of developed design alternatives. A Class 'D' cost estimate completed on the design before the VE Study was \$139.5 million. The final function incorporating the design alternatives recommended by the VE Study has a Class 'D' construction of \$100.5 million, a cost savings of \$39 million (28%).

The previously approved capital budget has \$51.09M allocated for the Windsor Street Exchange. The approved 2024/25 Capital Budget and 2025/26-2027/28 multi-year Capital Plan includes the project cost estimate of \$103,865,000 (\$6,865,000 in previous budget, \$32,292,000 in \$30,500,000 in 2026/27, \$24,208,000 in 2027/28, \$10,000,000 in future years). The increase reflects an expanded project scope, a more in-depth construction cost estimate that consider pricing and incorporates expected inflation costs and includes a contingency reflecting the current conditions.

The cost sharing amounts from external funding sources based on previous project estimates an approved project capital budget are summarized in Table 1. These amounts, which currently assume any increases in cost will be HRM's responsibility, result in an increase to HRM's cost share to \$67 (65% of the total). The updated budget amount retains the same external funding amount (\$30.1M) with the entirety of the project budget increase assigned to HRM.

#### Windsor Street Exchange Redevelopment Project: Functional Design Recommendation Report

- 21 -

June 18, 2024

#### Funding

Funding for the project through the NTCF is being provided through a contribution agreement between HRM and Transport Canada. The original contribution agreement requires that construction be substantially complete by the end of 2024. Since the contribution agreement was signed, there have been several challenges and risks related to the delivery of the functional design which have caused delays in tendering the project for construction. These challenges and risks include the following:

- Schedule delays in the preparation of the final Functional Plan: Further assessment work of the initial functional design options has been required, involving a technical review by an external consultant, additional assessment work by the design consultant, a value engineering study of the design options, and further assessment of the design options recommended by the Value Engineering Study. This has delayed the selection of a preferred design option to present to the Regional Council for consideration.
- Increased inflation has put pressure on the overall project budget, prompting efforts to identify potential cost savings and additional funding that would be required to complete the project.

The HRM project team has communicated these risks and delays to Transport Canada, and there has been an agreement in principle to amend the contribution agreement to require substantial completion by the end of 2027. The amended contribution agreement is dependent on Council approval to proceed with the proposed Functional Design. Despite an amended agreement there is still significant risk that the project cannot be substantially completed by the end of 2027.

#### Project Delivery

The delivery of the project will be very challenging given land impacts are still being defined and the required construction duration for the project is a minimum of three years and the funding deadline for project completion is the end of 2027. This constrained schedule means the project will need to proceed from the 30% functional design phase to 100% design by the 2025 construction season. For this reason, Progressive Design Build is being proposed for project delivery. This method allows the Build Contractor to be involved earlier in the project, saving time on tendering and allowing the design to be matured progressively while early works construction is able to begin. While progressive design-build is not an approach that has been used on HRM transportation projects, it is expected to provide the best option to accelerate the schedule while maintaining a quality design, and a strong understanding of budget impacts.

#### Project Schedule and Phasing

A high-level project schedule has been developed based on a phased construction plan using the functional design plan and value engineering. This schedule and phasing plan will need to be validated during the next phase of procurement. The phasing plan will also need to confirm traffic impacts construction. Other ways to expedite the schedule will be reviewed during remaining design, fabrication and construction phases to deliver the project on time.

As part of the value engineering study an option was explored by staff to limit scope to what could have been completed within the original time frame. It was determined that a reduced scope would likely not meet the project objectives of the funding agreement, and therefore the reduced scope has not been considered further. Project schedule and construction phasing remain a high risk to fulfilling the proposed updated funding agreement schedule of December 2027.

Halifax Water has partnered with HRM to integrate planned capital work into the Windsor Street Exchange project. The Halifax Water work includes plans to install the North End water feeder main, sewer separation and other infrastructure upgrades to support planned development growth. This work is subject to approval of the Utility and Review Board (UARB), which may introduce delays in awarding the construction work; the project team is working with Halifax Water to ensure that necessary approvals are in place prior to construction.

Sources: <https://cdn.halifax.ca/sites/default/files/documents/city-hall/regional-council/240618rc1517.pdf>

<https://cdn.halifax.ca/sites/default/files/documents/city-hall/regional-council/240618rc1517pres.pdf>

# HRM Risk Identification: Ignoring Enterprise Risk

Master Enterprise Risk Register Mar 1st 2021 v4  
Statement Summary

ATTACHMENT B

Enterprise Risks						
Risk No.	Enterprise Risk Name	Enterprise Risk Statement	Greatest Risk Impact Category	Assigned Priority Outcome Area	Net Likelihood	Net Impact
ER01	Mandate and Expectations	The risk that Halifax is unable to define expectations, mandate, and scope of issues resulting in poor decisions and sub-optimal resource allocation.	Reputation	Responsible Administration	2	3
ER02	Commuter Mobility Choices	The risk that commuters do not choose transportation options that minimize the use of single occupant vehicles resulting in an escalation in traffic congestion, demand for road network expansion, and increased carbon emissions.	Service Delivery / Infrastructure	Integrated Mobility	3	2

Source: <https://cdn.halifax.ca/sites/default/files/documents/city-hall/standing-committees/210325afscInfo2.pdf>

## Municipal risk identification ignores Enterprise Risk Register

ER01: The new Windsor Street Exchange is expected to last 50-70 years. Multiple municipal strategic plans state the city will de-prioritize car traffic within 6-25 years. In the 30% draft design staff prioritized automotive level of service to secure funding from outside sources.

Deprioritizing car traffic in the HRM would require a non-level of service re-redesign of the WSR Exchange. What is the cost of losing outside funding when compared to the cost of a re-redesign to achieve the HRM's strategic plans? If prioritizing automotive level of service to get outside funding in the short term would cost more in the long term that is the HRM being "unable to define expectations, mandate, and scope of issues resulting in poor decisions and sub-optimal resource allocation?"

Yes.



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ER01	Mandate and Expectations	The risk that Halifax is unable to define expectations, mandate, and scope of issues resulting in poor decisions and sub-optimal resource allocation.	Reputation	Responsible Administration	5	3
ER02	Commuter Mobility Choices	The risk that commuters do not choose transportation options that minimize the use of single occupant vehicles resulting in an escalation in traffic congestion, demand for road network expansion, and increased carbon emissions.	Service Delivery / Infrastructure	Integrated Mobility	3	2

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ER02	Commuter Mobility Choices	The risk that commuters do not choose transportation options that minimize the use of single occupant vehicles resulting in an escalation in traffic congestion, demand for road network expansion, and increased carbon emissions.	Service Delivery / Infrastructure	Integrated Mobility	3	2

## Municipal risk identification ignores Enterprise Risk Register

ER02: The Windsor Street Exchange is one of the main points of congestion in the HRM. One of the only ways to mitigate this is to achieve municipal planning strategies like the Bus Rapid Transit, Integrated Mobility or Moving Forward Together plans. This requires prioritizing bus traffic through choke points to encourage bus use. Staff did not recommend due to the fiscal incentives of level of service planning. According to the best available evidence, planning for an increase level of service will induce demand and incentivise people to choose driving. Would the choices made in the 30% design incentivise "commuters [to] not choose transportation options that minimize the use of single occupant vehicles resulting in an escalation in traffic congestion, demand for road network expansion, and increased carbon emission?"

Yes.

# HRM Risk Identification: Ignoring Enterprise Risk

Master Enterprise Risk Register Mar 1st 2021 v4  
Statement Summary

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Enterprise Risks						
Risk No.	Enterprise Risk Name	Enterprise Risk Statement	Greatest Risk Impact Category	Assigned Priority Outcome Area	Net Likelihood	Net Impact
ERO1	Mandate and Expectations	The risk that Halifax is unable to define expectations, mandate, and scope of issues resulting in poor decisions and sub-optimal resource allocation.	Reputation	Responsible Administration	5	3
ERO2	Commuter Mobility Choices	The risk that commuters do not choose transportation options that minimize the use of single occupant vehicles resulting in an escalation in traffic congestion, demand for road network expansion, and increased carbon emissions.	Service Delivery / Infrastructure	Integrated Mobility	5	2

RISK LIKELIHOOD SCALE	
Likelihood	Description
5 Almost Certain	<ul style="list-style-type: none"> <li>99% chance of occurrence within the next year</li> <li>Impact is occurring now</li> <li>Could occur within 'days to weeks'</li> </ul>
4 Likely	<ul style="list-style-type: none"> <li>Greater than 50% chance of occurrence within the next year</li> <li>Balance of probability will occur</li> <li>Could occur within 'weeks to months'</li> </ul>
3 Possible	<ul style="list-style-type: none"> <li>Between a 10 - 50% chance of occurrence within the next year</li> <li>May occur shortly but a distinct probability it will not</li> <li>Could occur within 'months to years'</li> </ul>
2 Unlikely	<ul style="list-style-type: none"> <li>Between a 1 - 10% chance of occurrence within the next year</li> <li>May occur but not anticipated</li> <li>Could occur in 'years to decades'</li> </ul>
1 Rare	<ul style="list-style-type: none"> <li>Less than 1% chance of occurrence within the next year</li> <li>Occurrence requires exceptional circumstances</li> <li>Exceptionally unlikely, even in the long term</li> <li>Only occurs as a '100-year event'</li> </ul>

Municipal risk identification ignores  
Enterprise Risk Register

Municipal Enterprise Risk Register does not accurately reflect the likelihood of risk in the HRM.

# Implementation:

## Auditors shmeneral, who need 'em?

### Executive Summary

Halifax Transit did not know about a fuel spill on their property for months. The spill was not detected by Halifax Transit personnel or systems, rather by a business which is located almost a kilometre away. In fact, Halifax Transit advised the OAG their initial reaction was they did not believe they were the source of the problem because they had identified in-ground tanks pose a higher environmental risk and had contracted with professionals who had installed a new above-ground fuel system and removed the in-ground fuel tanks. (Any facts around the relationship between Halifax Regional Municipality (HRM) and the contracted professionals and the respective responsibilities were outside the scope of this project and were not reviewed or considered in any manner by the OAG.) The basic question is; how then did or could this issue go undetected? Using a simplistic approach, the answer appears obvious. HRM did not have processes in place to first identify all the risks and then assess the possible impact multiplier, further, Halifax Transit did not have proper processes in place to identify when physical inventory losses were in fact occurring.

**HRM did not have processes in place to first identify all the risks and then assess the possible impact multiplier or to identify when physical inventory losses were in fact occurring.**

## The Basic Question: How do issues go undetected?

In 2015 The AG identified inadequacies in HRM's risk management related to a Halifax Transit fuel leak. The leak had been occurring for a long time and there were no processes in place to make sure Halifax Transit was taking proper care of it's hazardous materials. In an effort to mitigate risk the HRM revamped it's risk management team and framework in 2021. In 2024 the AG found that the new Risk Management team, tasked with fixing institutional laziness towards risk management, as their first order of business, assumed that the inadequate system they were put in place to fix was working fine.

How did the OAG find in 2015 and again in 2024 that basic risks continue to go undetected in the HRM?

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# So what?

Fix your risk management  
framework with one  
weird trick!

Vulnerabilities hate it!

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## Suggestions for a new framework

Staff risk assessment  
must go beyond annual  
budgets and liability

- Councillors are responsible for annual budgets and the long term wellbeing of the city.
- Only annual risks are regularly presented for consideration and debate

Hire a red team

- For 10 years HRM staff have missed risks to the HRM. At the same time outside accountability (eg journalism) has been in decline
  - HRM needs to be able to self-identify institutional risks and vulnerabilities
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**Questions?**

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