HALIFAX

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Item No. 2
Halifax Regional Council
June 20, 2023

TO: Mayor Savage and Members of Halifax Regional Council

Original Signed

SUBMITTED BY: _____

Cathie O'Toole, Chief Administrative Officer

DATE: June 9, 2023

SUBJECT: **Hazard Risk and Vulnerability Assessment**

INFORMATION REPORT

ORIGIN

Staff initiated information report to Council.

LEGISLATIVE AUTHORITY

Nova Scotia Emergency Management Act Section 10(1)(c), (e) Powers and Duties of the Municipality

Halifax Regional Municipality Bylaw Number E100 Pg 5, Section 5

Halifax Regional Municipality Administrative Order Number 2018-006-OP
Respecting Halifax Regional Fire & Emergency in the Halifax Regional Municipality Schedule 1, Pg 13, Section 6.0 Emergency Planning

BACKGROUND

A Hazard, Risk and Vulnerability Assessment (HRVA) is a process which identifies the likelihood and assesses the severity of consequences a community may experience during an emergency event. Well-structured emergency management programs require an ongoing HRVA program that is updated regularly to support, guide and inform organizational actions and priorities. The objectives of this process are intended to increase community and organizational resiliency to climate, technological, human-induced and conflict-related hazards by informing and influencing decision making processes as they pertain to the four pillars of emergency management, the projects included within each silo, and Critical Infrastructure.

The HRVA is an essential component to many Halifax Regional Municipality (HRM) programs including but not limited to HalifACT (climate action planning), HRM Business Continuity Planning and the Emergency Management Program. The information collected within this process also provides a valuable opportunity for stakeholder coordination and relationship building with external emergency management stakeholders and opens effective communication between HRM business units and communities.

It is industry best practice to update an organization's HRVA every five years, or when major changes have occurred. The previous HRM HRVA was completed in 2015 and was done so from a high-level operational lens and did not include any assessment of risk based occurrences or mitigation factor(s). The process outlined in this document will capture social and economic factors from qualitative and quantitative data gathered though extensive stakeholder participation and current census datasets. Hazard data will be gathered from hazard experts and internal datasets which will be imbedded within the process to inform the physical vulnerability portion of this assessment. The HRVA responds to these factors and is an imperative action towards developing a collective community understanding of hazards and developing programs to enhance emergency management practices in all levels of community and service provision.

In a holistic approach to this project, the Emergency Management Division will work with local community members, Emergency Management stakeholders, and Elected Officials to document and obtain relevant information about the hazards present in the Municipality and how each District can better prepare for emergencies. The findings from this assessment will be used as a tool in initiating important discussions, determining unacceptable levels of risk, and arriving at the highest priority hazards for risk management, resiliency building, and emergency management activities and funding priorities.

DISCUSSION

Developing an HRVA program to identify a better understanding of the hazards, risks, and vulnerabilities within the municipality is imperative in meeting the following goals through the Emergency Plan: to save lives, protect property and reduce the suffering of the municipality's citizens that could be impacted by crises through an organic program of disaster preparedness, response, recovery and mitigation initiatives.

As natural hazards are increasing in severity and frequency, HRM must consider developing and investing in opportunities to enhance its emergency management capabilities to support community resiliency. The most likely hazards in HRM include coastal flooding, ongoing threat of wildfire in wildland urban interface areas and extreme weather events causing damage to critical infrastructure and property.

Project Scope

The scope of this assessment will cover the entire geographic area of the HRM. Best efforts will be made to obtain relevant information from each community through organized information collection and public input. The HRVA will focus on identifying critical resources, infrastructure and services within the community, considering infrastructure that is owned and operated by HRM, First Nations, Provincial Government, Federal Government and the private sector. This analysis will consider the accessibility or availability of these resources to better understand how an event might affect each District.

Project Outcomes and Goals

The outcomes of the HRVA will provide a tool to help advise HRM project planning as it pertains to the following:
➢ identifying HRM Critical Infrastructure;
➢ updating the HRM Emergency Plan;
➢ ensuring that HRM Emergency Management Division is meeting requirements under HalifACT;
➢ identifying areas of concern where risk mitigation measures are appropriate;
➢ providing needed technical and societal information when planning resource and financial allocation for projects;
➢ enhancing community awareness and education through education and public engagement;
➢ providing data to Business Units where information from the HRVA is needed for BCPs and risk assessments;
➢ preparing budgets for cost-effective ongoing emergency planning; and,
➢ collaborating with agencies to develop recovery and community resiliency plans.

The goals of the HRVA are to:

➢ design the HRVA process to contribute to the Community Safety and Climate Action initiatives of the HRM;

➢ develop and design an online HRVA tool that aids in the product from both qualitative and quantitative information collected in the process;

➢ design the HRVA process in a way that develops a collective community understanding of what emergency hazards and risks exist throughout the HRM;

➢ complete the HRVA so that the HRM has critical technical input that will continue to inform HRM's business continuity program and emergency management program; and

➢ develop an HRVA to support community leaders and HRM staff in making informed risk-based plans to address vulnerabilities and the four pillars of emergency management within HRM's scope of responsibility.

Project Phases

The HRVA will be carried through four Phases.

➢ Establishing the Process
➢ Data Collection
➢ Implementation Planning
➢ Community Action

Each project phase has a clearly defined set of objectives and desired outcomes that will guide the project toward completion.

Project Completion

The nature of the HRVA is complex and is estimated to take up to two years to complete if supported appropriately. This complexity comes with evaluating 122 HRVA focus areas (geographic areas) and identifying how the 46 different hazards impact the resiliency of each. There are unique datasets available within HRM and through external government agencies to support the risk scoring of each Focus Area. Details of the Focus Areas and development methodology can be found in the attached *HRVA Project Charter.*

FINANCIAL IMPLICATIONS

This project is currently funded by HalifACT, and EM for other expenses. Funds will be allocated to the following:

➢ HRVA Tool (HalifACT);
➢ Staff (HalifACT);
➢ Meeting Expenses;
➢ Staff Travel;
➢ Printing Costs;

It should be noted that successful maintenance and upkeep of the program will also require future financial support that will be submitted in following year(s) budget submissions.

Building off of a previous pilot project that was funded by the Federal Government, the Emergency Management Division was able to capitalize on a cost saving opportunity to retain the services of the same Consultant to build the HRVA Beta platform off the initial project's framework. Due to this existing relationship and monetary funding provided by HalifACT, this project was moved forward during the 2022-2023 fiscal budget.

In the approved 2023-2024 Budget, HalifACT approved a temporary dedicated staff person to support this project for a two-year term (ending in March 2025) . This position has remained vacant due to administrative challenges and competition is currently open. This position will support the Emergency Management Division in data input into the HRVA tool, public engagement initiatives and other tasks associated with the HRVA. If this resource is still required for the 2025-2026 Budget, additional sources of funding would be required.

COMMUNITY ENGAGEMENT

To build awareness for the HRVA and to obtain key community information, the HRM will undertake an interactive and collaborative engagement process. This will be broken down into three phases: *Pre-engagement & Establishing the Team, Collecting the Data, and Gathering Public Feedback.*

➤ During the *Pre-engagement & Establishing the Team* phase, presentations will be delivered across HRM to identified interest groups in the region. Input from these stakeholders will be recorded and addressed by HRM staff and in the workplan of the project moving forward. Communication efforts and media relations will extend the project's key messages to residents of the HRM.

➤ The Collecting Data phase will work with HRVA Committees, stakeholders and residents, to identify hazards, understand vulnerabilities, assess likelihood and consequence of hazards, prioritize risk and identify mitigation strategies through meetings, focus groups/webinars, surveys and public meetings. The results of engagements will be communicated directly back to stakeholders through email, HRM website updates, as well as through media updates.

➤ The final phase of Gathering Public Feedback will present the final HRVA's to Regional Council, communities across the HRM through presentations and engagement events.

Due to many participants and community members likely engaged with the North American Indigenous Games, community meetings are being scheduled to begin the last week of July and will be 'rolled out' in consecutive order by Polling District. There will be one meeting per each Polling District excluding Districts 1 and 2 which will have two each. Council support at the meetings will be requested and booked accordingly.

ATTACHMENTS

    A. HRVA Project Charter
    B. Public Engagement Timeline

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.
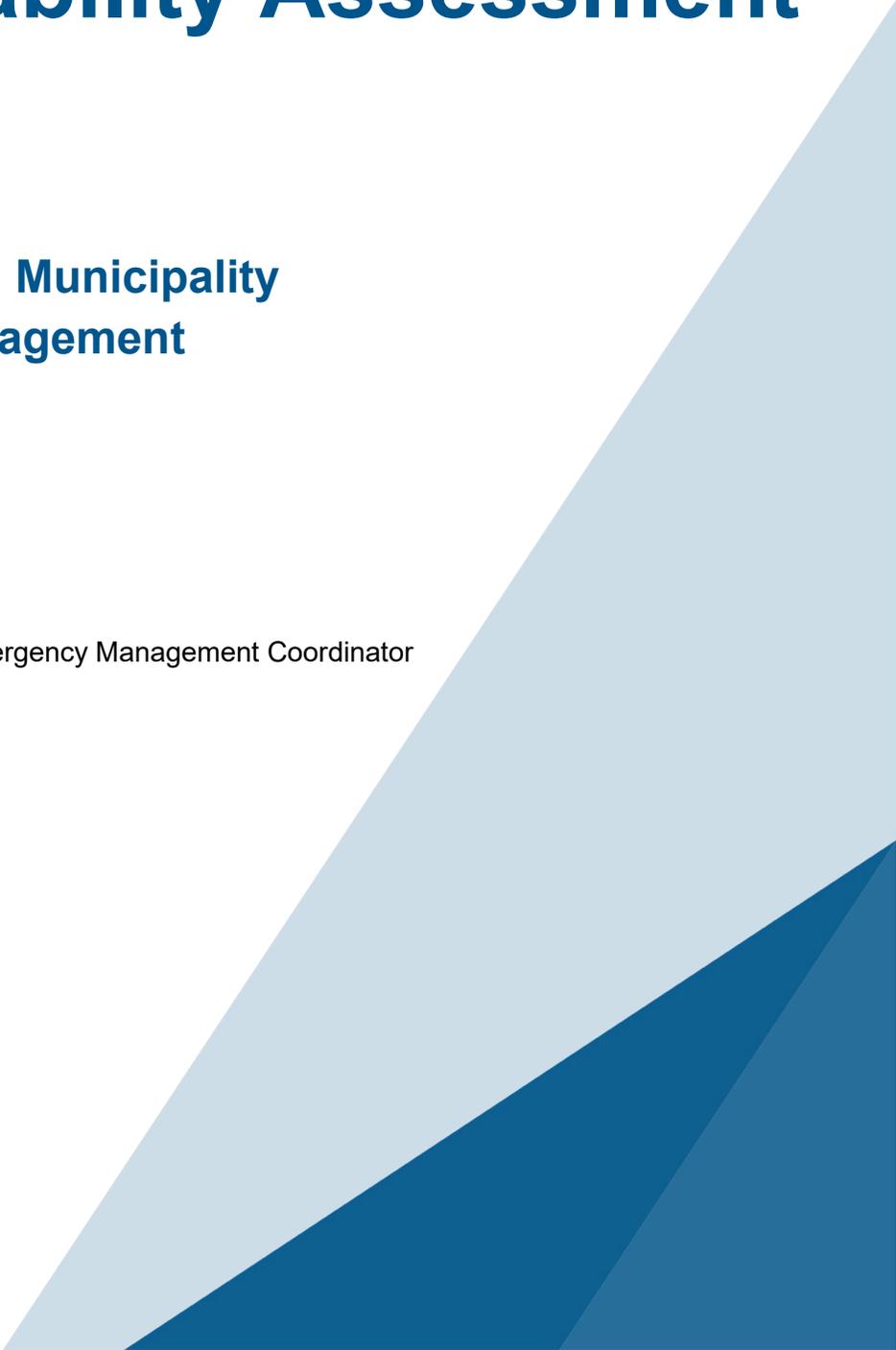

Hazard, Risk & Vulnerability Assessment

**Halifax Regional Municipality
Emergency Management**

Prepared by:

Haley Jeffrey, Assistant Emergency Management Coordinator
Emergency Management
Date: May 16, 2023

HALIFAX

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GENERAL

A Hazard, Risk and Vulnerability Assessment (HRVA) is a process to support government and communities in making risk-based choices to address vulnerabilities, mitigate hazards and prepare for response to, and recovery from emergencies and disasters. This assessment identifies the likelihood and assesses the severity of consequences a community may experience during an emergency event.

The HRVA is an essential component to many Halifax Regional Municipality (HRM) programs including but not limited to HalifACT (climate action planning), all business unit Business Continuity Planning (BCP) and the Emergency Management Program. The objectives of this process are intended to increase community and internal resiliency to climate, technological, human induced and conflict-related hazards by informing and influencing decision making processes as they pertain to the four pillars of emergency management, the projects included within each silo and Critical Infrastructure. The HRVA will be made available corporately to all Business Units and other stakeholders by request and permission only. Permission will be given by the Emergency Management Coordinator or designate solely due to the sensitive nature of data.

Purpose

As natural hazards are increasing in severity and frequency, HRM continues to develop and invest in opportunities to enhance its emergency management capabilities. The most likely hazards in HRM include coastal flooding, the ongoing threat of wildfire in wildland urban interface areas and extreme weather events causing damage to critical infrastructure and property.

The previous HRM HRVAs have been completed from a high-level operational lens, with no substance to what is needed to reduce or mitigate hazards, risk or the vulnerability. The process outlined in this document will capture social and economic factors that also contribute to vulnerability. The HRVA responds to these factors and is an imperative action towards developing a collective community understanding of hazards and developing programs to enhance emergency management practices in all levels of community and service provision.

HRM staff will work with local community members, Emergency Management stakeholders, and Elected Officials to document and obtain relevant information about the hazards present in the Municipality and how each District can better prepare for emergencies. The findings from this assessment will be used as a tool in initiating important discussions, determining unacceptable levels of risk, and arriving at the highest priority hazards for risk management, resiliency building, and emergency management activities.

In particular, the outcomes of the HRVA will provide a tool to help advise HRM project planning as it pertains to the following:

➢ Identifying HRM Critical Infrastructure;
➢ updating the HRM Emergency Plan;
➢ ensuring that HRM Emergency Management Division is meeting requirements under HalifACT;
➢ identifying areas of concern where risk mitigation measures are appropriate;
➢ providing needed technical and societal information when planning resource and financial allocation for projects;
➢ enhancing community awareness and education through public engagement;
➢ providing data to Business Units where information from the HRVA is needed for BCPs and risk assessments;

➤ preparing budgets for cost-effective ongoing emergency planning; and,
➤ collaborating with agencies to develop recovery and community resiliency plans.

This is a living document and will evolve to address new and developing priorities and data.

Scope

The scope of this assessment will cover the entire geographic area of the HRM. Best efforts will be made to obtain relevant information from each community through organized information collection and public input. The HRVA will focus on identifying critical resources, infrastructure and services within the community, considering infrastructure that is owned and operated by HRM, First Nations, Provincial Government, Federal Government and the private sector. This assessment will consider the accessibility or availability of these resources to better understand how an event might affect each District.

Hazards

The HRVA will consider hazards that present a risk to the Municipality overall including the First Nations land, Federal and Provincial parcels that fall within the municipal boundaries. The assessment will be inclusive of natural and human-caused emergencies including but not limited to all hazards that require a disaster response and can potentially disrupt communities.

The hazards that have been identified and that will be addressed within the HRVA are listed in *Appendix 3* of this document. The recurrence interval or return period, chosen for the HRVA is the 1:100yr occurrence to ensure all hazards would be represented from a consistent interval and data. It is important to note that the data utilized to inform this assessment will have exponentially more detailed data and return periods for more specific planning purposes.

Risk

The HRVA tool will allow HRM to examine and explore the impact of changes in risk based on relative prioritization of certain variables above others, in addition to the ability to make comparisons of various analyzed scenarios to each other and to the baseline HRVA. Risk data will be incorporating qualitative and quantitative data from emergency preparedness and response (EP&R) systems, and social capital / community cohesion.

Risk will be calculated creating an average 'Risk Score' with average hazard probability scores, averaged social vulnerabilities. Recognizing that academic research, practical experience, and public perception have bearing on risk management, the scoring approach design will have a modifiable element for all hazard types, social vulnerability types, and structural vulnerability.

Vulnerability

For the purpose of the HRVA, vulnerability will be defined as "the conditions determined by physical, social, economic, and environmental factors or processes which increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards[1]."

The data gathered on vulnerability will be through the engagement of key stakeholders as outlined in the Stakeholder Engagement Plan.

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[1] *An Emergency Management Framework for Canada Third Edition, Public Safety* https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2017-mrgnc-mngmnt-frmwrk/2017-mrgnc-mngmnt-frmwrk-en.pdf Accessed March 22, 2022

Recommendations

All mitigation strategies proposed in the HRVA will follow due process when being assessed by HRM Business Units. Consideration will be transparent and consider jurisdictional responsibility, the immediate, mid-term and long-term costs, funding availability, and long-term impacts.

Once the HRVA process is complete, a strategy to inform future risk assessments will include climate change data and new community development.

Authority

This HRVA is a requirement mandated by the Nova Scotia *Emergency Management Act, Section 10 (1) (e): "Prepare and approve emergency management plans".*

Project Oversight

The HRVA project team will be supported by staff from both HRM Emergency Management and HRM Environment and Climate Change. HRM Emergency Management division will ensure the project continues to move forward meeting project timelines and expected progress.

Required Resources

This project requires monetary and staff resources to successfully develop and implement the program. Funds will be allocated to the following:

➢ HRVA Tool
➢ Staff
➢ Staff Travel
➢ Meeting Expenses
➢ Printing Costs

Future budget submissions will include funds to ensure the successful maintenance and upkeep of the program. As HRM continues with new developments and communities, the HRVA will need to be informed through a continuous process outlined later in this document.

Definitions[2]

Emergency Operations Centre (EOC)	HRM's emergency and disaster response organization that supports residents who are displaced from their homes and Business Continuity for internal essential services.
Hazard, Risk, Vulnerability Assessment (HRVA)	A Hazard, Risk and Vulnerability Assessment (HRVA) is a process which identifies the likelihood and severity of consequences a community may experience during an emergency event.
Hazards	A source of potential harm, or a situation with a potential for causing harm, in terms of human injury; damage to health, property, the

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[2] *An Emergency Management Framework for Canada Third Edition, Public Safety* https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/2017-mrgnc-mngmnt-frmwrk/2017-mrgnc-mngmnt-frmwrk-en.pdf Accessed March 22, 2022

	environment, and other things of value; or some combination of these.
Impact	The physical/environmental, social, economic, and political consequences or adverse effects that may occur as the result of a hazardous event.
Risk	A concept that considers the likelihood that a hazard will occur and the severity of possible impact to health, property, the environment, or other things of value.
Vulnerability	The conditions determined by physical, social, economic, and environmental factors or processes which increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards.
Mitigation	To adapt to, eliminate or reduce the risks of disasters in order to protect lives, property, the environment, and reduce economic disruption. Prevention/mitigation includes structural mitigative measures (e.g. construction of floodways and dykes), non-structural mitigative measures (e.g. building codes, land-use planning, and insurance incentives). Prevention and mitigation may be considered independently, or one may include the other.
Emergency	The management of emergencies concerning all-hazards, including all activities and risk management measures related to prevention and mitigation, preparedness, response and recovery.
Disaster	Essentially a social phenomenon that results when a hazard intersects with a vulnerable community in a way that exceeds or overwhelms the community's ability to cope and may cause serious harm to the safety, health, welfare, property or environment of people; may be triggered by a naturally occurring phenomenon which has its origins within the geophysical or biological environment or by human action or error, whether malicious or unintentional, including technological failures, accidents and terrorist acts.
HalifACT	HalifACT is the climate action movement for Halifax. It's our community response to the climate crisis that will build a more resilient and healthy future in Atlantic Canada while preparing for current and future climate impacts. HalifACT is more than a plan - it's a commitment to reducing emissions, switching to clean and reliable energy sources and demonstrating local government leadership.

This transformational plan aligns the municipality's efforts to support an equitable shift to a net-zero economy by 2050.[3]

District	Sectors of HRM broken down into polling areas represented by an Elected Official. There are sixteen Districts in HRM. Noting that electoral boundaries may be changing in 2023/4.
Emergency Management	The management of emergencies concerning all-hazards, including all activities and risk management measures related to prevention and mitigation, preparedness, response and recovery
Resiliency	Resilience is the capacity of a system, community or society exposed to hazards to adapt to disturbances resulting from hazards by persevering, recuperating, or changing to reach and maintain an acceptable level of functioning. Resilient capacity is built through a process of empowering citizens, responders, organizations, communities, governments, systems and society to share the responsibility to keep hazards from becoming disasters.
Return Period	A return period, also known as a recurrence interval or repeat interval, is an average time o an estimated average time between events such as earthquakes, floods, landslides, or river discharge flows to occur. For the purpose of this HRVA Assessment, the 1:100yr occurrence has been decided to best capture all hazard probabilities.
Critical Infrastructure	Refers to processes, systems, facilities, technologies, networks, assets and services essential to the health, safety, security or economic well-being of Canadians and the effective functioning of government. Critical infrastructure can be stand-alone or interconnected and interdependent within and across provinces, territories, and national borders. Disruptions of critical infrastructure could result in catastrophic loss of life, adverse economic effects, and significant harm to public confidence.
Elected Officials	Individuals elected to represent communities within HRM Districts as councillors on Regional Council. Councillors also sit on boards, committees and commissions, standing committees and community councils.
Regional Council	The main, decision-making body for Halifax Regional Municipality.[4]
Focus Areas	Focus Areas are the boundaries developed that will present HRVA mapping, physical vulnerability and social vulnerability. Boundaries

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[3] *HalifACT, Acting on Climate Change Together* https://www.halifax.ca/about-halifax/energy-environment/halifact-2050-acting-climate-together accessed March 22, 2022
[4] *Regional Council – City Hall* https://www.halifax.ca/city-hall/regional-council accessed March 22, 2022

were developed based on Elementary School Catchment areas, Polling District, Stats Canada Information, community information and other emergency management characteristics. HRVA Focus Areas represent more precise representation of data and analytical requirements for this project.

Confidentiality

The HRVA will contain both general and confidential information. General information used when preparing the HRVA will be made available publicly however, some specific content in the HRVA is strictly for internal use and will not be contained in the public version of the HRVA. Details of critical infrastructure will be excluded as the HRM is bound by the *Freedom of Information and Protection of Privacy Act (FOIPOP)*. Some pages and sections of the HRVA will be intentionally left blank for confidentiality purposes.

The HRVA will be made available corporately to all Business Units and other stakeholders by request and permission only. All operational information that is not released to the public is highly confidential. Staff are not to release any unauthorized information to the public Permission will be given by the Emergency Management Coordinator or designate solely.

PROJECT OUTLINE

Developing an HRVA program to identify a better understanding of the hazards, risks, and vulnerabilities within the municipality is imperative in meeting the following goals through the Emergency Plan: to save lives, protect property and reduce the suffering of the municipality's citizens that could be impacted by crises through an organic program of disaster preparedness, response, recovery and mitigation initiatives.

Key Goals

The overall goals of this HRVA are to:

➢ design the HRVA process to contribute to the Public Safety Strategy, Community Safety and Climate Action initiatives of the HRM;

➢ develop and design an online HRVA tool that aids in the product from both qualitative and quantitative information collected in the process;

➢ design the HRVA process in a way that develops a collective community understanding of what emergency hazards and risks exist throughout the HRM;

➢ complete the HRVA so that the HRM has critical technical input that will continue to inform HRM's business continuity program and emergency management program; and

➢ develop an HRVA to support community leaders and HRM staff in making informed risk-based plans to address vulnerabilities and the four pillars of emergency management within HRM's scope of responsibility.

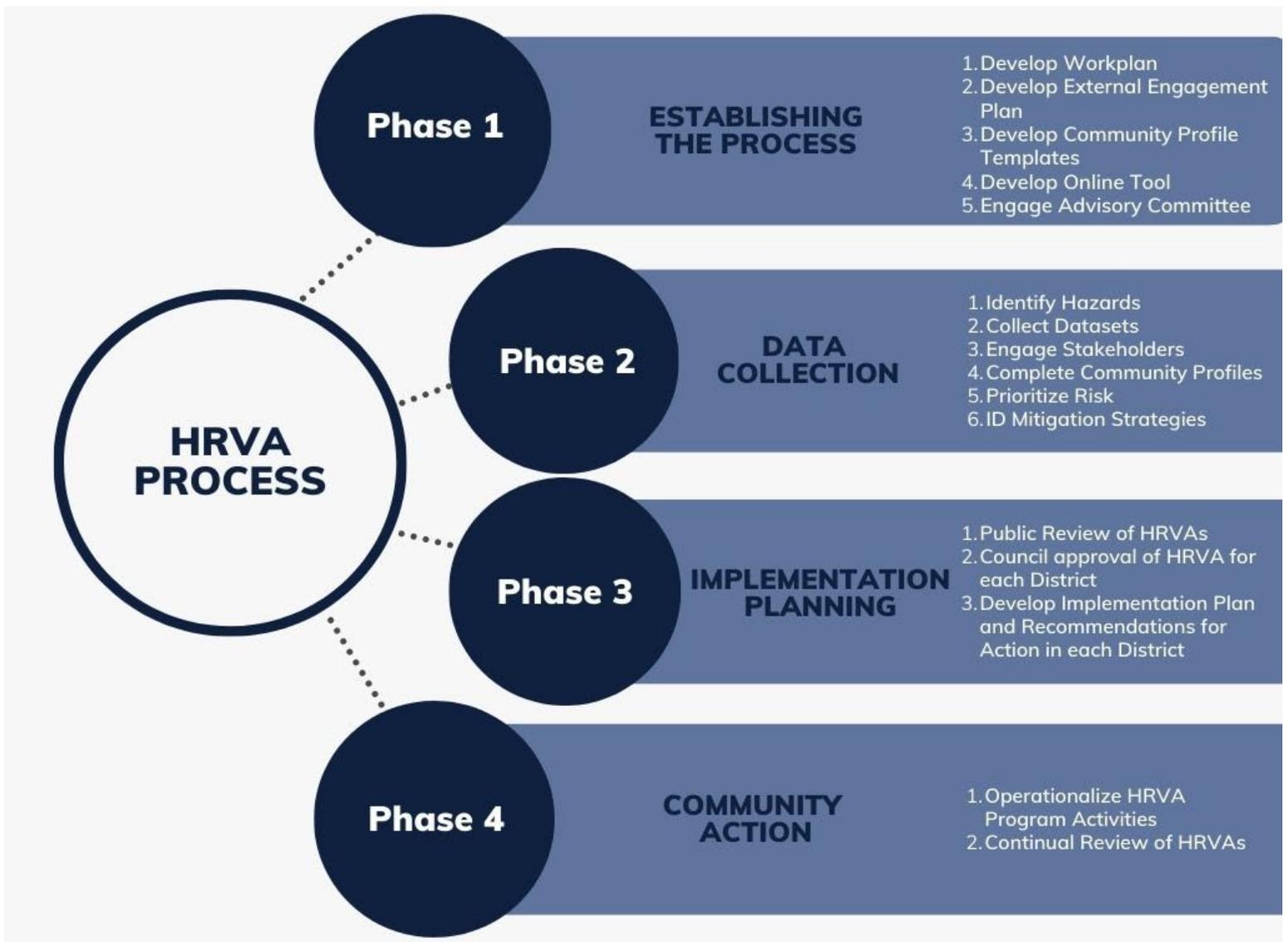## Objectives

The objectives of the HRVA program are to:

➢ establish collaborative discussion opportunities for each designated HRVA Focus Area;

➢ strengthen relationships with residents, and other emergency management stakeholders;

➢ complete a detailed HRVA for each HRVA focus area of the HRM that will:
  - include community profiles;
  - identify and facilitate a common understanding of current natural, human-caused, and conflict-related hazards;
  - develop a shared understanding of the likelihood and potential consequences of risks associated with the identified hazards;
  - apply community and traditional knowledge to develop a history of past-hazards and to inform the possible consequences of each hazard;
  - identify indicators and levels of community resiliency, physical and social vulnerability;
  - gauge public acceptability of risk and prioritize the hazards that pose the most significant risk; and
  - identify recommendations for mitigation strategies to build community resiliency.

➢ deliver consolidated HRVA's for each District, including identifying the highest to lowest risk to highest risk that will allow for priorities of recommendations.
  - environmental changes to hazards over time to ensure up-to-date information is included;
  - delivers strong public messaging and education on high-risk hazards;
  - ongoing HRVA outreach and engagement strategies;
  - explores alternative funding models for program continuance and maintenance;
  - identifies partnership opportunities with local governments and First Nations; and
  - make recommendations for an annual program maintenance budget.

PROJECT DEVELOPMENT & IMPLEMENTATION

Phased Approach

The HRVA is essential for ensuring that the HRM's Emergency Program is effective and considers its unique geography and demographics. The phases below highlight HRM's intent for a collaborative approach that involves community members and hazard experts in the development of an HRVA for each District. The HRM HRVA process will be broken down into four phases. Detailed components and objectives for each phase are outlined in Figure 1 below.

Figure 1

Phase 1 — ESTABLISHING THE PROCESS
1. Develop Workplan
2. Develop External Engagement Plan
3. Develop Community Profile Templates
4. Develop Online Tool
5. Engage Advisory Committee

Phase 2 — DATA COLLECTION
1. Identify Hazards
2. Collect Datasets
3. Engage Stakeholders
4. Complete Community Profiles
5. Prioritize Risk
6. ID Mitigation Strategies

Phase 3 — IMPLEMENTATION PLANNING
1. Public Review of HRVAs
2. Council approval of HRVA for each District
3. Develop Implementation Plan and Recommendations for Action in each District

Phase 4 — COMMUNITY ACTION
1. Operationalize HRVA Program Activities
2. Continual Review of HRVAs

HRVA PROCESS

Phase 1: Establishing the Process

Phase 1 will focus on establishing the following structures to facilitate a successful collaborative process.

OBJECTIVES	OUTCOMES
1. Collect information and resources to better understand opportunities for collaboration in the development of the HRVA. ➤ Liaise with internal stakeholders to determine critical datasets necessary to the HRVA. ➤ Identify external stakeholders to approach that have critical datasets that are imperative to the HRVA.	1. Completion of the HRVA Tool. The HRVA tool will be the framework which will be where the HRVA and data will be housed.
2. Establish a process for communication and engagement for the HRVA.	2. External Engagement Plan The development of a draft external engagement plan will include key messaging, an engagement schedule, key forums for sharing information and receiving feedback from HRVA Working Group, stakeholders, and the public, a detailed stakeholder list to inform the HRVA Working Group and subject matter experts, a promotional scheme/branding for sharing information with the public and promoting engagement opportunities and communicate risks and mitigation. The plan will outline development of print and online materials, such as a project website and social media. This will be reviewed with the Emergency Management Committee, updated, and used throughout Phases 1 – 3 of the project.
3. Develop Web Based HRVA Tool ➤ This development will require the partitioning of HRM into HRVA Focus Areas.	3. Draft Community Profile Report and Document Database A draft Community Profile report will be used to inform the scope and conversations of the District specific HRVA's. The information collected will be informed by statistics, discussions with potential partners, subject matter experts, community residents and will include: ➤ community profiles and boundary maps for review and consideration; ➤ inventory of reports, studies, policies, actions and resources that contribute

OBJECTIVES	OUTCOMES
	to an understanding of hazards or vulnerabilities in the HRM communities; and ➢ gather existing hazard information, including traditional knowledge and historical hazard data.
4. Determine effective HRVA Focus Areas and develop spatial layer for data presentation.	5. Confirm <u>Emergency Management Committee Support</u> The Emergency Management Committee will act as the advisory group for the HRVA project. The purpose of the advisory role is to ensure the HRVA project goals are achieved from a municipal wide lens and to identify key individuals who will help gain community engagement and willingness to participate. Elected Officials will be asked to review the objectives and outcomes. In particular, the Councillors will: ➢ identify key individuals who may participate in the District specific HRVA Working Groups; ➢ advise staff on engagement tools and outreach techniques best suited for each District; ➢ serve as project champions to ensure the HRVA project receives the appropriate attention it requires; and ➢ assist HRM-EM staff as the project progresses with any hurdles or unforeseen resources required to complete the assessment.
	6. Develop Terms of Reference for Working Group Developing a draft Terms-of-Reference which outlines the purpose, The intent of the committees is to engage community stakeholders and subject matter experts This committee could include a diverse selection of individuals who have a well-rounded outlook on their District and may consist of any of the following community representatives: ➢ HRM District Councilor (Co-Chair); ➢ utility representatives;

OBJECTIVES	OUTCOMES
	- local First Nations officials; - HRM Climate specialists; - social services agencies; - long term residents and elders (Co-Chair); - media; - agricultural association representatives; - emergency response agencies; - public sector/ institution; - industry and business; and, - rotating hazards experts.

Phase 2 Collecting the Data

Phase 2 will implement the collaborative processes designed in Phase 1 to complete the necessary technical work in identifying hazards, risks, community vulnerabilities and mitigation strategies. This phase will focus on externally engaging stakeholders to collect information and participate in the technical analysis required to complete the HRVA.

OBJECTIVES	OUTCOMES
1. Engaging external partners and subject matter experts in the HRVA process.	1. Hazard Identification Staff will collect hazard related documents, other risk assessments, historical archives, and other hazard data sources. Following this, the HRM staff team staff will conduct hazard follow up identification interviews, define any unique hazards, and consider surveying the public to confirm identified hazards in each District. Hazards will be confirmed and defined before proceeding in the data collection process.
2. Completing a HRVA for each District, simultaneously across the HRM. ➢ Staff will research and develop content for review by the HRVA Working Group through each step of the HRVA process. The following HRVA steps will be taken to assist the HRM in populating the HRVA online tool that will generate reports for each District:	3. Vulnerability Assessment - Understanding Community Resilience The HRM staff team will work with the HRVA Working Groups to collect information on existing risk reduction measures, update community maps, identify critical resources and infrastructure, identify social and economic vulnerabilities, physical and environmental vulnerabilities, and underlying risks drivers. Staff will consider follow-up interviews or sector-specific engagement sessions to better understand community vulnerabilities and

OBJECTIVES	OUTCOMES
	explore any unique partnership opportunities related to response and community vulnerabilities.
	4. Risk Assessment - Hazard Likelihood HRM staff will gather and apply scientific and local knowledge to determine historical likelihood scores, understand and document changing likelihood scores, and assess future likelihood. The results of this assessment will be presented to the technical experts to assign frequency ratings that will be documented in an online HRVA tool.
	5. Impact Analysis - Assess Consequences Using hazard consequence categories and a rating system, the project staff team will collaborate with the technical experts to review, rate, and document the potential hazard impacts to communities.
	6. Prioritize Risk In this step, HRM Staff will review the risk matrices developed using the online HRVA tool. The matrices will outline the risk levels and consequences of all hazards identified in the process. EM Staff will engage working groups to rank hazard priorities for each District and gather information to gauge the public's acceptability of these risks and issues.
	7. Resiliency Planning - Identify Mitigation Strategies The HRM staff team will summarize mitigation measures in place and work with stakeholders to generate strategies and actions to reduce risk and vulnerability to priority hazards. Development of evaluation criteria for mitigation measures will be considered and may include the development of a cost and benefit analysis for the most promising risk reduction options, including an estimate of the prevented loss of life, property damage, and community disruption with attention to timelines, funding source, maintenance

OBJECTIVES	OUTCOMES
	requirements, responsibility, and accountability to taxpayers.
	8. Review Draft HRVA In this step, the draft HRVA reports for each District will be reviewed with the HRVA Working Group. The HRM staff team will incorporate and consider feedback.
	9. Emergency Planning Committee Progress Updates Throughout the HRVA, the HRM staff will provide progress updates to the Emergency Planning Committee. These updates will ensure the HRVA's are coordinated across the Municipality and identify any deficiencies or efficiencies that can be addressed throughout the process.

Phase 3: Implementation Planning

Phase 3 will focus on formal approval of the HRVA's and the development of implementation plans for each District.

OBJECTIVES	OUTCOMES
1. To seek approval from the HRM Council for each HRVA.	1. Present HRVA's to the Public Strategize and develop a plan to share the HRVA's with the public, seek comments and feedback for consideration before final approval by Regional Council. A review will include both in-person meetings and providing up-to-date webpage content.
2. To develop implementation plans for each Districts' ongoing HRVA program.	3. Obtain approval of HRVA for each District Each District's HRVA will be sent to Regional Council for final approval and integration into the Emergency Plan.
	4. Draft an Implementation Plan for each District An implementation plan will look to apply the findings from the HRVA and clear recommendations to: ➢ outline priority mitigation strategies;

OBJECTIVES	OUTCOMES
	- identify funding sources and allocate resources for risk mitigation; - enhance community preparedness and education; - update the Crisis Communications Plan; - prepare budgets for cost-effective ongoing emergency planning; - outline an HRVA review schedule for each District that will consider observed environmental variations over time; and - outline objectives to ensure a continuous HRVA program.
	5. Collect Feedback on Draft Implementation Plans The HRM staff team will present the draft Implementation Plan to Emergency Management Committee, and any identified community partners before seeking approval from the HRM Council.

Phase 4: Community Action

Phase 4 will incorporate the HRVA project into the Emergency Plan and implement the ongoing HRVA program to ensure continual improvement and revisions.

OBJECTIVES	OUTCOMES
1. Operationalize HRVA program objectives, recommendations, community education initiatives relating to community hazard preparedness	1. Operationalize HRVA Program Activities Ensuring the HRVA program activities are incorporated into the HRM Emergency Management annual workplan and HRM budgets will reinforce the HRVA programs continued effectiveness. This will include continual engagement with HRVA Working Group and action on identified activities from the implementation plan.
update HRVA's for each District according to the proposed review schedule	2. Ongoing HRVA Updates Phase 4 of this project will identify an anticipated rotating future review schedule that the HRM will pursue to ensure that the HRVA's information is accurate and up to date.

Limitations / Assumptions

The following limitations are to be considered during the planning:

➢ funding for the HRVA program will drive the timeline of the project and future implementation;

➢ understanding of the HRM's jurisdictional role and responsibilities as they relate to Emergency Planning and mitigation within the boundary of the Municipality;

➢ each community within the HRM is unique with regards to its capacity to participate in collaborative projects; and

➢ the project's geographic scope is large, creating a limitation on the level of detail possible when creating HRVA's for each District that provides a level of detail at a neighbourhood level.

At the time of writing, the following major assumptions are being made:

➢ Provincial and other HRM Business units will provide information and data about hazards, historical frequency, and any associated research at no cost; and

➢ projects may be suspended if interruptions from natural disasters or local states of emergency are declared and will resume and consider the effects of the most recent emergency disasters in the assessment; funding for projects and positions will be extended accordingly.

Methodology

HRVA Focus Areas

Focus Areas are the boundaries developed that will present HRVA mapping, physical vulnerability and social vulnerability. Boundaries were developed based on Elementary School Catchment areas, Polling District, Stats Canada Information, community information and other emergency management characteristics. HRVA Focus Areas represent more precise representation of data and analytical requirements for this project.

Hazard Identification

The hazards listed in *Appendix 3* were identified as being most likely to occur within HRM due to historical record of occurrence and existing infrastructure risk. The hazards and hazard groups presented are referenced from the *BC Emergency Management System Hazard Risk and Vulnerability toolkit*[5] and Public Safety Canada. These reference documents were utilized as the hazards within the Port and Coastal influence are similar and comprehensively documented.

Risk

Risk will be calculated creating an average 'Risk Score' with average hazard probability scores, averaged social vulnerabilities. Recognizing that academic research, practical experience, and public perception have bearing on risk management, the scoring approach design will have a modifiable element for all hazard types, social vulnerability types, and structural vulnerability.

To accurately calculate risk, this project will incorporate risk controls into the assessment. Essentially, the inherent (or baseline) risk can be determined using relatively static data. The inherent risk then has controls applied to it, such as preparedness and response systems, that result in residual risk. Residual risk is what should be actively managed by the municipality.

The two identified Risk Controls are Emergency Preparedness and Response Capability and Social Capital Strength.

Vulnerability

Physical

Physical Vulnerability will be calculated through 11 indicators using qualitative data available. The indicators include Population, Public Health, Food, Finance, Water, Communications, Public Safety, Utilities, Manufacturing, Government, and Transportation. All data is sourced through HRM Open data.

Social

Social Vulnerability will be calculated through 8 indicators sourced from statistics Canada using qualitative data. Children, Elderly, Low Income, Female %, Official Language Ability, Unemployment, Education Level, and Single Parents.

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[5] https://www2.gov.bc.ca/gov/content/safety/emergency-management/local-emergency-programs/assessment-analysis/hrva-guides-resources

EXTERNAL ENGAGEMENT PLAN

Purpose

The purpose of this External Engagement Plan is to outline the overall communication and engagement strategy that will guide and support the development of the HRVA across the municipality. In addition, this Plan will serve as a living document for developing communications material that will ensure the communications with external organizations is consistent with the goals of the project and expectations of HRM senior Staff and Council members. This document aims to achieve the following:

➢ articulate the project's engagement objectives and key messages;
➢ provide an overview of the key audiences that will be engaged in the project; and,
➢ describe the engagement activities that will be facilitated throughout the process including strategies, tools, and estimated timelines.

Scope

The scope of the plan will focus on the HRM HRVA.

Engagement Objectives

The objectives of the Engagement Process are as follows:

➢ establish ongoing HRVA Working Groups for each District that will work with HRM staff over the life of the project to provide direction, identify community vulnerabilities, seek agreement on the HRVA's outcomes, and generate new mitigation strategies that will benefit the municipality;
➢ strengthen relationships with other regional and provincial disaster response organizations;
➢ project outcomes will lead to strengthened connections with residents across the region to both understand individual vulnerabilities and provide hazard risk information that can help residents build individual resiliency to emergency situations; and,
➢ engagement findings will have shaped each District's HRVA.

Project Communications

It is important to use plain language to ensure that the HRVA is easy to understand and does not lead to confusion for the public. This section includes a project title and key messages that use plain language to explain the project to the public.

Project Title

Hazard, Risk and Vulnerability Assessment

Key Messages

'The mission of the Halifax Regional Municipality Emergency Management Division is to coordinate all Municipal activities that will save lives, protect property and reduce the suffering of the municipality's citizens that could be impacted by crises through an organic program of disaster preparedness, response, recovery and mitigation initiatives.'[6]

Key messages are integrated into the Project Primer. The project Primer in Appendix 'A' is intended to serve as a public-facing document that helps to articulate the purpose and scope of the project in plain language.

Project Narrative

1. Building consensus on the emergency issues facing HRM:
    - Hazards - A source of potential harm, or a situation with a potential for causing harm, in terms of human injury; damage to health, property, the environment, and other things of value; or some combination of these;
    - Risks – A concept that takes into consideration the likelihood that a hazard will occur, as well as the and the severity of possible impacts to human health, property, the environment, and other things of value;
    - Vulnerabilities – The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards; and,
    - Impact – The physical/environmental, social, economic and political consequences or adverse effects that may occur as the result of a hazardous event.
2. Assisting Elected Officials and stakeholders to understand and link the issues to emergency management practices in HRM through solutions found in the project narrative:
    - Engagement – develop a collective community understanding of what emergency hazards exist throughout HRM; and,
    - Action – develop activities that improve our awareness and resilience to emergencies throughout HRM.

Key Messages for the General Public

1. Our communities may face severe consequences due to human-caused and natural hazards. These hazards pose a risk to our residents and expose our diverse Municipality to potential vulnerabilities.
2. In response, the HRM is working to improve its overall emergency management systems by completing a Hazard Risk Vulnerability Assessment (HRVA) for each of the Districts to:
    - develop understanding of what emergency hazards exist throughout the Municipality and how they increase community vulnerability; and,
    - develop activities that improve awareness and our community's ability to withstand emergencies throughout the Municipality.
3. The HRVA will invite the participation of local community members, emergency response agencies, stakeholders, and Elected Officials.

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[6] *Halifax Regional Municipality – Emergency Management Five Year Strategic Plan (2019) – Assistant Chief Erica Fleck*

4. The results from the assessment will serve as a useful tool to:
   ➢ update Emergency Plans;
   ➢ allocate resources for risk mitigation;
   ➢ enhance community preparedness and education; and,
   ➢ collaborate with agencies on emergency management.
5. A HRVA is a critical part of every emergency program.

Project Website

The HRVA coordinator will be responsible for providing updates for the HRVA webpage. Content for the website will be broken down by District, revised at key project milestones and will include an initial outline of the project Phases.

Key Audiences

To deliver the described engagement objectives, staff will engage with HRM residents, various stakeholders, First Nations, and elected officials. The table below provides an overview of each stakeholder group, their level of engagement and which engagement forums will be available to them. The level of engagement is adapted from the International Association for Public Participation's (IAP2) spectrum of engagement. A detailed stakeholder list is provided in Appendix 2.

	Inform	Consult	Involve	Collaborate	Empower
Engagement Goal	Providing balanced and objective information to assist individuals and organizations in understanding the problem, alternatives, opportunities and/or solutions.	Obtaining feedback on analysis, alternatives and/or decisions.	Working directly with individuals and organizations throughout the process to ensure that concerns and aspirations are understood and considered.	Partnering with individuals and organizations in each aspect of the development of recommendations including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the organizations and individuals external to the HRM

	Inform	Consult	Involve	Collaborate	Empower
Stakeholders	➢ General Public	➢ General Public ➢ JEM/CMT ➢ HRM Council ➢ General Public ➢ Identified stakeholders ➢ Provincial Government staff involved in Emergency Response ➢ Federal Government staff involved in Emergency Response.	➢ HRVA Working Group ➢ JEM/CMT	➢ HRM Council ➢ First Nations ➢ CMT/JEM	➢ HRM Council
Engagement Forums	➢ Project Website and Printed Information Bulletins ➢ Social Media Posts, emails ➢ Explainer Videos ➢ Media Releases ➢ Response summaries	➢ Online/mailed Surveys ➢ Social media polls ➢ Stakeholder Interviews ➢ Open Houses	➢ Committee meetings ➢ Focus Groups/ focused conversations ➢ Workshops		➢ n/a

	Inform	Consult	Involve	Collaborate	Empower
Topics of Discussion	➢ Project Key Messages & Purpose & Project Updates	➢ Survey: Identifying hazards and mitigation activities ➢ Interviews: Identifying hazard risks, data collection, social and economic vulnerabilities, physical and environmental vulnerabilities	➢ Populating the EMBC HRVA tool and developing HRVA's for each EA that represent the hazards and risks to rural residents, identify partnership efficiencies and opportunities.	➢ n/a	➢ n/a

Engagement Process Overview & Timeline

To build awareness and a collaborative process for the HRVA, the HRM will undertake an interactive engagement process. This will be broken down into three phases: Pre-engagement & establishing the team, collecting the data, and gathering public feedback.

During the Pre-engagement and establishing the team phase, presentations will be delivered across HRM to identified interest groups in the region. Input from these stakeholders will be recorded and addressed by HRM staff and in the workplan of the project moving forward. Communication efforts and media relations will extend the project's key messages to residents of the HRM.

The Collecting Data phase will work with HRVA technical and community stakeholders, to identify hazards, understand vulnerabilities, assess likelihood and consequence of hazards, prioritize risk and identify mitigation strategies through meetings, focus groups/webinars, surveys and public meetings. The results of engagements will be communicated directly back to stakeholders through email, HRM website updates, as well as through media updates.

The final phase of Gathering Public Feedback will present the final HRVA's to communities across the HRM through presentations and engagement events.

Detailed components of the engagement plan phases are described in more detail below:

Phase 1 – Pre-Engagement and Establishing the Team

Engagement Forums	Purpose of Forum	Communication Tools/Deliverables	Involved Groups
HRVA Overview Presentation	➢ ensure HRM Council member endorsement and approval of the project.	➢ Virtual Power point presentations	➢ Senior Management ➢ EM Committee
Build Project Awareness	➢ Provide a landing pad for information on the project and a location to house any updates and future HRVA information. ➢ Explain the HRVA in simple language.	➢ Project website landing page links to each District process. ➢ Information video for website. ➢ HRM Employee Hub	➢ Internal Staff ➢ General public
HRVA Overview Presentations	➢ Build awareness of project. ➢ Recruit HRVA Working Group.	➢ Virtual power point presentations.	➢ EM Committee ➢ Emergency Mgmt. Stakeholders. ➢ JEM/CMT Teams ➢ Internal BU's.
Project Introduction Calls	➢ Project introduction. ➢ Gauge interest in participation. ➢ Share their ideas about current issues and opportunities from a government operations perspective. ➢ Collect any relevant data or information on Hazards and mitigation planning.	➢ Provide Project Primer by email. ➢ Call stakeholder. ➢ Follow up emails and requests for information.	➢ Internal HRM Staff and Council Members. ➢ Provincial Gov Staff. ➢ Identified hazard experts. ➢ General Public

Phase 2 – Collecting the Data

Engagement Forums	Purpose of Forum	Communication Tools/Deliverables	Who is involved
EM Committee Workshop	➢ To collect the necessary data for the HRVA's through a collaborative and community lead committee ➢ Facilitate working group meetings to complete the following steps: ▪ community profiles review; ▪ hazards selection; ▪ define priority hazards;	➢ Working group meeting for each HRVA District Committee.	➢ Internal Staff ➢ HRVA Working Group members. ➢ Identified hazard experts.

Phase 2 – Collecting the Data			
Engagement Forums	**Purpose of Forum**	**Communication Tools/Deliverables**	**Who is involved**
	- collect information on existing risk reduction measures, generate community maps and spatial scale of hazards, identify critical resources and infrastructure, identify social and economic vulnerabilities, physical and environmental vulnerabilities, and underlying risks drivers; - draft hazard scenarios; - assign hazard likelihood ratings; - review, rate, and document the disaster impacts to communities; - review the risk levels and consequences of all hazards identified in the process.; - summarize existing and proposed mitigation strategies for prevention (risk avoidance), reduction, and response; - review HRVA's to obtain feedback from partners and stakeholders – particularly important for anyone tasked with moving mitigation strategies forward.		
Public Surveys	- ID Hazards in select areas - gather information to gauge the public's acceptability of risk priorities and issues. - explore community emergency preparedness: - familiarity with HRM role in emergency management - ID known local hazards - understand the public's fears/mistrusts are around emergency hazards	Electronic or mail in survey (depends on budget, potential with tax notices) or social media polling.	- Internal Staff - HRVA Working Group for distribution - General Public

Phase 2 – Collecting the Data			
Engagement Forums	Purpose of Forum	Communication Tools/Deliverables	Who is involved
	▪ understand individual vulnerabilities		
Community Events – Information Kiosks	➢ Introduce Project ➢ Gather local knowledge on historical hazard occurrence to help establish an understanding of the likelihood of a hazard based on historical emergencies and local experience of hazards. ➢ Gather historical knowledge of emergencies occurring in the distant past.	➢ Participate in established community events i.e. farmers markets, fall fairs, etc. ➢ Identify partner organization events and participate. ➢ Community events in conjunction with community museums to gather historical knowledge.	➢ Internal Staff ➢ HRVA Working Group for promotion ➢ Local museums / other community organizations. ➢ Community elders, long-time residents, historians, and local records. ➢ General Public
Media Release	➢ Seek support and promotion of engagement events. ➢ Share project information. ➢ Public Education.	➢ Press release ➢ Social media updates through the HRFE accounts and pages.	➢ Internal Staff ➢ Media ➢ General Public
School Engagement – Optional -	➢ Engage children in emergency management planning.	➢ Brochures ➢ Colouring books	➢ internal Staff ➢ Teachers / School system.
Follow up focus group /workshop meetings	➢ Follow-up sector-specific engagement sessions to better understand community vulnerabilities. ➢ Explore any unique partnership opportunities related to response and community vulnerabilities.	➢ Focus group meetings on specific topis (on MT's or in-person) ➢ Workshops to discuss and develop relevant content.	➢ Internal Staff ➢ Identified community sector specific organizations.
Follow up stakeholder interviews	➢ Conduct hazard follow up identification interviews with select sectors to further define or consider potential hazards. ➢ Follow-up interviews or sector-specific engagement sessions to define sector specific mitigation strategies.	➢ One-on-one interviews (on Zoom or in-person)	➢ internal Staff ➢ identified hazard experts & sector specific organizations
EM Committee Briefings	➢ ensure that the Committee members are engaged, informed on the project progress, and ensure the project goals are achieved from a regional lens	➢ reports and presentations	➢ internal staff ➢ EM Committee

Phase 3 – Gathering Public Feedback

Engagement Forums	Purpose of Forum	Communication Tools/Deliverables	Who is involved
EM Committee Review of Implementation Plan	➢ Ensure the next steps of implementation are in line with the HRVA process ➢ collect feedback on HRVA maintenance schedule	➢ presentation ➢ focused discussion	➢ Internal Staff ➢ HRVA Working Group
Share Final HRVA's with the Public and Stakeholders	➢ Ensure HRVA documents are accessible to the public and stakeholders for reference	➢ Website update ➢ Email final HRVA's	➢ Internal staff ➢ general public ➢ HRVA Working Group

APPENDIX 1 – Project Primer

HAZARD, RISK & VULNERABILITY ANALYSIS

EMERGENCY MANAGEMENT

PROJECT SUMMARY

Halifax Regional Emergency Management in collaboration with HRM Environment and Climate Change are implementing a holistic *Hazard, Risk and Vulnerability Assessment (HRVA)* to better understand community and critical infrastructure vulnerability and resiliency.

As climate change continues to influence **weather** events and as Halifax continues to grow both industrially and residentially, understanding how to mitigate and prepare for potential extreme hazards can increase community and infrastructure resiliency. Developing a structure for an in-depth analysis that will assess community vulnerability from a wide spectrum perspective including the physical, social and economic impacts, will help HRM better prepare for natural and human caused emergencies and disasters.

HRVA DEFINED

An HRVA in an informed process that identifies the likelihood and severity of consequences experienced during an emergency event by assessing potential hazards, likelihood, social and economic vulnerabilities and impacts.

KEY BENEFITS

Emergency Planning: Effective emergency management plans must be supported by an *HRVA*.

Resource Allocation: The *HRVA* will support community risk reduction projects by outlining priorities and supporting recommendations for allocation of mitigation and preparedness initiatives.

Public Education: Through the engagement process, key members of the public and invitations on the public will organically educate and engage communities through increasing awareness and measure that can be taken to increase preparedness.

Support for Services: For HRM Business Units that may require risk assessments for specific programs, parts of the *HRVA* will be made available for internal HRM use. Certain aspects of the *HRVA* may also be made public to allow for situational awareness and personal preparedness.

Business Continuity Planning: The *HRVA* will also available for Business Units to utilize for their BCP processes.

Collaborative Processes: The *HRVA* also serves as a platform for collaboration between different stakeholders in support of response, preparedness, community recovery and mitigation.

HALIFAX

HAZARD, RISK & VULNERABILITY ANALYSIS

HRVA PROCESS

The HRVA process is an assessment of the following:

Potential Hazards
Sources of Harm to human health, property, the environment and other things of value.

Risks
Likelihood that a hazard will occur and the severity of impacts.

Vulnerabilities
Conditions determined by physical, social, economic and environmental factors which increase the impacts of a hazard on a community.

Impacts
Understanding impacts that a hazard may have on identified vulnerabilities.

Resiliency Planning
Creating goals and identifying strategies to help HRM and its communities be better prepared and resilient to the identified hazards.

HRVA DATA AVAILABILITY

The data that is collected during the assessment provides critical information for facilitating community discussions, determining unacceptable levels of risk, identifying priority hazards when planning community risk reduction initiatives and projects, building resiliency and guiding decisions around all four pillars of emergency management.

Recommendations and certain data sets may be made available to HRM Business Units, stakeholders and public depending on the nature of the requests, operational risk and privacy.

PROJECT INQUIRY

For more information on the HRVA, please contact:

HRVA Specialist
HRM_EMO@halifax.ca
902-490-3573

Or Visit:

www.halifax.ca/EMO

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APPENDIX 2 – Preliminary Stakeholder List

CATEGORY	GROUP	Level of Engagement (Review/ data contribution/ social/physical vulnerability/technical expertise/Project input/project approval)
Municipal *(HRP & HRFE included in Emergency Response Services)*	HRM Elected Officials	➢ Review ➢ Data Contribution ➢ Social Vulnerability ➢ Physical Vulnerability ➢ Project Input ➢ Project Approval
	Planning and Development	➢ Review ➢ Data Contribution ➢ Project Input
	Public Works	➢ Review ➢ Data Contribution ➢ Physical Vulnerability ➢ Project Input
	Community Safety	➢ Review ➢ Data Contribution ➢ Social Vulnerability ➢ Physical Vulnerability ➢ Project Input
	Halifax Water Commission	➢ Data Contribution
	Climate and Environment	➢ Review ➢ Data Contribution ➢ Social Vulnerability ➢ Physical Vulnerability ➢ Project Input ➢ Project Approval
	Halifax Libraries	➢ Data Contribution
	Parks and Recreation	➢ Data Contribution
	Transit	➢ Data Contribution
	Property, Fleet and Environment	➢ Data Contribution

CATEGORY	GROUP	Level of Engagement (Review/ data contribution/ social/physical vulnerability/technical expertise/Project input/project approval)
	CAO	➢ Review ➢ Project Input ➢ Project Approval
Provincial	Health and Wellness ➢ NS Health Authority ➢ IWK Health Centre ➢ Office of Additions and Mental Health	➢ Review ➢ Data Contribution ➢ Social Vulnerability ➢ Physical Vulnerability ➢ Project Input
	Municipal Affairs and Housing ➢ EMO ➢ 911 ➢ Office of the Fire Marshal	➢ Data input ➢ Final report review
	Communities, Culture, Tourism and Heritage ➢ African Nova Scotian Affairs ➢ Tourism ➢ Office of Equity and Anti Racism Initiatives	➢ Data input including social vulnerability/risk indicator collaboration.
	DNRR ➢ Provincial Parks ➢ Geology Hazards ➢ Wildfire Prevention ➢ Forest Health (Epidemics) ➢ Forestry	➢ Initial project review. ➢ Data Input from technical experts and participation in entire HRVA.
	Agriculture ➢ Food Security	➢ Data input
	Energy and Mines	➢ Data input
	Community Services ➢ Social and Homelessness Support ➢ Support for residents with disabilities, intergenerational poverty and racialized communities.	➢ Data input including social vulnerability/risk indicator collaboration.
	Justice ➢ Medical Examiner Service	➢ Data input including social vulnerability/risk indicator collaboration.

CATEGORY	GROUP	Level of Engagement (Review/ data contribution/ social/physical vulnerability/technical expertise/Project input/project approval)
	Education and Early Childhood Development	➢ Data input including social vulnerability/risk indicator collaboration.
	Economic Development	➢ Data input
	Immigration	➢ Data input
	Public Works ➢ Transportation and Road Safety	➢ Data Input ➢ Physical vulnerability ➢ Technical expertise
	Seniors and Long-term Care	➢ Data input ➢ Social Vulnerability indicators
	Environment and Climate Change	➢ Initial project review. ➢ Data Input from technical experts and participation in entire HRVA.
Federal (DND included in emergency response section)	Public Safety Canada	➢ Data Input
	Indigenous Services Canada (ISC)	➢ Data Input
	Transportation	➢ Data Input
	Environment and Climate Change	➢ Data Input
	Natural Resources	➢ Data Input
	Parks Canada	➢ Various Federal Parks within HRM jurisdiction. ➢ Data Input
Emergency Response Services	EHS	➢ Data Input
	Ground Search and Rescue (GSAR)	➢ Data Input
	RCMP	➢ Data Input
	DND ➢Canadian Armed Forces ➢Air Force	➢ Hazard technical expertise (NER)

CATEGORY	GROUP	Level of Engagement (Review/ data contribution/ social/physical vulnerability/technical expertise/Project input/project approval)
	➤ Navy	➤ Data Input
	HRFE	➤ Data Input
	HRP	➤ Data Input
Hazard Experts	NS Public Health	➤ Hazard technical expertise
	DNRR Wildfire ➤ Wildfire Risk Reduction Officer ➤ Stewardship/ Rehab/Recovery	➤ Hazard technical expertise ➤ Data Input
	HRM Parks and Recreation ➤ Ecosystems Lead (Biologist) ➤ Urban Forestry	➤ Hazard technical expertise ➤ Data Input
	Provincial Water Stewardship Officers	➤ Hazard Technical expertise ➤ Data Input
	Environment Canada ➤ Air Quality	➤ Hazard technical expertise ➤ Data Input
	NS Parks	➤ Hazard technical expertise ➤ Data Input
	CN Rail	➤ Hazard technical expertise ➤ Data Input
	Mines (Gays River, Moose Land)	➤ Hazard technical expertise ➤ Data Input
Social Service Agencies	Lions Club	➤ Data Input
	Salvation Army	➤ Data Input
	Friendship Centres	➤ Data Input
	Family Resource Centres	➤ Data Input
	SCEPA	➤ Data Input
	Food Banks	➤ Data Input
	United Way	➤ Data Input

CATEGORY	GROUP	Level of Engagement (Review/ data contribution/ social/physical vulnerability/technical expertise/Project input/project approval)
	Kinsmen Society	➢ Data Input
	Habitat for Humanity	➢ Data Input ➢ Final report Review
	Canadian Red Cross	➢ Data Input
	Feed NS	➢ Data Input
	Immigrant Services Association	➢ Data Input
	Out of the Cold	➢ Data Input
	Mobile Food Market	➢ Data Input
	Rotary Club	➢ Data Input
	Shelter NS	➢ Data Input
	Royal Canadian Legion	➢ Data Input
	Welcome Housing and Support Services	➢ Data Input
	YMCA/YWCA	➢ Data Input
Local Knowledge Experts	Long Term Residents	➢ Data Input
	Historical Societies	➢ Data Input
	Environmental Groups	➢ Data Input
	Agricultural Organizations	➢ Data Input
	Public/Community Members	➢ Data Input
	First Nations	➢ Data Input

CATEGORY	GROUP	Level of Engagement (Review/ data contribution/ social/physical vulnerability/technical expertise/Project input/project approval)
Industry and Business	Tourism Reps	➢ Data Input
	Chamber of Commerce	➢ Data Input
	Insurance Providers or Insurance Bureau of Canada	➢ Data Input
Utilities, Commissions and Authorities	Telecommunications Companies ➢Rogers ➢Telus ➢Bell Aliant ➢Eastlink	➢ Data Input
	NS Power	➢ Data Input
	Halifax Port Authority	➢ Data Input
	Halifax Libraries	➢ Data Input
	Halifax Water Commission	➢ Data Input
	Maritime and Northeast Pipeline (Enbridge)	➢ Data Input
	Halifax Harbour Bridges	➢ Data Input

APPENDIX 3 – Identified Hazards

Atmospheric
Air Quality
Extreme Heat
Extreme Cold
Freezing Rain or Drizzle
Hail
Hurricane/High Wind Event
Snowstorms and Blizzards

Disease and Epidemic
Human Disease (Including Pandemic and Epidemic)
Plant Disease and Pest Infestation
Public Health Crisis
Cyanobacteria Outbreak

Fire
Structure Fire
Wildfire

Geological
Avalanche
Landslide/Debris Flow
Land Subsidence (and Sinkholes)

Hazardous Materials and Explosions
Explosions
Hazardous Materials Spill
Mine Incident
Nuclear Incidents
Oil or Gas Pipeline Spills

Hydrological
Drought
Seiche

Hydrological - Flooding
Lake, River, Stream Flooding
Coastal Flooding
Storm Water Flooding
Flash Flooding

Infrastructure Failure
Dam and Spillways Failure
Dike Failure
Structure Failure

Interruptions to Critical Services
Electrical
Food Source Interruption
Telecommunications Interruption
Transportation Route Interruption
Wastewater Interruption
Water Service Interruption
Fuel Source Interruption

Security
Cyber Security Threat
National Security Threat
Public Disturbance
Major Planned Event

Transportation
Aircraft Incident
Marine Vessel Incidents
Rail Incident
Road Incidents (Cattle liner roll overs, transportation disruptions
Storm Surge

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Proposed Public Engagement Timeline
RE: Introduction of HRVA Project

DISTRICT	DATE
District 1	24-Jul
District 1	25-Jul
District 2	26-Jul
District 2	27-Jul
District 3	31-Jul
District 4	1-Aug
District 5	2-Aug
District 6	3-Aug
District 7	7-Aug
District 8	8-Aug
District 9	9-Aug
District 10	10-Aug
District 11	14-Aug
District 12	15-Aug
District 13	16-Aug
District 14	17-Aug
District 15	22-Aug
District 16	23-Aug