

Hazard Resilience Index (HRI)

Accidents

Airplane Crashes
 Marine Accidents
 Motor Vehicle Crashes
 Train Derailments

Accidents

Please refer to the Hazard Resilience Index Instructions (HRI) document for more information on using this document.

Airplane Crashes

Hazard Resilience Rating High Resilience Low Resilience Need More Info Not Applicable

Yes	No	Need More Info	Not Applicable	FACTORS	This is important to my community
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Airplanes flying in the vicinity of the airport use “ground proximity warning systems” (systems that notify pilots when their aircraft is at risk of colliding with the ground or an obstacle).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has a means to consult Traditional Knowledge holders on aircraft hazards and historical challenges associated with flight paths near communities and resolutions to such challenges.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Community-based airplane crash exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control operations are in place to prevent bird strikes (for example, wildlife hazard assessment, management, removal, etc.); research is conducted to ensure operations follow current best practices.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flight paths over the community are minimized and appropriate/necessary.	<input type="checkbox"/>

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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local airport operators follow safe workplace practices and have a clean safety record.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local airport operators have an up-to-date Emergency Response Plan.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local airport operators have conducted a Hazard Identification and Risk Management assessment as recommended by Transport Canada.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local airport operators have tested their Emergency Response Plan through exercises and after action reviews.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local airport operators use and practice "System Management Systems" as approved by Transport Canada.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pilots check regularly with weather and storm forecasting agencies such as Environment Canada.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pilots are experienced in identifying various conditions for safe landing and take-off (water, ice, tall buildings etc.).	<input type="checkbox"/>

Marine Crashes

Hazard Resilience Rating	High Resilience <input type="checkbox"/>	Low Resilience <input type="checkbox"/>	Need More Info <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
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Yes	No	Need More Info	Not Applicable	FACTORS	This is important to my community
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Boaters and fishers check regularly with weather and storm forecasting agencies such as Environment Canada.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Community-based marine crash exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dangerous areas to boats (e.g., submersed rock outcroppings) are well marked on charts and have buoys or other visible devices to indicate the danger to boaters.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If applicable, Port Authorities are familiar with the harbour and are available to board and navigate ships.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Marinas and communities have warning systems in place to notify boat operators of potential heavy fog or storms.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Marinas and communities have information available to guide boats to safer or sheltered areas when caught in bad weather.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Most boat owners have taken a boat safety course and boating test for the Canadian Boating License or Pleasure Craft License as mandated by Transport Canada.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Systems are in place to monitor boat owners and the safety/maintenance of their vessels, especially for passenger vessels; Transport Canada courtesy checks are available seasonally to provide guidance on compliance with boating regulations.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If applicable, ferry operators are monitored for compliance with standards from relevant authorities (e.g., Transport Canada).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If applicable, ferry dock authorities participate in emergency exercises and planning.	<input type="checkbox"/>

Motor Vehicles Crashes

Hazard Resilience Rating	High Resilience <input type="checkbox"/>	Low Resilience <input type="checkbox"/>	Need More Info <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
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Yes	No	Need More Info	Not Applicable	FACTORS	This is important to my community
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Centre line guardrails, safer intersections and wider road shoulders are in place in problematic areas.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General road maintenance practices and budgets are designed to reduce risk of accidents (e.g. snow removal). Special attention is paid to gravel roads following heavy rainfall and to ice roads in warmer weather periods.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Community-based motor vehicle accident exercises (including school buses) have taken place in schools and the community-at-large (e.g., table-top or full-scale exercises).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Local bars practice adequate monitoring of patrons who may be driving.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Most motorists check regularly with weather and storm forecasting agencies such as Environment Canada especially before venturing out on isolated and rural roads, or for long voyages.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reduced speed limits and/or lower speed zones are in place where appropriate.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is a warning system in place to notify emergency response personnel of poor driving conditions.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is a warning system in place to notify residents of poor driving conditions including on ice roads from the community to the mainland (where applicable).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is police enforcement which targets impaired drivers in and around the community.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Young drivers are licensed and adequately supervised when driving and "dry" graduations are promoted by the local schools.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appropriate signage is posted and visibility of the signs is maintained so motorists know how or when to use winter roads, including road opening notifications and conditions throughout the season.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Signage is posted and visibility of signs is maintained to identify snowmobile and all-terrain vehicle crossings.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Snowmobile trails contain signage to warn operators of ice and snowmobilers know how to identify unsafe ice (e.g., grey ice on open water is unsafe).	<input type="checkbox"/>

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Train Derailments

Hazard Resilience Rating	High Resilience <input type="checkbox"/>	Low Resilience <input type="checkbox"/>	Need More Info <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
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Yes	No	Need More Info	Not Applicable	FACTORS	This is important to my community
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Community-based train derailment exercises have taken place in the community-at-large (e.g., table-top or full-scale exercises).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Saw Bucks made of contrasting materials are in place to clearly mark rail crossings.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	People know not to play or walk along railroad tracks. Furthermore, access to tracks is limited and secure.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Railway companies have avoided operating trains in areas subject to avalanches, landslides, ice jam flooding and other potential hazards near your community.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Railway warning systems are visible prior to reaching the crossing.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The community has presentations of <i>Operation Lifesaver</i> to raise rail safety awareness and to promote safe behavior around rail lines to avoid vehicle collisions and pedestrian accidents.	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Trains are not overloaded with too many railway cars (longer train loads result in great risk of accident).	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is a warning system in place to notify train operators of poor operational conditions or possible hazards.	<input type="checkbox"/>

References

Operation Lifesaver. (2010). *Train safety FAQs*. Retrieved from <http://www.operationlifesaver.ca/facts-and-stats/train-safety-faq/>

Plane Crash Info. (2015). *Statistics*. Retrieved from <http://www.planecrashinfo.com/cause.htm>

Transport Canada. (2004). TP 14135 - *Safety management systems for small aviation operations - A practical guide to implementation*. Retrieved from <http://www.tc.gc.ca/eng/civilaviation/publications/tp14135-1-menu-2078.htm>

Transport Canada. (2005). *Road safety 2010: Making Canada's roads the safest in the world*. Retrieved from <http://www.tc.gc.ca/media/documents/roadsafety/rsv2005se.pdf>

Transport Canada (2007, September). *Pedestrian safety at grade crossing guide*. Retrieved from <http://www.tc.gc.ca/eng/railsafety/publications-53.htm>

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Wang, J. (2006). Maritime risk assessment and its current status. *Quality and Reliability Engineering International*, 22, 3-19.