	Transport	Transports
	Canada	Canada

Tower "C", Place De Ville
330 Sparks Street
Ottawa, Ontario K1A 0N5

REQUEST FOR INFORMATION
Virtual Simulation Tool
First Responder Dangerous Goods Training

NOTE TO POTENTIAL RESPONDENTS:

This Request for Information (RFI) is a consultation initiative that seeks feedback from the industry on the development of a Virtual Simulation Tool for First Responder Dangerous Goods Training.

This RFI is neither a call for tender nor a Bid Solicitation. No agreement or contract will be entered into based on this RFI. The issuance of this RFI is not to be considered in any way a commitment by Canada, nor as authority to potential respondents to undertake any work that could be charged to Canada.

This RFI may be used by the government in the development of a subsequent Request for Proposal. The issuance of this RFI does not create an obligation for the Crown to issue a subsequent RFP.

It should also be noted that no agreement to do business with any respondent will result from this specific enquiry.

Transport Canada welcomes Industry feedback but does not commit to a response to any comments that may be received.

CLOSING DATE:

Responses to this RFI will be accepted at any time until the 15th of March 2018.

Please note: responding to this enquiry does not guarantee to the suppliers an invitation for any future Request for Proposals (RFP) issued and/or subsequent contracts.

CONTRACT OFFICER:

All enquiries and responses related to this Request for Information shall be directed to the Contract Officer via email to:

Jenny O'Neil
Procurement Advisor
Postal Address | Adresse postale K1A 0N5 - AFTC
Email | Courriel: **jenny.o'neil@tc.gc.ca**
Government of Canada | Gouvernement du Canada

1.0 DESCRIPTION:

1.1   Transport Canada, Transportation of Dangerous Good Directorate (TDG) is interested in acquiring a virtual simulation tool/program that would simulate a train derailment involving dangerous goods as an aid in training first responders on how to safely conduct an assessment of these incidents. This includes how to assess risks, prioritize actions including contacting appropriate agencies for help (e.g. CANUTEC, railways, etc.) while they protect themselves and the public. The tool would be used along with an assessment template or checklist to allow the student to develop the knowledge and skills required to conduct an <u>initial assessment</u> of the incident and take appropriate actions.

This program will be used as part of training and/or table top exercises for first responders at various locations across Canada and also incorporated into a training curriculum on flammable liquids incidents. The program will be provided in both official languages.

The virtual tool would simulate dangerous goods incidents in rural, medium size and large sized jurisdictions and would provide a long distance view of the incident as would be seen through a set of binoculars which can then be zoomed in/allow the person to explore the incident to determine more details of the incident including:

a)   Overview of the location of the derailment based on the mapping of the geographic location using GIS data from Google maps or other similar databases to show features such as road network, railway lines, water courses, topography, structures including buildings, bridges etc. Alternatively three locations representing large urban, suburban / small community and rural environments would be provided if actual geographic locations using GIS data are not feasible.

b)   Ground level views of the incident from various locations around the incident that are accessible but only from a safe distance, showing different perspectives of the derailment details.

c)   Tank cars in various conditions and orientations (derailed, on-track, overturned or on side, stacked on other cars, breached and leaking, intact but exposed etc.). Tanks cars to be representative of those encountered in North America with design details including construction, painting, lettering and numbering.

d)   Locomotives with location and condition relative to the derailed cars.

e)   Placards on tank cars with various classifications and UN numbers with placards orientation matching that of the tank car (upside down, obscured. etc.)

f)   Use of different classes of dangerous goods including Class 2 .1 Flammable Gases, Class 2.3 Toxic Gases and Class 3 flammable liquids

g)   Visuals of released product showing liquid flows, gas release , fire and smoke or vapor cloud, including pool fires, vent fires, fires in heat induced tears, and BELEVE - (Boiling Liquid, Expanding Vapor Explosions)

h)   Visuals of tank car projectiles as the result of a BELEVE

i)   For flammable liquid incidents show various levels of incident progression from initial conditions observed through growth of the fire and subsequent tank car failure due to flame impingement or flowing liquid due to topography.

j)   For toxic gases show release and vapor clouds and the effect of wind on plume dispersion

k)   Show possible impact and effects of weather conditions including wind, cold, rain, snow etc.

l)   Simulated radio communication between dispatchers and first responders on-scene with text box including initial dispatch information, on-scene notification, and size-up information relayed to dispatch.

m)   Link sections of the virtual assessment with the Transport Canada TDG template / checklist to help guide the student to cover all appropriate areas to be evaluated, notifications to be made and actions as per the recommended procedures.

n)   Program to be accessible by various methods including on-line access, cloud based, CD, USB memory stick and compatibility with personal computers.

o)   Program to be provided in both French and English

p)   Program to be used as a stand-alone training module or as a part of a comprehensive training program or exercise

2.0 QUESTIONS TO INDUSTRY:

2.1 When defining the project requirements to evaluate different bids, what should Transport Canada consider incorporating into its decision making so that the virtual tool provides the realism, fidelity and robustness needed to enable
   a)   room scale virtual reality equipment
   b)   players physically moving within the space and how they manipulate realistic virtual tools, such as binoculars, flashlights, and technical equipment (e.g., gas detectors, radiation detectors, etc.)
   c)   different environmental conditions (such as time of day and weather (with variable severity)
   d)   allow the player to determine from which vantage point they need to evaluate the scene
   e)   combining a mixture of self-directed play and optional controller instructions or controller injects.
   f)   allow for evaluation of player actions, and for review post-scenario and hot wash. When making its considerations, what programming language, gaming platform would be best suited, if any, to achieve the outlined goals? What programming language(s) should be used to develop the system?

2.2 Describe the operating systems under which the proposed system will operate?

2.3 What technological limitations should Transport Canada be aware of that might impact the project?

2.4 In your view, when building such a virtual tool program, would it be better to have a scenario based virtual tool or a tool that could be superimposed on, for example, a google maps or other relevant platform? In your view, what is the best platform in which such a virtual tool should be built or superimposed on?

2.5 What impact on cost would the above decision make, if any and what impacts would it have on the realism of the tool for first responders, if any?

2.6 Would it make sense to incorporate a Proof of Concept scenario so that Transport Canada can validate the capabilities of the tool prior to moving forward on the total project?

2.7 On average, how many person hours do you believe it would take to complete such a project? How long do you anticipate after awarding of a contract would it take to accomplish such a project?

2.8 What hardware would be required to enable the virtual tool to operate as designed?

2.9 On average, what cost could Transport Canada expect to purchase the hardware? Is it readily available or only available through a specific vendor?

2.10 What other areas should Transport Canada consider when evaluating a virtual tool bid?

2.11 In your view, how important is it for a team working on this project to have experience in:
- Field operations regarding transport of dangerous goods
- TDG regulations
- Emergency preparedness and response exercises
- Conducting large, room-scale virtual reality training and exercise scenarios
- Research and development of room-scale virtual reality exercise scenarios for first responders

2.12 Has your company developed this type of software or similar gaming software? If so, please provide more information.

2.13 Ideally, what level of expertise or skillset is required of a resource to develop this type of software? i.e. experience designing and developing with 3D modeling software; game development or graphics programming; C/C++ etc…