



Technical Standards and Safety Authority
Annual Public Safety Performance Report
For the Period May 1, 2011 to April 30, 2012

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CSRO's Review of TSSA's Annual Public Safety Performance Report for the Fiscal Year 2011/2012

Report Background

1 The Annual Public Safety Performance Report is an important Technical Standards and Safety Authority, TSSA, contribution. The Report provides a baseline for safety trends and progress on efforts to enhance public safety in Ontario in those areas for which TSSA has delegated responsibility.

2 An important contribution of the report is the presentation of trends. Over time as the report provides a more fulsome database and local and international comparators, its value will be even further enhanced.

3 Safety metrics and risk analysis: the use of risk identification decision-making (RIDM) is accepted international best practice. Use of RIDM for risk analysis in the 8 TSSA sectors is sound and provides an important platform for others to follow (and compare) in similar risk analysis, e.g. food safety, road safety, and accidental injury such as water safety. DALY – disability adjusted life years - is a common international metric and facilitates credible comparisons and baseline monitoring¹. The metric combines morbidity and mortality thereby providing a more holistic account of safety impact.

4 The use of DALY by TSSA only pertains to immediate injury of the activity in question, e.g. physical injury using an elevator or amusement device. The possible impact of say, communicable diseases or long-term health impacts that might be associated with the activity, such as long-term exposure to hydrocarbons or cumulative back strains from amusement rides are not captured in the DALYs as presented in this report².

A Message from the President and CEO

5 The message provides a fulsome and fair summary of the report. The message would likely be useful to include, in some form, within TSSA's Annual Report.

6 The "Comprehensive TSSA Safety System to Restrain Risk" reflects TSSA's impressive efforts to develop its intellectual property. As the System evolves the role of economics, for example, as well as public behavior, may also need be included, or at least mentioned within the Safety System. These aspects, although not strictly within TSSA's regulatory purview, are critical drivers of public safety.

¹ Disclosure: The term DALY was originally developed by Harvard University for the World Bank in 1990. Although, not specifically involved in this work, the CSRO was a World Bank staff member from 1993 – 2012.

² This is mentioned for contextual purposes only, not to suggest that possible long term impacts be included in RIDM values.

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7 The aspect of 'public' in the Safety System may need refinement. Public use – how the activity is carried out, e.g. water slides – as well as public acceptance of the activity, e.g. residents and visitors could elect not to take elevators in a specific building, may need to be disaggregated within the Safety System.

8 The three categories of DALY – non-compliance, inadequacy of regulatory structure, external to regulation – are well defined and follow TSSA's ability to influence safety. A discussion on the degree of confidence in this approach may be warranted at a later date.

9 The paragraph discussing steps to address issues in elevating devices, fuels, and pressure vessels and boilers is good, however somewhere in the report the efforts could be supported with a discussion on process, schedule, and structure for these activities.

Executive Summary – Message from the Chief Advisor, Public Safety Risk Management.

10 This summary is almost nine pages long. The section is rich in information and should not be cut, however a succinct summary would be useful. Prior to the specific discussion on program specific performance, contextual background information would be useful.

11 For example, the statement that 'this report acts as a primary source of knowledge on risk to Ontarians', pre-supposes that the risks overseen by TSSA are presented within the context of other risks that Ontarians face. TSSA delegated risk responsibilities compared to, say, crime, traffic and food health would be particularly useful. Especially as TSSA's RIDM methodology is sufficiently robust to evaluate other risks.

12 The risks associated with carbon monoxide exposure in homes are well presented. The separate forthcoming report will be useful. Regulatory progress in this area may be best accomplished jointly with other jurisdictions.

13 Figure 1 is important. A more detailed explanation on the wide variation in percentage passed values may be warranted. Why, for example, do elevators consistently have less than 40% passing periodic inspections? The finding that amusement devices range from 20% - 95% passing periodic inspection also suggests a more fulsome discussion on the reasons for this variability.

14 The declining trend of operating engineers passing periodic inspection (down from about 48% to 44% over eight years) may warrant a discussion on safety vis a vis inspection scope.

15 Similar to other sectors, the discussion on Amusement Devices, with a health impact of 4.7 DALYs per million people per year, would be strengthened by having

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that value presented within the context of other common risks an average Ontarian faces.

16 Messages From the Statutory Directors. The Statutory Directors have delegated powers under the 2000 Technical Standards and Safety Act and as such their involvement in the findings, and proposed path forward, outlined in the Annual Safety Report is particularly relevant. The four director 'messages' (pp 10 – 14) might benefit by being signed by the individual directors (similar to the CEO's message) and if possible, having the key paragraph summarized in the Executive Summary (in future the four, or more, pages of discussion from the directors could then form a separate key section of the report).

17 Elevating Devices – Compliance outcomes. With 19,780 periodic inspections conducted and only 34% elevators found compliant, a discussion on the reasons for these shortcomings should be provided. Similarly with 821 escalator inspections, and only 19% being compliant, the above discussion should include escalators. A response to the question, 'why are more than 80% of Ontario's escalators not compliant with provincial requirements – what is the plan to remedy these deficiencies should be provided in the report. Also as highlighted, if 73% of inspections failed when conducted on devices that were not inspected in the last three years this seems a critical operational objective – to ensure that the backlog of inspections never again exceeds three years. Therefore, in this section of the Annual Safety Report it would be useful to state what the current backlog is; this value should be provided for this year and every subsequent year.

18 Fuels. Safety outcome 8, states that the institutional locations with sensitive sub-populations, e.g. nursing homes, are particularly vulnerable. Presumably this is being communicated to other provincial inspectors; this would be good to confirm within the report. As stated in observation FS-1, the trend continues to show an increase. This may be an area where other provincial inspectors and nursing home operators could be specifically targeted to provide ancillary reviews if possible. Janitors in schools for example may be a potential support group for safety reviews.

19 USA-1 states that further clarification of specific infraction types found during inspections would assist in public safety strategy. Is this happening?

20 The Recommended RIDM Initiatives for Consideration, page 10, is an excellent discussion and example of the use of RIDM. This could be used as a basis for inclusion of other potential risks.

21 Amusement Devices, page 12 states that there appears to be reluctance to report incidents by operators. Perhaps emergency rooms and/or police could be specifically asked to report incidents on ADs directly to TSSA?

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22 The contribution of Figures BPV-2 and BPV-3 is not immediately obvious. The findings in these figures might be better represented in a comment rather than figures. So too figures OE-1 and OE-2.

23 Figures AD-4 and AD-5 provide data collected quarterly, yet the x-axis is stated as Fiscal Years. The values are highly seasonal. Providing an annual average would limit the usefulness of the data, however the figures should have the title reflect the seasonal (and annual) basis of the data, and perhaps a more fulsome discussion, or footnote could be added to highlight the impact of seasonal inspections and seasonal events, especially in ski lifts and amusement devices.

24 Figures AD-7 and AD-8 might benefit from a listing of key activities in 'other'.

25 Figure ED-6 with less than 40% of elevators passing inspections seems very high to a layperson; is there an industry average that could be provided for several other jurisdictions?

26 Figure EM-4 should be stated as quarterly values. The presented average line is not strictly accurate as it seems to present an average quarterly value although it could be read as an annual value. This quarterly presentation is also made in SL-1, SL-2 and SL-4 – these values could be better highlighted with regard to their seasonal variation. Figure FS-2 and FS-6 and other figures should also be denoted as quarterly.

Contextual Overview

27 A way to strengthen the report in future could include a discussion of how these findings compare to other jurisdictions – if comparisons can be made. For example are go-kart riders in Ontario experiencing more injuries than other provinces or internationally. Similarly are other jurisdictions experiencing the same rate of non-compliance in the elevating device sectors? Also, in subsequent reports, the frequency and scale of inspections relative to other jurisdictions should be discussed. In addition to comments on sector risks relative to other jurisdictions (outside of Ontario), a discussion on TSSA delegated risk reviews relative to other risks typically experienced by an Ontarian, such as food safety, traffic and accidental drowning, would be especially useful.

28 The trend data in this report is very useful. This annual report will increase in value every year, as compliance relative to the baselines will be readily apparent. This is becoming a critical provincial and national service of TSSA. Sharing these values with other jurisdictions – assuming comparability – will also be very useful, as well as helping to refine TSSA's in-house risk analysis capabilities.

**Addendum: TSSA's Response to CSRO's Review of
TSSA's Annual Public Safety Performance Report
For the Fiscal Year 2011/2012**

Paragraph No.	CSRO's Comments/Recommendation	TSSA Response to CSRO Review of TSSA's Annual Public Safety Performance Report
Report Background		
1	The Annual Public Safety Performance Report is an important Technical Standards and Safety Authority, TSSA, contribution. The Report provides a baseline for safety trends and progress on efforts to enhance public safety in Ontario in those areas for which TSSA has delegated responsibility.	TSSA appreciates the recognition of the value of the document and will continue to try and provide meaningful information on the trends
2	An important contribution of the report is the presentation of trends. Over time as the report provides a more fulsome database and local and international comparators, its value will be even further enhanced.	TSSA will seek to enhance the report periodically to provide a contextual representation of a broader picture of public safety. In particular, TSSA will work towards introducing a new appendix to the report that will capture comparative results from other jurisdictions provincially/nationally in the broad domain of public safety and health.
3	Safety metrics and risk analysis: the use of risk identification decision-making (RIDM) is accepted international best practice. Use of RIDM for risk analysis in the 8 TSSA sectors is sound and provides an important platform for others to follow (and compare) in similar risk analysis, e.g. food safety, road safety, and accidental injury such as water safety. DALY – disability adjusted life years - is a common international metric and facilitates credible comparisons and baseline monitoring ³ . The metric combines morbidity and mortality thereby providing a more holistic account of safety impact.	TSSA is pleased to receive acknowledgement that of DALY as a common public safety and health metric. This metric currently assists statutory directors in making safety and resource allocation decisions. In addition, in the longer term it could facilitate comparative indicators across a relevant range of public health and safety domains.
4	The use of DALY by TSSA only pertains to immediate injury of the activity in question, e.g. physical injury using an elevator or amusement device. The possible impact of say, communicable diseases or long-term health impacts that might be associated with the activity, such as long-term exposure to hydrocarbons or cumulative back strains from amusement rides are not captured in the DALYs as presented in this report ⁴ .	This comment is valid and useful. Currently, TSSA addresses the potential long term impacts of certain types of injuries using the guidance provided by the DALY methodology defined by the WHO. However, actual impacts of such injuries are not followed up with injured parties. TSSA will explore opportunities with experts in the medical profession to gain knowledge in the areas of long term impact. TSSA will update the CSRO on progress made in this regard and will include the information in the ASPR upon receipt of reliable and consistent data.

³ Disclosure: The term DALY was originally developed by Harvard University for the World Bank in 1990. Although, not specifically involved in this work, the CSRO was a World Bank staff member from 1993 – 2012.

⁴ This is mentioned for contextual purposes only, not to suggest that possible long term impacts be included in RIDM values.

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A Message from the President and CEO		
5	The message provides a fulsome and fair summary of the report. The message would likely be useful to include, in some form, within TSSA's Annual Report.	Some of the comments outlined in the President and CEO's message are included in the Annual Report. However, because the two reports serve different purposes, the messages are tailored.
6	The "Comprehensive TSSA Safety System to Restrain Risk" reflects TSSA's impressive efforts to develop its intellectual property. As the System evolves the role of economics, for example, as well as public behavior, may also need be included, or at least mentioned within the Safety System. These aspects, although not strictly within TSSA's regulatory purview, are critical drivers of public safety.	The Comprehensive TSSA Safety System to Restrain Risk is an illustration of the primary functions TSSA engages in to ensure public safety. Its copyright and other TSSA intellectual properties are incidental to the organization's primary function in regulating safety in designated sectors. While the role of economics is an important part of the safety system, TSSA's exercises minimal influence over economic levers that would influence safety, save for its fees and certain directors orders that may require changes to devices,, etc.. Public behavior is indeed a critical aspect of the safety system and is inferred in TSSA's public education and research programs.
7	The aspect of 'public' in the Safety System may need refinement. Public use – how the activity is carried out, e.g. water slides – as well as public acceptance of the activity, e.g. residents and visitors could elect not to take elevators in a specific building, may need to be disaggregated within the Safety System.	Comment noted. In future reports, a clear distinction on the basis of public exposed to voluntary (e.g., Amusement rides) and involuntary (e.g., elevator rides) risks will be made to better contextual the risk information.
8	The three categories of DALY – non-compliance, inadequacy of regulatory structure, external to regulation – are well defined and follow TSSA's ability to influence safety. A discussion on the degree of confidence in this approach may be warranted at a later date.	Comment noted. TSSA has identified the process of evolving its incident management system as part of the RIDM five year plan that would include further reducing subjectivity in the assessment of root cause for incidents. Upon completion of both sets of activities, TSSA will be able to provide associated confidence levels with its measurement of root cause for incidents.
9	The paragraph discussing steps to address issues in elevating devices, fuels, and pressure vessels and boilers is good, however somewhere in the report the efforts could be supported with a discussion on process, schedule, and structure for these activities.	Comment noted. TSSA currently includes information on its key safety initiatives in its annual business plans. Where possible, TSSA in the future, TSSA will seek to provide a status of these initiatives in the ASPR.

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Executive Summary – Message from the Chief Advisor, Public Safety Risk Management		
10	This summary is almost nine pages long. The section is rich in information and should not be cut, however a succinct summary would be useful. Prior to the specific discussion on program specific performance, contextual background information would be useful.	TSSA will restructure the ASPR for the next year to provide a succinct summary (titled State of Public Safety Highlights). Additionally, TSSA will continue to review the overall report structure to identify and implement opportunities for enhancement and for better readability.
11	For example, the statement that 'this report acts as a primary source of knowledge on risk to Ontarians', pre-supposes that the risks overseen by TSSA are presented within the context of other risks that Ontarians face. TSSA delegated risk responsibilities compared to, say, crime, traffic and food health would be particularly useful. Especially as TSSA's RIDM methodology is sufficiently robust to evaluate other risks.	As indicated in comment 2, TSSA will include an appendix to the report that will provide context with respect to comparative public health and safety risks faced by Ontarians.
12	The risks associated with carbon monoxide exposure in homes are well presented. The separate forthcoming report will be useful. Regulatory progress in this area may be best accomplished jointly with other jurisdictions.	TSSA will be sharing its findings to other jurisdictions using the National Public Safety Advisory Committee (NPSAC) forum and seeking their input with respect to possible joint work.
13	Figure 1 is important. A more detailed explanation on the wide variation in percentage passed values may be warranted. Why, for example, do elevators consistently have less than 40% passing periodic inspections? The finding that amusement devices range from 20% - 95% passing periodic inspection also suggests a more fulsome discussion on the reasons for this variability.	TSSA is currently undertaking a major initiative to standardize inspection orders issued during periodic inspections including the risk associated with the issued orders. This will also allow TSSA to better characterize the significance of the non-compliance rate in terms of its safety risk. In the absence of this information, TSSA will continue to work with appropriate stakeholders to develop and then apply compliance strategies to improve the compliance rates over the long term. The wide range in pass rates is a true reflection of the observations and may reflect the unique nature and scope of compliance requirements inherent in a specific device. TSSA will in the future provide additional commentary in the ASPR regarding non-compliances, including the relevance of variances between devices.
14	The declining trend of operating engineers passing periodic inspection (down from about 48% to 44% over eight years) may warrant a discussion on safety vis a vis inspection scope.	As noted above, TSSA will provide additional commentary regarding compliance trends reflecting their significance. TSSA is monitoring operating engineers' periodic inspection compliance rate and to date has not identified that as a long term trend that

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		required a specific action plan.
15	Similar to other sectors, the discussion on Amusement Devices, with a health impact of 4.7 DALYs per million people per year, would be strengthened by having that value presented within the context of other common risks an average Ontarian faces.	Comment Noted. Responses provided in comments 3 and 7 above.
16	<u>Messages From the Statutory Directors.</u> The Statutory Directors have delegated powers under the 2000 Technical Standards and Safety Act and as such their involvement in the findings, and proposed path forward, outlined in the Annual Safety Report is particularly relevant. The four director 'messages' (pp 10 – 14) might benefit by being signed by the individual directors (similar to the CEO's message) and if possible, having the key paragraph summarized in the Executive Summary (in future the four, or more, pages of discussion from the directors could then form a separate key section of the report).	Comments Noted. As suggested, TSSA will incorporate these recommendations in next year's ASPR.
17	<u>Elevating Devices – Compliance outcomes.</u> With 19,780 periodic inspections conducted and only 34% elevators found compliant, a discussion on the reasons for these shortcomings should be provided. Similarly with 821 escalator inspections, and only 19% being compliant, the above discussion should include escalators. A response to the question, 'why are more than 80% of Ontario's escalators not compliant with provincial requirements – what is the plan to remedy these deficiencies should be provided in the report. Also as highlighted, if 73% of inspections failed when conducted on devices that were not inspected in the last three years this seems a critical operational objective – to ensure that the backlog of inspections never again exceeds three years. Therefore, in this section of the Annual Safety Report it would be useful to state what the current backlog is; this value should be provided for this year and every subsequent year.	See response to comment 13 above. The comment with respect reporting on backlog is duly noted and the recommendations will be incorporated in next year's ASPR.
18	<u>Fuels.</u> Safety outcome 8, states that the institutional locations with sensitive sub-populations, e.g. nursing homes, are particularly vulnerable. Presumably this is being communicated to other provincial	The suggestion is noted. TSSA is just starting a pilot program to confirm its concerns regarding institutional locations. As more information becomes known, this information will be shared as appropriate.

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	inspectors; this would be good to confirm within the report. As stated in observation FS-1, the trend continues to show an increase. This may be an area where other provincial inspectors and nursing home operators could be specifically targeted to provide ancillary reviews if possible. Janitors in schools for example may be a potential support group for safety reviews.	
19	USA-1 states that further clarification of specific infraction types found during inspections would assist in public safety strategy. Is this happening?	Yes. This is being addressed as part of the standardization of inspection orders initiative as indicated under comment 13 above.
20	The Recommended RIDM Initiatives for Consideration, page 10, is an excellent discussion and example of the use of RIDM. This could be used as a basis for inclusion of other potential risks.	TSSA appreciates the comment. TSSA will continue to use this section to communicate its proactive and preventative initiatives including potential risks such as those associated with aging infrastructure.
21	Amusement Devices, page 12 states that there appears to be reluctance to report incidents by operators. Perhaps emergency rooms and/or police could be specifically asked to report incidents on ADs directly to TSSA?	As stated in the ASPR, TSSA is working with the amusement devices (AD) industry to encourage better reporting. To this end, reporting guidelines have been revised to allow devices to be returned to services if an AD mechanic can determine that incident was not caused by a problem with the devices or its operations. The incident still has to be reported, but the devices will not have to remain shut down.
22	The contribution of Figures BPV-2 and BPV-3 is not immediately obvious. The findings in these figures might be better represented in a comment rather than figures. So too figures OE-1 and OE-2.	Comment Noted. TSSA will incorporate the recommendations as suggested in next year's ASPR
23	Figures AD-4 and AD-5 provide data collected quarterly, yet the x-axis is stated as Fiscal Years. The values are highly seasonal. Providing an annual average would limit the usefulness of the data, however the figures should have the title reflect the seasonal (and annual) basis of the data, and perhaps a more fulsome discussion, or footnote could be added to highlight the impact of seasonal inspections and seasonal events, especially in ski lifts and amusement devices.	TSSA will incorporate the suggested recommendations and revise the title on the X-Axis and also include comments on the impact of seasonality in the main body of the report. For information purposes, statistical analysis does indicate that volume and the outcomes of inspections in the AD and Ski programs do follow seasonality patterns. A more appropriate way of communicating this visually will be researched and incorporated in next year's ASPR.
24	Figures AD-7 and AD-8 might benefit from a listing of key activities in 'other'.	The following are rides other than waterslides and go-karts whose risks have been consolidated as no single ride type has a significant contribution on its own: <ul style="list-style-type: none"> • Boat rides • Bungee jumping

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		<ul style="list-style-type: none"> • Circular rides • Coaster rides • Dry slides • Flume rides • Fun house • Inflated rides • Other amusement rides • Revolving or swinging ride • Simulator • Swinging rides • Train rides • Zip lines <p>This information will be referenced in future versions of the ASPR.</p>
25	Figure ED-6 with less than 40% of elevators passing inspections seems very high to a layperson; is there an industry average that could be provided for several other jurisdictions?	See response to Comment 13 above. It is difficult to benchmark against other jurisdictions in Canada as either the information is not available or the scope of inspections in other programs are not similar. More importantly, the regulatory requirements may not necessarily be the same across all jurisdictions.
26	Figure EM-4 should be stated as quarterly values. The presented average line is not strictly accurate as it seems to present an average quarterly value although it could be read as an annual value. This quarterly presentation is also made in SL-1, SL-2 and SL-4 – these values could be better highlighted with regard to their seasonal variation. Figure FS-2 and FS-6 and other figures should also be denoted as quarterly.	Comment Noted. See response to comment 23.

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Contextual Overview		
27	A way to strengthen the report in future could include a discussion of how these findings compare to other jurisdictions – if comparisons can be made. For example are go-kart riders in Ontario experiencing more injuries than other provinces or internationally. Similarly are other jurisdictions experiencing the same rate of non-compliance in the elevating device sectors? Also, in subsequent reports, the frequency and scale of inspections relative to other jurisdictions should be discussed. In addition to comments on sector risks relative to other jurisdictions (outside of Ontario), a discussion on TSSA delegated risk reviews relative to other risks typically experienced by an Ontarian, such as food safety, traffic and accidental drowning, would be especially useful.	Comment Noted. As discussed in Comment 3, TSSA will work towards the creation of an appendix to the ASPR that will provide comparative results to the extent possible of its outcomes relative to other jurisdictions with similar responsibilities in Canada, with other safety related sectors in Ontario and/or Canada and will incorporate this information as part of its preparation of next year's ASPR.
28	The trend data in this report is very useful. This annual report will increase in value every year, as compliance relative to the baselines will be readily apparent. This is becoming a critical provincial and national service of TSSA. Sharing these values with other jurisdictions – assuming comparability – will also be very useful, as well as helping to refine TSSA's in-house risk analysis capabilities.	TSSA appreciates these comments