Toward Safe System Infrastructure – Application and Development of Safe System Assessment in Victoria

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Abstract

Safe System Assessment (SSA) is now widely used by VicRoads during the planning and design of road infrastructure projects to assess alignment with Safe System objectives. The methodology closely follows the Austroads framework (Turner et al, 2016). Based on experience and lessons learned when conducting SSAs, VicRoads has developed *Safe System Assessment Guidelines* (VicRoads, 2018) that provide enhanced guidance on when, how and who should conduct an assessment. The Guidelines mandate that SSA is to be undertaken on all projects with an estimated cost exceeding $5 million. SSA will also be used to measure safety performance under VicRoads Movement and Place framework.

Background

The Safe System philosophy was introduced in Victoria more than 15 years ago, and was quickly adopted as the guiding principle to underpin the state's road safety strategies and action plans. While the basic principles of the Safe System relating to human error and limiting the forces that the human body can tolerate when a crash occurs are now widely understood, the ongoing challenge has been to translate the principles into practice.

In 2016, Austroads published the report *Safe System Assessment Framework* (Turner et al, 2016). The framework provides a method to assess how well a proposed infrastructure project aligns with Safe System objectives and ultimately eliminate crashes that can result in fatalities and serious injuries. Safe System Assessment (SSA) is a tool that aids project planners, developers and designers to bridge the gap between Safe System theory and practice.

Safe System Assessment in VicRoads

VicRoads began conducting SSAs on major infrastructure projects approximately two years ago, applying the *Safe System Assessment Framework* methodology. It is estimated that more than 150 assessments have now been conducted.

This experience highlighted several areas where additional guidance was required to assist those undertaking assessments and to promote consistency, including in the reporting of findings. Areas identified for enhanced guidance included:

- The stage(s) in the project development cycle that a SSA should be conducted;
- Which projects should be subject to SSA;
- The level of detail required when conducting an assessment;
- Who should conduct a SSA and whether assessors should be independent;
- Clarification of which crash types / users are considered under each column of the SSA matrix;
- Additional guidance on scoring – e.g. should scores be whole numbers?
- Clarification of exposure measures and factors affecting likelihood; and
- How to sub-divide large or complex projects for assessment.

In addition, it became clear that policy was necessary to ensure that SSAs would be conducted and that Safe System principles would be considered during the development of all infrastructure projects.

VicRoads Guidelines

In July 2018 VicRoads released *Safe System Assessment Guidelines* (VicRoads, 2018) which address the areas of need identified above.

The Guidelines include VicRoads policy on which projects are to be subject to SSA. Table 1 is a summary of VicRoads requirements. Two levels of assessment have been identified – Full SSA and Rapid SSA. The former is a comprehensive assessment which includes all components of Austroads *Safe System Assessment Framework*. A Rapid SSA is an abridged version with the Safe System Assessment Matrix being the main component. Report templates have been developed for each type of assessment.

Safe System Assessment in Movement and Place

VicRoads is developing a comprehensive Movement and Place framework to ensure that the needs for movement and placemaking will be considered in the planning and development of the state's road network. Road safety performance will be incorporated into the framework, with the level of Safe System alignment to be used as the performance indicator. Safe System Assessments, specifically the Safe System Matrix scores, are to be used as the measure of alignment with Safe System.

Table 1. VicRoads Requirements for Safe System Assessments

Project Cost	SSA Requirements	Type of Assessment
> $5M	A SSA **must** be conducted (including all projects submitted to the Project Review Committee)	Full SSA for **ALL** projects Rapid SSA may be conducted if a Full SSA has been undertaken at an earlier stage (i.e. for a repeat assessment)
$2M to $5M	A SSA is **desirable** and is the preferred method to consider alignmenet with Safe System principles. Where a SSA is not undertaken, documentation of how the project has considered Safe System alignmenet shall be provided within the PRC / RRC report, design report, or other suitable record.	Full SSA for: • Complex projects • Projects with a significant risk of FSI crashes • Innovative projects Rapid SSA for: • Projects with a low risk FSI crashes • Repeat assessments for projects for which a Full SSA has been undertaken at an earlier stage
< $2M	A SSA is **optional**. The benefits of conducting an SSA and the risk factors associated with the project should be considered in determining the need for a SSA. Where a SSA is not undertaken, documentation of how the project has considered Safe System alignmenet shall be provided within the Regional Review Committee (RRC) report, design report, or other suitable record.	Rapid SSA where it has been determined that a formal assessment is required.

Note: From VicRoads 2018, p. 4.

References

Turner, B., Jurewicz, C., Pratt, K., Corben, B. and Woolley, J. (2016). Safe System Assessment Framework, Research Report AP-R509-16. Austroads, Sydney, NSW

VicRoads (2018). Safe System Assessment Guidelines V1.0. VicRoads, Kew, Vic.