



David Williamson

Technical Leader- Safe System Engineering

VicRoads - Network Design Services



ITE Seminar Safe System Assessment

David Williamson
Technical Leader, Safe System Engineering

**Connecting
our communities**



Safe System in Victoria

- Safe System principles have underpinned Victoria's strategic approach road safety since the early 2000s
- Victoria's current Road Safety Strategy and Action Plan, Towards Zero, continues and consolidates this approach





Embedding Safe System

- VicRoads is committed to embedding Safe System thinking across the organisation
- Past efforts have focussed on understanding the principles
- Attention is now on the practical application of Safe System principles in the planning, design, operation and maintenance of the road network
- Austroads *Safe System Assessment Framework* provides a way of measuring how well we are progressing towards achieving Safe System infrastructure



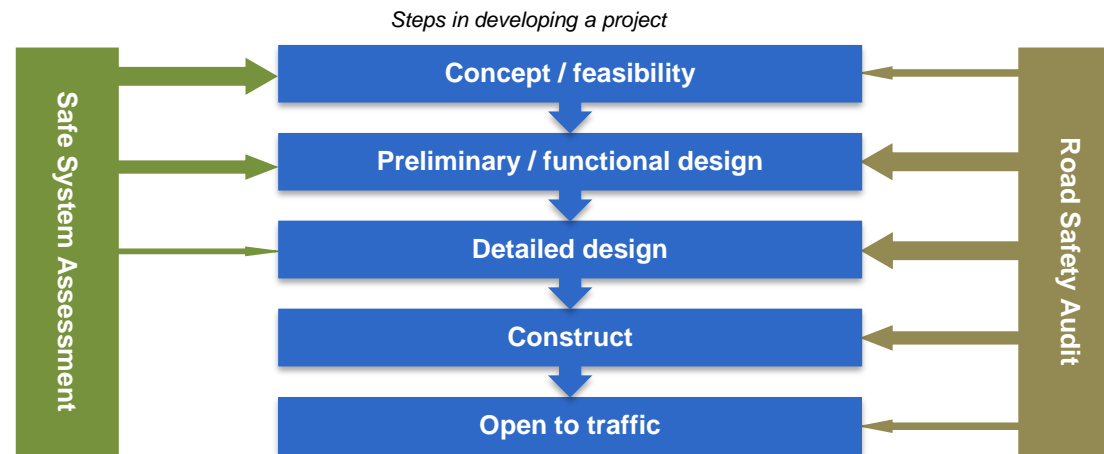
Safe System Assessment in VicRoads

- VicRoads has been conducting Safe System Assessments (SSA) for about a year
- Closely follows the Austroads framework
- Experience demonstrated that more detailed guidance was required in a number of areas (e.g. complex projects, who should conduct the SSA, scoring, reporting)
- Policy guidance was needed to support use of SSA

Safe System Assessment Guidelines

- Working draft released February 2018
- Final guidelines released July 2018
- Guidelines provide guidance on:
 - The stage in the project planning / development cycle at which an SSA should be conducted
 - Policy on which projects are to be subject to SSA
 - Steps in conducting an SSA
 - The type scope of the assessment required
 - Selecting an SSA team
 - Completing the SSA matrix, including scoring
 - Consideration of other Safe System components (road users, vehicles and post-crash care)
 - Reporting

When to Conduct an SSA



VicRoads SSA Requirements

Project Cost	SSA Requirements	Type of Assessment ²
> \$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 alignment of the project and design options with Safe System principles. Where a SSA is not undertaken, documentation of how the project has considered Safe System alignment shall be provided within the PRC / RRC report, design report, or other suitable record.	Full SSA for: <ul style="list-style-type: none"> • Complex projects • Projects with a significant risk of FSI crashes • Innovative projects Rapid SSA for: <ul style="list-style-type: none"> • Projects with a low risk of 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 a SSA and the risk factors ¹ 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 alignment 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

Type and Scope of SSA

Type of Assessment	Scope of Assessment
Full SSA	<p>Completion of the following activities (includes all components of the SSA Framework as per Austroads (2016)):</p> <ul style="list-style-type: none">• Commencement meeting• Project background & context• Workshop (optional)• Site inspections• Assessment of existing conditions and design options using the SSA Matrix• Consideration of other Safe System pillars• Identification of design changes to improve alignment with Safe System principles• Full SSA report• Consideration and adoption / rejection of suggested design changes• Advise the SSA Team of accepted design changes and re-score if necessary• Amend the project design / scope
Rapid SSA	<p>Completion of the following activities:</p> <ul style="list-style-type: none">• Commencement meeting (if required)• Project background & context• Assessment of existing conditions and design options using the SSA Matrix• Identification of design changes to improve alignment with Safe System principles• Rapid SSA report• Consideration and adoption / rejection of suggested design changes• Advise SSA Team of accepted design changes and re-score if necessary• Amend the project design / scope

Selecting the SSA Team

- Full SSA
 - Minimum of 2 to 4 recommended
 - Must be independent of the project and understand the Safe System and its application
 - Others team members may be associated with the project
 - Specialist knowledge may be necessary (e.g. for project on a freight route)
- Rapid SSA
 - May be conducted by an individual, although a larger team preferred
 - Must be independent and experienced in SSA
 - Report should be peer reviewed if conducted by an individual
- Register of competent assessors is proposed

The SSA Matrix

- Additional guidance provided on which crashes are considered under each column of the SSA matrix
- Additional guidance provided on scoring (e.g. use of half scores), measures of exposure and factors that can affect likelihood

	Run-off-road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclist
Exposure	/ 4	/ 4	/ 4	/ 4	/ 4	/ 4	/ 4
Likelihood	/ 4	/ 4	/ 4	/ 4	/ 4	/ 4	/ 4
Severity	/ 4	/ 4	/ 4	/ 4	/ 4	/ 4	/ 4
Product	/ 64	/ 64	/ 64	/ 64	/ 64	/ 64	/ 64
TOTAL SSA SCORE							/ 448

Reporting

- Standard report templates have been developed for Full and Rapid SSAs
- Content typically includes:
 - The type of assessment (full or rapid)
 - The assessment team
 - Background and context of the project
 - Project options assessed
 - Completion of the SSA matrices for existing conditions and project options
 - Commentary on other Safe System components
 - Suggestions to improve alignment with Safe System principles
- Templates available on VicRoads website at:
www.vicroads.vic.gov.au/business-and-industry/technical-publications/safe-system-engineering

SSA and RSA

- **Safe System Assessment:**
 - Evaluates alignment with Safe System principles
 - Focus on the risk of fatal and serious injury crashes
 - Considers exposure, likelihood and severity
 - Most valuable at the concept / feasibility stage to compare options
- **Road Safety Audit**
 - Focus is mainly on the likelihood of crashes, often regardless of severity
 - Objective is usually to ensure that no hazards are introduced into the road environment
 - Most valuable at the preliminary and detailed design phases
- **VicRoads policy** – if an SSA is conducted, a RSA is not required at the same stage



Training

- VicRoads has partnered with Safe System Solutions P/L to provide training on Safe System Principles (1 day) and Safe System Assessments (1 day)
- The SSA course is built around VicRoads guidelines and includes practice in conducting an assessment

Further Information

VicRoads website:

www.vicroads.vic.gov.au/business-and-industry/technical-publications/safe-system-engineering

Contacts:

Safe System Engineering Team:

safesystemengineering@roads.vic.gov.au

David Williamson:

david.williamson@roads.vic.gov.au