

# NOTICE OF MEETING

---

Dear Committee Members

You are requested to attend the following meeting of Council.

ENGINEERING AND INFRASTRUCTURE STANDING COMMITTEE  
MEETING OF  
**ISAAC REGIONAL COUNCIL**

TO BE HELD ON  
**WEDNESDAY, 2 DECEMBER 2020**  
**COMMENCING AT 9.00AM**  
**COUNCIL CHAMBERS - MORANBAH**

---

**GARY STEVENSON PSM**

Chief Executive Officer

**ROBERT PERNA**

Committee Officer

Director Engineering and Infrastructure

**Committee Members:**

Cr Jane Pickels (Chair)

Mayor Anne Baker

Cr Greg Austen

Cr Sandy Moffat

Cr Gina Lacey

Cr Simon West

## LOCAL GOVERNMENT ACT 2009

### Local Government Regulation 2012

#### Chapter 8, Part 2 Local Government Meetings and Committees

#### Division 1A, Requirements for Local Government Meetings Generally

#### Section 254J Closed meetings

- (1) A local government may resolve that all or part of a meeting of the local government be closed to the public.
- (2) A committee of a local government may resolve that all or part of a meeting of the committee be closed to the public.
- (3) However, a local government or a committee of a local government may make a resolution about a local government meeting under subsection (1) or (2) only if its councillors or members consider it necessary to close the meeting to discuss one or more of the following matters—
  - (a) the appointment, discipline or dismissal of the chief executive officer;
  - (b) industrial matters affecting employees;
  - (c) the local government's budget;
  - (d) rating concessions;
  - (e) legal advice obtained by the local government or legal proceedings involving the local government including, for example, legal proceedings that may be taken by or against the local government;
  - (f) matters that may directly affect the health and safety of an individual or a group of individuals;
  - (g) negotiations relating to a commercial matter involving the local government for which a public discussion would be likely to prejudice the interests of the local government;
  - (h) negotiations relating to the taking of land by the local government under the [Acquisition of Land Act 1967](#);
  - (i) a matter the local government is required to keep confidential under a law of, or formal arrangement with, the Commonwealth or a State.
- (4) However, a local government or a committee of a local government must not resolve that a part of a local government meeting at which a decision mentioned in [section 150ER\(2\)](#), [150ES\(3\)](#) or [150EU\(2\)](#) of the [Act](#) will be considered, discussed, voted on or made be closed.
- (5) A resolution that a local government meeting be closed must—
  - (a) state the matter mentioned in subsection (3) that is to be discussed; and
  - (b) include an overview of what is to be discussed while the meeting is closed.
- (6) A local government or a committee of a local government must not make a resolution (other than a procedural resolution) in a local government meeting, or a part of a local government meeting, that is closed.

#### Conflict of Interest Obligations

Reference is made to Section 150EL of the Local Government Act 2009. Specifically, the obligation of Councillors when they first become aware they have a conflict of interest to make the Chief Executive Officer aware in writing or if in a meeting, ensure they declare immediately.

---

## ENGINEERING AND INFRASTRUCTURE

### STANDING COMMITTEE MEETING

### OF ISAAC REGIONAL COUNCIL

### TO BE HELD ON

**WEDNESDAY 2 DECEMBER 2020**

**COUNCIL CHAMBERS, MORANBAH**

1. OPENING OF THE MEETING
2. APOLOGIES
3. DECLARATION OF CONFLICTS OF INTEREST
4. CONFIRMATION OF MINUTES
5. OFFICER REPORTS
6. INFORMATION BULLETIN REPORT
7. GENERAL BUSINESS
8. CONCLUSION

# TABLE OF CONTENTS

## 1. OPENING OF MEETING

## 2. APOLOGIES

## 3. DECLARATION OF CONFLICTS OF INTEREST

## 4. CONFIRMATION OF MINUTES

Engineering and Infrastructure Standing Committee Meeting of Isaac Regional Council held in Council Chambers, Moranbah, commencing at 9.00am on Wednesday 4 November 2020.

## 5. OFFICER REPORTS

### 5.1 ENGINEERING AND INFRASTRUCTURE 2020/2021 CAPITAL PROJECTS PROGRESS REPORT

#### EXECUTIVE SUMMARY

This report is to provide an update to the Engineering and Infrastructure Standing Committee and Council of the progress in delivery of the Engineering and Infrastructure 2020/2021 Capital Works Program.

### 5.2 REQUEST FOR TENDER - PURCHASE AND REMOVAL OF UNUSED RESIDENCE - 23-29 POWERHOUSE LANE CLERMONT

#### EXECUTIVE SUMMARY

This report seeks approval to issue a Request for Tender (RFT) for the purchase and removal of an unused dwelling situated at 23-29 Powerhouse Lane Clermont as per Council Policy - STAT-POL-051 Procurement and Disposal Policy.

### 5.3 FIXED TERM CARPENTER POSITION

#### EXECUTIVE SUMMARY

This report is to request approval to extend the Corporate Properties Department fixed term carpenter position for a further 12 months to provide operational and capital efficiencies.



# TABLE OF CONTENTS

---

## **5.4 STATE LOCAL GOVERNMENT ASSET ASSESSMENT PROJECT – BRIDGE CAPACITY ASSESSMENT PILOT PROGRAM**

### **EXECUTIVE SUMMARY**

This report seeks to provide Council with an update following an assessment of the capacity of key bridges and the applicable loading conditions within the Isaac Region.

## **5.5 AMENDMENT TO ENGINEERING AND INFRASTRUCTURE 2020- 2021 PROCUREMENT PLAN - SARAJI ROAD PAVEMENT REHABILITATION PROCUREMENT METHOD**

### **EXECUTIVE SUMMARY**

This report requests an amendment to the approved Engineering and Infrastructure 2020/2021 Procurement Plan - Resolution No 6763 for the procurement delivery of the Saraji Road Pavement Rehabilitation 2020/2021 Capital Works Program.

## **5.6 NORTH GOONYELLA – COMPENSATION AGREEMENT VARIATION**

### **EXECUTIVE SUMMARY**

BHP Mitsubishi Alliance has approached Isaac Regional Council to upgrade Mabbin Road to facilitate long term intermittent dragline shutdowns at Goonyella Riverside Mine. The report seeks to endorse principles for negotiation of the existing compensation agreement and seeks delegation to the Chief Executive Officer to negotiate, execute and vary the existing compensation agreement.

## **5.7 SARAJI SOUTH HAUL ROAD CROSSOVER – COMPENSATION AGREEMENT VARIATION**

### **EXECUTIVE SUMMARY**

BHP Mitsubishi Alliance has approached Isaac Regional Council to construct a haul road crossover across Golden Mile Road. The report seeks to endorse principles for negotiation of the existing compensation agreement and seek delegation to the Chief Executive Officer to negotiate, execute and vary the existing compensation agreement.

# TABLE OF CONTENTS

---

## **CONFIDENTIAL REPORT – CLOSED SESSION**

Closed under 254J(3) (g) negotiations relating to a commercial matter involving the local government for which a public discussion would be likely to prejudice the interests of the local government

### **5.8 AWARD IRCT2054-0820-2020 DESIGN AND CONSTRUCT 16 PERSON ENSUITE ACCOMMODATION**

#### **EXECUTIVE SUMMARY**

This report examines the responses received for Design and Construction of a 16-person Accommodation Facility in Moranbah and recommends awarding to the contractor providing the best value for money outcome for council.

---

## **6. INFORMATION BULLETINS**

### **6.1 ENGINEERING AND INFRASTRUCTURE INFORMATION BULLETIN – DECEMBER 2020**

#### **EXECUTIVE SUMMARY**

The Engineering and Infrastructure Directorate Information Bulletin for December 2020 is provided for Committee review.

---

## **7. GENERAL BUSINESS**

---

## **8. CONCLUSION**

---

# UNCONFIRMED MINUTES

---

ENGINEERING AND INFRASTRUCTURE STANDING COMMITTEE MEETING  
OF  
**ISAAC REGIONAL COUNCIL**

HELD ON  
**WEDNESDAY, 4 NOVEMBER 2020**  
COMMENCING AT 9.00AM

**ISAAC REGIONAL COUNCIL**  
**UNCONFIRMED MINUTES OF THE**  
**ENGINEERING AND INFRASTRUCTURE**  
**STANDING COMMITTEE MEETING**  
**HELD IN COUNCIL CHAMBERS, MORANBAH**  
**ON WEDNESDAY 4 NOVEMBER 2020**

| <b>Table of Contents</b>                | <b>Page</b> |
|---|-------------|
| 1. Opening                              | 3           |
| 2. Apologies                            | 4           |
| 3. Declaration of Conflicts of Interest | 4           |
| 4. Confirmation of Minutes              | 4           |
| 5. Officer Reports                      | 5           |
| 6. Information Bulletin Reports         | 8           |
| 7. General Business                     | 10          |
| 8. Conclusion                           | 11          |



**ISAAC REGIONAL COUNCIL**

**UNCONFIRMED MINUTES OF THE**

**ENGINEERING AND INFRASTRUCTURE**

**STANDING COMMITTEE MEETING**

**HELD IN COUNCIL CHAMBERS, MORANBAH**

**ON WEDNESDAY 4 NOVEMBER 2020 COMMENCING AT 9.00AM**

**ATTENDANCE**

Cr Jane Pickels, Division Seven (Chair) *(via Teleconference)*  
Cr Greg Austen, Division One  
Cr Sandy Moffat, Division Two  
Cr Gina Lacey, Division Three  
Cr Simon West, Division Four  
Cr Viv Coleman, Division Eight *(Observer)*

**OFFICERS PRESENT**

Mr Robert Perna, Director Engineering and Infrastructure  
Mr Gordon Robertson, Manager Corporate Properties and Fleet  
Mr Nic Crous, Acting Manager Parks and Recreation  
Mr Niall Tierney, Recoverable Works Engineer  
Mr Robin Thekkekara, Design and Planning Engineer  
Mr Alex Staines, Manager Brand Media and Communications *(via Videoconference)*  
Mrs Tricia Hughes, Coordinator Executive Support  
Mrs Kylie Dowd, Executive Assistant

**1. OPENING**

The Chair declared the meeting open at 9.00am and acknowledged the traditional custodians of the land on which we meet today and paid her respects to their Elders past, present and emerging.

**Resolution No.: E&I0436**

**Moved: Cr Lacey**

**Seconded: Cr Moffat**

**That the Engineering and Infrastructure Standing Committee accepts Cr Jane Pickels participation in the meeting by video conference.**

**Carried**

## 2. APOLOGIES

The Committee received an apology from Mayor Anne Baker.

**Resolution No.: E&I0437**

**Moved: Cr West**

**Seconded: Cr Moffat**

**That the Engineering and Infrastructure Standing Committee accepts the apology received from Mayor Anne Baker.**

**Carried**

## 3. DECLARATION OF CONFLICTS OF INTEREST

No Conflict of Interests declared this meeting.

**NOTE:**

*Council acknowledges that Chapter 5B Councillors' Conflicts of Interest of the Local Government Act 2009 does not apply to a Councillor if the matter to be resolved relates to a corporation or association that arises solely because of a nomination or appointment of the councillor by the local government to be a member of the board of the corporation or association.*

## 4. CONFIRMATION OF MINUTES

Engineering and Infrastructure Standing Committee Meeting of Isaac Regional Council held in Council Chambers, Moranbah commencing at 9.00am on Wednesday 7 October 2020.

**Resolution No.: E&I0438**

**Moved: Cr Lacey**

**Seconded: Cr Moffat**

**That the minutes from the Engineering and Infrastructure Standing Committee meeting held in Council Chambers, Moranbah on Wednesday 7 October 2020 are confirmed.**

**Carried**

## 5. OFFICERS REPORTS

### 5.1 Engineering and Infrastructure 2020/2021 Overall Capital Projects Progress Report

#### EXECUTIVE SUMMARY

This report is to provide an update to the Engineering and Infrastructure Standing Committee and Council of the progress in delivery of the Engineering and Infrastructure 2020/21 Capital Works Program.

#### OFFICER'S RECOMMENDATION

That the Committee recommends that Council:

1. *Receive and notes the monthly Engineering and Infrastructure 2020/2021 Capital Projects Progress Report.*
2. *Receive and notes works awarded under the 2020/2021 Engineering and Infrastructure Procurement Plan.*
3. *Receive and notes the 2020/2021 Engineering and Infrastructure Procurement Plan Report (detailing local contractor content).*

Resolution No.: E&I0439

Moved: Cr Lacey

Seconded: Cr West

That the Committee recommends that Council:

1. Receive and notes the monthly Engineering and Infrastructure 2020/2021 Capital Projects Progress Report
2. Receive and notes works awarded under the 2020/2021 Engineering and Infrastructure Procurement Plan
3. Receive and notes the 2020/2021 Engineering and Infrastructure Procurement Plan Report (detailing local contractor content)

Carried

**NOTE: Updated/Amended Attachments for Report 5.1 where provided to the Committee and the Chair has requested that the updated attachments be provided in the Ordinary Meeting agenda.**

## ATTENDANCE

Mr Sean Robinson, Manager Galilee and Bowen Basin Operations entered the meeting room at 9.15am.

## 5.2 Isaac Regional Council Recreational Water Bodies Blue-Green Algae Monitoring and Response Strategy

### EXECUTIVE SUMMARY

Isaac Regional Council manages the recreational water bodies in the region, including Lake Elphinstone and Theresa Creek Dam. Council is therefore responsible for the provision of a safe environment within those areas.

Blue-green algae blooms occur periodically with varying severity on Isaac water bodies and when present, poses a risk to human health. Council is responsible for the provision of a safe environment within the Isaac water bodies recreational areas and therefore must restrict access to water-based activities when there is a potential public health or safety concern.

The Isaac Regional Council Recreation Water Bodies Blue-Green Algae Management Procedure describes the water quality monitoring program proposed for these recreational areas, together with the proposed response and actions to be implemented by Council to ensure the safety of the public.

### OFFICER'S RECOMMENDATION

*That the Committee recommends that Council:*

- 1. Endorse the Recreational Water Bodies Blue-Green Algae monitoring and response strategy.***
- 2. Adopt the procedure to implement the monitoring and response process.***

**Resolution No.: E&I0440**

**Moved: Cr West**

**Seconded: Cr Austen**

**That the Committee recommends that Council:**

- 1. Endorse the Recreational Water Bodies Blue-Green Algae monitoring and response strategy.**
- 2. Adopt the procedure to implement the monitoring and response process.**

**Carried**

**NOTE: The Committee request information on whether there is potential risk for the blue-green algae to seed while there is limited water in Lake Elphinstone – are there any measures that can be taken to prevent a potential blue-green algae bloom.**





2. ***Delegate authority to the Chief Executive Officer to negotiate, execute and vary the Pipeline Installation and Maintenance Licence.***

**Resolution No.: E&I0443**

**Moved: Cr Moffat**

**Seconded: Cr Austen**

**That the Committee recommends that Council:**

- 1. Approve the Pipeline Installation and Maintenance Licence between Isaac Regional Council and Pembroke Olive Downs Pty Ltd**
- 2. Delegate authority to the Chief Executive Officer to negotiate, execute and vary the Pipeline Installation and Maintenance Licence.**

**Carried**

## ATTENDANCE

Mr Sean Robinson left the meeting room at 9.56am.

## 6. INFORMATION BULLETIN REPORTS

### 6.1 Engineering and Infrastructure Information Bulletin – November 2020

#### EXECUTIVE SUMMARY

The Engineering and Infrastructure Directorate Information Bulletin for November 2020 is provided for Committee review.

#### OFFICER'S RECOMMENDATION

*That the Committee recommends to Council to:*

- 1. Note the Engineering and Infrastructure Directorate Information Bulletin for November 2020.**

**Resolution No.: E&I0444**

**Moved: Cr Austen**

**Seconded: Cr Moffat**

**That the Committee:**



## 7. GENERAL BUSINESS

### 7.1 Bowen Basin Regional Roads and Transport Group - Roads of Strategic Importance Program Prioritisation and Project Delivery Correspondence

Correspondence received from the Bowen Basin Regional Roads and Transport Group relating to the Roads of Strategic Importance Program Prioritisation and Project Delivery was provided to the Committee for discussion (Refer E&I Minutes – Attachment 1)

The E&I Standing Committee agreed to continue to support and advocated for previously included Roads and add the following:

1. Clermont-Alpha Road
2. Kilcummin-Diamond Downs Road
3. Eaglefield Road

**ACTION: DIRECTOR ENGINEERING AND INFRASTRUCTURE**

### 7.2 Eaglefield Road – Design Issues

Cr Greg Austen enquired if there were design issues (too high) with the Eaglefield Road works. The Director Engineering and Infrastructure provided an update on the design issues and advised that resolving the design issues had delayed the project one week and some rework of batters were required.

### 7.3 Craven Road – Airstrip Grading

Cr Austen enquired about the request that was received from a rural land owner on Craven Road for Council to grade a local private airstrip to allow the Royal Flying Doctors Services to use the strip which Council declined due to this strip being privately owned but Council has agreed to grade a private property access for a rural landowner near Theresa Creek Dam. Cr Austen enquired whether there is a policy in relation to these matters to ensure consistency.

**ACTION: DIRECTOR ENGINEERING AND INFRASTRUCTURE**

### 7.4 Camping App – Notch Point Area

Cr Coleman asked if the Camping App will it be rolled out to the Coastal Camping grounds such as Notch Point prior to the upcoming holiday season.

**ACTION: ACTING MANAGER PARKS AND RECREATION**



## 7.5 Road Action Advisory Group (RAAG) Update

Cr Viv Coleman provided an update to the E&I Standing Committee on a recent Road Action Advisory Group (RAAG) Meeting that she attended and also advised that an annual general meeting is coming up.

## 7.6 Clairview Bus Stop

Cr Coleman requested an update on Clairview Bus Stop.

**ACTION: DIRECTOR ENGINEERING AND INFRASTRUCTURE**

### ATTENDANCE

Mr Greg Austen left the meeting room at 11.30am.

## 8. CONCLUSION

There being no further business, the Chair declared the meeting closed at 11.31am.

These minutes were confirmed by the Committee at the Engineering and Infrastructure Standing Committee Meeting held in Moranbah on Wednesday 2 December 2020.

.....  
CHAIR

..... / ..... / .....  
DATE

---

## MEETING DETAILS

**Engineering and Infrastructure Standing Committee**  
Wednesday 2 December 2020

---

## AUTHOR

Robert Perna

---

## AUTHOR POSITION

Director Engineering and Infrastructure

---

---

## 5.1 ENGINEERING AND INFRASTRUCTURE 2020/2021 CAPITAL PROJECTS PROGRESS REPORT

### EXECUTIVE SUMMARY

This report is to provide an update to the Engineering and Infrastructure Standing Committee and Council of the progress in delivery of the Engineering and Infrastructure 2020/2021 Capital Works Program.

### OFFICER'S RECOMMENDATION

*That the Committee recommends that Council:*

- 1. Receive and notes the monthly Engineering and Infrastructure 2020/2021 Capital Projects Progress Report.**
- 2. Receive and notes works awarded under the 2020/2021 Engineering and Infrastructure Procurement Plan.**
- 3. Receive and notes the 2020/2021 Engineering and Infrastructure Procurement Plan Report (detailing local contractor content).**

### BACKGROUND

Progressive updates of the financial and physical position of projects in the 2020/2021 Engineering and Infrastructure Capital Works program are required to ensure that Council is aware of the progress of and risk to the delivery of the program.

Engineering and Infrastructure has undertaken to report local content in contracts awarded through the Procurement plan.

### IMPLICATIONS

The attached Engineering and Infrastructure 2020/2021 Capital Projects Progress Summary spreadsheet identifies the financial and physical position of all projects. A red flag indicates either a time or budget issue, yellow indicates the projects is of concern and green indicates no issues. Commentary is provided to briefly explain the position of projects. Where the risk is considered low or of insignificant impact to council or community no additional commentary is provided. Where risks are significant separate commentary is provided in the Engineering and Infrastructure Issues Report.

### Compliance

To ensure that the Engineering and Infrastructure 2020/2021 Capital Works Program is achieved within the identified timeframes of the 2020/2021 financial year.

Per Resolution number 6763 (2020/2021 Engineering and Infrastructure Strategic Procurement Plan), the activities of the previous month's Procurement Plan under the Chief Executive Officer's delegation will be noted in this report.

## Benefits

Council can see a monthly progress report detailing progress of projects in the Engineering and Infrastructure 2020/2021 Capital Program. This report communicates risks/failure/delays that have been identified within the Engineering and Infrastructure 2020/2021 Capital Works program.

## CONSULTATION

- Director Engineering and Infrastructure
- Manager Infrastructure Planning and Technical Services
- Manager Corporate Properties and Fleet
- Manager Infrastructure, Parks and Recreation
- Manager Galilee and Bowen Basin Operations
- Department Coordinators

## BASIS FOR RECOMMENDATION

To improve business within Engineering and Infrastructure Directorate by providing more appropriate and relevant reporting, transparency and a clear monitoring tool for Council. This report will help identify and communicate any project delays or possible project failures.

## ACTION ACCOUNTABILITY

That the Managers and the Director of Engineering and Infrastructure oversee the scoping, procurement and the completion of the projects identified within the 2020/2021 Capital Projects Progress Summary spreadsheet. Furthermore, that the appropriate Managers and the Director of Engineering and Infrastructure are held accountable for the delivery of these project stages are completed within the identified timeframes.

## KEY MESSAGES

That Council has open communication, oversight and transparency of the Engineering and Infrastructure 2020/2021 Capital Works Program, to ensure Isaac will have effective and sustainable infrastructure that supports the needs of the region's communities and economic sectors.

### Report prepared by:

ROBERT PERNA  
**Engineering and Infrastructure**

Date: 25 November 2020

### Report authorised by:

GARY STEVENSON  
**Chief Executive Officer**

Date: 26 November 2020

## **ATTACHMENTS**

- CONFIDENTIAL Attachment 1 – 2020/2021 Capital Project Progress Summary Spreadsheet
- CONFIDENTIAL Attachment 2 – Works awarded under the 2020/2021 Engineering and Infrastructure Procurement Plan

## **REFERENCE DOCUMENT**

- Nil

PAGES 21 TO 28 HAVE INTENTIONALLY BEEN REMOVED DUE TO CONFIDENTIAL REASONS

---

## MEETING DETAILS

**Engineering and Infrastructure Standing Committee**  
Wednesday 2 December 2020

---

## AUTHOR

Gordon Robertson

---

## AUTHOR POSITION

Corporate Properties and Fleet Manager

---

---

## 5.2 REQUEST FOR TENDER – PURCHASE AND REMOVAL OF UNUSED RESIDENCE - 23-29 POWERHOUSE LANE CLERMONT

### EXECUTIVE SUMMARY

This report seeks approval to issue a Request for Tender (RFT) for the purchase and removal of an unused dwelling situated at 23-29 Powerhouse Lane Clermont as per Council Policy - STAT-POL-051 Procurement and Disposal Policy.

### OFFICER'S RECOMMENDATION

*That the Committee recommends that Council:*

- 1. Approves issuing a Request for Tender for the purchase and removal of the unused residence - 23-29 Powerhouse Lane Clermont.**
- 2. Amend the Engineering and Infrastructure 2020/21 Procurement plan to include this project.**

### BACKGROUND

The Clermont Powerhouse dwelling at Lot 1SP109697, 23-29 Powerhouse Lane was partially renovated by Council in 2016 with the intent to make it available for use as staff housing. Prior to that it had been vacated for an extended period.

The residence is situated on Lot 1SP109697 which is also the site of the Old Powerhouse Museum which had an application for change of purpose and is under lease to the Clermont Men's Shed group.

The residence would be approximately 80 plus years since construction and is in a reasonable but aged condition. It was noted in a recent asset condition assessment that it would require a significant Capital renewal to maintain its serviceability.

The Corporate Properties team have done a detailed assessment prior to any investment in the property and have determined renewal of up to \$245,000 would be required in the immediate future, this investment would maintain the property and could possibly achieve another 20-30 years of useful life. Given the volume of investment required, the property has been noted under review in Corporate Properties 5–10 year Acquisition and Disposal program for Employee residential housing.

Whilst researching the options for renewal vs disposal and replacement with another residence, contact was made with Department of Natural Resources and Mines (DNRM) in 2018 to review requirements and the following response was received.

**Refer Attachment A - DNRME Correspondence**



In taking this into context the residence cannot be utilised in its current form unless application is made to amend the area which will include requiring native title assessment which has financial implications.

The residence has no front landing for the stairs and immediate need to rectify this is required, but no building approvals or works can be conducted due to the purpose of the reserve and purpose of Councils utilisation as staff residence.

Therefore, a requirement to dispose of the building by RFT for purchase and removal of the unused building for the benefit of the successful tenderer would be the best outcome for Council. It would be cost prohibitive to Council to relocate this building for re-purposing elsewhere within the region.

This will also provide Isaac Regional Council the opportunity to offer the land for other purposes, with the possibility for the local high school to extend their agriculture area or Men's Shed to extend their footprint.



## IMPLICATIONS

### Historical Significance

Once home to the manager of the original Clermont Powerhouse/Station, it was then transitioned into a caretaker's residence for the custodian of the Powerhouse Museum and has stood proudly behind the local high school for decades. The oldest aerial photos found to date show the house in 1952, with locals dating the house from memory and possibly back to the 1940's.

However, the façade of the building has been altered over the years to enhance usability as a residence.

- The verandas have been closed in and turned to bedrooms,
- The house has been raised and closed in underneath, and
- The weatherboard exterior has been replaced,

Only the structure and frame of the house have been retained. Building records and past approvals show most of these changes occurred in 1982, by the then owners, The Capricornia Electricity Company.

- This property is approximately 80 years old and is **not** listed in the Queensland Heritage Register as a property of significance.



#### Financial:

- Revenue will be provided by the sale of the residence, in comparison to purchasing an allotment, relocating the house and renovating for staff housing or any other future use (cost prohibitive).

#### Risk:

- The potential for the residence to fall into a state of disrepair and pose a safety risk.
- Residence currently sits on land that is not for purpose of use.
- Community resistance. This will be mitigated with a comprehensive engagement plan as shown below.

| COMMUNICATIONS EXTERNAL FOR REQUEST FOR TENDER |  |                          |
|--|--|--------------------------|
| ACTIVITY/MATERIAL                              | DISTRIBUTION   | TIMING                   |
| PUBLIC NOTICE FOR RFT                          | Public notice distribution list<br>Clermont Library<br>Community Noticeboard | Pending Council Approval |
| WEB COPY                                       | IRC Website on EOI and Tenders Page  | Pending Council Approval |
| COMMUNITY NEWSLETTER                           | Publish RFT in Clermont Rag  | Pending Council Approval |

---

## Resources:

- The Corporate Properties Team will develop tender documentation for removal of asset from the land parcel in line with the relevant asset disposal guidelines.

## CONSULTATION

- Brand Media and Communication Team to develop a communication plan
- Corporate Properties Team
- Procurement
- ELT

## BASIS FOR RECOMMENDATION

- Interest in purchasing the residence for removal, relocation and renovation have already been fielded by Corporate Properties.
- The opportunity to offer the residence for sale for removal while it is in fair condition.
- The building cannot be renovated where it is currently situated as the land is not zoned for residential.

## ACTION ACCOUNTABILITY

- Corporate Properties to manage the disposal of the asset in conjunction with Procurement.
- Corporate Properties will liaise with the BMC Team to create a communications plan to advise the community of Councils intent to offer the building as an RFT for Purchase and Removal.

## KEY MESSAGES

Corporate Properties are currently completing a Residential Housing Strategy to identify best practice in managing housing assets, this will identify the need to provide a means of replacing aged assets with new assets, which will provide the best value for Council in long term financial planning.

|   |  |
|---|--|
| <b>Report prepared by:</b><br>GORDON ROBERTSON<br><b>Corporate Properties and Fleet Manager</b><br>Date: 25 November 2020 | <b>Report authorised by:</b><br>ROBERT PERNA<br><b>Director Engineering and Infrastructure</b><br>Date: 25 November 2020 |
|---|--|

## ATTACHMENTS

- Attachment 1 – Department of Natural Resources, Mines and Energy Correspondence

## REFERENCE DOCUMENT

- Nil

## Attachment A – DNRME Correspondence

Hi Carey

I've got an enquiry in relation to Lot 1 on SP109697, which you may remember was previously subject to a change to the purpose of the reserve to allow for a Men's Shed group to use the old powerhouse museum (Lease A).

Located on the same Lot is an existing dwelling which in recent years has been used as Isaac Regional Council staff housing. It is understood that the dwelling may have been used historically as an onsite caretaker's residence for the powerhouse and later for the museum.

My enquiry:

&#61623 Can Council continue to use this land for the purpose of staff housing?

&#61623 If so, can Council remove the existing dwelling and replace with a new one?

&#61623 If the existing dwelling must be kept, is there any criteria / requirements applicable to undertake major improvement works as the house is at its end of life?

Thanks in advance for your assistance.

If you have any questions, please feel free to contact me and I will be happy to assist.

Kind regards

**Joseph Kirkwood**

**Senior Town Planner | Planning & Land Development**

Joseph

staff accommodation is not appropriate on the reserve as it considered to be an operational matter. The reserve is for cultural, heritage, historical and recreation purposes being for the benefit of the community.

If council as trustee of the reserve determine that the structure is not needed on the reserve, it can be removed.

Alternatively, if council wish to continue to use the structure for operational purposes, council can make application to purchase the area required and amend the area of the reserve.

Please note, a native title assessment would form part of our assessment of any proposed application and there may be a requirement in any subsequent offer for council to address native title.

I have not looked into the native title of this land in relation to this matter.

Let me know if you require anything further.

Regards

Carey



**Carey Gabriel**  
Senior Land Officer  
State Land Asset Management | Land Services  
Department of Natural Resources, Mines and Energy (DNRME)

---

**MEETING DETAILS**

**Engineering and Infrastructure Standing Committee**  
Wednesday 2 December 2020

---

**AUTHOR**

Gordon Robertson

---

**AUTHOR POSITION**

Manager Corporate Properties and Fleet

---

---

**5.3****FIXED TERM CARPENTER POSITION**

## EXECUTIVE SUMMARY

This report is to request approval to extend the Corporate Properties Department fixed term carpenter position for a further 12 months to provide operational and capital efficiencies.

## OFFICER'S RECOMMENDATION

*That the Committee recommends that Council:*

- 1. Approves the modification to the Corporate Properties Department, 57,000.00 organisational structure to extend existing fixed term carpenter role 57,508.00 for a further 12 months.***

## BACKGROUND

The Corporate Properties team have utilised the fixed term carpenter position to assist with the delivery of the 2019 -2020 capital budget and as well as undertaking Building Maintenance Requests (BMR's) on our existing facilities and houses throughout the region.

Council approved the fixed term carpenter role at the Standing Committee Meeting on 13 March 2019 (resolution # 5960) to primarily oversee an apprentice carpenter in his 1st year, it was envisaged that the apprentice carpenter would be well into his second year at the end of the proposed 12 month tenure and as such could contribute to the groups capacity to deliver.

The apprentice carpenter engaged did not continue his apprenticeship with council, however, as part of our commitment to engaging local youth into our apprenticeship program we have engaged another 1st year Apprentice Carpenter commencing in January 2021.

The current 1-year fixed term position has enabled the Corporate Properties team to reduce contract labour and provide trades work to our existing facilities and homes requiring renovations or maintenance.

The proposed amendments will have minimal overall negative cost impact to existing department budget. Additionally, it is expected that cost benefits will be provided via the reduction of costs incurred from the engagement of the labour hire carpenters and external contractors. It is important to note that this proposal will add significant improvement in the effectiveness and efficiencies of the Corporate Properties Department's function and strategic performance.



## Proposed Capex / Opex Split

| Type         | Position  | Opex Allocation  | Salary Including Oncost | Overtime   | Vehicle Expense | Allowances                         |  |  |
|--------------|-----------|------------------|-------------------------|------------|-----------------|------------------------------------|--|--|
| Fixed Term   | Carpenter | 30%              | \$24,325.50             |            | \$4,800.00      | CWA<br>Locality<br>Tool<br>Housing | \$518.70<br>\$221.91<br>\$420.42<br>\$1,560.00   |  |
| Type         | Position  | Capex Allocation | Salary Including Oncost | Overtime   | Vehicle Expense | Allowances                         |  |  |
| Fixed Term   | Carpenter | 70%              | \$56,759.50             | \$5,133.45 | \$11,200.00     | CWA<br>Locality<br>Tool<br>Housing | \$1,210.30<br>\$517.79<br>\$980.98<br>\$3,640.00 |  |
| <b>TOTAL</b> |           |                  |                         |            |                 |                                    | <b>\$111,288.55</b>                              |  |

## Engineering & Infrastructure as of 19/10/2020

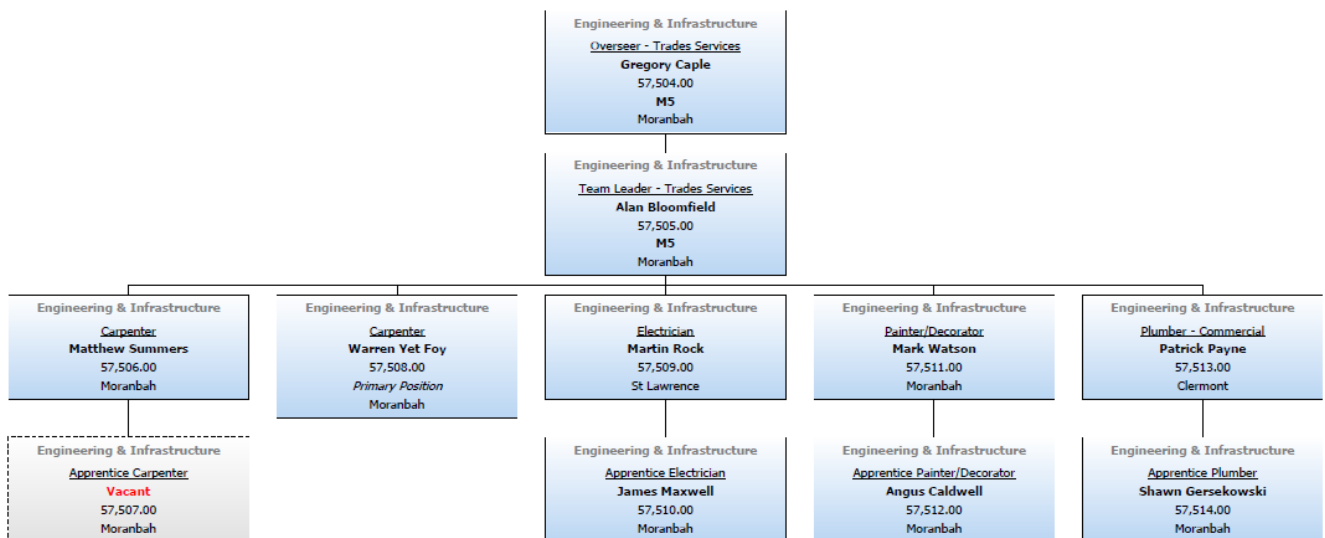


Figure 1: Current Organisational Chart



---

## IMPLICATIONS

### Financial

The cost of this position will be recovered / funded from existing operational and capital budgets.

### Service Levels

Corporate Properties will benefit significantly as an improvement in efficiencies has already been seen with the fixed term position.

## CONSULTATION

- Director Engineering and Infrastructure
- Manager Corporate Properties and Fleet
- People and Performance Business Partner
- Trades Team

## BASIS FOR RECOMMENDATION

Over the last 12 months the utilisation of the fixed term carpenter has been of great benefit to the trades team with the capital works program as well as undertaking operational maintenance on the building maintenance requests (BMR's).

The trades team have been able to address a high percentage of the work in a timely and efficient manner in preference to acquiring quotes from contractors to supply the service required. Corporate Properties have also been able to assist other departments, saving them the time and the expense of hiring an external contractor to undertake their work.

This has proven a very successful undertaking and has significantly reduced the backlog of BMR's and assisted with the delivery of the 2019-2020 Capital program.

## ACTION ACCOUNTABILITY

Corporate Properties will liaise with People and Performance to administer relevant internal documents if approved.

## KEY MESSAGES

Continuation of the fixed term Carpenter's position is a cost effective and efficient benefit for delivery of the capital delivery and operational programs.

The proposed 12-month extension of the Carpenter role will assist in overseeing the 1st Year Apprentice Carpenter commencing in January 2021.

|  |  |
|--|--|
| <b>Report prepared by:</b>                                   | <b>Report authorised by:</b>                                   |
| GORDON ROBERTSON<br><b>Co-ordinator Corporate Properties</b> | ROBERT PERNA<br><b>Director Engineering and Infrastructure</b> |
| Date: 25 November 2020                                       | Date: 25 November 2020   |

## **ATTACHMENTS**

- Nil

## **REFERENCE DOCUMENT**

- Nil

---

## MEETING DETAILS

**Engineering and Infrastructure Standing Committee**  
Wednesday 2 December 2020

---

## AUTHOR

Sean Robinson

---

## AUTHOR POSITION

Manager Galilee and Bowen Basin Operations

---

---

## 5.4 STATE LOCAL GOVERNMENT ASSET ASSESSMENT PROJECT – BRIDGE CAPACITY ASSESSMENT PILOT PROGRAM

### EXECUTIVE SUMMARY

This report seeks to provide Council with an update following an assessment of the capacity of key bridges and the applicable loading conditions within the Isaac Region.

### OFFICER'S RECOMMENDATION

*That the Committee recommends that Council:*

- 1. Note the report presented including the travel restrictions that shall be imposed on the applicable bridge assets.***
- 2. Note the defining of permit conditions is currently delegated to the Chief Executive Officer "HVMDLNR6 Power, as a road manager, to consent to the granting of a Higher Mass Limit (HML) permit subject to conditions"***

### BACKGROUND

Isaac Regional Council (IRC) were selected to participate in a pilot program facilitated by the National Heavy Vehicle Regulator (NHVR). The pilot program titled State Local Government Asset Assessment Project (SLGAAP) is a program intended to provide Local Governments a greater understanding of the capacities for structures continually impacted by Oversize Overmass (OSOM) vehicles. The overall outcome for the program is to provide productivity and efficiency gains to the heavy vehicle transport industry. One of the key selection factors which resulted in IRC being selected to participate in the program is the quantity of permits processed. Within the last 12 months, it has been identified that IRC have processed the second highest number of permits in Australia.

The bridge assets selected to undergo assessment include:

1. Cherwell Creek Bridge – Peak Downs Mine Road.
2. Hughes Creek Bridge – Saraji Road.
3. Phillips Creek Bridge – Saraji Road.
4. Blackburn Creek Bridge – Golden Mile Road.
5. Grosvenor Creek Bridge – Moranbah Access Road.

The first round of assessment (Tier 1) involved an assessment of current vehicle load combinations against the original design load criteria. The results outlined that all the bridge assets with the exception of Cherwell Creek Bridge failed the theoretical loading criteria and required further detailed analysis.

The second round of assessment (Tier 2) involved the identification of 10 common vehicles in which were most representative of the permits issued within the Isaac Region. These vehicles included:

| Assessment Vehicle (AV) | Description   |
|-------------------------|---|
| 1                       | Max Prime Mover and 4-axle low loader trailer               |
| 2                       | Max Prime Mover and 12-axle platform trailer                |
| 3                       | Max Prime Mover and 16-axle platform trailer                |
| 4                       | Max Prime Mover, 2 axle dolly and 4-axle low loader trailer |
| 5                       | Max Prime Mover, 2 axle dolly and 12-axle platform trailer  |
| 6                       | HML 9 axle B-double   |
| 7                       | HML 12 axle A-double  |
| 8                       | PBS HML 3-axle truck and 4-axle dog trailer                 |
| 9                       | 4-axle all terrain crane – 48.0t                            |
| 10                      | 6-axel all terrain crane and 3-axle dolly – 79.5t           |

A summary of each of the assessed bridge assets is proved below;

1. Hughes Creek Bridge – Saraji Road – No previous conditions have been imposed on this asset
  - a. Vehicle 1 – 5
    - i. Centreline Travel only
    - ii. Vehicle 1 travel speed must not exceed 10km/hr
  - b. Vehicle 9 and 10
    - i. Centreline travel only
2. Phillips Creek Bridge – Saraji Road – No previous conditions have been imposed on this asset
  - a. Vehicle 1 – 5
    - i. Centreline Travel only
    - ii. Vehicle 1 and 5 travel speed must not exceed 10km/hr
  - b. Vehicle 9 and 10
    - i. Centreline travel only
3. Grosvenor Creek Bridge – Moranbah Access Road – No previous conditions have been imposed on this asset
  - a. Vehicle 1 – 5
    - i. Centreline Travel only

- 
- ii. Vehicle 1 and 5 travel speed must not exceed 10km/hr
    - b. Vehicle 9 and 10
      - i. Centreline travel only
  4. Blackburn Creek Bridge – Golden Mile Road– No previous conditions have been imposed on this asset
    - a. A targeted assessment was undertaken including the condition that travel along the centreline of the bridge at a speed no greater than 10 km/h, excluding the following vehicle combinations
      - i. Prime mover, 2 axle dolly and 7-axle platform trailer
      - ii. Prime mover, 2 axle dolly and 10-axle platform trailer
      - iii. Prime mover, 2 axle dolly and 11-axle platform trailer
      - iv. Prime mover, 2 axle dolly and 12-axle platform trailer

The impact of the above restrictions will result in the industry requiring a police escort over the identified structures to ensure the safe passage along the centreline of the bridge structure. This along with the identified speed restrictions will result in an increase in cost to heavy vehicle transport operators however will allow for the protection of critical IRC assets.

## IMPLICATIONS

There will be a financial impact to local business and industry.

## CONSULTATION

- National Heavy Vehicle Regulator
- Quality and Compliance Officer
- Director Engineering and Infrastructure

## BASIS FOR RECOMMENDATION

The bridge assessment reports have been undertaken by suitably qualified consultants based on sound engineering principles.

## ACTION ACCOUNTABILITY

Galilee and Bowen Basin Department to ensure Oversize Over-mass permit approvals contain the applicable conditions representative of the Registered Professional Engineer of Queensland (RPEQ) determination.

Galilee and Bowen Basin Department to ensure correspondence is issued to the regular users of the impacted routes advising of the imposed conditions.

## KEY MESSAGES

Isaac Regional Council will have effective and sustainable infrastructure that supports the needs of the region's communities and its economic sectors.

---

**Report prepared by:**

SEAN ROBINSON  
**Manager Galilee and Bowen Basin Operations**

Date: 24 November 2020

**Report authorised by:**

ROBERT PERNA  
**Director Engineering and Infrastructure**

Date: 25 November 2020

## ATTACHMENTS

- Attachment 1 – NHVR – SLGAAP Pilot Phase – Tier 1 Assessment Report – Rev 1

## REFERENCE DOCUMENT

- 10236717\_NHVR SLGAAP Pilot Phase\_Tier 2 Assessment Report\_BR30-Hughes Creek Bridge\_1
- 10236717\_NHVR SLGAAP Pilot Phase\_Tier 2 Assessment Report\_BR29-Phillips Creek Bridge\_1
- 10236717\_NHVR SLGAAP Pilot Phase\_Tier 2 Assessment Report\_BR10-Grosvenor Creek Bridge\_1
- 10236717\_NHVR SLGAAP Pilot Phase\_Isaac RC\_Additional Travel Restrictions Assessment\_Rev2





# Tier 1 Assessment Report

SLGAAP Pilot Phase

Isaac Regional Council

*Brisbane, Queensland*

October 27, 2020



## Document Status

| Revision | Date Issued | Reason for Issue | Prepared By | Reviewed By | Approved By |
|----------|-------------|------------------|-------------|-------------|-------------|
| 1        | 28/08/2020  | Draft issue      | D Miller    | T McLeod    | T McLeod    |
| 2        | 27/10/2020  | Final issue      | D Miller    | T McLeod    | T McLeod    |

## Contents

|   |   |    |
|---|---|----|
| 1 | Executive Summary .....                           | 1  |
|   | 2.1 Key Project Objectives .....                  | 2  |
| 3 | Scope of Work – Tier 1 Assessments .....          | 3  |
| 4 | Asset Information .....                           | 4  |
|   | 4.1 Asset Condition .....                         | 4  |
| 5 | Assessment Methodology .....                      | 6  |
|   | 5.1 Key assumptions adopted .....                 | 9  |
| 6 | Assessment Results .....                          | 10 |
|   | 6.2 OSOM Vehicles .....                           | 11 |
|   | 6.3 Class 2 Vehicles .....                        | 12 |
|   | 6.4 Results by Asset.....                         | 13 |
|   | 6.4.1 BR 10 – Grosvenor Creek .....               | 13 |
|   | 6.4.2 BR 11 – Cherwell Creek.....                 | 14 |
|   | 6.4.3 BR 23 – Blackburn Creek.....                | 15 |
|   | 6.4.4 BR 29 – Phillips Creek .....                | 16 |
|   | 6.4.5 BR 30 – Hughes Creek .....                  | 17 |
| 7 | Discussion .....                                  | 18 |
|   | 7.1 BR11 – Cherwell Creek Bridge .....            | 18 |
|   | 7.2 OSOM Results .....                            | 18 |
|   | 7.3 Class 2 Results .....                         | 18 |
|   | 7.4 Impact of Asset Condition on Assessments..... | 19 |
| 8 | Recommendations .....                             | 20 |

## Tables

|  |   |
|--|---|
| Table 1 Recommendations Summary.....                                 | 1 |
| Table 2 Assets Included for Tier 1 Assessment.....                   | 3 |
| Table 3 Asset Data Provided .....                                    | 4 |
| Table 4 Summary of Level 2/3 Inspection Report Key Information ..... | 5 |
| Table 5 ERT Assessment Calculation Register – BR29 Sample.....       | 8 |
| Table 6 Load Factors adopted for ERT calculation .....               | 9 |

Table 7 Recommendations Summary..... 21

Table 8 Grosvenor Creek – OSOM Vehicles – Governing ERT >1.0..... 27

Table 9 BR10 – Grosvenor Creek – Class 2 Vehicles – Governing ERT >1.0..... 27

Table 10 BR11 – Cherwell Creek – OSOM Vehicles – Governing ERT >1.0..... 28

Table 11 BR11 – Cherwell Creek – Class 2 Vehicles – Governing ERT >1.0 ..... 29

Table 12 BR23 – Blackburn Creek – OSOM Vehicles – Governing ERT >1.0..... 32

Table 13 BR23 – Blackburn Creek – Class 2 Vehicles – Governing ERT >1.0 ..... 33

Table 14 BR29 – Phillips Creek – OSOM Vehicles – Governing ERT >1.0 ..... 34

Table 15 BR29 – Phillips Creek – Class 2 Vehicles – Governing ERT >1.0 ..... 34

Table 16 BR30 – Hughes Creek – OSOM Vehicles – Governing ERT >1.0 ..... 35

Table 17 BR30 – Hughes Creek – Class 2 Vehicles – Governing ERT >1.0 ..... 35

## Figures

Figure 1. Reference Vehicle Technique example (bending only)..... 6

Figure 2 Governing ERT Results Summary – All 105 Application Vehicles ..... 10

Figure 3 Governing ERT Results Summary – OSOM vs Class 2 Vehicles ..... 10

Figure 4 OSOM Vehicles Pass/Fail Breakdown ..... 11

Figure 5 OSOM Vehicles Pass/Fail Breakdown – TR 5 ..... 12

Figure 6 Class 2 Vehicles Pass/Fail Breakdown ..... 12

Figure 7 BR10 Governing ERT Spread ..... 13

Figure 8 BR10 ERT Results – OSOM vs Class 2..... 13

Figure 9 BR11 Governing ERT Spread ..... 14

Figure 10 BR11 ERT Results – OSOM vs Class 2..... 14

Figure 11 BR23 Governing ERT Spread ..... 15

Figure 12 BR23 ERT Results – OSOM vs Class 2..... 15

Figure 13 BR29 Governing ERT Spread ..... 16

Figure 14 BR29 ERT Results – OSOM vs Class 2..... 16

Figure 15 BR30 Governing ERT Spread ..... 17

Figure 16 BR30 ERT Results – OSOM vs Class 2 ..... 17

## Appendices

APPENDIX A – Asset Information Register ..... 23

APPENDIX B – Application Vehicles Register ..... 24

APPENDIX C – ERT Assessment Results Register ..... 25

APPENDIX D – Application Vehicles with ERT > 1.0 (Pass) Results – by Asset ..... 26



*This page is intentionally left blank.*

# 1 Executive Summary

The NHVR engaged HDR to undertake Tier 1 Assessments of five bridge assets within the operational jurisdiction of Isaac Regional Council in Queensland for their theoretical adequacies to support 105 nominated vehicles – 49 Oversize/Overmass (OSOM) vehicles and 56 Class 2 vehicles (refer to Section 3).

HDR undertook the assessments using the Reference Vehicle Technique. This technique compares the worst load effects of an Application Vehicle (AV) on a given structure and identifies if the Application Vehicle’s effects are more adverse than a Reference Vehicle (RV). The key output of this methodology is an Equivalence Ratio Traffic (ERT) value. An ERT value greater than 1.0 (“pass”) implies that the Application Vehicle under consideration imparts less adverse actions onto the bridge than the Reference Vehicle and, therefore, the bridge has theoretically adequate capacity to support the Application Vehicle under consideration (refer to Section 5).

BR11 Cherwell Creek Bridge returned “pass” ERT results for all 105 vehicles. The remaining four bridges were found to have insufficient theoretical capacities for the majority of the OSOM and Class 2 Application Vehicles. Significant improvement in the OSOM vehicle results was achieved by applying a “Centreline only” travel restriction. This correlates to Travel Restriction #5 in TMR’s guidelines and is considered a more realistic representation of the constraints and capacities of the bridges (refer to Sections 6 and 7 and Appendices C and D).

HDR reviewed Level 2 Inspection reports provided by NHVR and Isaac Regional Council as part of the Tier 1 Assessment exercise. Generally speaking, this information shows the bridges are generally in Fair condition with only minor defects that have little effect on the structures’ serviceability and durability. The exception to this observation was BR10 – Grosvenor Creek Bridge for which defects were observed that require further investigation (refer to Section 7.4).

Table 1 below summarises the recommendations made for each of the five assets (refer to Section 8).

**Table 1 Recommendations Summary**

| Asset ID | Asset Name             | Recommendation  |
|----------|------------------------|---|
| BR10     | Grosvenor Creek Bridge | Undertake staged, comprehensive Tier 2 assessment.                          |
| BR11     | Cherwell Creek Bridge  | Adopt TR5 travel restrictions for all OSOM vehicles.<br>No Tier 2 required. |
| BR23     | Blackburn Creek Bridge | Undertake targeted Tier 2 assessment.                                       |
| BR29     | Phillips Creek Bridge  | Undertake staged, comprehensive Tier 2 assessment.                          |
| BR30     | Hughes Creek Bridge    | Undertake staged, comprehensive Tier 2 assessment.                          |



## 2 Project Background

The National Heavy Vehicle Regulator (NHVR) is Australia's independent regulatory body for all heavy vehicles over 4.5 tonnes gross vehicle mass. The NHVR is delivering a program of work known as the State Local Government Asset Assessment Project (SLGAAP) which is focused on assisting road managers with the assessment of selected bridge and culvert assets on key local government heavy vehicle routes.

The assessments will seek to understand the suitability of the bridge and culvert assets to support Oversize/Overmass (OSOM) vehicle movements and their access to the national road network.

### 2.1 Key Project Objectives

The SLGAAP seeks to inform and improve heavy vehicle access across Australia through:

- a. Identifying current and potential key heavy vehicle routes on local roads.
- b. Assisting local governments with the management of road asset data related to heavy vehicles.
- c. Providing a central database that contains information on the road asset information and the use of heavy vehicles.

### 3 Scope of Work – Tier 1 Assessments

The NHVR engaged HDR to undertake Tier 1 Assessments of bridge assets within the operational jurisdiction of Isaac Regional Council in Queensland. The assets included within the scope of work are listed in Table 2 below.

**Table 2 Assets Included for Tier 1 Assessment**

| Asset ID | Asset Name             | Suburb     | Road Name            | Latitude   | Longitude  |
|----------|------------------------|------------|----------------------|------------|------------|
| BR10     | Grosvenor Creek Bridge | Moranbah   | Moranbah Access Road | -22.013854 | 148.044282 |
| BR11     | Cherwell Creek Bridge  | Winchester | Peak Downs Mine Road | -22.141804 | 148.142859 |
| BR23     | Blackburn Creek Bridge | Dysart     | Golden Mile Road     | -22.529266 | 148.642378 |
| BR29     | Phillips Creek Bridge  | Dysart     | Saraji Road          | -22.521217 | 148.305008 |
| BR30     | Hughes Creek Bridge    | Dysart     | Saraji Road          | -22.384562 | 148.265918 |

The key scope activities undertaken by HDR included:

- Review of data provided for the five (5) assets within the scope (refer Table 3-1 below);
- Gap analysis to identify additional information required to complete Tier 1 assessments;
- Review of Level 2 Inspection Reports provided;
- Review of data provided in Assessment Vehicles register;
- Production of analytical models for each asset;
- Completion of Tier 1 level assessment of the theoretical adequacy of the assets to support the nominated Assessment Vehicles;
- Delivery of a Tier 1 Assessment Report summarising the scope of the Tier 1 assessments undertaken, assessment results and key recommendations;

## 4 Asset Information

Table 3 below summarises the key asset information provided by NHVR and Isaac Regional Council which informed the Tier 1 Assessments.

**Table 3 Asset Data Provided**

| Asset ID | Asset Name             | Year constructed | Superstructure | No. of Spans | Nominal span length (m) | Span config. | Reference Vehicle |
|----------|------------------------|------------------|----------------|--------------|-------------------------|--------------|-------------------|
| BR10     | Grosvenor Creek Bridge | 1975             | Deck Units     | 4            | 15                      | Simple       | MS18              |
| BR11     | Cherwell Creek Bridge  | 2017             | Deck Units     | 3            | 26                      | Simple       | SM1600            |
| BR23     | Blackburn Creek Bridge | 1992             | Deck Units     | 3            | 16                      | Simple       | T44               |
| BR29     | Phillips Creek Bridge  | early 1970s      | Deck Units     | 3            | 11.5                    | Simple       | MS18              |
| BR30     | Hughes Creek Bridge    | unknown          | Deck Units     | 4            | 11.15                   | Simple       | MS18              |

### 4.1 Asset Condition

HDR reviewed the following reports provided by Isaac Regional Council as part of the Tier 1 Assessments:

#### Level 2 Reports

- Isaac BR10 rptLevel2
- Isaac BR11 rptLevel2 -22.1419, 148.143
- Isaac BR23 rptLevel2 -22.5292, 148.642
- Isaac BR29 rptLevel2 -22.5211, 148.305
- Isaac BR30 rptLevel2 -22.3835, 148.265

#### Level 3 Reports

- BR23 – 2016 Level 2 and 3 INSTRADA
- BR29 – 2016 Level 2 & 3 INSTRADA

Table 4 below summarises key asset information contained within the Level 2/3 reports reviewed.

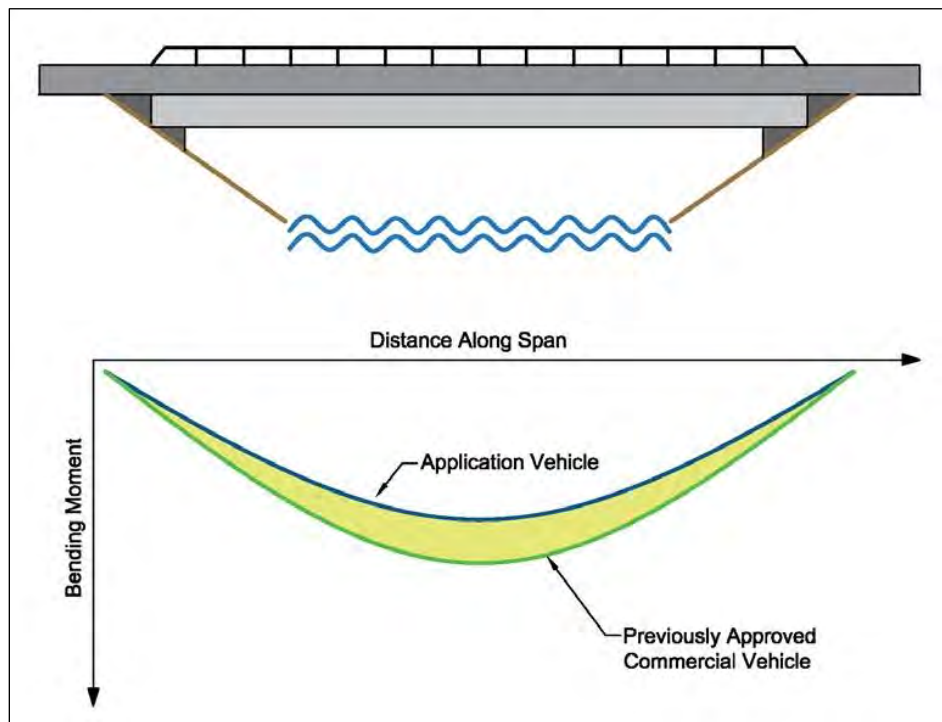
**Table 4 Summary of Level 2/3 Inspection Report Key Information**

| Asset ID | Asset Name             | Level 2 Rating | Inspection comments  | Load Rating  |
|----------|------------------------|----------------|--|--|
| BR10     | Grosvenor Creek Bridge | CS4            | The structure was observed to be in <b>very poor</b> condition at time of inspection. One missing/failed transverse stressing bar was observed. "Severe cracking" in outside of deck units on Span 4 was observed. | n/a  |
| BR11     | Cherwell Creek Bridge  | CS1            | The structure was observed to be in <b>good</b> condition at time of inspection.   | n/a  |
| BR23     | Blackburn Creek Bridge | CS2            | Overall, the structure was observed to be in <b>fair</b> condition, with only minor defects that have little effect on the structures serviceability and durability.   | Adequate for 202T & 257T OSOM Platform (CL of bridge, speed <10kph)            |
| BR29     | Phillips Creek Bridge  | CS2            | Generally, the structure was observed to be in <b>fair</b> condition, with only minor defects that have little effect on the structures durability and serviceability.   | Marginally adequate for 202T & 257T OSOM Platform (CL of bridge, speed <10kph) |
| BR30     | Hughes Creek Bridge    | CS3            | Structure was observed to be in <b>poor</b> condition at time of inspection.   | n/a  |

## 5 Assessment Methodology

HDR undertook Tier 1 Assessments of the five (5) assets included within the scope of work using the Reference Vehicle Technique. This technique compares the worst load effects of an Application Vehicle (AV) on a given structure and identifies if the Application Vehicle's effects are more adverse than a Reference Vehicle (RV). The Reference Vehicle can be the design vehicle or a previously approved commercial vehicle which would be considered suitable to travel over the structure. Figure 1 below illustrates the essence of this technique.

Figure 1. Reference Vehicle Technique example (bending only)



*Source: Austroads Research Report AP-R582-18 Higher Order Bridge Assessment in Australia*

The key output of this methodology is an Equivalence Ratio Traffic (ERT) value. The ERT value is representative of a bridge's theoretical adequacy to support a nominated Application Vehicle based on the bridge's known theoretical adequacy to support a predetermined Reference Vehicle. Under this methodology, a bridge's theoretical capacity is taken to be represented by the live load effects imparted by the Reference Vehicle.

The ERT values were calculated in accordance with Queensland Department of Transport and Main Roads criteria as follows:

$$ERT = \frac{\text{Available ULS bridge capacity for Live Load effects}}{\text{ULS loading applied by Application (and Accompanying) Vehicles}}$$

$$ERT = \frac{\gamma_{Q_{RV}} * (1 + \alpha_{RV}) * (1 + ALF_{RV}) * Q_{RV}}{\gamma_{Q_{AV}} * (1 + \alpha_{AV}) * (1 + ALF_{AV}) * Q_{AV}}$$

Where,

|                   |   |  |
|-------------------|---|--|
| $\gamma_{Q_{RV}}$ | = | ULS Live Load Factor – Reference Vehicle           |
| $\gamma_{Q_{AV}}$ | = | ULS Live Load Factor – Application Vehicle         |
| $\alpha_{RV}$     | = | dynamic load allowance (DLA) - Reference Vehicle   |
| $\alpha_{AV}$     | = | dynamic load allowance (DLA) - Application Vehicle |
| $ALF_{RV}$        | = | accompanying lane factor – Reference Vehicle       |
| $ALF_{AV}$        | = | accompanying lane factor – Application Vehicle     |
| $Q_{RV}$          | = | live load effect – Reference Vehicle               |
| $Q_{AV}$          | = | live load effect – Application Vehicle             |

Under this methodology, an ERT value greater than 1.0 implies that the Application Vehicle under consideration imparts less adverse actions onto the bridge than the Reference Vehicle. Therefore, the bridge has theoretically adequate capacity to support the Application Vehicle under consideration.

In carrying out the assessments, HDR produced simplistic line models and analytical tools to calculate the maximum bending moment (M), shear force (V) and support reactions (R) for the Reference Vehicle and for all 105 different Application Vehicles for each unique span of each asset. The results of this analysis, along with the appropriate load factors taken from AS5100:2017, formed the inputs for ERT calculations for each action (M, V and R). These were then correlated into governing ERT values for the superstructure and substructure for each asset.

HDR produced comprehensive ERT calculation registers for each of the five bridges. Due to the size of these registers only a select sample has been shown below in the main body of the report to convey the format and content of the results with the full tables attached in Appendix C.

The load effect symbols in the registers correlate to the following load effects:

- V = maximum Shear.
- Msag = maximum (positive) Bending.
- Ra = maximum Reaction at abutments.
- R<sub>1</sub> = maximum Reaction at internal piers.

Table 5 ERT Assessment Calculation Register – BR29 Sample

| General   |                        | Loading Scenario |            |   | Location & Load Effect |          | Calculation Info |               | Reference Vehicle (RV) |                 |               |            |                         | Application Vehicle (AV) |                 |               |            |                         |                  |
|-----------|------------------------|------------------|------------|---|------------------------|----------|------------------|---------------|------------------------|-----------------|---------------|------------|-------------------------|--------------------------|-----------------|---------------|------------|-------------------------|------------------|
| Bridge ID | Reference Vehicle (RV) | AV #             | Mass Limit | Application Vehicle (AV)                    | Grouping               | Span (m) | Load Effect      | Calc'n Method | $Q_{RV}$               | $\gamma_{Q,RV}$ | $\alpha_{RV}$ | $ALF_{RV}$ | $Q'_{RV}$               | $Q_{RV}$                 | $\gamma_{Q,AV}$ | $\alpha_{AV}$ | $ALF_{AV}$ | $Q^*_{AV}$              | ERT <sub>o</sub> |
|           |                        |                  |            |   |                        |          |                  |               | A                      | B               | C             | D          | $E = A*B* (1+C)* (1+D)$ | F                        | G               | H             | I          | $J = F*G* (1+H)* (1+I)$ |                  |
| BR29      | MS18                   | 10               | Min        | Min Prime mover and 6-axle platform trailer | S1,S2,S3               | 11.5     | V                | ULS           | 230                    | 2.0             | 0.4           | 0.8        | 1159                    | 192.0                    | 1.5             | 0.4           | 0.8        | 726                     | 1.60             |
| BR29      | MS18                   |                  | Min        | Min Prime mover and 6-axle platform trailer | S1,S2,S3               | 11.5     | Msag             | ULS           | 562                    | 2.0             | 0.4           | 0.8        | 2832                    | 469.0                    | 1.5             | 0.4           | 0.8        | 1773                    | 1.60             |
| BR29      | MS18                   |                  | Min        | Min Prime mover and 6-axle platform trailer | A1,A2                  | -        | Ra               | ULS           | 244                    | 2.0             | 0.4           | 0.8        | 1230                    | 194.0                    | 1.5             | 0.4           | 0.8        | 733                     | 1.68             |
| BR29      | MS18                   |                  | Min        | Min Prime mover and 6-axle platform trailer | P1,P2                  | -        | R1               | ULS           | 257                    | 2.0             | 0.4           | 0.8        | 1295                    | 234.0                    | 1.5             | 0.4           | 0.8        | 885                     | 1.46             |
| BR29      | MS18                   | 11               | Max        | Max Prime mover and 6-axle platform trailer | S1,S2,S3               | 11.5     | V                | ULS           | 230                    | 2.0             | 0.4           | 0.8        | 1159                    | 557.0                    | 1.5             | 0.4           | 0.8        | 2105                    | 0.55             |
| BR29      | MS18                   |                  | Max        | Max Prime mover and 6-axle platform trailer | S1,S2,S3               | 11.5     | Msag             | ULS           | 562                    | 2.0             | 0.4           | 0.8        | 2832                    | 1453.0                   | 1.5             | 0.4           | 0.8        | 5492                    | 0.52             |
| BR29      | MS18                   |                  | Max        | Max Prime mover and 6-axle platform trailer | A1,A2                  | -        | Ra               | ULS           | 244                    | 2.0             | 0.4           | 0.8        | 1230                    | 557.0                    | 1.5             | 0.4           | 0.8        | 2105                    | 0.58             |
| BR29      | MS18                   |                  | Max        | Max Prime mover and 6-axle platform trailer | P1,P2                  | -        | R1               | ULS           | 257                    | 2.0             | 0.4           | 0.8        | 1295                    | 721.0                    | 1.5             | 0.4           | 0.8        | 2725                    | 0.48             |



## 5.1 Key assumptions adopted

The following key assumptions were adopted through collaboration with NHVR and Isaac Regional Council:

- The Reference Vehicle for each asset was taken to be the Design Vehicle. Where the Design Vehicle was not obtainable from records, the Reference Vehicle was agreed to be the most likely design class vehicle of the construction era.
- The bridges' span configurations were assumed to be simply supported, based either on design drawings (where available) or review of inspection photographs and knowledge of typical constructed forms.
- The scope of the Tier 1 assessments did not include quantitative assessment of member capacities (and therefore any reductions of capacities due to condition) the Level 2 Inspection data provided by NHVR/Isaac Regional Council was reviewed to identify conditions that have potential to reduce capacity or durability and therefore warrant further investigation to validate Tier 1 results.
- The baseline Tier 1 assessments assumed no formal travel restrictions such as those outlined in TMR guidelines. All assessments assumed two lanes of traffic and no speed restrictions. Section 6.1 provides one alternative results data set representing one travel restriction for OSOM vehicles; however, any other travel restriction assessments may form part of a Tier 2 assessment.
- The following load factors were adopted from AS5100:2017 Sections 2 and 7.

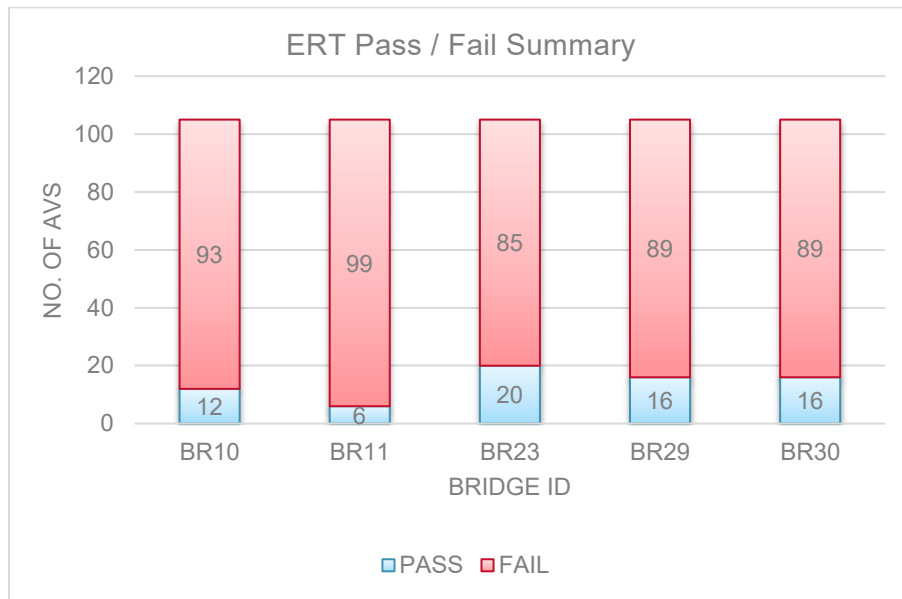
**Table 6 Load Factors adopted for ERT calculation**

| Factor     | Description                  | Loading                            | Value | AS5100 clause reference         |
|------------|------------------------------|------------------------------------|-------|---------------------------------|
| $\gamma_Q$ | ULS Live Load Factor         | SM1600                             | 1.8   | AS5100.7 cl 12.2, Table 12.2(B) |
|            |                              | T44                                | 2.0   |                                 |
|            |                              | MS18                               | 2.0   |                                 |
|            |                              | H20-S16                            | 2.0   |                                 |
|            |                              | Semi-trailer, road train, B-double | 2.0   |                                 |
|            |                              | HLP (OSOM)                         | 1.5   |                                 |
| $\alpha$   | Dynamic Load Allowance (DLA) | Full speed                         | 0.4   | AS5100.7 cl 11.3.6              |
| ALF        | Accompanying Lane Factor     | 1 <sup>st</sup> lane               | 1.0   | AS5100.7 cl 11.3.5              |
|            |                              | 2 <sup>nd</sup> lane               | 0.8   |                                 |

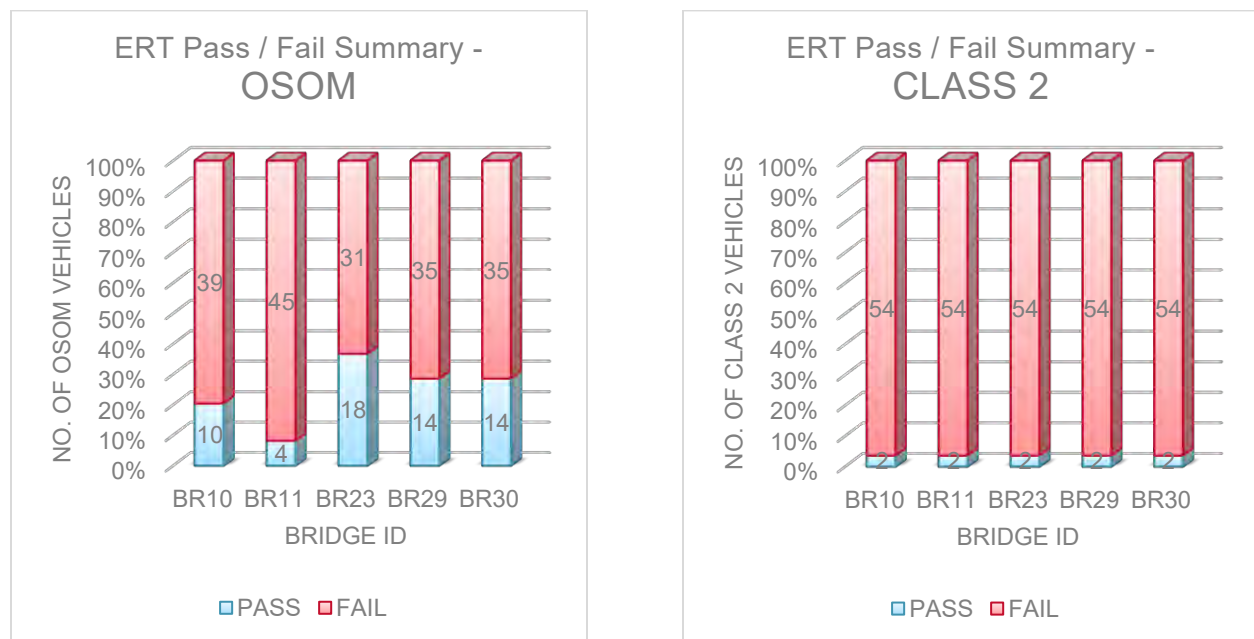
## 6 Assessment Results

Full ERT assessment results for all five bridges are presented within the ERT calculation registers in Appendix C. Appendix D contains lists of OSOM and Class 2 vehicles with “pass” results by asset. Below and within the following subsections we present various breakdowns of the data to provide useful insight into the results. The initial summaries shown in this section below do not account for any travel restrictions.

**Figure 2 Governing ERT Results Summary – All 105 Application Vehicles**



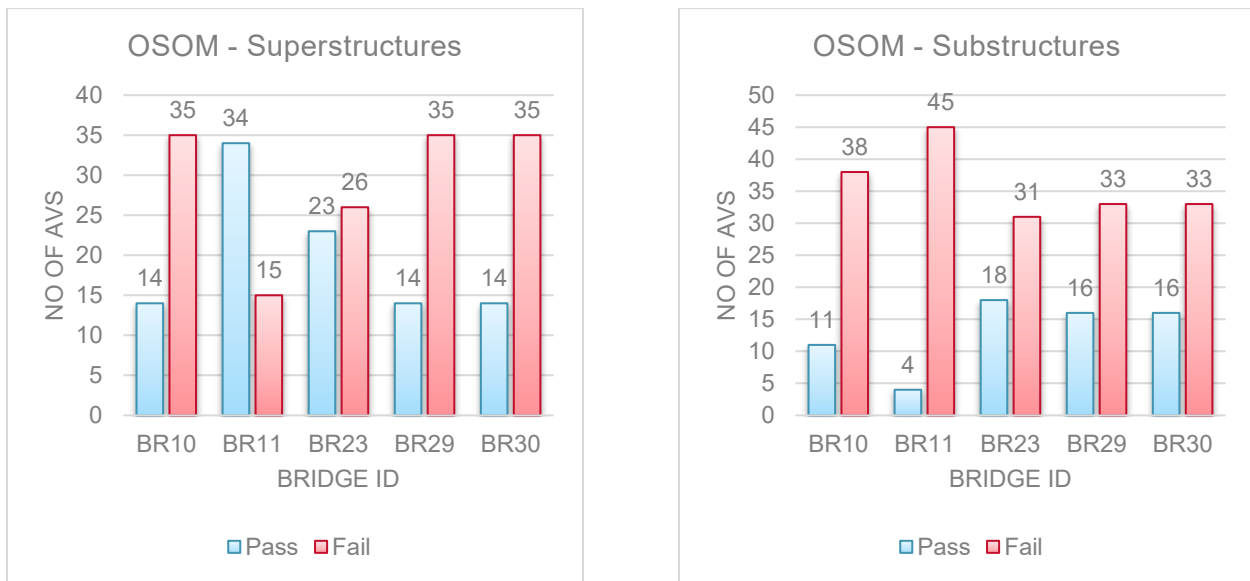
**Figure 3 Governing ERT Results Summary – OSOM vs Class 2 Vehicles**



## 6.2 OSOM Vehicles

The figures below summarise the number of OSOM Application Vehicles that pass or fail the Tier 1 ERT calculation. This has been broken down by superstructure and substructure results for each of the five bridges included for assessment. In some instances, a bridge superstructure may obtain a pass result while the substructure still fails the assessment.

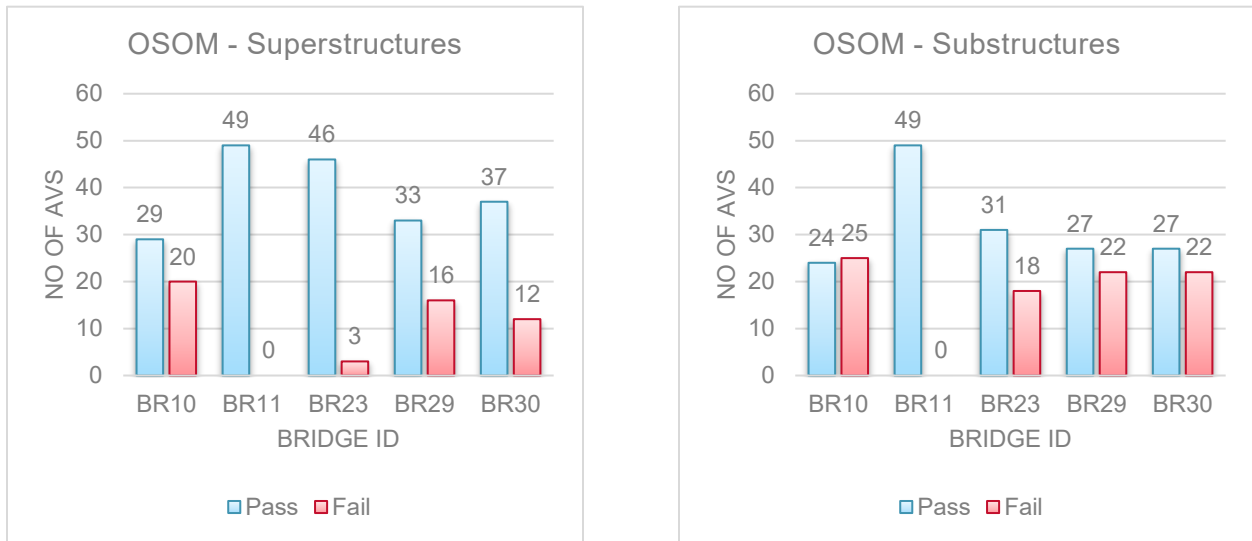
**Figure 4 OSOM Vehicles Pass/Fail Breakdown**



It is noted from these results that the majority of the OSOM Application Vehicles impose effects onto the bridges more adverse than the effects of the Reference Vehicle. However, it is also noted that only one OSOM vehicle may be able to traverse these bridges at a time due to geometric constraints whereas two Reference (Design) Vehicles may be applied simultaneously in the design. Accordingly, a sensitivity analysis was undertaken to review these results by applying a “Centreline only” travel restriction. This correlates to Travel Restriction #5 in TMR’s guidelines.

Figure 5 below shows the revised results representing TR 5 “Centreline travel only” i.e. no accompanying vehicles allowed on the span. No other travel restrictions (such as speed reductions) were applied.

**Figure 5 OSOM Vehicles Pass/Fail Breakdown – TR 5**

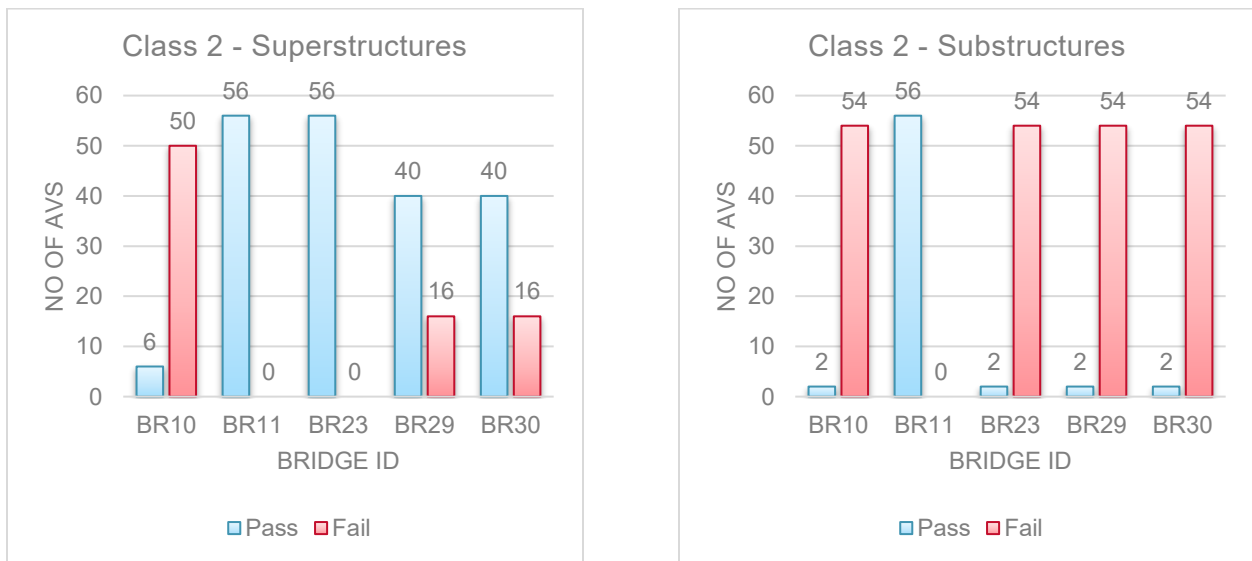


The application of TR5 significantly improved the ERT assessment results for the OSOM vehicles and is considered a more realistic representation of the constraints and capacities of the bridges.

### 6.3 Class 2 Vehicles

The figures below summarise the number of CLASS 2 Application Vehicles that “Pass” or “Fail” the Tier 1 ERT calculation. These have been broken into superstructure and substructure results for each of the five bridges included for assessment. In some instances, a bridge superstructure may obtain a pass result while the substructure still fails the assessment.

**Figure 6 Class 2 Vehicles Pass/Fail Breakdown**



No travel restrictions were applied to the Class 2 vehicles as the axle contact widths did not necessarily suggest a physical vehicle constraint at the sites as for the OSOM vehicles.

## 6.4 Results by Asset

The following subsections display the Tier 1 ERT calculation results by individual asset. For the OSOM data, Travel Restriction #5 has been adopted for the OSOM vehicles only as explained above, but no travel restriction has been adopted for the CLASS 2 vehicles.

### 6.4.1 BR 10 – Grosvenor Creek

Figure 7 BR10 Governing ERT Spread

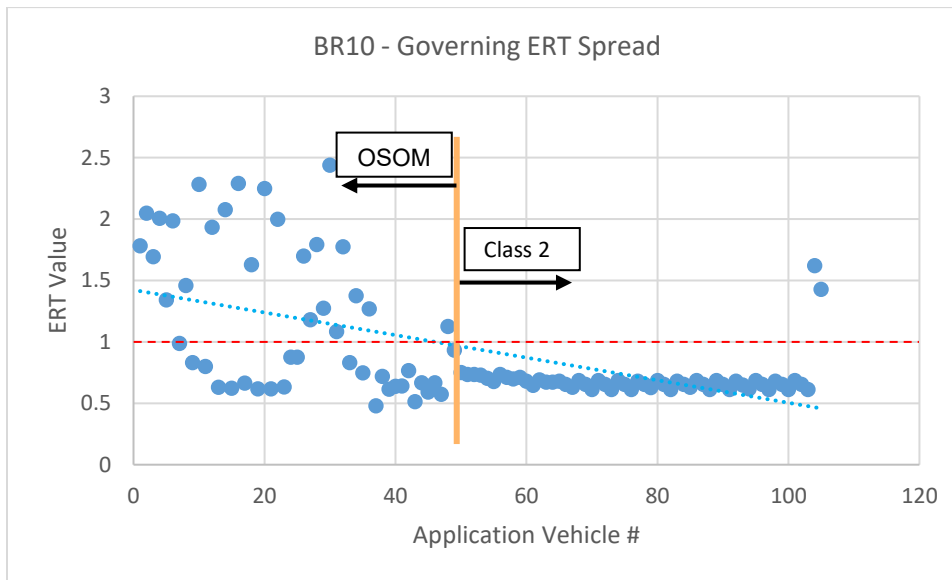
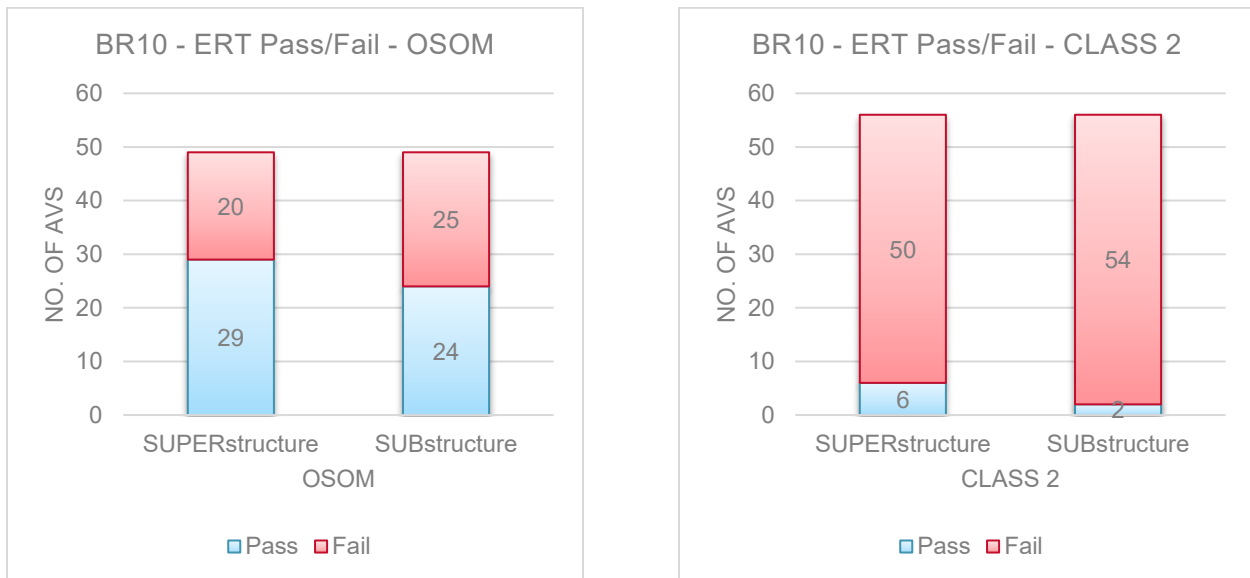


Figure 8 BR10 ERT Results – OSOM vs Class 2



Refer to Appendix D for a list of OSOM and Class 2 vehicles with “pass” ERT results.

### 6.4.2 BR 11 – Cherwell Creek

Figure 9 BR11 Governing ERT Spread

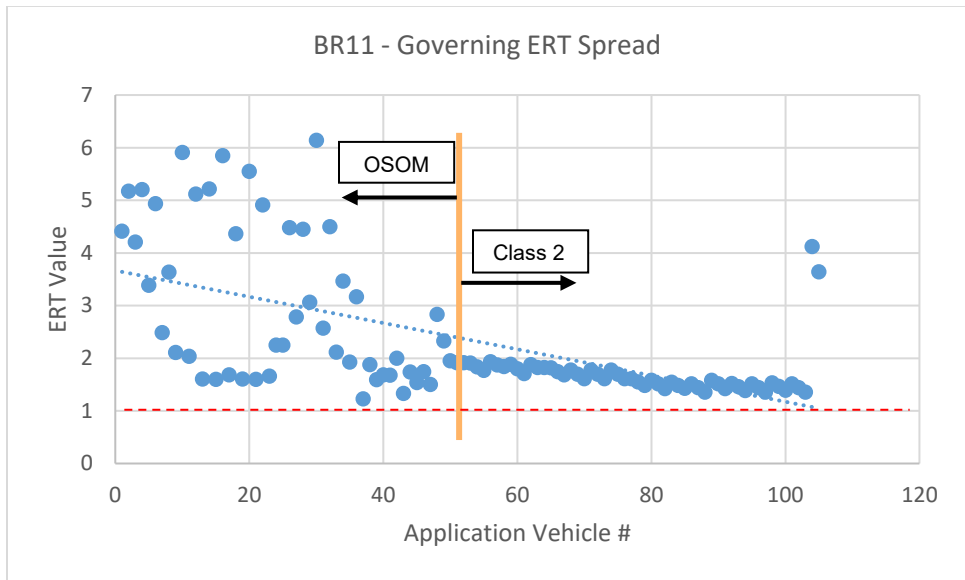
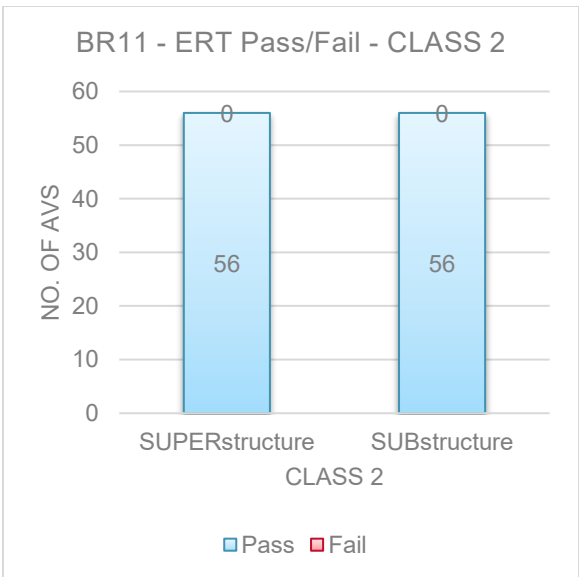
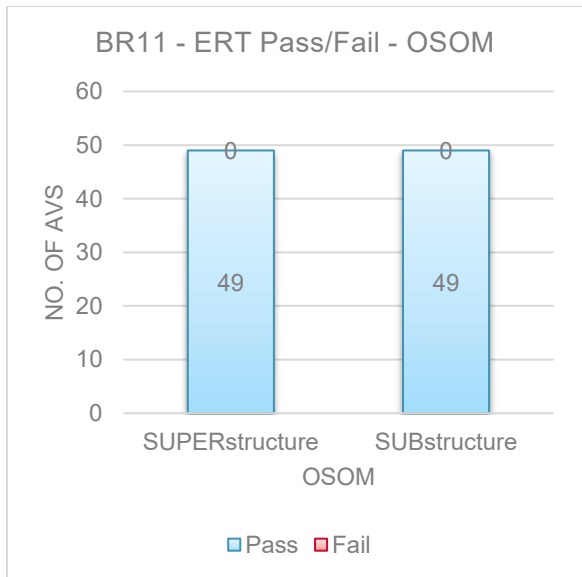


Figure 10 BR11 ERT Results – OSOM vs Class 2



Refer to Appendix D for a list of OSOM and Class 2 vehicles with “pass” ERT results.

6.4.3 BR 23 – Blackburn Creek

Figure 11 BR23 Governing ERT Spread

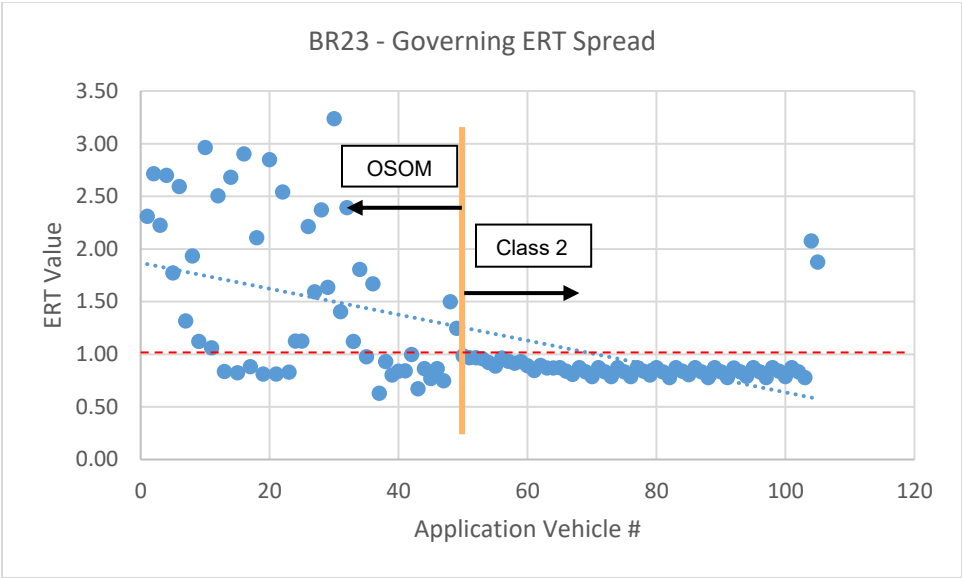
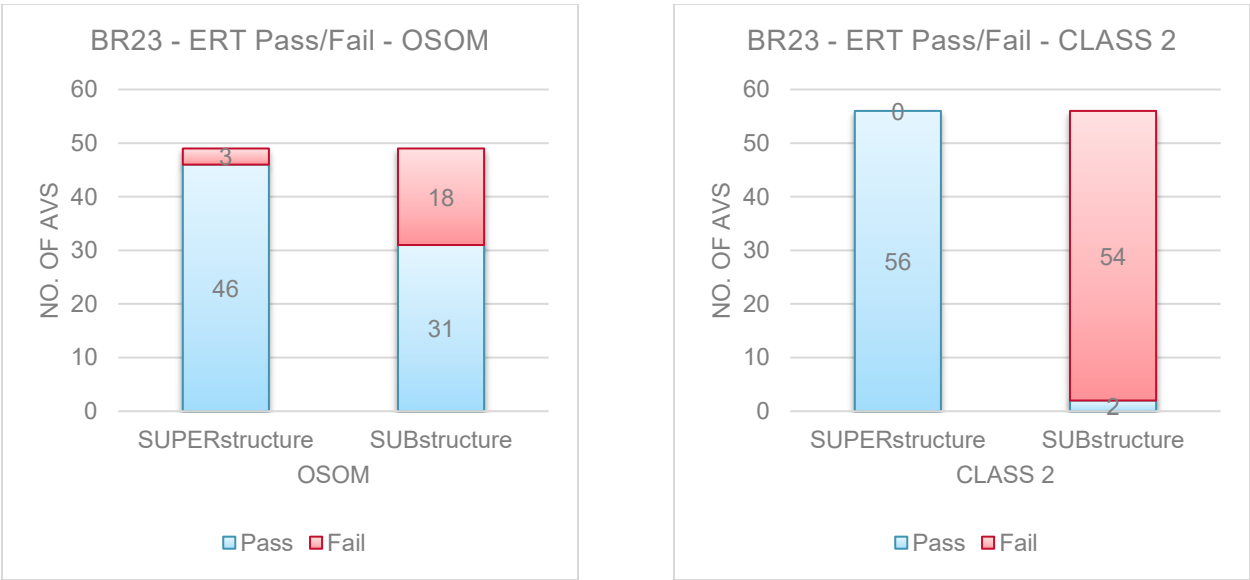


Figure 12 BR23 ERT Results – OSOM vs Class 2



Refer to Appendix D for a list of OSOM and Class 2 vehicles with “pass” ERT results.

### 6.4.4 BR 29 – Phillips Creek

Figure 13 BR29 Governing ERT Spread

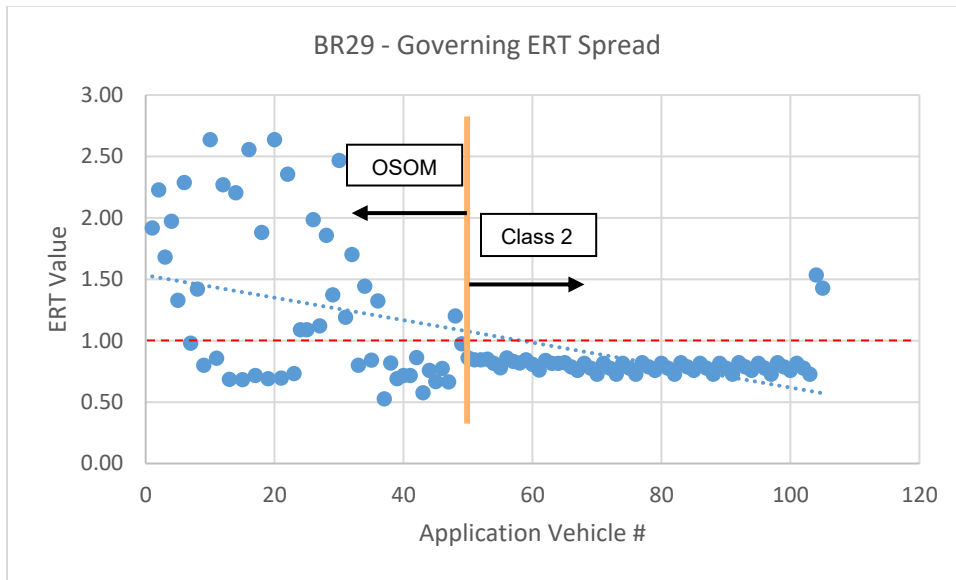
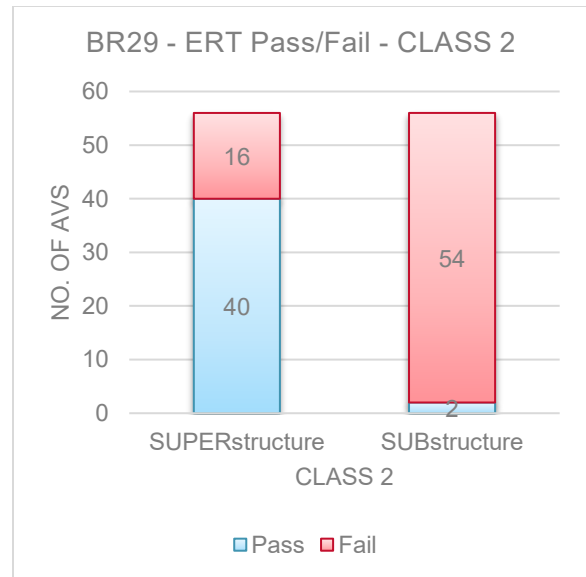
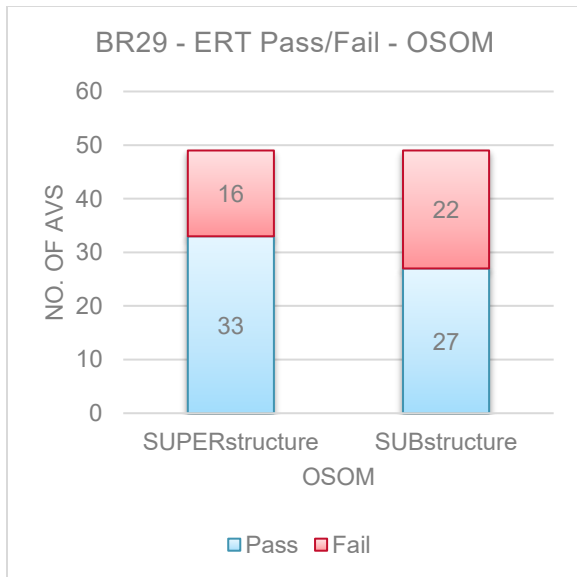


Figure 14 BR29 ERT Results – OSOM vs Class 2



Refer to Appendix D for a list of OSOM and Class 2 vehicles with “pass” ERT results.



### 6.4.5 BR 30 – Hughes Creek

Figure 15 BR30 Governing ERT Spread

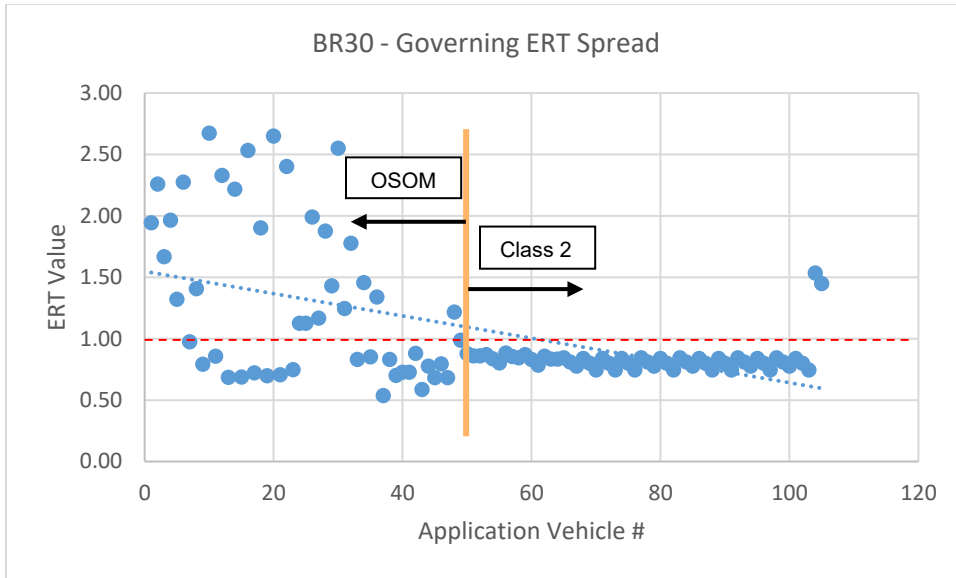
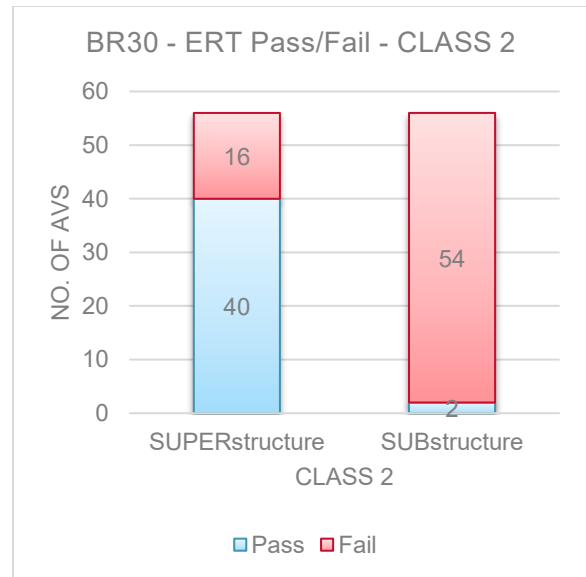
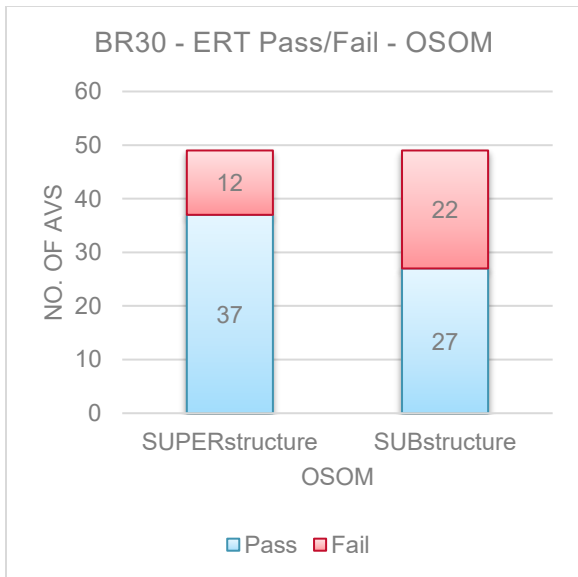


Figure 16 BR30 ERT Results – OSOM vs Class 2



Refer to Appendix D for a list of OSOM and Class 2 vehicles with “pass” ERT results.

## 7 Discussion

### 7.1 BR11 – Cherwell Creek Bridge

BR11 – Cherwell Creek Bridge stands out as the only asset to return a pass result for all OSOM and Class 2 vehicles for both the superstructure and substructure. This result was expected given that the structure is only three years old (constructed 2017) and was designed to recent versions of the design standards including two lanes of SM1600 vehicle loading.

It is important to note that this result is dependent on the OSOM vehicles being restricted to TR5 “Centreline travel only”. If this is not restricted then a number of the heavier OSOM vehicles do not pass the assessment.

### 7.2 OSOM Results

The spread of the OSOM vehicle results generally represents the substantial difference between the minimum and maximum mass limits. For some of the minimum mass limit arrangements, the individual axle tonnages are less than the Reference (Design) Vehicle. When these lower axle masses were combined with the TR5 restrictions this resulted in ERT results  $\gg 1.0$  (e.g. ERT > 2.0).

Some of the maximum mass limit arrangements, however, are comprised of significantly heavier axle tonnages which resulted in ERT results  $\ll 1.0$  (e.g. ERT = 0.49) despite the TR5 restriction.

The application of additional travel restrictions (by NHVR) such as reducing the dynamic load allowance and load factors by reducing speed limits and imposing more stringent regulation on axle loads may result in the improvement of the OSOM vehicles’ ERT results. Additionally, by undertaking detailed capacity calculations and analysis as part of a Tier 2 assessment, we anticipate that the OSOM ERT results may be improved further.

Appendix D contains lists of all OSOM vehicles which currently pass the ERT assessment for both superstructure and substructure for each of the five bridges.

### 7.3 Class 2 Results

BR23 – Blackburn Creek Bridge both returned superstructure pass results for all Class 2 vehicles. BR23’s superstructure pass results can be attributed to a more modern design vehicle class (T44) compared to bridges BR10, BR29 and BR30 (MS18) despite a marginally longer nominal span length. Likewise, BR29 and BR30 returned better superstructure pass results than BR10 due to the shorter nominal span length.

Bridges BR10, BR23, BR29, and BR30 all returned fail results for the substructures for all but two vehicles (2/3-axle Controlled Access Bus) despite some pass results for the superstructures. This result is explained by the significantly greater overall length of the bridge and thus the number of axles applied to it from the Class 2 Application Vehicles relative to the shorter Reference Vehicle. The substructure results are governed by the internal pier reactions

bearing load from two adjacent spans. These spans are now both loaded simultaneously by the longer Class 2 Application Vehicles.

Despite a significant percentage of the Class 2 vehicles returning fail results for 4 out of 5 bridges, these results were governed by lower substructure results (e.g. ERT < 0.75–0.80) whereas the superstructure results were generally marginal (e.g. ERT > 0.90). It is, therefore, reasonably likely that more rigorous Tier 2 assessment may provide additional available capacity in the bridges and return more superstructure pass results. Likewise, given the constructed form of the substructures and with the knowledge that substructures are less sensitive to live load effects, further Tier 2 assessment may return more Pass results for the substructures as well.

Appendix D contains lists of all Class 2 vehicles which currently pass the ERT assessment for both superstructure and substructure for each of the five bridges.

## 7.4 Impact of Asset Condition on Assessments

HDR reviewed Level 2 Inspection reports provided by NHVR and Isaac Regional Council as part of the Tier 1 Assessment exercise. While the scope of the Tier 1 assessments did not include quantitative assessment of member capacities (and therefore any reductions of capacities due to condition) the inspection data may still highlight conditions that have potential to reduce capacity or durability and therefore warrant further investigation to validate Tier 1 results.

Generally speaking, the Level 2 Inspection data and photographs indicate that the bridges are generally in Fair condition with only minor defects that have little effect on the structures' serviceability and durability.

The exception to this observation was BR10 – Grosvenor Creek Bridge, where one transverse stressing rod appears to be missing or failed, and significant cracking was recorded in the concrete girders and headstocks. These defects have potential to reduce the capacity of the effected bridge components and, therefore, further investigation is recommended to quantify the significance and the validity of the Tier 1 results.

## 8 Recommendations

Recommendations have been summarised for each of the five assets for NHVR and Council in Table 7 for each of the five assets. These have been provided based on the results of HDR's Tier 1 Assessments, review of the Level 2 and Level 3 asset condition reports and data and HDR's experience in bridge management.

In addition, commentary has been provided on the scope of a Tier 2 assessment and projected outcomes of these assessments. In developing these recommendations, HDR have sought to focus any additional assessment scope such that the most value-for-money may be returned NHVR and Council.

**Table 7 Recommendations Summary**

| Asset ID | Asset Name             | Recommendation   | Scope of Tier 2 Assessment   | Projected Outcome   | Approximate Level of Effort Required |
|----------|------------------------|--|--|---|--------------------------------------|
| BR10     | Grosvenor Creek Bridge | Undertake staged, comprehensive Tier 2 assessment.                       | <ul style="list-style-type: none"> <li>– Apply additional Travel Restrictions in ERT assessment to produce ‘shortlist’ of vehicles that still fail.</li> <li>– On-site engineering inspection to determine current condition and size and layout of members.</li> <li>– Desktop analysis and load rating for remaining vehicles with ERT values less than 1. This analysis will be undertaken based on available drawings and informed by inspection findings.</li> </ul>                        | Obtain full, quantitative Load Rating of the structure and reliable Pass/Fail list of Application Vehicles. | Medium-High                          |
| BR11     | Cherwell Creek Bridge  | Adopt TR5 travel restrictions for all OSOM vehicles. No Tier 2 required. | – N/A  | All vehicles may pass over structure. OSOM must operate under permit including TR5.                         | N/A                                  |
| BR23     | Blackburn Creek Bridge | Undertake targeted Tier 2 assessment.                                    | <ul style="list-style-type: none"> <li>– Apply additional Travel Restrictions in ERT assessment to produce ‘shortlist’ of vehicles that still fail.</li> <li>– For remaining “Fail” vehicles, complete substructure bearing capacity checks.</li> </ul>  | Significant Improved Pass results for significant % of OSOM + CLASS 2 vehicles.                             | Medium                               |
| BR29     | Phillips Creek Bridge  | Undertake staged, comprehensive Tier 2 assessment.                       | <ul style="list-style-type: none"> <li>– Apply additional Travel Restrictions in the ERT assessment to produce ‘shortlist’ of vehicles that still fail.</li> <li>– On-site engineering inspection.</li> <li>– Desktop analysis and load rating for remaining vehicles with ERT values less than 1. This analysis will be undertaken based on available drawings, standard TMR drawings and informed by inspection findings.</li> </ul>   | Obtain full, quantitative Load Rating of the structure and reliable Pass/Fail list of Application Vehicles. | Medium-High                          |
| BR30     | Hughes Creek Bridge    | Undertake staged, comprehensive Tier 2 assessment.                       | <ul style="list-style-type: none"> <li>– Apply additional Travel Restrictions in ERT assessment to produce ‘shortlist’ of vehicles that still fail.</li> <li>– On-site engineering inspection to determine current condition and size and layout of members.</li> <li>– Desktop analysis and load rating for remaining vehicles with ERT values less than 1. This analysis will be undertaken based on available drawings, standard TMR drawings and informed by inspection findings.</li> </ul> | Obtain full, quantitative Load Rating of the structure and reliable Pass/Fail list of Application Vehicles. | Medium-High                          |



## *APPENDIX A – Asset Information Register*

| TYPE   | STATE | LGA                    | SUBURB     | ROAD_NAME            | LATITUDE   | LONGITUDE  | ASSET_ID | ASSET_NAME             | WIDTH | HEIGHT | MASS | LENGTH | NUMBER_SPANS | SPAN_1_LENGTH | SPAN_2_LENGTH | SPAN_3_LENGTH | SPAN_4_LENGTH | SPAN_CONFIGURATION | GA Drawings Available | Structural Drawings Available | CONSTRUCTION_Y | DESIGN_STANDARD | Super Structure | Sub Structure      | Level 2 Rating | Inspection Comments  | Other Assessment has been done | Information Adequate for Tier 1 Assessment | Notes  |
|--------|-------|------------------------|------------|----------------------|------------|------------|----------|------------------------|-------|--------|------|--------|--------------|---------------|---------------|---------------|---------------|--------------------|-----------------------|-------------------------------|----------------|-----------------|-----------------|--------------------|----------------|--|--------------------------------|--|--|
| Bridge | QLD   | Isaac Regional Council | Moranbah   | Moranbah Access Road | -22.013854 | 148.044282 | BR10     | Grosvenor Creek Bridge | 8.4   |        |      | 60     | 4            | 15.2          | 15.2          | 15.2          | 15.2          | Simply Supported   | YES                   | YES                           | 1975           | M518            | Deck Units      | Pile               | CS4            | Structure would be given an overall rating of CS 4 due to the 25 % rule outlined in the TMR Bridge Inspection Manual (3.3.3). Approach 1 is from the southern end of the structure. Spans 1 and 4 have cracked deck units on the outside that require further investigation. A transverse bar end is missing on the LHS of span 3. | YES                            | YES  | Given that an assessment has already been completed and subsequent instrumentation monitoring implemented by ARRB, it is our opinion that the Tier 1 assessment will provide low value to NRM/Council and a Tier 2 assessment is likely to be required.  |
| Bridge | QLD   | Isaac Regional Council | Winchester | Peak Downs Mine Road | -22.141804 | 148.142859 | BR11     | Cherwell Creek Bridge  |       |        |      | 77.2   | 3            | 25.55         | 26            | 25.65         |               | Simply Supported   | YES                   | YES                           | 2017           | SM1600          | Deck Units      | Piles              | CS1            | Structure was found in good condition at time of inspection.   | Not to our knowledge           | YES  | All information required for Tier 1 assessment has been received.  |
| Bridge | QLD   | Isaac Regional Council | Dysart     | Golden Mile Road     | -22.529266 | 148.642378 | BR23     | Blackburn Creek Bridge | 8.02  |        |      | 47     | 3            | 15.7          | 15            | 16.3          |               | Simply Supported   | YES                   | YES                           | 1992           | T44             | Deck Units      | Piles              | CS2            | Structure was found in fair condition at time of inspection.   | YES                            | YES  | T44 Design Loading confirmed through Instraada report provided.  |
| Bridge | QLD   | Isaac Regional Council | Dysart     | Saraji Road          | -22.521217 | 148.305008 | BR29     | Phillips Creek Bridge  | 7.3   |        |      | 35.2   | 3            | 11.5          | 11.5          | 11.5          |               | Simply Supported   | NO                    | NO                            | early 1970s    | M518            | Deck Units      | 'Y' frame on piles | CS3            | Structure was found in poor condition at time of inspection. (Previous Instraada report rates as Fair.)  | YES                            | YES  | M518 (metric equiv of H20-S16) confirmed through Instraada report provided. Span lengths adjusted to 11.5m based on information provided in Instraada report.  |
| Bridge | QLD   | Isaac Regional Council | Dysart     | Saraji Road          | -22.384562 | 148.265918 | BR30     | Hughes Creek Bridge    | 7.5   |        |      | 44.6   | 4            | 11.15         | 11.15         | 11.15         | 11.15         | Simply Supported   | NO                    | NO                            |                |                 | Deck Units      | 'Y' frame on piles | CS3            | Structure was found in poor condition at time of inspection.   | Not to our knowledge           | YES  | Level 2 Inspection photos suggest a Simply Supported arrangement is likely. We request confirmation of Simply Supported arrangement from NRM/Council. Also require Design/Reference Vehicle in order to proceed with Tier 1 assessment. If not on record, age of the bridge may help in assuming an appropriate Design Standard. Structure appears to be very similar to BR29 so M518 may be appropriate assumption. Refer Instraada report for BR29 describing likely design by TMR to "standard deck units." |

## *APPENDIX B – Application Vehicles Register*











*APPENDIX C – ERT Assessment Results Register*

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 50   | GML        | 7 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 252             | 2.0                | 0.4             | 0.8               | 1270                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 789             | 2.0                | 0.4             | 0.8               | 3977                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 252             | 2.0                | 0.4             | 0.8               | 1270                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 358             | 2.0                | 0.4             | 0.8               | 1804                    | 0.75             |
| BR10                     | MS18                   | 51   | CML        | 7 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 257             | 2.0                | 0.4             | 0.8               | 1295                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 808             | 2.0                | 0.4             | 0.8               | 4072                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 257             | 2.0                | 0.4             | 0.8               | 1295                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 365             | 2.0                | 0.4             | 0.8               | 1840                    | 0.73             |
| BR10                     | MS18                   | 52   | HML        | 7 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 257             | 2.0                | 0.4             | 0.8               | 1295                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 808             | 2.0                | 0.4             | 0.8               | 4072                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 257             | 2.0                | 0.4             | 0.8               | 1295                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 365             | 2.0                | 0.4             | 0.8               | 1840                    | 0.73             |
| BR10                     | MS18                   | 53   | GML        | 8 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 256             | 2.0                | 0.4             | 0.8               | 1290                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 771             | 2.0                | 0.4             | 0.8               | 3886                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 256             | 2.0                | 0.4             | 0.8               | 1290                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 368             | 2.0                | 0.4             | 0.8               | 1855                    | 0.73             |
| BR10                     | MS18                   | 54   | CML        | 8 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 267             | 2.0                | 0.4             | 0.8               | 1346                    | 0.96             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 796             | 2.0                | 0.4             | 0.8               | 4012                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 267             | 2.0                | 0.4             | 0.8               | 1346                    | 0.96             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 382             | 2.0                | 0.4             | 0.8               | 1925                    | 0.70             |
| BR10                     | MS18                   | 55   | HML        | 8 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 281             | 2.0                | 0.4             | 0.8               | 1416                    | 0.91             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 834             | 2.0                | 0.4             | 0.8               | 4203                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 281             | 2.0                | 0.4             | 0.8               | 1416                    | 0.91             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 396             | 2.0                | 0.4             | 0.8               | 1996                    | 0.68             |
| BR10                     | MS18                   | 56   | GML        | 8 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 787             | 2.0                | 0.4             | 0.8               | 3966                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 365             | 2.0                | 0.4             | 0.8               | 1840                    | 0.73             |
| BR10                     | MS18                   | 57   | CML        | 8 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 808             | 2.0                | 0.4             | 0.8               | 4072                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 377             | 2.0                | 0.4             | 0.8               | 1900                    | 0.71             |
| BR10                     | MS18                   | 58   | HML        | 8 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 274             | 2.0                | 0.4             | 0.8               | 1381                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 834             | 2.0                | 0.4             | 0.8               | 4203                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 274             | 2.0                | 0.4             | 0.8               | 1381                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 384             | 2.0                | 0.4             | 0.8               | 1935                    | 0.70             |
| BR10                     | MS18                   | 59   | GML        | 9 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 256             | 2.0                | 0.4             | 0.8               | 1290                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 821             | 2.0                | 0.4             | 0.8               | 4138                     | 771             | 2.0                | 0.4             | 0.8               | 3886                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 256             | 2.0                | 0.4             | 0.8               | 1290                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 268             | 2.0                | 0.4             | 0.8               | 1351                     | 377             | 2.0                | 0.4             | 0.8               | 1900                    | 0.71             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 60   | CML        | 9 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 268             | 2.0                | 0.4             | 0.8               | 1351                    | 0.96             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 268                      | 2.0             | 0.4                | 0.8             | 1351              | 0.96                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 394                      | 2.0             | 0.4                | 0.8             | 1986              | 0.68                    |                  |
| BR10                     | MS18                   | 61   | HML        | 9 axle B-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 287             | 2.0                | 0.4             | 0.8               | 1446                    | 0.89             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 836                      | 2.0             | 0.4                | 0.8             | 4213              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 287                      | 2.0             | 0.4                | 0.8             | 1446              | 0.89                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 415                      | 2.0             | 0.4                | 0.8             | 2092              | 0.65                    |                  |
| BR10                     | MS18                   | 62   | GML        | 9 axle A-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 259             | 2.0                | 0.4             | 0.8               | 1305                    | 0.99             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 808                      | 2.0             | 0.4                | 0.8             | 4072              | 1.02                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 259                      | 2.0             | 0.4                | 0.8             | 1305              | 0.99                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 388                      | 2.0             | 0.4                | 0.8             | 1956              | 0.69                    |                  |
| BR10                     | MS18                   | 63   | CML        | 9 axle A-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 267             | 2.0                | 0.4             | 0.8               | 1346                    | 0.96             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 830                      | 2.0             | 0.4                | 0.8             | 4183              | 0.99                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 267                      | 2.0             | 0.4                | 0.8             | 1346              | 0.96                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 399                      | 2.0             | 0.4                | 0.8             | 2011              | 0.67                    |                  |
| BR10                     | MS18                   | 64   | HML        | 9 axle A-double          | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 267             | 2.0                | 0.4             | 0.8               | 1346                    | 0.96             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 830                      | 2.0             | 0.4                | 0.8             | 4183              | 0.99                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 267                      | 2.0             | 0.4                | 0.8             | 1346              | 0.96                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 399                      | 2.0             | 0.4                | 0.8             | 2011              | 0.67                    |                  |
| BR10                     | MS18                   | 65   | GML        | 11 axle A-double         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 394                      | 2.0             | 0.4                | 0.8             | 1986              | 0.68                    |                  |
| BR10                     | MS18                   | 66   | CML        | 11 axle A-double         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 0.94             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 272                      | 2.0             | 0.4                | 0.8             | 1371              | 0.94                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 67   | HML        | 11 axle A-double         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 285             | 2.0                | 0.4             | 0.8               | 1436                    | 0.90             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 858                      | 2.0             | 0.4                | 0.8             | 4324              | 0.96                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 285                      | 2.0             | 0.4                | 0.8             | 1436              | 0.90                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 425                      | 2.0             | 0.4                | 0.8             | 2142              | 0.63                    |                  |
| BR10                     | MS18                   | 68   | GML        | 12 axle A-double         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 69   | CML        | 12 axle A-double         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 70   | HML        | 12 axle A-double         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 71   | GML        | 12 Axle Modular B-triple | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 72   | CML        | 12 Axle Modular B-triple | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 73   | HML        | 12 Axle Modular B-triple | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 74   | GML        | 12 Axle B-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 75   | CML        | 12 Axle B-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 76   | HML        | 12 Axle B-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 77   | GML        | 14 Axle B-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 394                      | 2.0             | 0.4                | 0.8             | 1986              | 0.68                    |                  |
| BR10                     | MS18                   | 78   | CML        | 14 Axle B-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 0.94             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 272                      | 2.0             | 0.4                | 0.8             | 1371              | 0.94                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 79   | HML        | 14 Axle B-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 288             | 2.0                | 0.4             | 0.8               | 1452                    | 0.89             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 288                      | 2.0             | 0.4                | 0.8             | 1452              | 0.89                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 428                      | 2.0             | 0.4                | 0.8             | 2157              | 0.63                    |                  |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 80   | GML        | 15 Axle AB-triple        | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 81   | CML        | 15 Axle AB-triple        | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 82   | HML        | 15 Axle AB-triple        | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 83   | GML        | 16 Axle A-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 394                      | 2.0             | 0.4                | 0.8             | 1986              | 0.68                    |                  |
| BR10                     | MS18                   | 84   | CML        | 16 Axle A-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 0.94             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 272                      | 2.0             | 0.4                | 0.8             | 1371              | 0.94                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 85   | HML        | 16 Axle A-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 285             | 2.0                | 0.4             | 0.8               | 1436                    | 0.90             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 858                      | 2.0             | 0.4                | 0.8             | 4324              | 0.96                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 285                      | 2.0             | 0.4                | 0.8             | 1436              | 0.90                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 425                      | 2.0             | 0.4                | 0.8             | 2142              | 0.63                    |                  |
| BR10                     | MS18                   | 86   | GML        | 18 Axle A-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 87   | CML        | 18 Axle A-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 88   | HML        | 18 Axle A-triple         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 89   | GML        | 15 Axle AB-triple        | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 90   | CML        | 15 Axle AB-triple        | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 91   | HML        | 15 Axle AB-triple        | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 92   | GML        | 17 Axle BAB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 395                      | 2.0             | 0.4                | 0.8             | 1991              | 0.68                    |                  |
| BR10                     | MS18                   | 93   | CML        | 17 Axle BAB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 0.94             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 272                      | 2.0             | 0.4                | 0.8             | 1371              | 0.94                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 413                      | 2.0             | 0.4                | 0.8             | 2082              | 0.65                    |                  |
| BR10                     | MS18                   | 94   | HML        | 17 Axle BAB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 291             | 2.0                | 0.4             | 0.8               | 1467                    | 0.88             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 862                      | 2.0             | 0.4                | 0.8             | 4344              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 291                      | 2.0             | 0.4                | 0.8             | 1467              | 0.88                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 435                      | 2.0             | 0.4                | 0.8             | 2192              | 0.62                    |                  |
| BR10                     | MS18                   | 95   | GML        | 18 Axle BAB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 96   | CML        | 18 Axle BAB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 97   | HML        | 18 Axle BAB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 98   | GML        | 17 Axle ABB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 394                      | 2.0             | 0.4                | 0.8             | 1986              | 0.68                    |                  |
| BR10                     | MS18                   | 99   | CML        | 17 Axle ABB-Quad         | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 0.94             |
|                          |                        |  |            |                          |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                          |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 272                      | 2.0             | 0.4                | 0.8             | 1371              | 0.94                    |                  |
|                          |                        |  |            |                          |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                              | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|------------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)     | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                              |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 100  | HML        | 17 Axle ABB-Quad             | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 291             | 2.0                | 0.4             | 0.8               | 1467                    | 0.88             |
|                          |                        |  |            |                              |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                              |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 291                      | 2.0             | 0.4                | 0.8             | 1467              | 0.88                    |                  |
|                          |                        |  |            |                              |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 101  | GML        | 18 Axle ABB-Quad             | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 261             | 2.0                | 0.4             | 0.8               | 1315                    | 0.98             |
|                          |                        |  |            |                              |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 796                      | 2.0             | 0.4                | 0.8             | 4012              | 1.03                    |                  |
|                          |                        |  |            |                              |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 261                      | 2.0             | 0.4                | 0.8             | 1315              | 0.98                    |                  |
|                          |                        |  |            |                              |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 0.68                    |                  |
| BR10                     | MS18                   | 102  | CML        | 18 Axle ABB-Quad             | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 0.93             |
|                          |                        |  |            |                              |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 822                      | 2.0             | 0.4                | 0.8             | 4143              | 1.00                    |                  |
|                          |                        |  |            |                              |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 0.93                    |                  |
|                          |                        |  |            |                              |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 410                      | 2.0             | 0.4                | 0.8             | 2066              | 0.65                    |                  |
| BR10                     | MS18                   | 103  | HML        | 18 Axle ABB-Quad             | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 294             | 2.0                | 0.4             | 0.8               | 1482                    | 0.87             |
|                          |                        |  |            |                              |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 866                      | 2.0             | 0.4                | 0.8             | 4365              | 0.95                    |                  |
|                          |                        |  |            |                              |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 294                      | 2.0             | 0.4                | 0.8             | 1482              | 0.87                    |                  |
|                          |                        |  |            |                              |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.61                    |                  |
| BR10                     | MS18                   | 104  | GML        | 2 Axle Controlled Access Bus | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 158             | 2.0                | 0.4             | 0.8               | 796                     | 1.62             |
|                          |                        |  |            |                              |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 503                      | 2.0             | 0.4                | 0.8             | 2535              | 1.63                    |                  |
|                          |                        |  |            |                              |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 158                      | 2.0             | 0.4                | 0.8             | 796               | 1.62                    |                  |
|                          |                        |  |            |                              |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 159                      | 2.0             | 0.4                | 0.8             | 801               | 1.69                    |                  |
| BR10                     | MS18                   | 105  | GML        | 3 Axle Controlled Access Bus | S1                     | 15       | V           | ULS                    | 256             | 2.0                | 0.4             | 0.8               | 1290                     | 176             | 2.0                | 0.4             | 0.8               | 887                     | 1.45             |
|                          |                        |  |            |                              |                        |          | 821         |                        | 2.0             | 0.4                | 0.8             | 4138              | 575                      | 2.0             | 0.4                | 0.8             | 2898              | 1.43                    |                  |
|                          |                        |  |            |                              |                        |          | 256         |                        | 2.0             | 0.4                | 0.8             | 1290              | 176                      | 2.0             | 0.4                | 0.8             | 887               | 1.45                    |                  |
|                          |                        |  |            |                              |                        |          | 268         |                        | 2.0             | 0.4                | 0.8             | 1351              | 181                      | 2.0             | 0.4                | 0.8             | 912               | 1.48                    |                  |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                         | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 1  | Max        | Prime mover and 2-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 339                      | 1.5                | 0.4             | 0.0               | 712                     | 1.81             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 994                      | 1.5                | 0.4             | 0.0               | 2087                    | 1.98             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 339                      | 1.5                | 0.4             | 0.0               | 712                     | 1.81             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 361                      | 1.5                | 0.4             | 0.0               | 758                     | 1.78             |
| BR10                     | MS18                   | 2  | Min        | Prime mover and 3-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 252                      | 1.5                | 0.4             | 0.0               | 529                     | 2.44             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 772                      | 1.5                | 0.4             | 0.0               | 1621                    | 2.55             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 252                      | 1.5                | 0.4             | 0.0               | 529                     | 2.44             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 314                      | 1.5                | 0.4             | 0.0               | 659                     | 2.05             |
| BR10                     | MS18                   | 3  | Max        | Prime mover and 3-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 325                      | 1.5                | 0.4             | 0.0               | 683                     | 1.89             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1107                     | 1.5                | 0.4             | 0.0               | 2325                    | 1.78             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 325                      | 1.5                | 0.4             | 0.0               | 683                     | 1.89             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 380                      | 1.5                | 0.4             | 0.0               | 798                     | 1.69             |
| BR10                     | MS18                   | 4  | Min        | Prime mover and 4-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 279                      | 1.5                | 0.4             | 0.0               | 586                     | 2.20             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 982                      | 1.5                | 0.4             | 0.0               | 2062                    | 2.01             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 279                      | 1.5                | 0.4             | 0.0               | 586                     | 2.20             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 302                      | 1.5                | 0.4             | 0.0               | 634                     | 2.13             |
| BR10                     | MS18                   | 5  | Max        | Prime mover and 4-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 415                      | 1.5                | 0.4             | 0.0               | 872                     | 1.48             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1459                     | 1.5                | 0.4             | 0.0               | 3064                    | 1.35             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 415                      | 1.5                | 0.4             | 0.0               | 872                     | 1.48             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 480                      | 1.5                | 0.4             | 0.0               | 1008                    | 1.34             |
| BR10                     | MS18                   | 6  | Min        | Prime mover and 4-axle spread low loader trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 257                      | 1.5                | 0.4             | 0.0               | 540                     | 2.39             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 845                      | 1.5                | 0.4             | 0.0               | 1775                    | 2.33             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 257                      | 1.5                | 0.4             | 0.0               | 540                     | 2.39             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 324                      | 1.5                | 0.4             | 0.0               | 680                     | 1.99             |
| BR10                     | MS18                   | 7  | Max        | Prime mover and 4-axle spread low loader trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 574                      | 1.5                | 0.4             | 0.0               | 1205                    | 1.07             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1970                     | 1.5                | 0.4             | 0.0               | 4137                    | 1.00             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 574                      | 1.5                | 0.4             | 0.0               | 1205                    | 1.07             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 652                      | 1.5                | 0.4             | 0.0               | 1369                    | 0.99             |
| BR10                     | MS18                   | 8  | Min        | Prime mover and 5-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 375                      | 1.5                | 0.4             | 0.0               | 788                     | 1.64             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1333                     | 1.5                | 0.4             | 0.0               | 2799                    | 1.48             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 375                      | 1.5                | 0.4             | 0.0               | 788                     | 1.64             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 441                      | 1.5                | 0.4             | 0.0               | 926                     | 1.46             |
| BR10                     | MS18                   | 9  | Max        | Prime mover and 5-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 672                      | 1.5                | 0.4             | 0.0               | 1411                    | 0.91             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2370                     | 1.5                | 0.4             | 0.0               | 4977                    | 0.83             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 672                      | 1.5                | 0.4             | 0.0               | 1411                    | 0.91             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 763                      | 1.5                | 0.4             | 0.0               | 1602                    | 0.84             |
| BR10                     | MS18                   | 10   | Min        | Prime mover and 6-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 222                      | 1.5                | 0.4             | 0.0               | 466                     | 2.77             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 679                      | 1.5                | 0.4             | 0.0               | 1426                    | 2.90             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 222                      | 1.5                | 0.4             | 0.0               | 466                     | 2.77             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 282                      | 1.5                | 0.4             | 0.0               | 592                     | 2.28             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                 | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 11   | Max        | Prime mover and 6-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 653                      | 1.5                | 0.4             | 0.0               | 1371                    | 0.94             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2270                     | 1.5                | 0.4             | 0.0               | 4767                    | 0.87             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 653                      | 1.5                | 0.4             | 0.0               | 1371                    | 0.94             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 805                      | 1.5                | 0.4             | 0.0               | 1691                    | 0.80             |
| BR10                     | MS18                   | 12   | Min        | Prime mover and 7-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 240                      | 1.5                | 0.4             | 0.0               | 504                     | 2.56             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 757                      | 1.5                | 0.4             | 0.0               | 1590                    | 2.60             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 240                      | 1.5                | 0.4             | 0.0               | 504                     | 2.56             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 333                      | 1.5                | 0.4             | 0.0               | 699                     | 1.93             |
| BR10                     | MS18                   | 13   | Max        | Prime mover and 7-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 783                      | 1.5                | 0.4             | 0.0               | 1644                    | 0.78             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2719                     | 1.5                | 0.4             | 0.0               | 5710                    | 0.72             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 783                      | 1.5                | 0.4             | 0.0               | 1644                    | 0.78             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1020                     | 1.5                | 0.4             | 0.0               | 2142                    | 0.63             |
| BR10                     | MS18                   | 14   | Min        | Prime mover and 8-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 233                      | 1.5                | 0.4             | 0.0               | 489                     | 2.64             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 799                      | 1.5                | 0.4             | 0.0               | 1678                    | 2.47             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 233                      | 1.5                | 0.4             | 0.0               | 489                     | 2.64             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 310                      | 1.5                | 0.4             | 0.0               | 651                     | 2.07             |
| BR10                     | MS18                   | 15   | Max        | Prime mover and 8-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 727                      | 1.5                | 0.4             | 0.0               | 1527                    | 0.85             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2463                     | 1.5                | 0.4             | 0.0               | 5172                    | 0.80             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 727                      | 1.5                | 0.4             | 0.0               | 1527                    | 0.85             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1035                     | 1.5                | 0.4             | 0.0               | 2174                    | 0.62             |
| BR10                     | MS18                   | 16   | Min        | Prime mover and 9-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 208                      | 1.5                | 0.4             | 0.0               | 437                     | 2.95             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 733                      | 1.5                | 0.4             | 0.0               | 1539                    | 2.69             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 208                      | 1.5                | 0.4             | 0.0               | 437                     | 2.95             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 281                      | 1.5                | 0.4             | 0.0               | 590                     | 2.29             |
| BR10                     | MS18                   | 17   | Max        | Prime mover and 9-axle platform trailer  | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 683                      | 1.5                | 0.4             | 0.0               | 1434                    | 0.90             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2318                     | 1.5                | 0.4             | 0.0               | 4868                    | 0.85             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 683                      | 1.5                | 0.4             | 0.0               | 1434                    | 0.90             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 968                      | 1.5                | 0.4             | 0.0               | 2033                    | 0.66             |
| BR10                     | MS18                   | 18   | Min        | Prime mover and 10-axle platform trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 249                      | 1.5                | 0.4             | 0.0               | 523                     | 2.47             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 847                      | 1.5                | 0.4             | 0.0               | 1779                    | 2.33             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 249                      | 1.5                | 0.4             | 0.0               | 523                     | 2.47             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 395                      | 1.5                | 0.4             | 0.0               | 830                     | 1.63             |
| BR10                     | MS18                   | 19   | Max        | Prime mover and 10-axle platform trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2310                     | 1.5                | 0.4             | 0.0               | 4851                    | 0.85             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1043                     | 1.5                | 0.4             | 0.0               | 2190                    | 0.62             |
| BR10                     | MS18                   | 20   | Min        | Prime mover and 11-axle platform trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 218                      | 1.5                | 0.4             | 0.0               | 458                     | 2.82             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 709                      | 1.5                | 0.4             | 0.0               | 1489                    | 2.78             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 218                      | 1.5                | 0.4             | 0.0               | 458                     | 2.82             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 286                      | 1.5                | 0.4             | 0.0               | 601                     | 2.25             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 21   | Max        | Prime mover and 11-axle platform trailer                       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 653                      | 1.5                | 0.4             | 0.0               | 1371                    | 0.94             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2218                     | 1.5                | 0.4             | 0.0               | 4658                    | 0.89             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 653                      | 1.5                | 0.4             | 0.0               | 1371                    | 0.94             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1044                     | 1.5                | 0.4             | 0.0               | 2192                    | 0.62             |
| BR10                     | MS18                   | 22   | Min        | Prime mover and 12-axle platform trailer                       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 225                      | 1.5                | 0.4             | 0.0               | 473                     | 2.73             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 710                      | 1.5                | 0.4             | 0.0               | 1491                    | 2.78             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 225                      | 1.5                | 0.4             | 0.0               | 473                     | 2.73             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 322                      | 1.5                | 0.4             | 0.0               | 676                     | 2.00             |
| BR10                     | MS18                   | 23   | Max        | Prime mover and 12-axle platform trailer                       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 612                      | 1.5                | 0.4             | 0.0               | 1285                    | 1.00             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2079                     | 1.5                | 0.4             | 0.0               | 4366                    | 0.95             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 612                      | 1.5                | 0.4             | 0.0               | 1285                    | 1.00             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1017                     | 1.5                | 0.4             | 0.0               | 2136                    | 0.63             |
| BR10                     | MS18                   | 24   | Min        | Prime mover and 16-axle platform trailer                       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 408                      | 1.5                | 0.4             | 0.0               | 857                     | 1.51             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1386                     | 1.5                | 0.4             | 0.0               | 2911                    | 1.42             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 408                      | 1.5                | 0.4             | 0.0               | 857                     | 1.51             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 735                      | 1.5                | 0.4             | 0.0               | 1544                    | 0.88             |
| BR10                     | MS18                   | 25   | Max        | Prime mover and 16-axle platform trailer                       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 408                      | 1.5                | 0.4             | 0.0               | 857                     | 1.51             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1386                     | 1.5                | 0.4             | 0.0               | 2911                    | 1.42             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 408                      | 1.5                | 0.4             | 0.0               | 857                     | 1.51             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 735                      | 1.5                | 0.4             | 0.0               | 1544                    | 0.88             |
| BR10                     | MS18                   | 26   | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 291                      | 1.5                | 0.4             | 0.0               | 611                     | 2.11             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1000                     | 1.5                | 0.4             | 0.0               | 2100                    | 1.97             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 291                      | 1.5                | 0.4             | 0.0               | 611                     | 2.11             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 379                      | 1.5                | 0.4             | 0.0               | 796                     | 1.70             |
| BR10                     | MS18                   | 27   | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 457                      | 1.5                | 0.4             | 0.0               | 960                     | 1.34             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1669                     | 1.5                | 0.4             | 0.0               | 3505                    | 1.18             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 457                      | 1.5                | 0.4             | 0.0               | 960                     | 1.34             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 528                      | 1.5                | 0.4             | 0.0               | 1109                    | 1.22             |
| BR10                     | MS18                   | 28   | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 329                      | 1.5                | 0.4             | 0.0               | 691                     | 1.87             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1026                     | 1.5                | 0.4             | 0.0               | 2155                    | 1.92             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 329                      | 1.5                | 0.4             | 0.0               | 691                     | 1.87             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 359                      | 1.5                | 0.4             | 0.0               | 754                     | 1.79             |
| BR10                     | MS18                   | 29   | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 402                      | 1.5                | 0.4             | 0.0               | 844                     | 1.53             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1394                     | 1.5                | 0.4             | 0.0               | 2927                    | 1.41             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 402                      | 1.5                | 0.4             | 0.0               | 844                     | 1.53             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 505                      | 1.5                | 0.4             | 0.0               | 1061                    | 1.27             |
| BR10                     | MS18                   | 30   | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 210                      | 1.5                | 0.4             | 0.0               | 441                     | 2.93             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 808                      | 1.5                | 0.4             | 0.0               | 1697                    | 2.44             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 210                      | 1.5                | 0.4             | 0.0               | 441                     | 2.93             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 262                      | 1.5                | 0.4             | 0.0               | 550                     | 2.45             |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 31   | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 473                      | 1.5                | 0.4             | 0.0               | 993                     | 1.30             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1623                     | 1.5                | 0.4             | 0.0               | 3408                    | 1.21             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 473                      | 1.5                | 0.4             | 0.0               | 993                     | 1.30             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 594                      | 1.5                | 0.4             | 0.0               | 1247                    | 1.08             |
| BR10                     | MS18                   | 32   | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 307                      | 1.5                | 0.4             | 0.0               | 645                     | 2.00             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1111                     | 1.5                | 0.4             | 0.0               | 2333                    | 1.77             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 307                      | 1.5                | 0.4             | 0.0               | 645                     | 2.00             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 341                      | 1.5                | 0.4             | 0.0               | 716                     | 1.89             |
| BR10                     | MS18                   | 33   | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 655                      | 1.5                | 0.4             | 0.0               | 1376                    | 0.94             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2370                     | 1.5                | 0.4             | 0.0               | 4977                    | 0.83             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 655                      | 1.5                | 0.4             | 0.0               | 1376                    | 0.94             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 760                      | 1.5                | 0.4             | 0.0               | 1596                    | 0.85             |
| BR10                     | MS18                   | 34   | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 388                      | 1.5                | 0.4             | 0.0               | 815                     | 1.58             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1348                     | 1.5                | 0.4             | 0.0               | 2831                    | 1.46             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 388                      | 1.5                | 0.4             | 0.0               | 815                     | 1.58             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 468                      | 1.5                | 0.4             | 0.0               | 983                     | 1.37             |
| BR10                     | MS18                   | 35   | Max        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 655                      | 1.5                | 0.4             | 0.0               | 1376                    | 0.94             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2270                     | 1.5                | 0.4             | 0.0               | 4767                    | 0.87             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 655                      | 1.5                | 0.4             | 0.0               | 1376                    | 0.94             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 862                      | 1.5                | 0.4             | 0.0               | 1810                    | 0.75             |
| BR10                     | MS18                   | 36   | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 404                      | 1.5                | 0.4             | 0.0               | 848                     | 1.52             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1405                     | 1.5                | 0.4             | 0.0               | 2951                    | 1.40             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 404                      | 1.5                | 0.4             | 0.0               | 848                     | 1.52             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 507                      | 1.5                | 0.4             | 0.0               | 1065                    | 1.27             |
| BR10                     | MS18                   | 37   | Max        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 1024                     | 1.5                | 0.4             | 0.0               | 2150                    | 0.60             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 3531                     | 1.5                | 0.4             | 0.0               | 7415                    | 0.56             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 1024                     | 1.5                | 0.4             | 0.0               | 2150                    | 0.60             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1344                     | 1.5                | 0.4             | 0.0               | 2822                    | 0.48             |
| BR10                     | MS18                   | 38   | Min        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 630                      | 1.5                | 0.4             | 0.0               | 1323                    | 0.98             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2153                     | 1.5                | 0.4             | 0.0               | 4521                    | 0.92             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 630                      | 1.5                | 0.4             | 0.0               | 1323                    | 0.98             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 897                      | 1.5                | 0.4             | 0.0               | 1884                    | 0.72             |
| BR10                     | MS18                   | 39   | Max        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 747                      | 1.5                | 0.4             | 0.0               | 1569                    | 0.82             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2553                     | 1.5                | 0.4             | 0.0               | 5361                    | 0.77             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 747                      | 1.5                | 0.4             | 0.0               | 1569                    | 0.82             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1049                     | 1.5                | 0.4             | 0.0               | 2203                    | 0.61             |
| BR10                     | MS18                   | 40   | Min        | Prime mover, 2 axle dolly and 9-axle platform trailer          | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2310                     | 1.5                | 0.4             | 0.0               | 4851                    | 0.85             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1007                     | 1.5                | 0.4             | 0.0               | 2115                    | 0.64             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                     | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR10                     | MS18                   | 41   | Max        | Prime mover, 2 axle dolly and 9-axle platform trailer        | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2310                     | 1.5                | 0.4             | 0.0               | 4851                    | 0.85             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1005                     | 1.5                | 0.4             | 0.0               | 2111                    | 0.64             |
| BR10                     | MS18                   | 42   | Min        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.13             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1854                     | 1.5                | 0.4             | 0.0               | 3893                    | 1.06             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.13             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 841                      | 1.5                | 0.4             | 0.0               | 1766                    | 0.76             |
| BR10                     | MS18                   | 43   | Max        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 816                      | 1.5                | 0.4             | 0.0               | 1714                    | 0.75             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2772                     | 1.5                | 0.4             | 0.0               | 5821                    | 0.71             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 816                      | 1.5                | 0.4             | 0.0               | 1714                    | 0.75             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1252                     | 1.5                | 0.4             | 0.0               | 2629                    | 0.51             |
| BR10                     | MS18                   | 44   | Min        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 602                      | 1.5                | 0.4             | 0.0               | 1264                    | 1.02             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2036                     | 1.5                | 0.4             | 0.0               | 4276                    | 0.97             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 602                      | 1.5                | 0.4             | 0.0               | 1264                    | 1.02             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 966                      | 1.5                | 0.4             | 0.0               | 2029                    | 0.67             |
| BR10                     | MS18                   | 45   | Max        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2310                     | 1.5                | 0.4             | 0.0               | 4851                    | 0.85             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1088                     | 1.5                | 0.4             | 0.0               | 2285                    | 0.59             |
| BR10                     | MS18                   | 46   | Min        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 584                      | 1.5                | 0.4             | 0.0               | 1226                    | 1.05             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1975                     | 1.5                | 0.4             | 0.0               | 4148                    | 1.00             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 584                      | 1.5                | 0.4             | 0.0               | 1226                    | 1.05             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 964                      | 1.5                | 0.4             | 0.0               | 2024                    | 0.67             |
| BR10                     | MS18                   | 47   | Max        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 2299                     | 1.5                | 0.4             | 0.0               | 4828                    | 0.86             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 680                      | 1.5                | 0.4             | 0.0               | 1428                    | 0.90             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 1123                     | 1.5                | 0.4             | 0.0               | 2358                    | 0.57             |
| BR10                     | MS18                   | 48   | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 483                      | 1.5                | 0.4             | 0.0               | 1014                    | 1.27             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1548                     | 1.5                | 0.4             | 0.0               | 3251                    | 1.27             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 483                      | 1.5                | 0.4             | 0.0               | 1014                    | 1.27             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 572                      | 1.5                | 0.4             | 0.0               | 1201                    | 1.12             |
| BR10                     | MS18                   | 49   | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1                     | 15       | V           | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 602                      | 1.5                | 0.4             | 0.0               | 1264                    | 1.02             |
|                          |                        |  |            |  | S1                     | 15       | Msag        | ULS           | 821                    | 2.0                | 0.4             | 0.8               | 4138                   | 1961                     | 1.5                | 0.4             | 0.0               | 4118                    | 1.00             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 256                    | 2.0                | 0.4             | 0.8               | 1290                   | 602                      | 1.5                | 0.4             | 0.0               | 1264                    | 1.02             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 268                    | 2.0                | 0.4             | 0.8               | 1351                   | 690                      | 1.5                | 0.4             | 0.0               | 1449                    | 0.93             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 50   | GML        | 7 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 371                      | 2.0             | 0.4                | 0.8             | 1870              | 2.02                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2138                     | 2.0             | 0.4                | 0.8             | 10776             | 1.95                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 371                      | 2.0             | 0.4                | 0.8             | 1870              | 2.02                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 439                      | 2.0             | 0.4                | 0.8             | 2213              | 2.29                    |                  |
| BR11                     | SM1600                 | 51   | CML        | 7 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 377                      | 2.0             | 0.4                | 0.8             | 1900              | 1.98                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2178                     | 2.0             | 0.4                | 0.8             | 10977             | 1.91                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 377                      | 2.0             | 0.4                | 0.8             | 1900              | 1.99                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 447                      | 2.0             | 0.4                | 0.8             | 2253              | 2.25                    |                  |
| BR11                     | SM1600                 | 52   | HML        | 7 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 377                      | 2.0             | 0.4                | 0.8             | 1900              | 1.98                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2178                     | 2.0             | 0.4                | 0.8             | 10977             | 1.91                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 377                      | 2.0             | 0.4                | 0.8             | 1900              | 1.99                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 447                      | 2.0             | 0.4                | 0.8             | 2253              | 2.25                    |                  |
| BR11                     | SM1600                 | 53   | GML        | 8 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 368                      | 2.0             | 0.4                | 0.8             | 1855              | 2.03                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2186                     | 2.0             | 0.4                | 0.8             | 11017             | 1.91                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 368                      | 2.0             | 0.4                | 0.8             | 1855              | 2.04                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 457                      | 2.0             | 0.4                | 0.8             | 2303              | 2.20                    |                  |
| BR11                     | SM1600                 | 54   | CML        | 8 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 382                      | 2.0             | 0.4                | 0.8             | 1925              | 1.96                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2275                     | 2.0             | 0.4                | 0.8             | 11466             | 1.83                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 382                      | 2.0             | 0.4                | 0.8             | 1925              | 1.96                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 474                      | 2.0             | 0.4                | 0.8             | 2389              | 2.12                    |                  |
| BR11                     | SM1600                 | 55   | HML        | 8 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 1.91                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2364                     | 2.0             | 0.4                | 0.8             | 11915             | 1.76                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 392                      | 2.0             | 0.4                | 0.8             | 1976              | 1.91                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 488                      | 2.0             | 0.4                | 0.8             | 2460              | 2.06                    |                  |
| BR11                     | SM1600                 | 56   | GML        | 8 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 370                      | 2.0             | 0.4                | 0.8             | 1865              | 2.02                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2157                     | 2.0             | 0.4                | 0.8             | 10871             | 1.93                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 370                      | 2.0             | 0.4                | 0.8             | 1865              | 2.02                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 455                      | 2.0             | 0.4                | 0.8             | 2293              | 2.21                    |                  |
| BR11                     | SM1600                 | 57   | CML        | 8 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 384                      | 2.0             | 0.4                | 0.8             | 1935              | 1.95                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2230                     | 2.0             | 0.4                | 0.8             | 11239             | 1.87                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 384                      | 2.0             | 0.4                | 0.8             | 1935              | 1.95                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 471                      | 2.0             | 0.4                | 0.8             | 2374              | 2.14                    |                  |
| BR11                     | SM1600                 | 58   | HML        | 8 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 398                      | 2.0             | 0.4                | 0.8             | 2006              | 1.88                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2269                     | 2.0             | 0.4                | 0.8             | 11436             | 1.84                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 398                      | 2.0             | 0.4                | 0.8             | 2006              | 1.88                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 481                      | 2.0             | 0.4                | 0.8             | 2424              | 2.09                    |                  |
| BR11                     | SM1600                 | 59   | GML        | 9 axle B-double          | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 381                      | 2.0             | 0.4                | 0.8             | 1920              | 1.96                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2218                     | 2.0             | 0.4                | 0.8             | 11179             | 1.88                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 381                      | 2.0             | 0.4                | 0.8             | 1920              | 1.97                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 477                      | 2.0             | 0.4                | 0.8             | 2404              | 2.11                    |                  |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 60   | CML        | 9 axle B-double          | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 399             | 2.0                | 0.4             | 0.8               | 2011                    | 1.87             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2318            | 2.0                | 0.4             | 0.8               | 11683                   | 1.80             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 399             | 2.0                | 0.4             | 0.8               | 2011                    | 1.88             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 497             | 2.0                | 0.4             | 0.8               | 2505                    | 2.02             |
| BR11                     | SM1600                 | 61   | HML        | 9 axle B-double          | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 422             | 2.0                | 0.4             | 0.8               | 2127                    | 1.77             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2446            | 2.0                | 0.4             | 0.8               | 12328                   | 1.70             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 422             | 2.0                | 0.4             | 0.8               | 2127                    | 1.77             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 522             | 2.0                | 0.4             | 0.8               | 2631                    | 1.93             |
| BR11                     | SM1600                 | 62   | GML        | 9 axle A-double          | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 399             | 2.0                | 0.4             | 0.8               | 2011                    | 1.87             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2216            | 2.0                | 0.4             | 0.8               | 11169                   | 1.88             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 399             | 2.0                | 0.4             | 0.8               | 2011                    | 1.88             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 522             | 2.0                | 0.4             | 0.8               | 2631                    | 1.93             |
| BR11                     | SM1600                 | 63   | CML        | 9 axle A-double          | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 411             | 2.0                | 0.4             | 0.8               | 2071                    | 1.82             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2281            | 2.0                | 0.4             | 0.8               | 11496                   | 1.83             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 411             | 2.0                | 0.4             | 0.8               | 2071                    | 1.82             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 537             | 2.0                | 0.4             | 0.8               | 2706                    | 1.87             |
| BR11                     | SM1600                 | 64   | HML        | 9 axle A-double          | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 411             | 2.0                | 0.4             | 0.8               | 2071                    | 1.82             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2281            | 2.0                | 0.4             | 0.8               | 11496                   | 1.83             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 411             | 2.0                | 0.4             | 0.8               | 2071                    | 1.82             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 537             | 2.0                | 0.4             | 0.8               | 2706                    | 1.87             |
| BR11                     | SM1600                 | 65   | GML        | 11 axle A-double         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 397             | 2.0                | 0.4             | 0.8               | 2001                    | 1.88             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2241            | 2.0                | 0.4             | 0.8               | 11295                   | 1.86             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 397             | 2.0                | 0.4             | 0.8               | 2001                    | 1.89             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 555             | 2.0                | 0.4             | 0.8               | 2797                    | 1.81             |
| BR11                     | SM1600                 | 66   | CML        | 11 axle A-double         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 415             | 2.0                | 0.4             | 0.8               | 2092                    | 1.80             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2331            | 2.0                | 0.4             | 0.8               | 11748                   | 1.79             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 415             | 2.0                | 0.4             | 0.8               | 2092                    | 1.80             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 577             | 2.0                | 0.4             | 0.8               | 2908                    | 1.74             |
| BR11                     | SM1600                 | 67   | HML        | 11 axle A-double         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 435             | 2.0                | 0.4             | 0.8               | 2192                    | 1.72             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2420            | 2.0                | 0.4             | 0.8               | 12197                   | 1.72             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 435             | 2.0                | 0.4             | 0.8               | 2192                    | 1.72             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 598             | 2.0                | 0.4             | 0.8               | 3014                    | 1.68             |
| BR11                     | SM1600                 | 68   | GML        | 12 axle A-double         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2277            | 2.0                | 0.4             | 0.8               | 11476                   | 1.83             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 568             | 2.0                | 0.4             | 0.8               | 2863                    | 1.77             |
| BR11                     | SM1600                 | 69   | CML        | 12 axle A-double         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.76             |
|                          |                        |  |            |                          |                        |          | Msag        |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2379            | 2.0                | 0.4             | 0.8               | 11990                   | 1.75             |
|                          |                        |  |            |                          |                        |          | Ra          |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.77             |
|                          |                        |  |            |                          |                        |          | R1          |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 593             | 2.0                | 0.4             | 0.8               | 2989                    | 1.70             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 70   | HML        | 12 axle A-double         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 453                      | 2.0             | 0.4                | 0.8             | 2283              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2538                     | 2.0             | 0.4                | 0.8             | 12792             | 1.64                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 453                      | 2.0             | 0.4                | 0.8             | 2283              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 625                      | 2.0             | 0.4                | 0.8             | 3150              | 1.61                    |                  |
| BR11                     | SM1600                 | 71   | GML        | 12 Axle Modular B-triple | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2277                     | 2.0             | 0.4                | 0.8             | 11476             | 1.83                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 568                      | 2.0             | 0.4                | 0.8             | 2863              | 1.77                    |                  |
| BR11                     | SM1600                 | 72   | CML        | 12 Axle Modular B-triple | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.76                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2379                     | 2.0             | 0.4                | 0.8             | 11990             | 1.75                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.77                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 593                      | 2.0             | 0.4                | 0.8             | 2989              | 1.70                    |                  |
| BR11                     | SM1600                 | 73   | HML        | 12 Axle Modular B-triple | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 453                      | 2.0             | 0.4                | 0.8             | 2283              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2538                     | 2.0             | 0.4                | 0.8             | 12792             | 1.64                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 453                      | 2.0             | 0.4                | 0.8             | 2283              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 625                      | 2.0             | 0.4                | 0.8             | 3150              | 1.61                    |                  |
| BR11                     | SM1600                 | 74   | GML        | 12 Axle B-triple         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2277                     | 2.0             | 0.4                | 0.8             | 11476             | 1.83                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 568                      | 2.0             | 0.4                | 0.8             | 2863              | 1.77                    |                  |
| BR11                     | SM1600                 | 75   | CML        | 12 Axle B-triple         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.76                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2379                     | 2.0             | 0.4                | 0.8             | 11990             | 1.75                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.77                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 593                      | 2.0             | 0.4                | 0.8             | 2989              | 1.70                    |                  |
| BR11                     | SM1600                 | 76   | HML        | 12 Axle B-triple         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 453                      | 2.0             | 0.4                | 0.8             | 2283              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2538                     | 2.0             | 0.4                | 0.8             | 12792             | 1.64                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 453                      | 2.0             | 0.4                | 0.8             | 2283              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 625                      | 2.0             | 0.4                | 0.8             | 3150              | 1.61                    |                  |
| BR11                     | SM1600                 | 77   | GML        | 14 Axle B-triple         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 402                      | 2.0             | 0.4                | 0.8             | 2026              | 1.86                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2241                     | 2.0             | 0.4                | 0.8             | 11295             | 1.86                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 402                      | 2.0             | 0.4                | 0.8             | 2026              | 1.86                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 625                      | 2.0             | 0.4                | 0.8             | 3150              | 1.61                    |                  |
| BR11                     | SM1600                 | 78   | CML        | 14 Axle B-triple         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 420                      | 2.0             | 0.4                | 0.8             | 2117              | 1.78                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2331                     | 2.0             | 0.4                | 0.8             | 11748             | 1.79                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 420                      | 2.0             | 0.4                | 0.8             | 2117              | 1.78                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 651                      | 2.0             | 0.4                | 0.8             | 3281              | 1.55                    |                  |
| BR11                     | SM1600                 | 79   | HML        | 14 Axle B-triple         | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 442                      | 2.0             | 0.4                | 0.8             | 2228              | 1.69                    |                  |
|                          |                        |  |            |                          |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2446                     | 2.0             | 0.4                | 0.8             | 12328             | 1.70                    |                  |
|                          |                        |  |            |                          |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 442                      | 2.0             | 0.4                | 0.8             | 2228              | 1.69                    |                  |
|                          |                        |  |            |                          |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 678                      | 2.0             | 0.4                | 0.8             | 3417              | 1.48                    |                  |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 80   | GML        | 15 Axle AB-triple        | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2277            | 2.0                | 0.4             | 0.8               | 11476                   | 1.83             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 637             | 2.0                | 0.4             | 0.8               | 3210                    | 1.58             |
| BR11                     | SM1600                 | 81   | CML        | 15 Axle AB-triple        | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.76             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2379            | 2.0                | 0.4             | 0.8               | 11990                   | 1.75             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.77             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 667             | 2.0                | 0.4             | 0.8               | 3362                    | 1.51             |
| BR11                     | SM1600                 | 82   | HML        | 15 Axle AB-triple        | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 1.65             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2538            | 2.0                | 0.4             | 0.8               | 12792                   | 1.64             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 1.65             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 707             | 2.0                | 0.4             | 0.8               | 3563                    | 1.42             |
| BR11                     | SM1600                 | 83   | GML        | 16 Axle A-triple         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 402             | 2.0                | 0.4             | 0.8               | 2026                    | 1.86             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2241            | 2.0                | 0.4             | 0.8               | 11295                   | 1.86             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 402             | 2.0                | 0.4             | 0.8               | 2026                    | 1.86             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 653             | 2.0                | 0.4             | 0.8               | 3291                    | 1.54             |
| BR11                     | SM1600                 | 84   | CML        | 16 Axle A-triple         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 419             | 2.0                | 0.4             | 0.8               | 2112                    | 1.79             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2331            | 2.0                | 0.4             | 0.8               | 11748                   | 1.79             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 419             | 2.0                | 0.4             | 0.8               | 2112                    | 1.79             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 680             | 2.0                | 0.4             | 0.8               | 3427                    | 1.48             |
| BR11                     | SM1600                 | 85   | HML        | 16 Axle A-triple         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 440             | 2.0                | 0.4             | 0.8               | 2218                    | 1.70             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2420            | 2.0                | 0.4             | 0.8               | 12197                   | 1.72             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 440             | 2.0                | 0.4             | 0.8               | 2218                    | 1.70             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 705             | 2.0                | 0.4             | 0.8               | 3553                    | 1.43             |
| BR11                     | SM1600                 | 86   | GML        | 18 Axle A-triple         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2277            | 2.0                | 0.4             | 0.8               | 11476                   | 1.83             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 666             | 2.0                | 0.4             | 0.8               | 3357                    | 1.51             |
| BR11                     | SM1600                 | 87   | CML        | 18 Axle A-triple         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.76             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2379            | 2.0                | 0.4             | 0.8               | 11990                   | 1.75             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.77             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 698             | 2.0                | 0.4             | 0.8               | 3518                    | 1.44             |
| BR11                     | SM1600                 | 88   | HML        | 18 Axle A-triple         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 1.65             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2538            | 2.0                | 0.4             | 0.8               | 12792                   | 1.64             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 1.65             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 742             | 2.0                | 0.4             | 0.8               | 3740                    | 1.36             |
| BR11                     | SM1600                 | 89   | GML        | 15 Axle AB-triple        | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          |             |                        | 4170            | 2.0                | 0.4             | 0.8               | 21017                    | 2277            | 2.0                | 0.4             | 0.8               | 11476                   | 1.83             |
|                          |                        |  |            |                          |                        |          |             |                        | 749             | 2.0                | 0.4             | 0.8               | 3775                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          |             |                        | 1006            | 2.0                | 0.4             | 0.8               | 5070                     | 637             | 2.0                | 0.4             | 0.8               | 3210                    | 1.58             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 90   | CML        | 15 Axle AB-triple        | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.76             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2379                     | 2.0             | 0.4                | 0.8             | 11990             | 1.75                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.77                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 667                      | 2.0             | 0.4                | 0.8             | 3362              | 1.51                    |                  |
| BR11                     | SM1600                 | 91   | HML        | 15 Axle AB-triple        | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 1.65             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2538                     | 2.0             | 0.4                | 0.8             | 12792             | 1.64                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 454                      | 2.0             | 0.4                | 0.8             | 2288              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 707                      | 2.0             | 0.4                | 0.8             | 3563              | 1.42                    |                  |
| BR11                     | SM1600                 | 92   | GML        | 17 Axle BAB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 403             | 2.0                | 0.4             | 0.8               | 2031                    | 1.86             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2277                     | 2.0             | 0.4                | 0.8             | 11476             | 1.83                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 403                      | 2.0             | 0.4                | 0.8             | 2031              | 1.86                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 662                      | 2.0             | 0.4                | 0.8             | 3336              | 1.52                    |                  |
| BR11                     | SM1600                 | 93   | CML        | 17 Axle BAB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 422             | 2.0                | 0.4             | 0.8               | 2127                    | 1.77             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2379                     | 2.0             | 0.4                | 0.8             | 11990             | 1.75                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 422                      | 2.0             | 0.4                | 0.8             | 2127              | 1.77                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 691                      | 2.0             | 0.4                | 0.8             | 3483              | 1.46                    |                  |
| BR11                     | SM1600                 | 94   | HML        | 17 Axle BAB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 448             | 2.0                | 0.4             | 0.8               | 2258                    | 1.67             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2506                     | 2.0             | 0.4                | 0.8             | 12630             | 1.66                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 448                      | 2.0             | 0.4                | 0.8             | 2258              | 1.67                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 726                      | 2.0             | 0.4                | 0.8             | 3659              | 1.39                    |                  |
| BR11                     | SM1600                 | 95   | GML        | 18 Axle BAB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 404             | 2.0                | 0.4             | 0.8               | 2036                    | 1.85             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2277                     | 2.0             | 0.4                | 0.8             | 11476             | 1.83                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 666                      | 2.0             | 0.4                | 0.8             | 3357              | 1.51                    |                  |
| BR11                     | SM1600                 | 96   | CML        | 18 Axle BAB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 424             | 2.0                | 0.4             | 0.8               | 2137                    | 1.76             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2379                     | 2.0             | 0.4                | 0.8             | 11990             | 1.75                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.77                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 698                      | 2.0             | 0.4                | 0.8             | 3518              | 1.44                    |                  |
| BR11                     | SM1600                 | 97   | HML        | 18 Axle BAB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 1.65             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2538                     | 2.0             | 0.4                | 0.8             | 12792             | 1.64                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 454                      | 2.0             | 0.4                | 0.8             | 2288              | 1.65                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 742                      | 2.0             | 0.4                | 0.8             | 3740              | 1.36                    |                  |
| BR11                     | SM1600                 | 98   | GML        | 17 Axle ABB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 403             | 2.0                | 0.4             | 0.8               | 2031                    | 1.86             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2253                     | 2.0             | 0.4                | 0.8             | 11355             | 1.85                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 403                      | 2.0             | 0.4                | 0.8             | 2031              | 1.86                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 659                      | 2.0             | 0.4                | 0.8             | 3321              | 1.53                    |                  |
| BR11                     | SM1600                 | 99   | CML        | 17 Axle ABB-Quad         | S1                     | 26       | V           | ULS                    | 748             | 2.0                | 0.4             | 0.8               | 3770                     | 423             | 2.0                | 0.4             | 0.8               | 2132                    | 1.77             |
|                          |                        |  |            |                          |                        |          | 4170        |                        | 2.0             | 0.4                | 0.8             | 21017             | 2368                     | 2.0             | 0.4                | 0.8             | 11935             | 1.76                    |                  |
|                          |                        |  |            |                          |                        |          | 749         |                        | 2.0             | 0.4                | 0.8             | 3775              | 423                      | 2.0             | 0.4                | 0.8             | 2132              | 1.77                    |                  |
|                          |                        |  |            |                          |                        |          | 1006        |                        | 2.0             | 0.4                | 0.8             | 5070              | 688                      | 2.0             | 0.4                | 0.8             | 3468              | 1.46                    |                  |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                              | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|------------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)     | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                              |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 100  | HML        | 17 Axle ABB-Quad             | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 452                      | 2.0             | 0.4                | 0.8             | 2278              | 1.65                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2537                     | 2.0             | 0.4                | 0.8             | 12786             | 1.64                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 452                      | 2.0             | 0.4                | 0.8             | 2278              | 1.66                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 724                      | 2.0             | 0.4                | 0.8             | 3649              | 1.39                    |                  |
| BR11                     | SM1600                 | 101  | GML        | 18 Axle ABB-Quad             | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2277                     | 2.0             | 0.4                | 0.8             | 11476             | 1.83                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 404                      | 2.0             | 0.4                | 0.8             | 2036              | 1.85                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 666                      | 2.0             | 0.4                | 0.8             | 3357              | 1.51                    |                  |
| BR11                     | SM1600                 | 102  | CML        | 18 Axle ABB-Quad             | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.76                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2379                     | 2.0             | 0.4                | 0.8             | 11990             | 1.75                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 424                      | 2.0             | 0.4                | 0.8             | 2137              | 1.77                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 698                      | 2.0             | 0.4                | 0.8             | 3518              | 1.44                    |                  |
| BR11                     | SM1600                 | 103  | HML        | 18 Axle ABB-Quad             | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 454                      | 2.0             | 0.4                | 0.8             | 2288              | 1.65                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 2538                     | 2.0             | 0.4                | 0.8             | 12792             | 1.64                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 454                      | 2.0             | 0.4                | 0.8             | 2288              | 1.65                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 742                      | 2.0             | 0.4                | 0.8             | 3740              | 1.36                    |                  |
| BR11                     | SM1600                 | 104  | GML        | 2 Axle Controlled Access Bus | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 168                      | 2.0             | 0.4                | 0.8             | 847               | 4.45                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 1012                     | 2.0             | 0.4                | 0.8             | 5100              | 4.12                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 168                      | 2.0             | 0.4                | 0.8             | 847               | 4.46                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 170                      | 2.0             | 0.4                | 0.8             | 857               | 5.92                    |                  |
| BR11                     | SM1600                 | 105  | GML        | 3 Axle Controlled Access Bus | S1                     | 26       | V           | 748                    | 2.0             | 0.4                | 0.8             | 3770              | 190                      | 2.0             | 0.4                | 0.8             | 958               | 3.94                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 4170                   | 2.0             | 0.4                | 0.8             | 21017             | 1146                     | 2.0             | 0.4                | 0.8             | 5776              | 3.64                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 749                    | 2.0             | 0.4                | 0.8             | 3775              | 190                      | 2.0             | 0.4                | 0.8             | 958               | 3.94                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 1006                   | 2.0             | 0.4                | 0.8             | 5070              | 193                      | 2.0             | 0.4                | 0.8             | 973               | 5.21                    |                  |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                         | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 1  | Max        | Prime mover and 2-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 402                      | 1.5                | 0.4             | 0.0               | 844                     | 4.47             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2269                     | 1.5                | 0.4             | 0.0               | 4765                    | 4.41             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 402                      | 1.5                | 0.4             | 0.0               | 844                     | 4.47             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 418                      | 1.5                | 0.4             | 0.0               | 878                     | 5.78             |
| BR11                     | SM1600                 | 2  | Min        | Prime mover and 3-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 327                      | 1.5                | 0.4             | 0.0               | 687                     | 5.49             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1936                     | 1.5                | 0.4             | 0.0               | 4066                    | 5.17             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 327                      | 1.5                | 0.4             | 0.0               | 687                     | 5.50             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 366                      | 1.5                | 0.4             | 0.0               | 769                     | 6.60             |
| BR11                     | SM1600                 | 3  | Max        | Prime mover and 3-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 427                      | 1.5                | 0.4             | 0.0               | 897                     | 4.20             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2316                     | 1.5                | 0.4             | 0.0               | 4864                    | 4.32             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 427                      | 1.5                | 0.4             | 0.0               | 897                     | 4.21             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 471                      | 1.5                | 0.4             | 0.0               | 989                     | 5.13             |
| BR11                     | SM1600                 | 4  | Min        | Prime mover and 4-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 5.68             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1925                     | 1.5                | 0.4             | 0.0               | 4043                    | 5.20             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 5.69             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 359                      | 1.5                | 0.4             | 0.0               | 754                     | 6.73             |
| BR11                     | SM1600                 | 5  | Max        | Prime mover and 4-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 531                      | 1.5                | 0.4             | 0.0               | 1115                    | 3.38             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2941                     | 1.5                | 0.4             | 0.0               | 6176                    | 3.40             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 531                      | 1.5                | 0.4             | 0.0               | 1115                    | 3.39             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 590                      | 1.5                | 0.4             | 0.0               | 1239                    | 4.09             |
| BR11                     | SM1600                 | 6  | Min        | Prime mover and 4-axle spread low loader trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 364                      | 1.5                | 0.4             | 0.0               | 764                     | 4.93             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1945                     | 1.5                | 0.4             | 0.0               | 4085                    | 5.15             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 364                      | 1.5                | 0.4             | 0.0               | 764                     | 4.94             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 413                      | 1.5                | 0.4             | 0.0               | 867                     | 5.85             |
| BR11                     | SM1600                 | 7  | Max        | Prime mover and 4-axle spread low loader trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 704                      | 1.5                | 0.4             | 0.0               | 1478                    | 2.55             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4030                     | 1.5                | 0.4             | 0.0               | 8463                    | 2.48             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 704                      | 1.5                | 0.4             | 0.0               | 1478                    | 2.55             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 766                      | 1.5                | 0.4             | 0.0               | 1609                    | 3.15             |
| BR11                     | SM1600                 | 8  | Min        | Prime mover and 5-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 494                      | 1.5                | 0.4             | 0.0               | 1037                    | 3.63             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2721                     | 1.5                | 0.4             | 0.0               | 5714                    | 3.68             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 494                      | 1.5                | 0.4             | 0.0               | 1037                    | 3.64             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 541                      | 1.5                | 0.4             | 0.0               | 1136                    | 4.46             |
| BR11                     | SM1600                 | 9  | Max        | Prime mover and 5-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 816                      | 1.5                | 0.4             | 0.0               | 1714                    | 2.20             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4754                     | 1.5                | 0.4             | 0.0               | 9983                    | 2.11             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 816                      | 1.5                | 0.4             | 0.0               | 1714                    | 2.20             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 874                      | 1.5                | 0.4             | 0.0               | 1835                    | 2.76             |
| BR11                     | SM1600                 | 10   | Min        | Prime mover and 6-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 304                      | 1.5                | 0.4             | 0.0               | 638                     | 5.91             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1681                     | 1.5                | 0.4             | 0.0               | 3530                    | 5.95             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 304                      | 1.5                | 0.4             | 0.0               | 638                     | 5.91             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 369                      | 1.5                | 0.4             | 0.0               | 775                     | 6.54             |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                 | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 11   | Max        | Prime mover and 6-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 845                      | 1.5                | 0.4             | 0.0               | 1775                    | 2.12             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4922                     | 1.5                | 0.4             | 0.0               | 10336                   | 2.03             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 845                      | 1.5                | 0.4             | 0.0               | 1775                    | 2.13             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 961                      | 1.5                | 0.4             | 0.0               | 2018                    | 2.51             |
| BR11                     | SM1600                 | 12   | Min        | Prime mover and 7-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 348                      | 1.5                | 0.4             | 0.0               | 731                     | 5.16             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1956                     | 1.5                | 0.4             | 0.0               | 4108                    | 5.12             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 348                      | 1.5                | 0.4             | 0.0               | 731                     | 5.17             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 439                      | 1.5                | 0.4             | 0.0               | 922                     | 5.50             |
| BR11                     | SM1600                 | 13   | Max        | Prime mover and 7-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1047                     | 1.5                | 0.4             | 0.0               | 2199                    | 1.71             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6240                     | 1.5                | 0.4             | 0.0               | 13104                   | 1.60             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1047                     | 1.5                | 0.4             | 0.0               | 2199                    | 1.72             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1213                     | 1.5                | 0.4             | 0.0               | 2547                    | 1.99             |
| BR11                     | SM1600                 | 14   | Min        | Prime mover and 8-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 325                      | 1.5                | 0.4             | 0.0               | 683                     | 5.52             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1920                     | 1.5                | 0.4             | 0.0               | 4032                    | 5.21             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 325                      | 1.5                | 0.4             | 0.0               | 683                     | 5.53             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 449                      | 1.5                | 0.4             | 0.0               | 943                     | 5.38             |
| BR11                     | SM1600                 | 15   | Max        | Prime mover and 8-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1016                     | 1.5                | 0.4             | 0.0               | 2134                    | 1.77             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6273                     | 1.5                | 0.4             | 0.0               | 13173                   | 1.60             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1016                     | 1.5                | 0.4             | 0.0               | 2134                    | 1.77             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1229                     | 1.5                | 0.4             | 0.0               | 2581                    | 1.96             |
| BR11                     | SM1600                 | 16   | Min        | Prime mover and 9-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 306                      | 1.5                | 0.4             | 0.0               | 643                     | 5.87             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1613                     | 1.5                | 0.4             | 0.0               | 3387                    | 6.20             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 306                      | 1.5                | 0.4             | 0.0               | 643                     | 5.87             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 413                      | 1.5                | 0.4             | 0.0               | 867                     | 5.85             |
| BR11                     | SM1600                 | 17   | Max        | Prime mover and 9-axle platform trailer  | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 970                      | 1.5                | 0.4             | 0.0               | 2037                    | 1.85             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5955                     | 1.5                | 0.4             | 0.0               | 12506                   | 1.68             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 970                      | 1.5                | 0.4             | 0.0               | 2037                    | 1.85             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1199                     | 1.5                | 0.4             | 0.0               | 2518                    | 2.01             |
| BR11                     | SM1600                 | 18   | Min        | Prime mover and 10-axle platform trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 384                      | 1.5                | 0.4             | 0.0               | 806                     | 4.68             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2293                     | 1.5                | 0.4             | 0.0               | 4815                    | 4.36             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 384                      | 1.5                | 0.4             | 0.0               | 806                     | 4.68             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 552                      | 1.5                | 0.4             | 0.0               | 1159                    | 4.37             |
| BR11                     | SM1600                 | 19   | Max        | Prime mover and 10-axle platform trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1025                     | 1.5                | 0.4             | 0.0               | 2153                    | 1.75             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6256                     | 1.5                | 0.4             | 0.0               | 13138                   | 1.60             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1025                     | 1.5                | 0.4             | 0.0               | 2153                    | 1.75             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1318                     | 1.5                | 0.4             | 0.0               | 2768                    | 1.83             |
| BR11                     | SM1600                 | 20   | Min        | Prime mover and 11-axle platform trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 320                      | 1.5                | 0.4             | 0.0               | 672                     | 5.61             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1674                     | 1.5                | 0.4             | 0.0               | 3515                    | 5.98             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 320                      | 1.5                | 0.4             | 0.0               | 672                     | 5.62             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 435                      | 1.5                | 0.4             | 0.0               | 914                     | 5.55             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 21   | Max        | Prime mover and 11-axle platform trailer                       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1015                     | 1.5                | 0.4             | 0.0               | 2132                    | 1.77             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6274                     | 1.5                | 0.4             | 0.0               | 13175                   | 1.60             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1015                     | 1.5                | 0.4             | 0.0               | 2132                    | 1.77             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1313                     | 1.5                | 0.4             | 0.0               | 2757                    | 1.84             |
| BR11                     | SM1600                 | 22   | Min        | Prime mover and 12-axle platform trailer                       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 340                      | 1.5                | 0.4             | 0.0               | 714                     | 5.28             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1882                     | 1.5                | 0.4             | 0.0               | 3952                    | 5.32             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 340                      | 1.5                | 0.4             | 0.0               | 714                     | 5.29             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 492                      | 1.5                | 0.4             | 0.0               | 1033                    | 4.91             |
| BR11                     | SM1600                 | 23   | Max        | Prime mover and 12-axle platform trailer                       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 984                      | 1.5                | 0.4             | 0.0               | 2066                    | 1.82             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6040                     | 1.5                | 0.4             | 0.0               | 12684                   | 1.66             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 984                      | 1.5                | 0.4             | 0.0               | 2066                    | 1.83             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1319                     | 1.5                | 0.4             | 0.0               | 2770                    | 1.83             |
| BR11                     | SM1600                 | 24   | Min        | Prime mover and 16-axle platform trailer                       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 679                      | 1.5                | 0.4             | 0.0               | 1426                    | 2.64             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4154                     | 1.5                | 0.4             | 0.0               | 8723                    | 2.41             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 679                      | 1.5                | 0.4             | 0.0               | 1426                    | 2.65             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1076                     | 1.5                | 0.4             | 0.0               | 2260                    | 2.24             |
| BR11                     | SM1600                 | 25   | Max        | Prime mover and 16-axle platform trailer                       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 679                      | 1.5                | 0.4             | 0.0               | 1426                    | 2.64             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4154                     | 1.5                | 0.4             | 0.0               | 8723                    | 2.41             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 679                      | 1.5                | 0.4             | 0.0               | 1426                    | 2.65             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1076                     | 1.5                | 0.4             | 0.0               | 2260                    | 2.24             |
| BR11                     | SM1600                 | 26   | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 398                      | 1.5                | 0.4             | 0.0               | 836                     | 4.51             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2234                     | 1.5                | 0.4             | 0.0               | 4691                    | 4.48             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 398                      | 1.5                | 0.4             | 0.0               | 836                     | 4.52             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 490                      | 1.5                | 0.4             | 0.0               | 1029                    | 4.93             |
| BR11                     | SM1600                 | 27   | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 646                      | 1.5                | 0.4             | 0.0               | 1357                    | 2.78             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 3228                     | 1.5                | 0.4             | 0.0               | 6779                    | 3.10             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 646                      | 1.5                | 0.4             | 0.0               | 1357                    | 2.78             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 732                      | 1.5                | 0.4             | 0.0               | 1537                    | 3.30             |
| BR11                     | SM1600                 | 28   | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 380                      | 1.5                | 0.4             | 0.0               | 798                     | 4.72             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2251                     | 1.5                | 0.4             | 0.0               | 4727                    | 4.45             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 380                      | 1.5                | 0.4             | 0.0               | 798                     | 4.73             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 483                      | 1.5                | 0.4             | 0.0               | 1014                    | 5.00             |
| BR11                     | SM1600                 | 29   | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 586                      | 1.5                | 0.4             | 0.0               | 1231                    | 3.06             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 3014                     | 1.5                | 0.4             | 0.0               | 6329                    | 3.32             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 586                      | 1.5                | 0.4             | 0.0               | 1231                    | 3.07             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 709                      | 1.5                | 0.4             | 0.0               | 1489                    | 3.41             |
| BR11                     | SM1600                 | 30   | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 281                      | 1.5                | 0.4             | 0.0               | 590                     | 6.39             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 1630                     | 1.5                | 0.4             | 0.0               | 3423                    | 6.14             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 281                      | 1.5                | 0.4             | 0.0               | 590                     | 6.40             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 343                      | 1.5                | 0.4             | 0.0               | 720                     | 7.04             |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 31   | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 699                      | 1.5                | 0.4             | 0.0               | 1468                    | 2.57             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 3565                     | 1.5                | 0.4             | 0.0               | 7487                    | 2.81             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 699                      | 1.5                | 0.4             | 0.0               | 1468                    | 2.57             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 806                      | 1.5                | 0.4             | 0.0               | 1693                    | 3.00             |
| BR11                     | SM1600                 | 32   | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 399                      | 1.5                | 0.4             | 0.0               | 838                     | 4.50             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2138                     | 1.5                | 0.4             | 0.0               | 4490                    | 4.68             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 399                      | 1.5                | 0.4             | 0.0               | 838                     | 4.51             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 509                      | 1.5                | 0.4             | 0.0               | 1069                    | 4.74             |
| BR11                     | SM1600                 | 33   | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 850                      | 1.5                | 0.4             | 0.0               | 1785                    | 2.11             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4673                     | 1.5                | 0.4             | 0.0               | 9813                    | 2.14             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 850                      | 1.5                | 0.4             | 0.0               | 1785                    | 2.11             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 975                      | 1.5                | 0.4             | 0.0               | 2048                    | 2.48             |
| BR11                     | SM1600                 | 34   | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 518                      | 1.5                | 0.4             | 0.0               | 1088                    | 3.47             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 2881                     | 1.5                | 0.4             | 0.0               | 6050                    | 3.47             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 518                      | 1.5                | 0.4             | 0.0               | 1088                    | 3.47             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 658                      | 1.5                | 0.4             | 0.0               | 1382                    | 3.67             |
| BR11                     | SM1600                 | 35   | Max        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 901                      | 1.5                | 0.4             | 0.0               | 1892                    | 1.99             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5204                     | 1.5                | 0.4             | 0.0               | 10928                   | 1.92             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 901                      | 1.5                | 0.4             | 0.0               | 1892                    | 2.00             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1122                     | 1.5                | 0.4             | 0.0               | 2356                    | 2.15             |
| BR11                     | SM1600                 | 36   | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 528                      | 1.5                | 0.4             | 0.0               | 1109                    | 3.40             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 3164                     | 1.5                | 0.4             | 0.0               | 6644                    | 3.16             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 528                      | 1.5                | 0.4             | 0.0               | 1109                    | 3.40             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 705                      | 1.5                | 0.4             | 0.0               | 1481                    | 3.42             |
| BR11                     | SM1600                 | 37   | Max        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1383                     | 1.5                | 0.4             | 0.0               | 2904                    | 1.30             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 8148                     | 1.5                | 0.4             | 0.0               | 17111                   | 1.23             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1383                     | 1.5                | 0.4             | 0.0               | 2904                    | 1.30             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1669                     | 1.5                | 0.4             | 0.0               | 3505                    | 1.45             |
| BR11                     | SM1600                 | 38   | Min        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 914                      | 1.5                | 0.4             | 0.0               | 1919                    | 1.96             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5332                     | 1.5                | 0.4             | 0.0               | 11197                   | 1.88             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 914                      | 1.5                | 0.4             | 0.0               | 1919                    | 1.97             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1188                     | 1.5                | 0.4             | 0.0               | 2495                    | 2.03             |
| BR11                     | SM1600                 | 39   | Max        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1070                     | 1.5                | 0.4             | 0.0               | 2247                    | 1.68             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6295                     | 1.5                | 0.4             | 0.0               | 13220                   | 1.59             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1070                     | 1.5                | 0.4             | 0.0               | 2247                    | 1.68             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1368                     | 1.5                | 0.4             | 0.0               | 2873                    | 1.76             |
| BR11                     | SM1600                 | 40   | Min        | Prime mover, 2 axle dolly and 9-axle platform trailer          | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 996                      | 1.5                | 0.4             | 0.0               | 2092                    | 1.80             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5955                     | 1.5                | 0.4             | 0.0               | 12506                   | 1.68             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 996                      | 1.5                | 0.4             | 0.0               | 2092                    | 1.80             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1331                     | 1.5                | 0.4             | 0.0               | 2795                    | 1.81             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                     | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR11                     | SM1600                 | 41   | Max        | Prime mover, 2 axle dolly and 9-axle platform trailer        | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1008                     | 1.5                | 0.4             | 0.0               | 2117                    | 1.78             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5964                     | 1.5                | 0.4             | 0.0               | 12524                   | 1.68             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1008                     | 1.5                | 0.4             | 0.0               | 2117                    | 1.78             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1331                     | 1.5                | 0.4             | 0.0               | 2795                    | 1.81             |
| BR11                     | SM1600                 | 42   | Min        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 833                      | 1.5                | 0.4             | 0.0               | 1749                    | 2.16             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5012                     | 1.5                | 0.4             | 0.0               | 10525                   | 2.00             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 833                      | 1.5                | 0.4             | 0.0               | 1749                    | 2.16             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1160                     | 1.5                | 0.4             | 0.0               | 2436                    | 2.08             |
| BR11                     | SM1600                 | 43   | Max        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1238                     | 1.5                | 0.4             | 0.0               | 2600                    | 1.45             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 7515                     | 1.5                | 0.4             | 0.0               | 15782                   | 1.33             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1238                     | 1.5                | 0.4             | 0.0               | 2600                    | 1.45             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1649                     | 1.5                | 0.4             | 0.0               | 3463                    | 1.46             |
| BR11                     | SM1600                 | 44   | Min        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 921                      | 1.5                | 0.4             | 0.0               | 1934                    | 1.95             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5760                     | 1.5                | 0.4             | 0.0               | 12096                   | 1.74             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 921                      | 1.5                | 0.4             | 0.0               | 1934                    | 1.95             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1351                     | 1.5                | 0.4             | 0.0               | 2837                    | 1.79             |
| BR11                     | SM1600                 | 45   | Max        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1062                     | 1.5                | 0.4             | 0.0               | 2230                    | 1.69             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6529                     | 1.5                | 0.4             | 0.0               | 13711                   | 1.53             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1062                     | 1.5                | 0.4             | 0.0               | 2230                    | 1.69             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1489                     | 1.5                | 0.4             | 0.0               | 3127                    | 1.62             |
| BR11                     | SM1600                 | 46   | Min        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 925                      | 1.5                | 0.4             | 0.0               | 1943                    | 1.94             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 5736                     | 1.5                | 0.4             | 0.0               | 12046                   | 1.74             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 925                      | 1.5                | 0.4             | 0.0               | 1943                    | 1.94             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1379                     | 1.5                | 0.4             | 0.0               | 2896                    | 1.75             |
| BR11                     | SM1600                 | 47   | Max        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 1076                     | 1.5                | 0.4             | 0.0               | 2260                    | 1.67             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 6678                     | 1.5                | 0.4             | 0.0               | 14024                   | 1.50             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 1076                     | 1.5                | 0.4             | 0.0               | 2260                    | 1.67             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 1566                     | 1.5                | 0.4             | 0.0               | 3289                    | 1.54             |
| BR11                     | SM1600                 | 48   | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 598                      | 1.5                | 0.4             | 0.0               | 1256                    | 3.00             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 3538                     | 1.5                | 0.4             | 0.0               | 7430                    | 2.83             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 598                      | 1.5                | 0.4             | 0.0               | 1256                    | 3.01             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 651                      | 1.5                | 0.4             | 0.0               | 1367                    | 3.71             |
| BR11                     | SM1600                 | 49   | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1                     | 26       | V           | ULS           | 748                    | 2.0                | 0.4             | 0.8               | 3770                   | 711                      | 1.5                | 0.4             | 0.0               | 1493                    | 2.52             |
|                          |                        |  |            |  | S1                     | 26       | Msag        | ULS           | 4170                   | 2.0                | 0.4             | 0.8               | 21017                  | 4301                     | 1.5                | 0.4             | 0.0               | 9032                    | 2.33             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 749                    | 2.0                | 0.4             | 0.8               | 3775                   | 711                      | 1.5                | 0.4             | 0.0               | 1493                    | 2.53             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 1006                   | 2.0                | 0.4             | 0.8               | 5070                   | 769                      | 1.5                | 0.4             | 0.0               | 1615                    | 3.14             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 50   | GML        | 7 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 268             | 2.0                | 0.4             | 0.8               | 1351                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 882             | 2.0                | 0.4             | 0.8               | 4445                    | 1.36             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 268             | 2.0                | 0.4             | 0.8               | 1351                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 370             | 2.0                | 0.4             | 0.8               | 1865                    | 0.98             |
| BR23                     | T44                    | 51   | CML        | 7 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 1.21             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 904             | 2.0                | 0.4             | 0.8               | 4556                    | 1.33             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 1.21             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 377             | 2.0                | 0.4             | 0.8               | 1900                    | 0.97             |
| BR23                     | T44                    | 52   | HML        | 7 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 1.21             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 904             | 2.0                | 0.4             | 0.8               | 4556                    | 1.33             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 272             | 2.0                | 0.4             | 0.8               | 1371                    | 1.21             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 377             | 2.0                | 0.4             | 0.8               | 1900                    | 0.97             |
| BR23                     | T44                    | 53   | GML        | 8 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 270             | 2.0                | 0.4             | 0.8               | 1361                    | 1.22             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 872             | 2.0                | 0.4             | 0.8               | 4395                    | 1.38             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 270             | 2.0                | 0.4             | 0.8               | 1361                    | 1.22             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 381             | 2.0                | 0.4             | 0.8               | 1920                    | 0.96             |
| BR23                     | T44                    | 54   | CML        | 8 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 281             | 2.0                | 0.4             | 0.8               | 1416                    | 1.17             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 900             | 2.0                | 0.4             | 0.8               | 4536                    | 1.33             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 281             | 2.0                | 0.4             | 0.8               | 1416                    | 1.17             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 396             | 2.0                | 0.4             | 0.8               | 1996                    | 0.92             |
| BR23                     | T44                    | 55   | HML        | 8 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 295             | 2.0                | 0.4             | 0.8               | 1487                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 929             | 2.0                | 0.4             | 0.8               | 4682                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 295             | 2.0                | 0.4             | 0.8               | 1487                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 410             | 2.0                | 0.4             | 0.8               | 2066                    | 0.89             |
| BR23                     | T44                    | 56   | GML        | 8 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 263             | 2.0                | 0.4             | 0.8               | 1326                    | 1.25             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 880             | 2.0                | 0.4             | 0.8               | 4435                    | 1.36             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 263             | 2.0                | 0.4             | 0.8               | 1326                    | 1.25             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 378             | 2.0                | 0.4             | 0.8               | 1905                    | 0.96             |
| BR23                     | T44                    | 57   | CML        | 8 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 274             | 2.0                | 0.4             | 0.8               | 1381                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 904             | 2.0                | 0.4             | 0.8               | 4556                    | 1.33             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 274             | 2.0                | 0.4             | 0.8               | 1381                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 391             | 2.0                | 0.4             | 0.8               | 1971                    | 0.93             |
| BR23                     | T44                    | 58   | HML        | 8 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 288             | 2.0                | 0.4             | 0.8               | 1452                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 928             | 2.0                | 0.4             | 0.8               | 4677                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 288             | 2.0                | 0.4             | 0.8               | 1452                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 399             | 2.0                | 0.4             | 0.8               | 2011                    | 0.91             |
| BR23                     | T44                    | 59   | GML        | 9 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 270             | 2.0                | 0.4             | 0.8               | 1361                    | 1.22             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 872             | 2.0                | 0.4             | 0.8               | 4395                    | 1.38             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 270             | 2.0                | 0.4             | 0.8               | 1361                    | 1.22             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 392             | 2.0                | 0.4             | 0.8               | 1976                    | 0.93             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 60   | CML        | 9 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 281             | 2.0                | 0.4             | 0.8               | 1416                    | 1.17             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 900                      | 2.0             | 0.4                | 0.8             | 4536              | 1.33                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 281                      | 2.0             | 0.4                | 0.8             | 1416              | 1.17                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 409                      | 2.0             | 0.4                | 0.8             | 2061              | 0.89                    |                  |
| BR23                     | T44                    | 61   | HML        | 9 axle B-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 297             | 2.0                | 0.4             | 0.8               | 1497                    | 1.11             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 946                      | 2.0             | 0.4                | 0.8             | 4768              | 1.27                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 297                      | 2.0             | 0.4                | 0.8             | 1497              | 1.11                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 431                      | 2.0             | 0.4                | 0.8             | 2172              | 0.84                    |                  |
| BR23                     | T44                    | 62   | GML        | 9 axle A-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 270             | 2.0                | 0.4             | 0.8               | 1361                    | 1.22             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 901                      | 2.0             | 0.4                | 0.8             | 4541              | 1.33                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 270                      | 2.0             | 0.4                | 0.8             | 1361              | 1.22                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 408                      | 2.0             | 0.4                | 0.8             | 2056              | 0.89                    |                  |
| BR23                     | T44                    | 63   | CML        | 9 axle A-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 278             | 2.0                | 0.4             | 0.8               | 1401                    | 1.19             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 926                      | 2.0             | 0.4                | 0.8             | 4667              | 1.29                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 278                      | 2.0             | 0.4                | 0.8             | 1401              | 1.19                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 420                      | 2.0             | 0.4                | 0.8             | 2117              | 0.87                    |                  |
| BR23                     | T44                    | 64   | HML        | 9 axle A-double          | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 278             | 2.0                | 0.4             | 0.8               | 1401                    | 1.19             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 926                      | 2.0             | 0.4                | 0.8             | 4667              | 1.29                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 278                      | 2.0             | 0.4                | 0.8             | 1401              | 1.19                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 420                      | 2.0             | 0.4                | 0.8             | 2117              | 0.87                    |                  |
| BR23                     | T44                    | 65   | GML        | 11 axle A-double         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 896                      | 2.0             | 0.4                | 0.8             | 4516              | 1.34                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 1.20                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 418                      | 2.0             | 0.4                | 0.8             | 2107              | 0.87                    |                  |
| BR23                     | T44                    | 66   | CML        | 11 axle A-double         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 926                      | 2.0             | 0.4                | 0.8             | 4667              | 1.29                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 286                      | 2.0             | 0.4                | 0.8             | 1441              | 1.15                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 435                      | 2.0             | 0.4                | 0.8             | 2192              | 0.84                    |                  |
| BR23                     | T44                    | 67   | HML        | 11 axle A-double         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 300             | 2.0                | 0.4             | 0.8               | 1512                    | 1.10             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 960                      | 2.0             | 0.4                | 0.8             | 4838              | 1.25                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 300                      | 2.0             | 0.4                | 0.8             | 1512              | 1.10                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 451                      | 2.0             | 0.4                | 0.8             | 2273              | 0.81                    |                  |
| BR23                     | T44                    | 68   | GML        | 12 axle A-double         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 896                      | 2.0             | 0.4                | 0.8             | 4516              | 1.34                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 1.20                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 418                      | 2.0             | 0.4                | 0.8             | 2107              | 0.87                    |                  |
| BR23                     | T44                    | 69   | CML        | 12 axle A-double         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          | 1199        |                        | 2.0             | 0.4                | 0.8             | 6043              | 926                      | 2.0             | 0.4                | 0.8             | 4667              | 1.29                    |                  |
|                          |                        |  |            |                          |                        |          | 330         |                        | 2.0             | 0.4                | 0.8             | 1663              | 286                      | 2.0             | 0.4                | 0.8             | 1441              | 1.15                    |                  |
|                          |                        |  |            |                          |                        |          | 364         |                        | 2.0             | 0.4                | 0.8             | 1835              | 437                      | 2.0             | 0.4                | 0.8             | 2202              | 0.83                    |                  |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 70   | HML        | 12 axle A-double         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 463             | 2.0                | 0.4             | 0.8               | 2334                    | 0.79             |
| BR23                     | T44                    | 71   | GML        | 12 Axle Modular B-triple | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 72   | CML        | 12 Axle Modular B-triple | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 437             | 2.0                | 0.4             | 0.8               | 2202                    | 0.83             |
| BR23                     | T44                    | 73   | HML        | 12 Axle Modular B-triple | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 463             | 2.0                | 0.4             | 0.8               | 2334                    | 0.79             |
| BR23                     | T44                    | 74   | GML        | 12 Axle B-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 75   | CML        | 12 Axle B-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 437             | 2.0                | 0.4             | 0.8               | 2202                    | 0.83             |
| BR23                     | T44                    | 76   | HML        | 12 Axle B-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 463             | 2.0                | 0.4             | 0.8               | 2334                    | 0.79             |
| BR23                     | T44                    | 77   | GML        | 14 Axle B-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 78   | CML        | 14 Axle B-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 435             | 2.0                | 0.4             | 0.8               | 2192                    | 0.84             |
| BR23                     | T44                    | 79   | HML        | 14 Axle B-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 302             | 2.0                | 0.4             | 0.8               | 1522                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 302             | 2.0                | 0.4             | 0.8               | 1522                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 454             | 2.0                | 0.4             | 0.8               | 2288                    | 0.80             |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 80   | GML        | 15 Axle AB-triple        | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 81   | CML        | 15 Axle AB-triple        | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 438             | 2.0                | 0.4             | 0.8               | 2208                    | 0.83             |
| BR23                     | T44                    | 82   | HML        | 15 Axle AB-triple        | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 469             | 2.0                | 0.4             | 0.8               | 2364                    | 0.78             |
| BR23                     | T44                    | 83   | GML        | 16 Axle A-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 84   | CML        | 16 Axle A-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 435             | 2.0                | 0.4             | 0.8               | 2192                    | 0.84             |
| BR23                     | T44                    | 85   | HML        | 16 Axle A-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 300             | 2.0                | 0.4             | 0.8               | 1512                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 960             | 2.0                | 0.4             | 0.8               | 4838                    | 1.25             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 300             | 2.0                | 0.4             | 0.8               | 1512                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 452             | 2.0                | 0.4             | 0.8               | 2278                    | 0.81             |
| BR23                     | T44                    | 86   | GML        | 18 Axle A-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 87   | CML        | 18 Axle A-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 438             | 2.0                | 0.4             | 0.8               | 2208                    | 0.83             |
| BR23                     | T44                    | 88   | HML        | 18 Axle A-triple         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 469             | 2.0                | 0.4             | 0.8               | 2364                    | 0.78             |
| BR23                     | T44                    | 89   | GML        | 15 Axle AB-triple        | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 90   | CML        | 15 Axle AB-triple        | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 438             | 2.0                | 0.4             | 0.8               | 2208                    | 0.83             |
| BR23                     | T44                    | 91   | HML        | 15 Axle AB-triple        | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 469             | 2.0                | 0.4             | 0.8               | 2364                    | 0.78             |
| BR23                     | T44                    | 92   | GML        | 17 Axle BAB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 419             | 2.0                | 0.4             | 0.8               | 2112                    | 0.87             |
| BR23                     | T44                    | 93   | CML        | 17 Axle BAB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 438             | 2.0                | 0.4             | 0.8               | 2208                    | 0.83             |
| BR23                     | T44                    | 94   | HML        | 17 Axle BAB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 304             | 2.0                | 0.4             | 0.8               | 1532                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 461             | 2.0                | 0.4             | 0.8               | 2323                    | 0.79             |
| BR23                     | T44                    | 95   | GML        | 18 Axle BAB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 96   | CML        | 18 Axle BAB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 438             | 2.0                | 0.4             | 0.8               | 2208                    | 0.83             |
| BR23                     | T44                    | 97   | HML        | 18 Axle BAB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 972             | 2.0                | 0.4             | 0.8               | 4899                    | 1.23             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 306             | 2.0                | 0.4             | 0.8               | 1542                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 469             | 2.0                | 0.4             | 0.8               | 2364                    | 0.78             |
| BR23                     | T44                    | 98   | GML        | 17 Axle ABB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 896             | 2.0                | 0.4             | 0.8               | 4516                    | 1.34             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 275             | 2.0                | 0.4             | 0.8               | 1386                    | 1.20             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 418             | 2.0                | 0.4             | 0.8               | 2107                    | 0.87             |
| BR23                     | T44                    | 99   | CML        | 17 Axle ABB-Quad         | S1                     | 16       | V           | ULS                    | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 1199            | 2.0                | 0.4             | 0.8               | 6043                     | 926             | 2.0                | 0.4             | 0.8               | 4667                    | 1.29             |
|                          |                        |  |            |                          |                        |          |             |                        | 330             | 2.0                | 0.4             | 0.8               | 1663                     | 286             | 2.0                | 0.4             | 0.8               | 1441                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 364             | 2.0                | 0.4             | 0.8               | 1835                     | 435             | 2.0                | 0.4             | 0.8               | 2192                    | 0.84             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                              | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|------------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)     | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                              |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 100  | HML        | 17 Axle ABB-Quad             | S1                     | 16       | V           | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 306                      | 2.0             | 0.4                | 0.8             | 1542              | 1.08                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 1199                   | 2.0             | 0.4                | 0.8             | 6043              | 972                      | 2.0             | 0.4                | 0.8             | 4899              | 1.23                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 306                      | 2.0             | 0.4                | 0.8             | 1542              | 1.08                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 364                    | 2.0             | 0.4                | 0.8             | 1835              | 463                      | 2.0             | 0.4                | 0.8             | 2334              | 0.79                    |                  |
| BR23                     | T44                    | 101  | GML        | 18 Axle ABB-Quad             | S1                     | 16       | V           | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 1.20                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 1199                   | 2.0             | 0.4                | 0.8             | 6043              | 896                      | 2.0             | 0.4                | 0.8             | 4516              | 1.34                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 275                      | 2.0             | 0.4                | 0.8             | 1386              | 1.20                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 364                    | 2.0             | 0.4                | 0.8             | 1835              | 418                      | 2.0             | 0.4                | 0.8             | 2107              | 0.87                    |                  |
| BR23                     | T44                    | 102  | CML        | 18 Axle ABB-Quad             | S1                     | 16       | V           | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 286                      | 2.0             | 0.4                | 0.8             | 1441              | 1.15                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 1199                   | 2.0             | 0.4                | 0.8             | 6043              | 926                      | 2.0             | 0.4                | 0.8             | 4667              | 1.29                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 286                      | 2.0             | 0.4                | 0.8             | 1441              | 1.15                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 364                    | 2.0             | 0.4                | 0.8             | 1835              | 438                      | 2.0             | 0.4                | 0.8             | 2208              | 0.83                    |                  |
| BR23                     | T44                    | 103  | HML        | 18 Axle ABB-Quad             | S1                     | 16       | V           | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 306                      | 2.0             | 0.4                | 0.8             | 1542              | 1.08                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 1199                   | 2.0             | 0.4                | 0.8             | 6043              | 972                      | 2.0             | 0.4                | 0.8             | 4899              | 1.23                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 306                      | 2.0             | 0.4                | 0.8             | 1542              | 1.08                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 364                    | 2.0             | 0.4                | 0.8             | 1835              | 469                      | 2.0             | 0.4                | 0.8             | 2364              | 0.78                    |                  |
| BR23                     | T44                    | 104  | GML        | 2 Axle Controlled Access Bus | S1                     | 16       | V           | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 159                      | 2.0             | 0.4                | 0.8             | 801               | 2.08                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 1199                   | 2.0             | 0.4                | 0.8             | 6043              | 552                      | 2.0             | 0.4                | 0.8             | 2782              | 2.17                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 159                      | 2.0             | 0.4                | 0.8             | 801               | 2.08                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 364                    | 2.0             | 0.4                | 0.8             | 1835              | 161                      | 2.0             | 0.4                | 0.8             | 811               | 2.26                    |                  |
| BR23                     | T44                    | 105  | GML        | 3 Axle Controlled Access Bus | S1                     | 16       | V           | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 176                      | 2.0             | 0.4                | 0.8             | 887               | 1.88                    |                  |
|                          |                        |  |            |                              |                        |          | Msag        | 1199                   | 2.0             | 0.4                | 0.8             | 6043              | 625                      | 2.0             | 0.4                | 0.8             | 3150              | 1.92                    |                  |
|                          |                        |  |            |                              |                        |          | Ra          | 330                    | 2.0             | 0.4                | 0.8             | 1663              | 176                      | 2.0             | 0.4                | 0.8             | 887               | 1.88                    |                  |
|                          |                        |  |            |                              |                        |          | R1          | 364                    | 2.0             | 0.4                | 0.8             | 1835              | 183                      | 2.0             | 0.4                | 0.8             | 922               | 1.99                    |                  |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                         | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 1  | Max        | Prime mover and 2-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 343                      | 1.5                | 0.4             | 0.0               | 720                     | 2.31             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1097                     | 1.5                | 0.4             | 0.0               | 2304                    | 2.62             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 343                      | 1.5                | 0.4             | 0.0               | 720                     | 2.31             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 370                      | 1.5                | 0.4             | 0.0               | 777                     | 2.36             |
| BR23                     | T44                    | 2  | Min        | Prime mover and 3-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 260                      | 1.5                | 0.4             | 0.0               | 546                     | 3.05             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 866                      | 1.5                | 0.4             | 0.0               | 1819                    | 3.32             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 260                      | 1.5                | 0.4             | 0.0               | 546                     | 3.05             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 322                      | 1.5                | 0.4             | 0.0               | 676                     | 2.71             |
| BR23                     | T44                    | 3  | Max        | Prime mover and 3-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 342                      | 1.5                | 0.4             | 0.0               | 718                     | 2.32             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1198                     | 1.5                | 0.4             | 0.0               | 2516                    | 2.40             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 342                      | 1.5                | 0.4             | 0.0               | 718                     | 2.32             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 393                      | 1.5                | 0.4             | 0.0               | 825                     | 2.22             |
| BR23                     | T44                    | 4  | Min        | Prime mover and 4-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 282                      | 1.5                | 0.4             | 0.0               | 592                     | 2.81             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1067                     | 1.5                | 0.4             | 0.0               | 2241                    | 2.70             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 282                      | 1.5                | 0.4             | 0.0               | 592                     | 2.81             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 305                      | 1.5                | 0.4             | 0.0               | 641                     | 2.86             |
| BR23                     | T44                    | 5  | Max        | Prime mover and 4-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 422                      | 1.5                | 0.4             | 0.0               | 886                     | 1.88             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1587                     | 1.5                | 0.4             | 0.0               | 3333                    | 1.81             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 422                      | 1.5                | 0.4             | 0.0               | 886                     | 1.88             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 493                      | 1.5                | 0.4             | 0.0               | 1035                    | 1.77             |
| BR23                     | T44                    | 6  | Min        | Prime mover and 4-axle spread low loader trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 264                      | 1.5                | 0.4             | 0.0               | 554                     | 3.00             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 918                      | 1.5                | 0.4             | 0.0               | 1928                    | 3.13             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 264                      | 1.5                | 0.4             | 0.0               | 554                     | 3.00             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 337                      | 1.5                | 0.4             | 0.0               | 708                     | 2.59             |
| BR23                     | T44                    | 7  | Max        | Prime mover and 4-axle spread low loader trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 588                      | 1.5                | 0.4             | 0.0               | 1235                    | 1.35             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2144                     | 1.5                | 0.4             | 0.0               | 4502                    | 1.34             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 588                      | 1.5                | 0.4             | 0.0               | 1235                    | 1.35             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 664                      | 1.5                | 0.4             | 0.0               | 1394                    | 1.32             |
| BR23                     | T44                    | 8  | Min        | Prime mover and 5-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 387                      | 1.5                | 0.4             | 0.0               | 813                     | 2.05             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1447                     | 1.5                | 0.4             | 0.0               | 3039                    | 1.99             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 387                      | 1.5                | 0.4             | 0.0               | 813                     | 2.05             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 452                      | 1.5                | 0.4             | 0.0               | 949                     | 1.93             |
| BR23                     | T44                    | 9  | Max        | Prime mover and 5-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 697                      | 1.5                | 0.4             | 0.0               | 1464                    | 1.14             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2562                     | 1.5                | 0.4             | 0.0               | 5380                    | 1.12             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 697                      | 1.5                | 0.4             | 0.0               | 1464                    | 1.14             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 780                      | 1.5                | 0.4             | 0.0               | 1638                    | 1.12             |
| BR23                     | T44                    | 10   | Min        | Prime mover and 6-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 233                      | 1.5                | 0.4             | 0.0               | 489                     | 3.40             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 749                      | 1.5                | 0.4             | 0.0               | 1573                    | 3.84             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 233                      | 1.5                | 0.4             | 0.0               | 489                     | 3.40             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 295                      | 1.5                | 0.4             | 0.0               | 620                     | 2.96             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                      | Application Vehicle (RV) |                    |                 |                   |                        |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|----------------------|--------------------------|--------------------|-----------------|-------------------|------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                 | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>     | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>       | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | $E = A*B* (1+C)*1+D$ | F                        | G                  | H               | I                 | $J = F*G* (1+H)*(1+I)$ | K = E/I          |
| BR23                     | T44                    | 11   | Max        | Prime mover and 6-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 660                      | 1.5                | 0.4             | 0.0               | 1386                   | 1.20             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 2502                     | 1.5                | 0.4             | 0.0               | 5254                   | 1.15             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 660                      | 1.5                | 0.4             | 0.0               | 1386                   | 1.20             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 825                      | 1.5                | 0.4             | 0.0               | 1733                   | 1.06             |
| BR23                     | T44                    | 12   | Min        | Prime mover and 7-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 252                      | 1.5                | 0.4             | 0.0               | 529                    | 3.14             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 840                      | 1.5                | 0.4             | 0.0               | 1764                   | 3.43             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 252                      | 1.5                | 0.4             | 0.0               | 529                    | 3.14             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 349                      | 1.5                | 0.4             | 0.0               | 733                    | 2.50             |
| BR23                     | T44                    | 13   | Max        | Prime mover and 7-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 810                      | 1.5                | 0.4             | 0.0               | 1701                   | 0.98             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 3030                     | 1.5                | 0.4             | 0.0               | 6363                   | 0.95             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 810                      | 1.5                | 0.4             | 0.0               | 1701                   | 0.98             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 1048                     | 1.5                | 0.4             | 0.0               | 2201                   | 0.83             |
| BR23                     | T44                    | 14   | Min        | Prime mover and 8-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 247                      | 1.5                | 0.4             | 0.0               | 519                    | 3.21             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 902                      | 1.5                | 0.4             | 0.0               | 1894                   | 3.19             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 247                      | 1.5                | 0.4             | 0.0               | 519                    | 3.21             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 326                      | 1.5                | 0.4             | 0.0               | 685                    | 2.68             |
| BR23                     | T44                    | 15   | Max        | Prime mover and 8-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 757                      | 1.5                | 0.4             | 0.0               | 1590                   | 1.05             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 2771                     | 1.5                | 0.4             | 0.0               | 5819                   | 1.04             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 757                      | 1.5                | 0.4             | 0.0               | 1590                   | 1.05             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 1064                     | 1.5                | 0.4             | 0.0               | 2234                   | 0.82             |
| BR23                     | T44                    | 16   | Min        | Prime mover and 9-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 213                      | 1.5                | 0.4             | 0.0               | 447                    | 3.72             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 795                      | 1.5                | 0.4             | 0.0               | 1670                   | 3.62             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 213                      | 1.5                | 0.4             | 0.0               | 447                    | 3.72             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 301                      | 1.5                | 0.4             | 0.0               | 632                    | 2.90             |
| BR23                     | T44                    | 17   | Max        | Prime mover and 9-axle platform trailer  | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 727                      | 1.5                | 0.4             | 0.0               | 1527                   | 1.09             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 2638                     | 1.5                | 0.4             | 0.0               | 5540                   | 1.09             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 727                      | 1.5                | 0.4             | 0.0               | 1527                   | 1.09             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 992                      | 1.5                | 0.4             | 0.0               | 2083                   | 0.88             |
| BR23                     | T44                    | 18   | Min        | Prime mover and 10-axle platform trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 264                      | 1.5                | 0.4             | 0.0               | 554                    | 3.00             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 970                      | 1.5                | 0.4             | 0.0               | 2037                   | 2.97             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 264                      | 1.5                | 0.4             | 0.0               | 554                    | 3.00             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 415                      | 1.5                | 0.4             | 0.0               | 872                    | 2.11             |
| BR23                     | T44                    | 19   | Max        | Prime mover and 10-axle platform trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 728                      | 1.5                | 0.4             | 0.0               | 1529                   | 1.09             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 2646                     | 1.5                | 0.4             | 0.0               | 5557                   | 1.09             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 728                      | 1.5                | 0.4             | 0.0               | 1529                   | 1.09             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 1080                     | 1.5                | 0.4             | 0.0               | 2268                   | 0.81             |
| BR23                     | T44                    | 20   | Min        | Prime mover and 11-axle platform trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 227                      | 1.5                | 0.4             | 0.0               | 477                    | 3.49             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                 | 778                      | 1.5                | 0.4             | 0.0               | 1634                   | 3.70             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                 | 227                      | 1.5                | 0.4             | 0.0               | 477                    | 3.49             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                 | 307                      | 1.5                | 0.4             | 0.0               | 645                    | 2.85             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                                | Application Vehicle (RV) |                    |                 |                   |                                  |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|--------------------------------|--------------------------|--------------------|-----------------|-------------------|----------------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>               | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>                 | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | $E = A*B* \frac{1}{(1+C)*1+D}$ | F                        | G                  | H               | I                 | $J = F*G* \frac{1}{(1+H)*(1+I)}$ | $K = E/I$        |
| BR23                     | T44                    | 21   | Max        | Prime mover and 11-axle platform trailer                       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 698                      | 1.5                | 0.4             | 0.0               | 1466                             | 1.13             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 2541                     | 1.5                | 0.4             | 0.0               | 5336                             | 1.13             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 698                      | 1.5                | 0.4             | 0.0               | 1466                             | 1.13             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 1077                     | 1.5                | 0.4             | 0.0               | 2262                             | 0.81             |
| BR23                     | T44                    | 22   | Min        | Prime mover and 12-axle platform trailer                       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 234                      | 1.5                | 0.4             | 0.0               | 491                              | 3.38             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 781                      | 1.5                | 0.4             | 0.0               | 1640                             | 3.68             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 234                      | 1.5                | 0.4             | 0.0               | 491                              | 3.38             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 344                      | 1.5                | 0.4             | 0.0               | 722                              | 2.54             |
| BR23                     | T44                    | 23   | Max        | Prime mover and 12-axle platform trailer                       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 656                      | 1.5                | 0.4             | 0.0               | 1378                             | 1.21             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 2381                     | 1.5                | 0.4             | 0.0               | 5000                             | 1.21             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 656                      | 1.5                | 0.4             | 0.0               | 1378                             | 1.21             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 1053                     | 1.5                | 0.4             | 0.0               | 2211                             | 0.83             |
| BR23                     | T44                    | 24   | Min        | Prime mover and 16-axle platform trailer                       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 436                      | 1.5                | 0.4             | 0.0               | 916                              | 1.82             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 1588                     | 1.5                | 0.4             | 0.0               | 3335                             | 1.81             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 436                      | 1.5                | 0.4             | 0.0               | 916                              | 1.82             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 777                      | 1.5                | 0.4             | 0.0               | 1632                             | 1.12             |
| BR23                     | T44                    | 25   | Max        | Prime mover and 16-axle platform trailer                       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 436                      | 1.5                | 0.4             | 0.0               | 916                              | 1.82             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 1588                     | 1.5                | 0.4             | 0.0               | 3335                             | 1.81             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 436                      | 1.5                | 0.4             | 0.0               | 916                              | 1.82             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 777                      | 1.5                | 0.4             | 0.0               | 1632                             | 1.12             |
| BR23                     | T44                    | 26   | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 297                      | 1.5                | 0.4             | 0.0               | 624                              | 2.67             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 1097                     | 1.5                | 0.4             | 0.0               | 2304                             | 2.62             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 297                      | 1.5                | 0.4             | 0.0               | 624                              | 2.67             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 395                      | 1.5                | 0.4             | 0.0               | 830                              | 2.21             |
| BR23                     | T44                    | 27   | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 477                      | 1.5                | 0.4             | 0.0               | 1002                             | 1.66             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 1798                     | 1.5                | 0.4             | 0.0               | 3776                             | 1.60             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 477                      | 1.5                | 0.4             | 0.0               | 1002                             | 1.66             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 549                      | 1.5                | 0.4             | 0.0               | 1153                             | 1.59             |
| BR23                     | T44                    | 28   | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 334                      | 1.5                | 0.4             | 0.0               | 701                              | 2.37             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 1136                     | 1.5                | 0.4             | 0.0               | 2386                             | 2.53             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 334                      | 1.5                | 0.4             | 0.0               | 701                              | 2.37             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 365                      | 1.5                | 0.4             | 0.0               | 767                              | 2.39             |
| BR23                     | T44                    | 29   | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 423                      | 1.5                | 0.4             | 0.0               | 888                              | 1.87             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 1511                     | 1.5                | 0.4             | 0.0               | 3173                             | 1.90             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 423                      | 1.5                | 0.4             | 0.0               | 888                              | 1.87             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 535                      | 1.5                | 0.4             | 0.0               | 1124                             | 1.63             |
| BR23                     | T44                    | 30   | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 213                      | 1.5                | 0.4             | 0.0               | 447                              | 3.72             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                           | 882                      | 1.5                | 0.4             | 0.0               | 1852                             | 3.26             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                           | 213                      | 1.5                | 0.4             | 0.0               | 447                              | 3.72             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                           | 270                      | 1.5                | 0.4             | 0.0               | 567                              | 3.24             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 31   | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 492                      | 1.5                | 0.4             | 0.0               | 1033                    | 1.61             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1763                     | 1.5                | 0.4             | 0.0               | 3702                    | 1.63             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 492                      | 1.5                | 0.4             | 0.0               | 1033                    | 1.61             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 623                      | 1.5                | 0.4             | 0.0               | 1308                    | 1.40             |
| BR23                     | T44                    | 32   | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 311                      | 1.5                | 0.4             | 0.0               | 653                     | 2.55             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1203                     | 1.5                | 0.4             | 0.0               | 2526                    | 2.39             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 311                      | 1.5                | 0.4             | 0.0               | 653                     | 2.55             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 348                      | 1.5                | 0.4             | 0.0               | 731                     | 2.51             |
| BR23                     | T44                    | 33   | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 664                      | 1.5                | 0.4             | 0.0               | 1394                    | 1.19             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2568                     | 1.5                | 0.4             | 0.0               | 5393                    | 1.12             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 664                      | 1.5                | 0.4             | 0.0               | 1394                    | 1.19             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 779                      | 1.5                | 0.4             | 0.0               | 1636                    | 1.12             |
| BR23                     | T44                    | 34   | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 398                      | 1.5                | 0.4             | 0.0               | 836                     | 1.99             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1487                     | 1.5                | 0.4             | 0.0               | 3123                    | 1.94             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 398                      | 1.5                | 0.4             | 0.0               | 836                     | 1.99             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 484                      | 1.5                | 0.4             | 0.0               | 1016                    | 1.80             |
| BR23                     | T44                    | 35   | Max        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 677                      | 1.5                | 0.4             | 0.0               | 1422                    | 1.17             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2505                     | 1.5                | 0.4             | 0.0               | 5261                    | 1.15             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 677                      | 1.5                | 0.4             | 0.0               | 1422                    | 1.17             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 897                      | 1.5                | 0.4             | 0.0               | 1884                    | 0.97             |
| BR23                     | T44                    | 36   | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 418                      | 1.5                | 0.4             | 0.0               | 878                     | 1.89             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1566                     | 1.5                | 0.4             | 0.0               | 3289                    | 1.84             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 418                      | 1.5                | 0.4             | 0.0               | 878                     | 1.89             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 524                      | 1.5                | 0.4             | 0.0               | 1100                    | 1.67             |
| BR23                     | T44                    | 37   | Max        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 1046                     | 1.5                | 0.4             | 0.0               | 2197                    | 0.76             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 3920                     | 1.5                | 0.4             | 0.0               | 8232                    | 0.73             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 1046                     | 1.5                | 0.4             | 0.0               | 2197                    | 0.76             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1390                     | 1.5                | 0.4             | 0.0               | 2919                    | 0.63             |
| BR23                     | T44                    | 38   | Min        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 648                      | 1.5                | 0.4             | 0.0               | 1361                    | 1.22             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2428                     | 1.5                | 0.4             | 0.0               | 5099                    | 1.19             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 648                      | 1.5                | 0.4             | 0.0               | 1361                    | 1.22             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 939                      | 1.5                | 0.4             | 0.0               | 1972                    | 0.93             |
| BR23                     | T44                    | 39   | Max        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 783                      | 1.5                | 0.4             | 0.0               | 1644                    | 1.01             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2876                     | 1.5                | 0.4             | 0.0               | 6040                    | 1.00             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 783                      | 1.5                | 0.4             | 0.0               | 1644                    | 1.01             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1090                     | 1.5                | 0.4             | 0.0               | 2289                    | 0.80             |
| BR23                     | T44                    | 40   | Min        | Prime mover, 2 axle dolly and 9-axle platform trailer          | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 728                      | 1.5                | 0.4             | 0.0               | 1529                    | 1.09             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2637                     | 1.5                | 0.4             | 0.0               | 5538                    | 1.09             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 728                      | 1.5                | 0.4             | 0.0               | 1529                    | 1.09             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1044                     | 1.5                | 0.4             | 0.0               | 2192                    | 0.84             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                     | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR23                     | T44                    | 41   | Max        | Prime mover, 2 axle dolly and 9-axle platform trailer        | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 715                      | 1.5                | 0.4             | 0.0               | 1502                    | 1.11             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2649                     | 1.5                | 0.4             | 0.0               | 5563                    | 1.09             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 715                      | 1.5                | 0.4             | 0.0               | 1502                    | 1.11             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1040                     | 1.5                | 0.4             | 0.0               | 2184                    | 0.84             |
| BR23                     | T44                    | 42   | Min        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 583                      | 1.5                | 0.4             | 0.0               | 1224                    | 1.36             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2117                     | 1.5                | 0.4             | 0.0               | 4446                    | 1.36             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 583                      | 1.5                | 0.4             | 0.0               | 1224                    | 1.36             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 878                      | 1.5                | 0.4             | 0.0               | 1844                    | 0.99             |
| BR23                     | T44                    | 43   | Max        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 864                      | 1.5                | 0.4             | 0.0               | 1814                    | 0.92             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 3173                     | 1.5                | 0.4             | 0.0               | 6663                    | 0.91             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 864                      | 1.5                | 0.4             | 0.0               | 1814                    | 0.92             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1301                     | 1.5                | 0.4             | 0.0               | 2732                    | 0.67             |
| BR23                     | T44                    | 44   | Min        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 640                      | 1.5                | 0.4             | 0.0               | 1344                    | 1.24             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2329                     | 1.5                | 0.4             | 0.0               | 4891                    | 1.24             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 640                      | 1.5                | 0.4             | 0.0               | 1344                    | 1.24             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1013                     | 1.5                | 0.4             | 0.0               | 2127                    | 0.86             |
| BR23                     | T44                    | 45   | Max        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 727                      | 1.5                | 0.4             | 0.0               | 1527                    | 1.09             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2644                     | 1.5                | 0.4             | 0.0               | 5552                    | 1.09             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 727                      | 1.5                | 0.4             | 0.0               | 1527                    | 1.09             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1136                     | 1.5                | 0.4             | 0.0               | 2386                    | 0.77             |
| BR23                     | T44                    | 46   | Min        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 621                      | 1.5                | 0.4             | 0.0               | 1304                    | 1.28             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2258                     | 1.5                | 0.4             | 0.0               | 4742                    | 1.27             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 621                      | 1.5                | 0.4             | 0.0               | 1304                    | 1.28             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1012                     | 1.5                | 0.4             | 0.0               | 2125                    | 0.86             |
| BR23                     | T44                    | 47   | Max        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 723                      | 1.5                | 0.4             | 0.0               | 1518                    | 1.10             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2629                     | 1.5                | 0.4             | 0.0               | 5521                    | 1.09             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 723                      | 1.5                | 0.4             | 0.0               | 1518                    | 1.10             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 1170                     | 1.5                | 0.4             | 0.0               | 2457                    | 0.75             |
| BR23                     | T44                    | 48   | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 498                      | 1.5                | 0.4             | 0.0               | 1046                    | 1.59             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 1728                     | 1.5                | 0.4             | 0.0               | 3629                    | 1.67             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 498                      | 1.5                | 0.4             | 0.0               | 1046                    | 1.59             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 583                      | 1.5                | 0.4             | 0.0               | 1224                    | 1.50             |
| BR23                     | T44                    | 49   | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1                     | 16       | V           | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 621                      | 1.5                | 0.4             | 0.0               | 1304                    | 1.28             |
|                          |                        |  |            |  | S1                     | 16       | Msag        | ULS           | 1199                   | 2.0                | 0.4             | 0.8               | 6043                   | 2162                     | 1.5                | 0.4             | 0.0               | 4540                    | 1.33             |
|                          |                        |  |            |  | A1                     |          | Ra          | ULS           | 330                    | 2.0                | 0.4             | 0.8               | 1663                   | 621                      | 1.5                | 0.4             | 0.0               | 1304                    | 1.28             |
|                          |                        |  |            |  | P1                     |          | R1          | ULS           | 364                    | 2.0                | 0.4             | 0.8               | 1835                   | 702                      | 1.5                | 0.4             | 0.0               | 1474                    | 1.24             |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 50   | GML        | 7 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 215             | 2.0                | 0.4             | 0.8               | 1084                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 215             | 2.0                | 0.4             | 0.8               | 1084                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 299             | 2.0                | 0.4             | 0.8               | 1507                    | 0.86             |
| BR29                     | MS18                   | 51   | CML        | 7 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 219             | 2.0                | 0.4             | 0.8               | 1104                    | 1.05             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 219             | 2.0                | 0.4             | 0.8               | 1104                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR29                     | MS18                   | 52   | HML        | 7 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 219             | 2.0                | 0.4             | 0.8               | 1104                    | 1.05             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 219             | 2.0                | 0.4             | 0.8               | 1104                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR29                     | MS18                   | 53   | GML        | 8 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 212             | 2.0                | 0.4             | 0.8               | 1068                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 215             | 2.0                | 0.4             | 0.8               | 1084                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 303             | 2.0                | 0.4             | 0.8               | 1527                    | 0.85             |
| BR29                     | MS18                   | 54   | CML        | 8 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 223             | 2.0                | 0.4             | 0.8               | 1124                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 55   | HML        | 8 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 235             | 2.0                | 0.4             | 0.8               | 1184                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 330             | 2.0                | 0.4             | 0.8               | 1663                    | 0.78             |
| BR29                     | MS18                   | 56   | GML        | 8 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.08             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 299             | 2.0                | 0.4             | 0.8               | 1507                    | 0.86             |
| BR29                     | MS18                   | 57   | CML        | 8 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 310             | 2.0                | 0.4             | 0.8               | 1562                    | 0.83             |
| BR29                     | MS18                   | 58   | HML        | 8 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 235             | 2.0                | 0.4             | 0.8               | 1184                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 235             | 2.0                | 0.4             | 0.8               | 1184                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 315             | 2.0                | 0.4             | 0.8               | 1588                    | 0.82             |
| BR29                     | MS18                   | 59   | GML        | 9 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 210             | 2.0                | 0.4             | 0.8               | 1058                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 60   | CML        | 9 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.05             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 228             | 2.0                | 0.4             | 0.8               | 1149                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 319             | 2.0                | 0.4             | 0.8               | 1608                    | 0.81             |
| BR29                     | MS18                   | 61   | HML        | 9 axle B-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 236             | 2.0                | 0.4             | 0.8               | 1189                    | 0.97             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 244             | 2.0                | 0.4             | 0.8               | 1230                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 338             | 2.0                | 0.4             | 0.8               | 1704                    | 0.76             |
| BR29                     | MS18                   | 62   | GML        | 9 axle A-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 214             | 2.0                | 0.4             | 0.8               | 1079                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 217             | 2.0                | 0.4             | 0.8               | 1094                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.84             |
| BR29                     | MS18                   | 63   | CML        | 9 axle A-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.05             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 223             | 2.0                | 0.4             | 0.8               | 1124                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 64   | HML        | 9 axle A-double          | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.05             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 223             | 2.0                | 0.4             | 0.8               | 1124                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 65   | GML        | 11 axle A-double         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 314             | 2.0                | 0.4             | 0.8               | 1583                    | 0.82             |
| BR29                     | MS18                   | 66   | CML        | 11 axle A-double         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 228             | 2.0                | 0.4             | 0.8               | 1149                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 327             | 2.0                | 0.4             | 0.8               | 1648                    | 0.79             |
| BR29                     | MS18                   | 67   | HML        | 11 axle A-double         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 0.96             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 340             | 2.0                | 0.4             | 0.8               | 1714                    | 0.76             |
| BR29                     | MS18                   | 68   | GML        | 12 axle A-double         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 69   | CML        | 12 axle A-double         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 70   | HML        | 12 axle A-double         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 71   | GML        | 12 Axle Modular B-triple | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 72   | CML        | 12 Axle Modular B-triple | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |
| BR29                     | MS18                   | 73   | HML        | 12 Axle Modular B-triple | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 74   | GML        | 12 Axle B-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 75   | CML        | 12 Axle B-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |
| BR29                     | MS18                   | 76   | HML        | 12 Axle B-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 77   | GML        | 14 Axle B-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 314             | 2.0                | 0.4             | 0.8               | 1583                    | 0.82             |
| BR29                     | MS18                   | 78   | CML        | 14 Axle B-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 228             | 2.0                | 0.4             | 0.8               | 1149                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 327             | 2.0                | 0.4             | 0.8               | 1648                    | 0.79             |
| BR29                     | MS18                   | 79   | HML        | 14 Axle B-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 0.96             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 340             | 2.0                | 0.4             | 0.8               | 1714                    | 0.76             |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 80   | GML        | 15 Axle AB-triple        | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 81   | CML        | 15 Axle AB-triple        | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |
| BR29                     | MS18                   | 82   | HML        | 15 Axle AB-triple        | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 83   | GML        | 16 Axle A-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 314             | 2.0                | 0.4             | 0.8               | 1583                    | 0.82             |
| BR29                     | MS18                   | 84   | CML        | 16 Axle A-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 228             | 2.0                | 0.4             | 0.8               | 1149                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 327             | 2.0                | 0.4             | 0.8               | 1648                    | 0.79             |
| BR29                     | MS18                   | 85   | HML        | 16 Axle A-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 0.96             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 340             | 2.0                | 0.4             | 0.8               | 1714                    | 0.76             |
| BR29                     | MS18                   | 86   | GML        | 18 Axle A-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 87   | CML        | 18 Axle A-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |
| BR29                     | MS18                   | 88   | HML        | 18 Axle A-triple         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 89   | GML        | 15 Axle AB-triple        | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 90   | CML        | 15 Axle AB-triple        | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |
| BR29                     | MS18                   | 91   | HML        | 15 Axle AB-triple        | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 92   | GML        | 17 Axle BAB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 314             | 2.0                | 0.4             | 0.8               | 1583                    | 0.82             |
| BR29                     | MS18                   | 93   | CML        | 17 Axle BAB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 228             | 2.0                | 0.4             | 0.8               | 1149                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 327             | 2.0                | 0.4             | 0.8               | 1648                    | 0.79             |
| BR29                     | MS18                   | 94   | HML        | 17 Axle BAB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 0.96             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 340             | 2.0                | 0.4             | 0.8               | 1714                    | 0.76             |
| BR29                     | MS18                   | 95   | GML        | 18 Axle BAB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                    | 0.81             |
| BR29                     | MS18                   | 96   | CML        | 18 Axle BAB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                    | 0.78             |
| BR29                     | MS18                   | 97   | HML        | 18 Axle BAB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                    | 0.93             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                    | 0.98             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                    | 0.73             |
| BR29                     | MS18                   | 98   | GML        | 17 Axle ABB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.06             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                    | 1.13             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.11             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 314             | 2.0                | 0.4             | 0.8               | 1583                    | 0.82             |
| BR29                     | MS18                   | 99   | CML        | 17 Axle ABB-Quad         | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 228             | 2.0                | 0.4             | 0.8               | 1149                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 327             | 2.0                | 0.4             | 0.8               | 1648                    | 0.79             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                              | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                      |                  |
|--------------------------|------------------------|--|------------|------------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|----------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)     | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>     | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                              |                        |          |             |                        | A               | B                  | C               | D                 | $E = A*B* (1+C)*1+D$     | F               | G                  | H               | I                 | $J = F*G* (1+H)*1+I$ | $K = E/I$        |
| BR29                     | MS18                   | 100  | HML        | 17 Axle ABB-Quad             | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 239             | 2.0                | 0.4             | 0.8               | 1205                 | 0.96             |
|                          |                        |  |            |                              | S1,S2,S3               | 11.5     | Msag        |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                 | 1.03             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 239             | 2.0                | 0.4             | 0.8               | 1205                 | 1.02             |
|                          |                        |  |            |                              | P1,P2                  |          | R1          |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 340             | 2.0                | 0.4             | 0.8               | 1714                 | 0.76             |
| BR29                     | MS18                   | 101  | GML        | 18 Axle ABB-Quad             | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 218             | 2.0                | 0.4             | 0.8               | 1099                 | 1.06             |
|                          |                        |  |            |                              | S1,S2,S3               | 11.5     | Msag        |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 498             | 2.0                | 0.4             | 0.8               | 2510                 | 1.13             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 222             | 2.0                | 0.4             | 0.8               | 1119                 | 1.10             |
|                          |                        |  |            |                              | P1,P2                  |          | R1          |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 316             | 2.0                | 0.4             | 0.8               | 1593                 | 0.81             |
| BR29                     | MS18                   | 102  | CML        | 18 Axle ABB-Quad             | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 229             | 2.0                | 0.4             | 0.8               | 1154                 | 1.00             |
|                          |                        |  |            |                              | S1,S2,S3               | 11.5     | Msag        |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 511             | 2.0                | 0.4             | 0.8               | 2575                 | 1.10             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 234             | 2.0                | 0.4             | 0.8               | 1179                 | 1.04             |
|                          |                        |  |            |                              | P1,P2                  |          | R1          |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 331             | 2.0                | 0.4             | 0.8               | 1668                 | 0.78             |
| BR29                     | MS18                   | 103  | HML        | 18 Axle ABB-Quad             | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 246             | 2.0                | 0.4             | 0.8               | 1240                 | 0.93             |
|                          |                        |  |            |                              | S1,S2,S3               | 11.5     | Msag        |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 546             | 2.0                | 0.4             | 0.8               | 2752                 | 1.03             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 250             | 2.0                | 0.4             | 0.8               | 1260                 | 0.98             |
|                          |                        |  |            |                              | P1,P2                  |          | R1          |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 354             | 2.0                | 0.4             | 0.8               | 1784                 | 0.73             |
| BR29                     | MS18                   | 104  | GML        | 2 Axle Controlled Access Bus | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 150             | 2.0                | 0.4             | 0.8               | 756                  | 1.53             |
|                          |                        |  |            |                              | S1,S2,S3               | 11.5     | Msag        |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 352             | 2.0                | 0.4             | 0.8               | 1774                 | 1.60             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 150             | 2.0                | 0.4             | 0.8               | 756                  | 1.63             |
|                          |                        |  |            |                              | P1,P2                  |          | R1          |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 150             | 2.0                | 0.4             | 0.8               | 756                  | 1.71             |
| BR29                     | MS18                   | 105  | GML        | 3 Axle Controlled Access Bus | S1,S2,S3               | 11.5     | V           | ULS                    | 230             | 2.0                | 0.4             | 0.8               | 1159                     | 159             | 2.0                | 0.4             | 0.8               | 801                  | 1.45             |
|                          |                        |  |            |                              | S1,S2,S3               | 11.5     | Msag        |                        | 562             | 2.0                | 0.4             | 0.8               | 2832                     | 394             | 2.0                | 0.4             | 0.8               | 1986                 | 1.43             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 244             | 2.0                | 0.4             | 0.8               | 1230                     | 159             | 2.0                | 0.4             | 0.8               | 801                  | 1.53             |
|                          |                        |  |            |                              | P1,P2                  |          | R1          |                        | 257             | 2.0                | 0.4             | 0.8               | 1295                     | 172             | 2.0                | 0.4             | 0.8               | 867                  | 1.49             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                         | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 1  | Max        | Prime mover and 2-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 288                      | 1.5                | 0.4             | 0.0               | 605                     | 1.92             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 659                      | 1.5                | 0.4             | 0.0               | 1384                    | 2.05             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 288                      | 1.5                | 0.4             | 0.0               | 605                     | 2.03             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 321                      | 1.5                | 0.4             | 0.0               | 674                     | 1.92             |
| BR29                     | MS18                   | 2  | Min        | Prime mover and 3-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 213                      | 1.5                | 0.4             | 0.0               | 447                     | 2.59             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 542                      | 1.5                | 0.4             | 0.0               | 1138                    | 2.49             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 213                      | 1.5                | 0.4             | 0.0               | 447                     | 2.75             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 277                      | 1.5                | 0.4             | 0.0               | 582                     | 2.23             |
| BR29                     | MS18                   | 3  | Max        | Prime mover and 3-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 295                      | 1.5                | 0.4             | 0.0               | 620                     | 1.87             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 803                      | 1.5                | 0.4             | 0.0               | 1686                    | 1.68             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 295                      | 1.5                | 0.4             | 0.0               | 620                     | 1.99             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 326                      | 1.5                | 0.4             | 0.0               | 685                     | 1.89             |
| BR29                     | MS18                   | 4  | Min        | Prime mover and 4-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 258                      | 1.5                | 0.4             | 0.0               | 542                     | 2.14             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 684                      | 1.5                | 0.4             | 0.0               | 1436                    | 1.97             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 258                      | 1.5                | 0.4             | 0.0               | 542                     | 2.27             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 290                      | 1.5                | 0.4             | 0.0               | 609                     | 2.13             |
| BR29                     | MS18                   | 5  | Max        | Prime mover and 4-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 386                      | 1.5                | 0.4             | 0.0               | 811                     | 1.43             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1016                     | 1.5                | 0.4             | 0.0               | 2134                    | 1.33             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 390                      | 1.5                | 0.4             | 0.0               | 819                     | 1.50             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 430                      | 1.5                | 0.4             | 0.0               | 903                     | 1.43             |
| BR29                     | MS18                   | 6  | Min        | Prime mover and 4-axle spread low loader trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 232                      | 1.5                | 0.4             | 0.0               | 487                     | 2.38             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 590                      | 1.5                | 0.4             | 0.0               | 1239                    | 2.29             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 232                      | 1.5                | 0.4             | 0.0               | 487                     | 2.52             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 267                      | 1.5                | 0.4             | 0.0               | 561                     | 2.31             |
| BR29                     | MS18                   | 7  | Max        | Prime mover and 4-axle spread low loader trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 539                      | 1.5                | 0.4             | 0.0               | 1132                    | 1.02             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1377                     | 1.5                | 0.4             | 0.0               | 2892                    | 0.98             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 539                      | 1.5                | 0.4             | 0.0               | 1132                    | 1.09             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 588                      | 1.5                | 0.4             | 0.0               | 1235                    | 1.05             |
| BR29                     | MS18                   | 8  | Min        | Prime mover and 5-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 338                      | 1.5                | 0.4             | 0.0               | 710                     | 1.63             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 951                      | 1.5                | 0.4             | 0.0               | 1997                    | 1.42             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 338                      | 1.5                | 0.4             | 0.0               | 710                     | 1.73             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 387                      | 1.5                | 0.4             | 0.0               | 813                     | 1.59             |
| BR29                     | MS18                   | 9  | Max        | Prime mover and 5-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 601                      | 1.5                | 0.4             | 0.0               | 1262                    | 0.92             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1691                     | 1.5                | 0.4             | 0.0               | 3551                    | 0.80             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 601                      | 1.5                | 0.4             | 0.0               | 1262                    | 0.97             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 697                      | 1.5                | 0.4             | 0.0               | 1464                    | 0.88             |
| BR29                     | MS18                   | 10   | Min        | Prime mover and 6-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 192                      | 1.5                | 0.4             | 0.0               | 403                     | 2.88             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 469                      | 1.5                | 0.4             | 0.0               | 985                     | 2.88             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 194                      | 1.5                | 0.4             | 0.0               | 407                     | 3.02             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 234                      | 1.5                | 0.4             | 0.0               | 491                     | 2.64             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                 | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 11   | Max        | Prime mover and 6-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 557                      | 1.5                | 0.4             | 0.0               | 1170                    | 0.99             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1453                     | 1.5                | 0.4             | 0.0               | 3051                    | 0.93             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 557                      | 1.5                | 0.4             | 0.0               | 1170                    | 1.05             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 721                      | 1.5                | 0.4             | 0.0               | 1514                    | 0.86             |
| BR29                     | MS18                   | 12   | Min        | Prime mover and 7-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 192                      | 1.5                | 0.4             | 0.0               | 403                     | 2.88             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 469                      | 1.5                | 0.4             | 0.0               | 985                     | 2.88             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 203                      | 1.5                | 0.4             | 0.0               | 426                     | 2.88             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 272                      | 1.5                | 0.4             | 0.0               | 571                     | 2.27             |
| BR29                     | MS18                   | 13   | Max        | Prime mover and 7-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 634                      | 1.5                | 0.4             | 0.0               | 1331                    | 0.87             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1644                     | 1.5                | 0.4             | 0.0               | 3452                    | 0.82             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 645                      | 1.5                | 0.4             | 0.0               | 1355                    | 0.91             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 903                      | 1.5                | 0.4             | 0.0               | 1896                    | 0.68             |
| BR29                     | MS18                   | 14   | Min        | Prime mover and 8-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 206                      | 1.5                | 0.4             | 0.0               | 433                     | 2.68             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 538                      | 1.5                | 0.4             | 0.0               | 1130                    | 2.51             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 206                      | 1.5                | 0.4             | 0.0               | 433                     | 2.84             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 280                      | 1.5                | 0.4             | 0.0               | 588                     | 2.20             |
| BR29                     | MS18                   | 15   | Max        | Prime mover and 8-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 572                      | 1.5                | 0.4             | 0.0               | 1201                    | 0.97             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1463                     | 1.5                | 0.4             | 0.0               | 3072                    | 0.92             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 572                      | 1.5                | 0.4             | 0.0               | 1201                    | 1.02             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 904                      | 1.5                | 0.4             | 0.0               | 1898                    | 0.68             |
| BR29                     | MS18                   | 16   | Min        | Prime mover and 9-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 201                      | 1.5                | 0.4             | 0.0               | 422                     | 2.75             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 528                      | 1.5                | 0.4             | 0.0               | 1109                    | 2.55             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 201                      | 1.5                | 0.4             | 0.0               | 422                     | 2.91             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 230                      | 1.5                | 0.4             | 0.0               | 483                     | 2.68             |
| BR29                     | MS18                   | 17   | Max        | Prime mover and 9-axle platform trailer  | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 529                      | 1.5                | 0.4             | 0.0               | 1111                    | 1.04             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1372                     | 1.5                | 0.4             | 0.0               | 2881                    | 0.98             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.07             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 862                      | 1.5                | 0.4             | 0.0               | 1810                    | 0.72             |
| BR29                     | MS18                   | 18   | Min        | Prime mover and 10-axle platform trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 197                      | 1.5                | 0.4             | 0.0               | 414                     | 2.80             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 503                      | 1.5                | 0.4             | 0.0               | 1056                    | 2.68             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 203                      | 1.5                | 0.4             | 0.0               | 426                     | 2.88             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 328                      | 1.5                | 0.4             | 0.0               | 689                     | 1.88             |
| BR29                     | MS18                   | 19   | Max        | Prime mover and 10-axle platform trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 537                      | 1.5                | 0.4             | 0.0               | 1128                    | 1.03             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1372                     | 1.5                | 0.4             | 0.0               | 2881                    | 0.98             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.07             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 896                      | 1.5                | 0.4             | 0.0               | 1882                    | 0.69             |
| BR29                     | MS18                   | 20   | Min        | Prime mover and 11-axle platform trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 194                      | 1.5                | 0.4             | 0.0               | 407                     | 2.85             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 500                      | 1.5                | 0.4             | 0.0               | 1050                    | 2.70             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 194                      | 1.5                | 0.4             | 0.0               | 407                     | 3.02             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 234                      | 1.5                | 0.4             | 0.0               | 491                     | 2.64             |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 21   | Max        | Prime mover and 11-axle platform trailer                       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 516                      | 1.5                | 0.4             | 0.0               | 1084                    | 1.07             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1317                     | 1.5                | 0.4             | 0.0               | 2766                    | 1.02             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 525                      | 1.5                | 0.4             | 0.0               | 1103                    | 1.12             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 888                      | 1.5                | 0.4             | 0.0               | 1865                    | 0.69             |
| BR29                     | MS18                   | 22   | Min        | Prime mover and 12-axle platform trailer                       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 194                      | 1.5                | 0.4             | 0.0               | 407                     | 2.85             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 500                      | 1.5                | 0.4             | 0.0               | 1050                    | 2.70             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 194                      | 1.5                | 0.4             | 0.0               | 407                     | 3.02             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 262                      | 1.5                | 0.4             | 0.0               | 550                     | 2.35             |
| BR29                     | MS18                   | 23   | Max        | Prime mover and 12-axle platform trailer                       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 484                      | 1.5                | 0.4             | 0.0               | 1016                    | 1.14             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1235                     | 1.5                | 0.4             | 0.0               | 2594                    | 1.09             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 492                      | 1.5                | 0.4             | 0.0               | 1033                    | 1.19             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 843                      | 1.5                | 0.4             | 0.0               | 1770                    | 0.73             |
| BR29                     | MS18                   | 24   | Min        | Prime mover and 16-axle platform trailer                       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 322                      | 1.5                | 0.4             | 0.0               | 676                     | 1.71             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 823                      | 1.5                | 0.4             | 0.0               | 1728                    | 1.64             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 328                      | 1.5                | 0.4             | 0.0               | 689                     | 1.79             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 567                      | 1.5                | 0.4             | 0.0               | 1191                    | 1.09             |
| BR29                     | MS18                   | 25   | Max        | Prime mover and 16-axle platform trailer                       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 322                      | 1.5                | 0.4             | 0.0               | 676                     | 1.71             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 823                      | 1.5                | 0.4             | 0.0               | 1728                    | 1.64             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 328                      | 1.5                | 0.4             | 0.0               | 689                     | 1.79             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 567                      | 1.5                | 0.4             | 0.0               | 1191                    | 1.09             |
| BR29                     | MS18                   | 26   | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 261                      | 1.5                | 0.4             | 0.0               | 548                     | 2.11             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 655                      | 1.5                | 0.4             | 0.0               | 1376                    | 2.06             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 261                      | 1.5                | 0.4             | 0.0               | 548                     | 2.24             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 311                      | 1.5                | 0.4             | 0.0               | 653                     | 1.98             |
| BR29                     | MS18                   | 27   | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 442                      | 1.5                | 0.4             | 0.0               | 928                     | 1.25             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1204                     | 1.5                | 0.4             | 0.0               | 2528                    | 1.12             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 42                       | 1.5                | 0.4             | 0.0               | 88                      | 13.94            |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 473                      | 1.5                | 0.4             | 0.0               | 993                     | 1.30             |
| BR29                     | MS18                   | 28   | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 293                      | 1.5                | 0.4             | 0.0               | 615                     | 1.88             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 694                      | 1.5                | 0.4             | 0.0               | 1457                    | 1.94             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 293                      | 1.5                | 0.4             | 0.0               | 615                     | 2.00             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 332                      | 1.5                | 0.4             | 0.0               | 697                     | 1.86             |
| BR29                     | MS18                   | 29   | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 360                      | 1.5                | 0.4             | 0.0               | 756                     | 1.53             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 984                      | 1.5                | 0.4             | 0.0               | 2066                    | 1.37             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 360                      | 1.5                | 0.4             | 0.0               | 756                     | 1.63             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 416                      | 1.5                | 0.4             | 0.0               | 874                     | 1.48             |
| BR29                     | MS18                   | 30   | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 196                      | 1.5                | 0.4             | 0.0               | 412                     | 2.82             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 547                      | 1.5                | 0.4             | 0.0               | 1149                    | 2.47             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 198                      | 1.5                | 0.4             | 0.0               | 416                     | 2.96             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 244                      | 1.5                | 0.4             | 0.0               | 512                     | 2.53             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 31   | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 445                      | 1.5                | 0.4             | 0.0               | 935                     | 1.24             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1133                     | 1.5                | 0.4             | 0.0               | 2379                    | 1.19             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 445                      | 1.5                | 0.4             | 0.0               | 935                     | 1.32             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 494                      | 1.5                | 0.4             | 0.0               | 1037                    | 1.25             |
| BR29                     | MS18                   | 32   | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 282                      | 1.5                | 0.4             | 0.0               | 592                     | 1.96             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 793                      | 1.5                | 0.4             | 0.0               | 1665                    | 1.70             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 282                      | 1.5                | 0.4             | 0.0               | 592                     | 2.08             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 321                      | 1.5                | 0.4             | 0.0               | 674                     | 1.92             |
| BR29                     | MS18                   | 33   | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 607                      | 1.5                | 0.4             | 0.0               | 1275                    | 0.91             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1690                     | 1.5                | 0.4             | 0.0               | 3549                    | 0.80             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 621                      | 1.5                | 0.4             | 0.0               | 1304                    | 0.94             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 685                      | 1.5                | 0.4             | 0.0               | 1439                    | 0.90             |
| BR29                     | MS18                   | 34   | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 1.75             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 861                      | 1.5                | 0.4             | 0.0               | 1808                    | 1.57             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 340                      | 1.5                | 0.4             | 0.0               | 714                     | 1.72             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 428                      | 1.5                | 0.4             | 0.0               | 899                     | 1.44             |
| BR29                     | MS18                   | 35   | Max        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 568                      | 1.5                | 0.4             | 0.0               | 1193                    | 0.97             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1451                     | 1.5                | 0.4             | 0.0               | 3047                    | 0.93             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 568                      | 1.5                | 0.4             | 0.0               | 1193                    | 1.03             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 734                      | 1.5                | 0.4             | 0.0               | 1541                    | 0.84             |
| BR29                     | MS18                   | 36   | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 328                      | 1.5                | 0.4             | 0.0               | 689                     | 1.68             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 850                      | 1.5                | 0.4             | 0.0               | 1785                    | 1.59             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 339                      | 1.5                | 0.4             | 0.0               | 712                     | 1.73             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 466                      | 1.5                | 0.4             | 0.0               | 979                     | 1.32             |
| BR29                     | MS18                   | 37   | Max        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 835                      | 1.5                | 0.4             | 0.0               | 1754                    | 0.66             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 2123                     | 1.5                | 0.4             | 0.0               | 4458                    | 0.64             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 835                      | 1.5                | 0.4             | 0.0               | 1754                    | 0.70             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 1172                     | 1.5                | 0.4             | 0.0               | 2461                    | 0.53             |
| BR29                     | MS18                   | 38   | Min        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 494                      | 1.5                | 0.4             | 0.0               | 1037                    | 1.12             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1281                     | 1.5                | 0.4             | 0.0               | 2690                    | 1.05             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 510                      | 1.5                | 0.4             | 0.0               | 1071                    | 1.15             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 755                      | 1.5                | 0.4             | 0.0               | 1586                    | 0.82             |
| BR29                     | MS18                   | 39   | Max        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 586                      | 1.5                | 0.4             | 0.0               | 1231                    | 0.94             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1518                     | 1.5                | 0.4             | 0.0               | 3188                    | 0.89             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 605                      | 1.5                | 0.4             | 0.0               | 1271                    | 0.97             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 895                      | 1.5                | 0.4             | 0.0               | 1880                    | 0.69             |
| BR29                     | MS18                   | 40   | Min        | Prime mover, 2 axle dolly and 9-axle platform trailer          | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 537                      | 1.5                | 0.4             | 0.0               | 1128                    | 1.03             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1372                     | 1.5                | 0.4             | 0.0               | 2881                    | 0.98             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.07             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 862                      | 1.5                | 0.4             | 0.0               | 1810                    | 0.72             |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                     | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR29                     | MS18                   | 41   | Max        | Prime mover, 2 axle dolly and 9-axle platform trailer        | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 530                      | 1.5                | 0.4             | 0.0               | 1113                    | 1.04             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1372                     | 1.5                | 0.4             | 0.0               | 2881                    | 0.98             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.07             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 862                      | 1.5                | 0.4             | 0.0               | 1810                    | 0.72             |
| BR29                     | MS18                   | 42   | Min        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 424                      | 1.5                | 0.4             | 0.0               | 890                     | 1.30             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1098                     | 1.5                | 0.4             | 0.0               | 2306                    | 1.23             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 437                      | 1.5                | 0.4             | 0.0               | 918                     | 1.34             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 717                      | 1.5                | 0.4             | 0.0               | 1506                    | 0.86             |
| BR29                     | MS18                   | 43   | Max        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 645                      | 1.5                | 0.4             | 0.0               | 1355                    | 0.86             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1646                     | 1.5                | 0.4             | 0.0               | 3457                    | 0.82             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 656                      | 1.5                | 0.4             | 0.0               | 1378                    | 0.89             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 1075                     | 1.5                | 0.4             | 0.0               | 2258                    | 0.57             |
| BR29                     | MS18                   | 44   | Min        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 477                      | 1.5                | 0.4             | 0.0               | 1002                    | 1.16             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1208                     | 1.5                | 0.4             | 0.0               | 2537                    | 1.12             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 477                      | 1.5                | 0.4             | 0.0               | 1002                    | 1.23             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 816                      | 1.5                | 0.4             | 0.0               | 1714                    | 0.76             |
| BR29                     | MS18                   | 45   | Max        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 537                      | 1.5                | 0.4             | 0.0               | 1128                    | 1.03             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1372                     | 1.5                | 0.4             | 0.0               | 2881                    | 0.98             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 546                      | 1.5                | 0.4             | 0.0               | 1147                    | 1.07             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 925                      | 1.5                | 0.4             | 0.0               | 1943                    | 0.67             |
| BR29                     | MS18                   | 46   | Min        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 462                      | 1.5                | 0.4             | 0.0               | 970                     | 1.19             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1171                     | 1.5                | 0.4             | 0.0               | 2459                    | 1.15             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 462                      | 1.5                | 0.4             | 0.0               | 970                     | 1.27             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 799                      | 1.5                | 0.4             | 0.0               | 1678                    | 0.77             |
| BR29                     | MS18                   | 47   | Max        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 538                      | 1.5                | 0.4             | 0.0               | 1130                    | 1.03             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1363                     | 1.5                | 0.4             | 0.0               | 2862                    | 0.99             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 538                      | 1.5                | 0.4             | 0.0               | 1130                    | 1.09             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 930                      | 1.5                | 0.4             | 0.0               | 1953                    | 0.66             |
| BR29                     | MS18                   | 48   | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 417                      | 1.5                | 0.4             | 0.0               | 876                     | 1.32             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1043                     | 1.5                | 0.4             | 0.0               | 2190                    | 1.29             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 417                      | 1.5                | 0.4             | 0.0               | 876                     | 1.40             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 514                      | 1.5                | 0.4             | 0.0               | 1079                    | 1.20             |
| BR29                     | MS18                   | 49   | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1,S2,S3               | 11.5     | V           | ULS           | 230                    | 2.0                | 0.4             | 0.8               | 1159                   | 516                      | 1.5                | 0.4             | 0.0               | 1084                    | 1.07             |
|                          |                        |  |            |  | S1,S2,S3               | 11.5     | Msag        | ULS           | 562                    | 2.0                | 0.4             | 0.8               | 2832                   | 1287                     | 1.5                | 0.4             | 0.0               | 2703                    | 1.05             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 244                    | 2.0                | 0.4             | 0.8               | 1230                   | 516                      | 1.5                | 0.4             | 0.0               | 1084                    | 1.13             |
|                          |                        |  |            |  | P1,P2                  |          | R1          | ULS           | 257                    | 2.0                | 0.4             | 0.8               | 1295                   | 633                      | 1.5                | 0.4             | 0.0               | 1329                    | 0.97             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 50   | GML        | 7 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 210             | 2.0                | 0.4             | 0.8               | 1058                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 210             | 2.0                | 0.4             | 0.8               | 1058                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 293             | 2.0                | 0.4             | 0.8               | 1477                    | 0.87             |
| BR30                     | MS18                   | 51   | CML        | 7 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.14             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 491             | 2.0                | 0.4             | 0.8               | 2475                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.14             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 299             | 2.0                | 0.4             | 0.8               | 1507                    | 0.85             |
| BR30                     | MS18                   | 52   | HML        | 7 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.14             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 491             | 2.0                | 0.4             | 0.8               | 2475                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.14             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 299             | 2.0                | 0.4             | 0.8               | 1507                    | 0.85             |
| BR30                     | MS18                   | 53   | GML        | 8 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 210             | 2.0                | 0.4             | 0.8               | 1058                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 210             | 2.0                | 0.4             | 0.8               | 1058                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 296             | 2.0                | 0.4             | 0.8               | 1492                    | 0.86             |
| BR30                     | MS18                   | 54   | CML        | 8 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.10             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 308             | 2.0                | 0.4             | 0.8               | 1552                    | 0.83             |
| BR30                     | MS18                   | 55   | HML        | 8 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 233             | 2.0                | 0.4             | 0.8               | 1174                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 233             | 2.0                | 0.4             | 0.8               | 1174                    | 1.04             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 321             | 2.0                | 0.4             | 0.8               | 1618                    | 0.79             |
| BR30                     | MS18                   | 56   | GML        | 8 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 212             | 2.0                | 0.4             | 0.8               | 1068                    | 1.14             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 212             | 2.0                | 0.4             | 0.8               | 1068                    | 1.14             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 291             | 2.0                | 0.4             | 0.8               | 1467                    | 0.88             |
| BR30                     | MS18                   | 57   | CML        | 8 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 301             | 2.0                | 0.4             | 0.8               | 1517                    | 0.85             |
| BR30                     | MS18                   | 58   | HML        | 8 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 235             | 2.0                | 0.4             | 0.8               | 1184                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 526             | 2.0                | 0.4             | 0.8               | 2651                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 235             | 2.0                | 0.4             | 0.8               | 1184                    | 1.03             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR30                     | MS18                   | 59   | GML        | 9 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 211             | 2.0                | 0.4             | 0.8               | 1063                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 211             | 2.0                | 0.4             | 0.8               | 1063                    | 1.15             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 296             | 2.0                | 0.4             | 0.8               | 1492                    | 0.86             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 60   | CML        | 9 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.09             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 222             | 2.0                | 0.4             | 0.8               | 1119                    | 1.09             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 310             | 2.0                | 0.4             | 0.8               | 1562                    | 0.82             |
| BR30                     | MS18                   | 61   | HML        | 9 axle B-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 238             | 2.0                | 0.4             | 0.8               | 1200                    | 1.02             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 238             | 2.0                | 0.4             | 0.8               | 1200                    | 1.02             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 328             | 2.0                | 0.4             | 0.8               | 1653                    | 0.78             |
| BR30                     | MS18                   | 62   | GML        | 9 axle A-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.14             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 213             | 2.0                | 0.4             | 0.8               | 1074                    | 1.14             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 300             | 2.0                | 0.4             | 0.8               | 1512                    | 0.85             |
| BR30                     | MS18                   | 63   | CML        | 9 axle A-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 219             | 2.0                | 0.4             | 0.8               | 1104                    | 1.11             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 491             | 2.0                | 0.4             | 0.8               | 2475                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 219             | 2.0                | 0.4             | 0.8               | 1104                    | 1.11             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 309             | 2.0                | 0.4             | 0.8               | 1557                    | 0.83             |
| BR30                     | MS18                   | 64   | HML        | 9 axle A-double          | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.10             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 491             | 2.0                | 0.4             | 0.8               | 2475                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 220             | 2.0                | 0.4             | 0.8               | 1109                    | 1.10             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 309             | 2.0                | 0.4             | 0.8               | 1557                    | 0.83             |
| BR30                     | MS18                   | 65   | GML        | 11 axle A-double         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR30                     | MS18                   | 66   | CML        | 11 axle A-double         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 318             | 2.0                | 0.4             | 0.8               | 1603                    | 0.80             |
| BR30                     | MS18                   | 67   | HML        | 11 axle A-double         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 526             | 2.0                | 0.4             | 0.8               | 2651                    | 1.02             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 332             | 2.0                | 0.4             | 0.8               | 1673                    | 0.77             |
| BR30                     | MS18                   | 68   | GML        | 12 axle A-double         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 69   | CML        | 12 axle A-double         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 70   | HML        | 12 axle A-double         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 71   | GML        | 12 Axle Modular B-triple | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 72   | CML        | 12 Axle Modular B-triple | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 73   | HML        | 12 Axle Modular B-triple | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 74   | GML        | 12 Axle B-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 75   | CML        | 12 Axle B-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 76   | HML        | 12 Axle B-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 77   | GML        | 14 Axle B-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR30                     | MS18                   | 78   | CML        | 14 Axle B-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 318             | 2.0                | 0.4             | 0.8               | 1603                    | 0.80             |
| BR30                     | MS18                   | 79   | HML        | 14 Axle B-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 526             | 2.0                | 0.4             | 0.8               | 2651                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 332             | 2.0                | 0.4             | 0.8               | 1673                    | 0.77             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 80   | GML        | 15 Axle AB-triple        | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 81   | CML        | 15 Axle AB-triple        | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 82   | HML        | 15 Axle AB-triple        | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 83   | GML        | 16 Axle A-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR30                     | MS18                   | 84   | CML        | 16 Axle A-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 318             | 2.0                | 0.4             | 0.8               | 1603                    | 0.80             |
| BR30                     | MS18                   | 85   | HML        | 16 Axle A-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 526             | 2.0                | 0.4             | 0.8               | 2651                    | 1.02             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 332             | 2.0                | 0.4             | 0.8               | 1673                    | 0.77             |
| BR30                     | MS18                   | 86   | GML        | 18 Axle A-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 87   | CML        | 18 Axle A-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 88   | HML        | 18 Axle A-triple         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 89   | GML        | 15 Axle AB-triple        | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |



| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                          | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV) | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                          |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 90   | CML        | 15 Axle AB-triple        | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 91   | HML        | 15 Axle AB-triple        | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 92   | GML        | 17 Axle BAB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR30                     | MS18                   | 93   | CML        | 17 Axle BAB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 318             | 2.0                | 0.4             | 0.8               | 1603                    | 0.80             |
| BR30                     | MS18                   | 94   | HML        | 17 Axle BAB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 526             | 2.0                | 0.4             | 0.8               | 2651                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 332             | 2.0                | 0.4             | 0.8               | 1673                    | 0.77             |
| BR30                     | MS18                   | 95   | GML        | 18 Axle BAB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 96   | CML        | 18 Axle BAB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 97   | HML        | 18 Axle BAB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 98   | GML        | 17 Axle ABB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 305             | 2.0                | 0.4             | 0.8               | 1537                    | 0.84             |
| BR30                     | MS18                   | 99   | CML        | 17 Axle ABB-Quad         | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                          |                        |          |             |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 226             | 2.0                | 0.4             | 0.8               | 1139                    | 1.07             |
|                          |                        |  |            |                          |                        |          |             |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 318             | 2.0                | 0.4             | 0.8               | 1603                    | 0.80             |

| Travel Restriction: 1    |                        | Both Application Vehicle and accompanying vehicle are travelling within the traffic lane at a speed greater than 10 km/h |            |                              | Location & Load Effect |          |             | Reference Vehicle (RV) |                 |                    |                 |                   | Application Vehicle (RV) |                 |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|------------------------------|------------------------|----------|-------------|------------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|-----------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)     | Grouping               | Span (m) | Load Effect | Calc'n Method          | Q <sub>RV</sub> | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>         | Q <sub>AV</sub> | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |                              |                        |          |             |                        | A               | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D)   | F               | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 100  | HML        | 17 Axle ABB-Quad             | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                              | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 526             | 2.0                | 0.4             | 0.8               | 2651                    | 1.02             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 239             | 2.0                | 0.4             | 0.8               | 1205                    | 1.01             |
|                          |                        |  |            |                              | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 332             | 2.0                | 0.4             | 0.8               | 1673                    | 0.77             |
| BR30                     | MS18                   | 101  | GML        | 18 Axle ABB-Quad             | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                              | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 479             | 2.0                | 0.4             | 0.8               | 2414                    | 1.12             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 216             | 2.0                | 0.4             | 0.8               | 1089                    | 1.12             |
|                          |                        |  |            |                              | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 307             | 2.0                | 0.4             | 0.8               | 1547                    | 0.83             |
| BR30                     | MS18                   | 102  | CML        | 18 Axle ABB-Quad             | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                              | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 492             | 2.0                | 0.4             | 0.8               | 2480                    | 1.09             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 227             | 2.0                | 0.4             | 0.8               | 1144                    | 1.07             |
|                          |                        |  |            |                              | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 322             | 2.0                | 0.4             | 0.8               | 1623                    | 0.79             |
| BR30                     | MS18                   | 103  | HML        | 18 Axle ABB-Quad             | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                              | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 527             | 2.0                | 0.4             | 0.8               | 2656                    | 1.02             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 243             | 2.0                | 0.4             | 0.8               | 1225                    | 1.00             |
|                          |                        |  |            |                              | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 345             | 2.0                | 0.4             | 0.8               | 1739                    | 0.74             |
| BR30                     | MS18                   | 104  | GML        | 2 Axle Controlled Access Bus | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 150             | 2.0                | 0.4             | 0.8               | 756                     | 1.61             |
|                          |                        |  |            |                              | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 342             | 2.0                | 0.4             | 0.8               | 1724                    | 1.56             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 150             | 2.0                | 0.4             | 0.8               | 756                     | 1.61             |
|                          |                        |  |            |                              | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 150             | 2.0                | 0.4             | 0.8               | 756                     | 1.70             |
| BR30                     | MS18                   | 105  | GML        | 3 Axle Controlled Access Bus | S1,S2,S3,S4            | 11.15    | V           | ULS                    | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 159             | 2.0                | 0.4             | 0.8               | 801                     | 1.52             |
|                          |                        |  |            |                              | S1,S2,S3,S4            | 11.15    | Msag        |                        | 535             | 2.0                | 0.4             | 0.8               | 2696                     | 382             | 2.0                | 0.4             | 0.8               | 1925                    | 1.40             |
|                          |                        |  |            |                              | A1,A2                  |          | Ra          |                        | 242             | 2.0                | 0.4             | 0.8               | 1220                     | 159             | 2.0                | 0.4             | 0.8               | 801                     | 1.52             |
|                          |                        |  |            |                              | P1,P2,P3               |          | R1          |                        | 255             | 2.0                | 0.4             | 0.8               | 1285                     | 172             | 2.0                | 0.4             | 0.8               | 867                     | 1.48             |



| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                         | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 1  | Max        | Prime mover and 2-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 289                      | 1.5                | 0.4             | 0.0               | 607                     | 2.01             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 637                      | 1.5                | 0.4             | 0.0               | 1338                    | 2.02             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 289                      | 1.5                | 0.4             | 0.0               | 607                     | 2.01             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 315                      | 1.5                | 0.4             | 0.0               | 662                     | 1.94             |
| BR30                     | MS18                   | 2  | Min        | Prime mover and 3-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 210                      | 1.5                | 0.4             | 0.0               | 441                     | 2.77             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 522                      | 1.5                | 0.4             | 0.0               | 1096                    | 2.46             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 210                      | 1.5                | 0.4             | 0.0               | 441                     | 2.77             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 271                      | 1.5                | 0.4             | 0.0               | 569                     | 2.26             |
| BR30                     | MS18                   | 3  | Max        | Prime mover and 3-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 291                      | 1.5                | 0.4             | 0.0               | 611                     | 2.00             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 771                      | 1.5                | 0.4             | 0.0               | 1619                    | 1.67             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 291                      | 1.5                | 0.4             | 0.0               | 611                     | 2.00             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 320                      | 1.5                | 0.4             | 0.0               | 672                     | 1.91             |
| BR30                     | MS18                   | 4  | Min        | Prime mover and 4-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 257                      | 1.5                | 0.4             | 0.0               | 540                     | 2.26             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 654                      | 1.5                | 0.4             | 0.0               | 1373                    | 1.96             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 257                      | 1.5                | 0.4             | 0.0               | 540                     | 2.26             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 288                      | 1.5                | 0.4             | 0.0               | 605                     | 2.13             |
| BR30                     | MS18                   | 5  | Max        | Prime mover and 4-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 384                      | 1.5                | 0.4             | 0.0               | 806                     | 1.51             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 972                      | 1.5                | 0.4             | 0.0               | 2041                    | 1.32             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 384                      | 1.5                | 0.4             | 0.0               | 806                     | 1.51             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 428                      | 1.5                | 0.4             | 0.0               | 899                     | 1.43             |
| BR30                     | MS18                   | 6  | Min        | Prime mover and 4-axle spread low loader trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 230                      | 1.5                | 0.4             | 0.0               | 483                     | 2.53             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 565                      | 1.5                | 0.4             | 0.0               | 1187                    | 2.27             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 230                      | 1.5                | 0.4             | 0.0               | 483                     | 2.53             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 261                      | 1.5                | 0.4             | 0.0               | 548                     | 2.34             |
| BR30                     | MS18                   | 7  | Max        | Prime mover and 4-axle spread low loader trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 535                      | 1.5                | 0.4             | 0.0               | 1124                    | 1.09             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1318                     | 1.5                | 0.4             | 0.0               | 2768                    | 0.97             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 535                      | 1.5                | 0.4             | 0.0               | 1124                    | 1.09             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 583                      | 1.5                | 0.4             | 0.0               | 1224                    | 1.05             |
| BR30                     | MS18                   | 8  | Min        | Prime mover and 5-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 341                      | 1.5                | 0.4             | 0.0               | 716                     | 1.70             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 913                      | 1.5                | 0.4             | 0.0               | 1917                    | 1.41             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 341                      | 1.5                | 0.4             | 0.0               | 716                     | 1.70             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 384                      | 1.5                | 0.4             | 0.0               | 806                     | 1.59             |
| BR30                     | MS18                   | 9  | Max        | Prime mover and 5-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 609                      | 1.5                | 0.4             | 0.0               | 1279                    | 0.95             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1622                     | 1.5                | 0.4             | 0.0               | 3406                    | 0.79             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 609                      | 1.5                | 0.4             | 0.0               | 1279                    | 0.95             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 690                      | 1.5                | 0.4             | 0.0               | 1449                    | 0.89             |
| BR30                     | MS18                   | 10   | Min        | Prime mover and 6-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 190                      | 1.5                | 0.4             | 0.0               | 399                     | 3.06             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 449                      | 1.5                | 0.4             | 0.0               | 943                     | 2.86             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 190                      | 1.5                | 0.4             | 0.0               | 399                     | 3.06             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 229                      | 1.5                | 0.4             | 0.0               | 481                     | 2.67             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                 | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 11   | Max        | Prime mover and 6-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 557                      | 1.5                | 0.4             | 0.0               | 1170                    | 1.04             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1371                     | 1.5                | 0.4             | 0.0               | 2879                    | 0.94             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 557                      | 1.5                | 0.4             | 0.0               | 1170                    | 1.04             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 714                      | 1.5                | 0.4             | 0.0               | 1499                    | 0.86             |
| BR30                     | MS18                   | 12   | Min        | Prime mover and 7-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 190                      | 1.5                | 0.4             | 0.0               | 399                     | 3.06             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 448                      | 1.5                | 0.4             | 0.0               | 941                     | 2.87             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 190                      | 1.5                | 0.4             | 0.0               | 399                     | 3.06             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 263                      | 1.5                | 0.4             | 0.0               | 552                     | 2.33             |
| BR30                     | MS18                   | 13   | Max        | Prime mover and 7-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 632                      | 1.5                | 0.4             | 0.0               | 1327                    | 0.92             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1542                     | 1.5                | 0.4             | 0.0               | 3238                    | 0.83             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 632                      | 1.5                | 0.4             | 0.0               | 1327                    | 0.92             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 893                      | 1.5                | 0.4             | 0.0               | 1875                    | 0.69             |
| BR30                     | MS18                   | 14   | Min        | Prime mover and 8-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 205                      | 1.5                | 0.4             | 0.0               | 431                     | 2.83             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 518                      | 1.5                | 0.4             | 0.0               | 1088                    | 2.48             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 205                      | 1.5                | 0.4             | 0.0               | 431                     | 2.83             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 276                      | 1.5                | 0.4             | 0.0               | 580                     | 2.22             |
| BR30                     | MS18                   | 15   | Max        | Prime mover and 8-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 555                      | 1.5                | 0.4             | 0.0               | 1166                    | 1.05             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1371                     | 1.5                | 0.4             | 0.0               | 2879                    | 0.94             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 555                      | 1.5                | 0.4             | 0.0               | 1166                    | 1.05             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 890                      | 1.5                | 0.4             | 0.0               | 1869                    | 0.69             |
| BR30                     | MS18                   | 16   | Min        | Prime mover and 9-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 203                      | 1.5                | 0.4             | 0.0               | 426                     | 2.86             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 507                      | 1.5                | 0.4             | 0.0               | 1065                    | 2.53             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 203                      | 1.5                | 0.4             | 0.0               | 426                     | 2.86             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 226                      | 1.5                | 0.4             | 0.0               | 475                     | 2.71             |
| BR30                     | MS18                   | 17   | Max        | Prime mover and 9-axle platform trailer  | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1285                     | 1.5                | 0.4             | 0.0               | 2699                    | 1.00             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 849                      | 1.5                | 0.4             | 0.0               | 1783                    | 0.72             |
| BR30                     | MS18                   | 18   | Min        | Prime mover and 10-axle platform trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 193                      | 1.5                | 0.4             | 0.0               | 405                     | 3.01             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 471                      | 1.5                | 0.4             | 0.0               | 989                     | 2.73             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 193                      | 1.5                | 0.4             | 0.0               | 405                     | 3.01             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 322                      | 1.5                | 0.4             | 0.0               | 676                     | 1.90             |
| BR30                     | MS18                   | 19   | Max        | Prime mover and 10-axle platform trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1285                     | 1.5                | 0.4             | 0.0               | 2699                    | 1.00             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 878                      | 1.5                | 0.4             | 0.0               | 1844                    | 0.70             |
| BR30                     | MS18                   | 20   | Min        | Prime mover and 11-axle platform trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 196                      | 1.5                | 0.4             | 0.0               | 412                     | 2.96             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 479                      | 1.5                | 0.4             | 0.0               | 1006                    | 2.68             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 196                      | 1.5                | 0.4             | 0.0               | 412                     | 2.96             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 231                      | 1.5                | 0.4             | 0.0               | 485                     | 2.65             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 21   | Max        | Prime mover and 11-axle platform trailer                       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 506                      | 1.5                | 0.4             | 0.0               | 1063                    | 1.15             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1234                     | 1.5                | 0.4             | 0.0               | 2591                    | 1.04             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 506                      | 1.5                | 0.4             | 0.0               | 1063                    | 1.15             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 869                      | 1.5                | 0.4             | 0.0               | 1825                    | 0.70             |
| BR30                     | MS18                   | 22   | Min        | Prime mover and 12-axle platform trailer                       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 196                      | 1.5                | 0.4             | 0.0               | 412                     | 2.96             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 480                      | 1.5                | 0.4             | 0.0               | 1008                    | 2.68             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 196                      | 1.5                | 0.4             | 0.0               | 412                     | 2.96             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 255                      | 1.5                | 0.4             | 0.0               | 536                     | 2.40             |
| BR30                     | MS18                   | 23   | Max        | Prime mover and 12-axle platform trailer                       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 474                      | 1.5                | 0.4             | 0.0               | 995                     | 1.23             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1157                     | 1.5                | 0.4             | 0.0               | 2430                    | 1.11             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 474                      | 1.5                | 0.4             | 0.0               | 995                     | 1.23             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 820                      | 1.5                | 0.4             | 0.0               | 1722                    | 0.75             |
| BR30                     | MS18                   | 24   | Min        | Prime mover and 16-axle platform trailer                       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 1.84             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 771                      | 1.5                | 0.4             | 0.0               | 1619                    | 1.67             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 1.84             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 549                      | 1.5                | 0.4             | 0.0               | 1153                    | 1.11             |
| BR30                     | MS18                   | 25   | Max        | Prime mover and 16-axle platform trailer                       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 1.84             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 771                      | 1.5                | 0.4             | 0.0               | 1619                    | 1.67             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 316                      | 1.5                | 0.4             | 0.0               | 664                     | 1.84             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 549                      | 1.5                | 0.4             | 0.0               | 1153                    | 1.11             |
| BR30                     | MS18                   | 26   | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 257                      | 1.5                | 0.4             | 0.0               | 540                     | 2.26             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 625                      | 1.5                | 0.4             | 0.0               | 1313                    | 2.05             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 257                      | 1.5                | 0.4             | 0.0               | 540                     | 2.26             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 310                      | 1.5                | 0.4             | 0.0               | 651                     | 1.97             |
| BR30                     | MS18                   | 27   | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 439                      | 1.5                | 0.4             | 0.0               | 922                     | 1.32             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1157                     | 1.5                | 0.4             | 0.0               | 2430                    | 1.11             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 439                      | 1.5                | 0.4             | 0.0               | 922                     | 1.32             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 471                      | 1.5                | 0.4             | 0.0               | 989                     | 1.30             |
| BR30                     | MS18                   | 28   | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 288                      | 1.5                | 0.4             | 0.0               | 605                     | 2.02             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 661                      | 1.5                | 0.4             | 0.0               | 1388                    | 1.94             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 288                      | 1.5                | 0.4             | 0.0               | 605                     | 2.02             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 329                      | 1.5                | 0.4             | 0.0               | 691                     | 1.86             |
| BR30                     | MS18                   | 29   | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 365                      | 1.5                | 0.4             | 0.0               | 767                     | 1.59             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 943                      | 1.5                | 0.4             | 0.0               | 1980                    | 1.36             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 365                      | 1.5                | 0.4             | 0.0               | 767                     | 1.59             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 410                      | 1.5                | 0.4             | 0.0               | 861                     | 1.49             |
| BR30                     | MS18                   | 30   | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 198                      | 1.5                | 0.4             | 0.0               | 416                     | 2.93             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 521                      | 1.5                | 0.4             | 0.0               | 1094                    | 2.46             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 198                      | 1.5                | 0.4             | 0.0               | 416                     | 2.93             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 242                      | 1.5                | 0.4             | 0.0               | 508                     | 2.53             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                       | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 31   | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 443                      | 1.5                | 0.4             | 0.0               | 930                     | 1.31             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1085                     | 1.5                | 0.4             | 0.0               | 2279                    | 1.18             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 443                      | 1.5                | 0.4             | 0.0               | 930                     | 1.31             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 485                      | 1.5                | 0.4             | 0.0               | 1019                    | 1.26             |
| BR30                     | MS18                   | 32   | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 285                      | 1.5                | 0.4             | 0.0               | 599                     | 2.04             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 760                      | 1.5                | 0.4             | 0.0               | 1596                    | 1.69             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 285                      | 1.5                | 0.4             | 0.0               | 599                     | 2.04             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 320                      | 1.5                | 0.4             | 0.0               | 672                     | 1.91             |
| BR30                     | MS18                   | 33   | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 605                      | 1.5                | 0.4             | 0.0               | 1271                    | 0.96             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1623                     | 1.5                | 0.4             | 0.0               | 3408                    | 0.79             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 605                      | 1.5                | 0.4             | 0.0               | 1271                    | 0.96             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 682                      | 1.5                | 0.4             | 0.0               | 1432                    | 0.90             |
| BR30                     | MS18                   | 34   | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 323                      | 1.5                | 0.4             | 0.0               | 678                     | 1.80             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 814                      | 1.5                | 0.4             | 0.0               | 1709                    | 1.58             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 323                      | 1.5                | 0.4             | 0.0               | 678                     | 1.80             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 424                      | 1.5                | 0.4             | 0.0               | 890                     | 1.44             |
| BR30                     | MS18                   | 35   | Max        | Prime mover, 2 axle dolly and 6-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 560                      | 1.5                | 0.4             | 0.0               | 1176                    | 1.04             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1371                     | 1.5                | 0.4             | 0.0               | 2879                    | 0.94             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 560                      | 1.5                | 0.4             | 0.0               | 1176                    | 1.04             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 724                      | 1.5                | 0.4             | 0.0               | 1520                    | 0.85             |
| BR30                     | MS18                   | 36   | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 326                      | 1.5                | 0.4             | 0.0               | 685                     | 1.78             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 797                      | 1.5                | 0.4             | 0.0               | 1674                    | 1.61             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 326                      | 1.5                | 0.4             | 0.0               | 685                     | 1.78             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 461                      | 1.5                | 0.4             | 0.0               | 968                     | 1.33             |
| BR30                     | MS18                   | 37   | Max        | Prime mover, 2 axle dolly and 7-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 818                      | 1.5                | 0.4             | 0.0               | 1718                    | 0.71             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1996                     | 1.5                | 0.4             | 0.0               | 4192                    | 0.64             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 818                      | 1.5                | 0.4             | 0.0               | 1718                    | 0.71             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 1154                     | 1.5                | 0.4             | 0.0               | 2423                    | 0.53             |
| BR30                     | MS18                   | 38   | Min        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 496                      | 1.5                | 0.4             | 0.0               | 1042                    | 1.17             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1200                     | 1.5                | 0.4             | 0.0               | 2520                    | 1.07             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 496                      | 1.5                | 0.4             | 0.0               | 1042                    | 1.17             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 744                      | 1.5                | 0.4             | 0.0               | 1562                    | 0.82             |
| BR30                     | MS18                   | 39   | Max        | Prime mover, 2 axle dolly and 8-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 574                      | 1.5                | 0.4             | 0.0               | 1205                    | 1.01             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1422                     | 1.5                | 0.4             | 0.0               | 2986                    | 0.90             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 574                      | 1.5                | 0.4             | 0.0               | 1205                    | 1.01             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 882                      | 1.5                | 0.4             | 0.0               | 1852                    | 0.69             |
| BR30                     | MS18                   | 40   | Min        | Prime mover, 2 axle dolly and 9-axle platform trailer          | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1285                     | 1.5                | 0.4             | 0.0               | 2699                    | 1.00             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 849                      | 1.5                | 0.4             | 0.0               | 1783                    | 0.72             |

| Travel Restriction: 5    |                        | No accompanying vehicle and Application vehicle is travelling centre of the bridge at a speed greater than 10 km/h |            |  | Location & Load Effect |          |             |               | Reference Vehicle (RV) |                    |                 |                   |                        | Application Vehicle (RV) |                    |                 |                   |                         |                  |
|--------------------------|------------------------|--|------------|--|------------------------|----------|-------------|---------------|------------------------|--------------------|-----------------|-------------------|------------------------|--------------------------|--------------------|-----------------|-------------------|-------------------------|------------------|
| General Loading Scenario |                        | AV #   | Mass Limit | Application Vehicle (AV)                                     | Grouping               | Span (m) | Load Effect | Calc'n Method | Q <sub>RV</sub>        | Y <sub>Q, RV</sub> | α <sub>RV</sub> | ALF <sub>RV</sub> | Q' <sub>RV</sub>       | Q <sub>AV</sub>          | Y <sub>Q, AV</sub> | α <sub>AV</sub> | ALF <sub>AV</sub> | Q' <sub>AV</sub>        | ERT <sub>o</sub> |
| Bridge ID                | Reference Vehicle (RV) |  |            |  |                        |          |             |               | A                      | B                  | C               | D                 | E = A*B*<br>(1+C)*1+D) | F                        | G                  | H               | I                 | J = F*G*<br>(1+H)*(1+I) | K = E/I          |
| BR30                     | MS18                   | 41   | Max        | Prime mover, 2 axle dolly and 9-axle platform trailer        | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1285                     | 1.5                | 0.4             | 0.0               | 2699                    | 1.00             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 849                      | 1.5                | 0.4             | 0.0               | 1783                    | 0.72             |
| BR30                     | MS18                   | 42   | Min        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 421                      | 1.5                | 0.4             | 0.0               | 884                     | 1.38             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1028                     | 1.5                | 0.4             | 0.0               | 2159                    | 1.25             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 421                      | 1.5                | 0.4             | 0.0               | 884                     | 1.38             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 702                      | 1.5                | 0.4             | 0.0               | 1474                    | 0.87             |
| BR30                     | MS18                   | 43   | Max        | Prime mover, 2 axle dolly and 10-axle platform trailer       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 632                      | 1.5                | 0.4             | 0.0               | 1327                    | 0.92             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1542                     | 1.5                | 0.4             | 0.0               | 3238                    | 0.83             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 632                      | 1.5                | 0.4             | 0.0               | 1327                    | 0.92             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 1053                     | 1.5                | 0.4             | 0.0               | 2211                    | 0.58             |
| BR30                     | MS18                   | 44   | Min        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 467                      | 1.5                | 0.4             | 0.0               | 981                     | 1.24             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1131                     | 1.5                | 0.4             | 0.0               | 2375                    | 1.14             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 467                      | 1.5                | 0.4             | 0.0               | 981                     | 1.24             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 796                      | 1.5                | 0.4             | 0.0               | 1672                    | 0.77             |
| BR30                     | MS18                   | 45   | Max        | Prime mover, 2 axle dolly and 11-axle platform trailer       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1285                     | 1.5                | 0.4             | 0.0               | 2699                    | 1.00             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 527                      | 1.5                | 0.4             | 0.0               | 1107                    | 1.10             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 906                      | 1.5                | 0.4             | 0.0               | 1903                    | 0.68             |
| BR30                     | MS18                   | 46   | Min        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 449                      | 1.5                | 0.4             | 0.0               | 943                     | 1.29             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1097                     | 1.5                | 0.4             | 0.0               | 2304                    | 1.17             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 449                      | 1.5                | 0.4             | 0.0               | 943                     | 1.29             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 777                      | 1.5                | 0.4             | 0.0               | 1632                    | 0.79             |
| BR30                     | MS18                   | 47   | Max        | Prime mover, 2 axle dolly and 12-axle platform trailer       | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 528                      | 1.5                | 0.4             | 0.0               | 1109                    | 1.10             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1277                     | 1.5                | 0.4             | 0.0               | 2682                    | 1.01             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 528                      | 1.5                | 0.4             | 0.0               | 1109                    | 1.10             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 905                      | 1.5                | 0.4             | 0.0               | 1901                    | 0.68             |
| BR30                     | MS18                   | 48   | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 417                      | 1.5                | 0.4             | 0.0               | 876                     | 1.39             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 998                      | 1.5                | 0.4             | 0.0               | 2096                    | 1.29             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 417                      | 1.5                | 0.4             | 0.0               | 876                     | 1.39             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 507                      | 1.5                | 0.4             | 0.0               | 1065                    | 1.21             |
| BR30                     | MS18                   | 49   | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer | S1,S2,S3,S4            | 11.15    | V           | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 517                      | 1.5                | 0.4             | 0.0               | 1086                    | 1.12             |
|                          |                        |  |            |  | S1,S2,S3,S4            | 11.15    | Msag        | ULS           | 535                    | 2.0                | 0.4             | 0.8               | 2696                   | 1224                     | 1.5                | 0.4             | 0.0               | 2570                    | 1.05             |
|                          |                        |  |            |  | A1,A2                  |          | Ra          | ULS           | 242                    | 2.0                | 0.4             | 0.8               | 1220                   | 517                      | 1.5                | 0.4             | 0.0               | 1086                    | 1.12             |
|                          |                        |  |            |  | P1,P2,P3               |          | R1          | ULS           | 255                    | 2.0                | 0.4             | 0.8               | 1285                   | 625                      | 1.5                | 0.4             | 0.0               | 1313                    | 0.98             |



## ***APPENDIX D – Application Vehicles with ERT > 1.0 (Pass) Results – by Asset***



**Table 8 Grosvenor Creek – OSOM Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description                                |
|-----------------------|------------|--|
| 1                     | Max        | Prime mover and 2-axle low loader trailer                      |
| 2                     | Min        | Prime mover and 3-axle low loader trailer                      |
| 3                     | Max        | Prime mover and 3-axle low loader trailer                      |
| 4                     | Min        | Prime mover and 4-axle low loader trailer                      |
| 5                     | Max        | Prime mover and 4-axle low loader trailer                      |
| 6                     | Min        | Prime mover and 4-axle spread low loader trailer               |
| 8                     | Min        | Prime mover and 5-axle low loader trailer                      |
| 10                    | Min        | Prime mover and 6-axle platform trailer                        |
| 12                    | Min        | Prime mover and 7-axle platform trailer                        |
| 14                    | Min        | Prime mover and 8-axle platform trailer                        |
| 16                    | Min        | Prime mover and 9-axle platform trailer                        |
| 18                    | Min        | Prime mover and 10-axle platform trailer                       |
| 20                    | Min        | Prime mover and 11-axle platform trailer                       |
| 22                    | Min        | Prime mover and 12-axle platform trailer                       |
| 26                    | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 27                    | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 28                    | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 29                    | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 30                    | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 31                    | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 32                    | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        |
| 34                    | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          |
| 36                    | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          |
| 48                    | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer   |

**Table 9 BR10 – Grosvenor Creek – Class 2 Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 104                   | GML        | 2 Axle Controlled Access Bus    |
| 105                   | GML        | 3 Axle Controlled Access Bus    |



**Table 10 BR11 – Cherwell Creek – OSOM Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description                                |
|-----------------------|------------|--|
| 1                     | Max        | Prime mover and 2-axle low loader trailer                      |
| 2                     | Min        | Prime mover and 3-axle low loader trailer                      |
| 3                     | Max        | Prime mover and 3-axle low loader trailer                      |
| 4                     | Min        | Prime mover and 4-axle low loader trailer                      |
| 5                     | Max        | Prime mover and 4-axle low loader trailer                      |
| 6                     | Min        | Prime mover and 4-axle spread low loader trailer               |
| 7                     | Max        | Prime mover and 4-axle spread low loader trailer               |
| 8                     | Min        | Prime mover and 5-axle low loader trailer                      |
| 9                     | Max        | Prime mover and 5-axle low loader trailer                      |
| 10                    | Min        | Prime mover and 6-axle platform trailer                        |
| 11                    | Max        | Prime mover and 6-axle platform trailer                        |
| 12                    | Min        | Prime mover and 7-axle platform trailer                        |
| 13                    | Max        | Prime mover and 7-axle platform trailer                        |
| 14                    | Min        | Prime mover and 8-axle platform trailer                        |
| 15                    | Max        | Prime mover and 8-axle platform trailer                        |
| 16                    | Min        | Prime mover and 9-axle platform trailer                        |
| 17                    | Max        | Prime mover and 9-axle platform trailer                        |
| 18                    | Min        | Prime mover and 10-axle platform trailer                       |
| 19                    | Max        | Prime mover and 10-axle platform trailer                       |
| 20                    | Min        | Prime mover and 11-axle platform trailer                       |
| 21                    | Max        | Prime mover and 11-axle platform trailer                       |
| 22                    | Min        | Prime mover and 12-axle platform trailer                       |
| 23                    | Max        | Prime mover and 12-axle platform trailer                       |
| 24                    | Min        | Prime mover and 16-axle platform trailer                       |
| 25                    | Max        | Prime mover and 16-axle platform trailer                       |
| 26                    | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 27                    | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 28                    | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 29                    | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 30                    | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 31                    | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 32                    | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        |
| 33                    | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        |

| Application Vehicle # | Mass Limit | Application Vehicle Description                              |
|-----------------------|------------|--|
| 34                    | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer        |
| 35                    | Max        | Prime mover, 2 axle dolly and 6-axle platform trailer        |
| 36                    | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer        |
| 37                    | Max        | Prime mover, 2 axle dolly and 7-axle platform trailer        |
| 38                    | Min        | Prime mover, 2 axle dolly and 8-axle platform trailer        |
| 39                    | Max        | Prime mover, 2 axle dolly and 8-axle platform trailer        |
| 40                    | Min        | Prime mover, 2 axle dolly and 9-axle platform trailer        |
| 41                    | Max        | Prime mover, 2 axle dolly and 9-axle platform trailer        |
| 42                    | Min        | Prime mover, 2 axle dolly and 10-axle platform trailer       |
| 43                    | Max        | Prime mover, 2 axle dolly and 10-axle platform trailer       |
| 44                    | Min        | Prime mover, 2 axle dolly and 11-axle platform trailer       |
| 45                    | Max        | Prime mover, 2 axle dolly and 11-axle platform trailer       |
| 46                    | Min        | Prime mover, 2 axle dolly and 12-axle platform trailer       |
| 47                    | Max        | Prime mover, 2 axle dolly and 12-axle platform trailer       |
| 48                    | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer |
| 49                    | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer |

**Table 11 BR11 – Cherwell Creek – Class 2 Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 50                    | GML        | 7 axle B-double                 |
| 51                    | CML        | 7 axle B-double                 |
| 52                    | HML        | 7 axle B-double                 |
| 53                    | GML        | 8 axle B-double                 |
| 54                    | CML        | 8 axle B-double                 |
| 55                    | HML        | 8 axle B-double                 |
| 56                    | GML        | 8 axle B-double                 |
| 57                    | CML        | 8 axle B-double                 |
| 58                    | HML        | 8 axle B-double                 |
| 59                    | GML        | 9 axle B-double                 |
| 60                    | CML        | 9 axle B-double                 |
| 61                    | HML        | 9 axle B-double                 |
| 62                    | GML        | 9 axle A-double                 |
| 63                    | CML        | 9 axle A-double                 |

| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 64                    | HML        | 9 axle A-double                 |
| 65                    | GML        | 11 axle A-double                |
| 66                    | CML        | 11 axle A-double                |
| 67                    | HML        | 11 axle A-double                |
| 68                    | GML        | 12 axle A-double                |
| 69                    | CML        | 12 axle A-double                |
| 70                    | HML        | 12 axle A-double                |
| 71                    | GML        | 12 Axle Modular B-triple        |
| 72                    | CML        | 12 Axle Modular B-triple        |
| 73                    | HML        | 12 Axle Modular B-triple        |
| 74                    | GML        | 12 Axle B-triple                |
| 75                    | CML        | 12 Axle B-triple                |
| 76                    | HML        | 12 Axle B-triple                |
| 77                    | GML        | 14 Axle B-triple                |
| 78                    | CML        | 14 Axle B-triple                |
| 79                    | HML        | 14 Axle B-triple                |
| 80                    | GML        | 15 Axle AB-triple               |
| 81                    | CML        | 15 Axle AB-triple               |
| 82                    | HML        | 15 Axle AB-triple               |
| 83                    | GML        | 16 Axle A-triple                |
| 84                    | CML        | 16 Axle A-triple                |
| 85                    | HML        | 16 Axle A-triple                |
| 86                    | GML        | 18 Axle A-triple                |
| 87                    | CML        | 18 Axle A-triple                |
| 88                    | HML        | 18 Axle A-triple                |
| 89                    | GML        | 15 Axle AB-triple               |
| 90                    | CML        | 15 Axle AB-triple               |
| 91                    | HML        | 15 Axle AB-triple               |
| 92                    | GML        | 17 Axle BAB-Quad                |
| 93                    | CML        | 17 Axle BAB-Quad                |
| 94                    | HML        | 17 Axle BAB-Quad                |
| 95                    | GML        | 18 Axle BAB-Quad                |
| 96                    | CML        | 18 Axle BAB-Quad                |
| 97                    | HML        | 18 Axle BAB-Quad                |



| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 98                    | GML        | 17 Axle ABB-Quad                |
| 99                    | CML        | 17 Axle ABB-Quad                |
| 100                   | HML        | 17 Axle ABB-Quad                |
| 101                   | GML        | 18 Axle ABB-Quad                |
| 102                   | CML        | 18 Axle ABB-Quad                |
| 103                   | HML        | 18 Axle ABB-Quad                |
| 104                   | GML        | 2 Axle Controlled Access Bus    |
| 105                   | GML        | 3 Axle Controlled Access Bus    |

**Table 12 BR23 – Blackburn Creek – OSOM Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description                                |
|-----------------------|------------|--|
| 1                     | Max        | Prime mover and 2-axle low loader trailer                      |
| 2                     | Min        | Prime mover and 3-axle low loader trailer                      |
| 3                     | Max        | Prime mover and 3-axle low loader trailer                      |
| 4                     | Min        | Prime mover and 4-axle low loader trailer                      |
| 5                     | Max        | Prime mover and 4-axle low loader trailer                      |
| 6                     | Min        | Prime mover and 4-axle spread low loader trailer               |
| 7                     | Max        | Prime mover and 4-axle spread low loader trailer               |
| 8                     | Min        | Prime mover and 5-axle low loader trailer                      |
| 9                     | Max        | Prime mover and 5-axle low loader trailer                      |
| 10                    | Min        | Prime mover and 6-axle platform trailer                        |
| 11                    | Max        | Prime mover and 6-axle platform trailer                        |
| 12                    | Min        | Prime mover and 7-axle platform trailer                        |
| 14                    | Min        | Prime mover and 8-axle platform trailer                        |
| 16                    | Min        | Prime mover and 9-axle platform trailer                        |
| 18                    | Min        | Prime mover and 10-axle platform trailer                       |
| 20                    | Min        | Prime mover and 11-axle platform trailer                       |
| 22                    | Min        | Prime mover and 12-axle platform trailer                       |
| 24                    | Min        | Prime mover and 16-axle platform trailer                       |
| 25                    | Max        | Prime mover and 16-axle platform trailer                       |
| 26                    | Min        | Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 27                    | Max        | Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 28                    | Min        | Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 29                    | Max        | Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 30                    | Min        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 31                    | Max        | Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 32                    | Min        | Prime mover, 2 axle dolly and 5-axle low loader trailer        |
| 33                    | Max        | Prime mover, 2 axle dolly and 5-axle low loader trailer        |
| 34                    | Min        | Prime mover, 2 axle dolly and 6-axle platform trailer          |
| 36                    | Min        | Prime mover, 2 axle dolly and 7-axle platform trailer          |
| 48                    | Min        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer   |
| 49                    | Max        | Prime mover, 4 axle jinker trailer and 4 axle jinker trailer   |

**Table 13 BR23 – Blackburn Creek – Class 2 Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 104                   | GML        | 2 Axle Controlled Access Bus    |
| 105                   | GML        | 3 Axle Controlled Access Bus    |

**Table 14 BR29 – Phillips Creek – OSOM Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description                                    |
|-----------------------|------------|--|
| 1                     | Max        | Max Prime mover and 2-axle low loader trailer                      |
| 2                     | Min        | Min Prime mover and 3-axle low loader trailer                      |
| 3                     | Max        | Max Prime mover and 3-axle low loader trailer                      |
| 4                     | Min        | Min Prime mover and 4-axle low loader trailer                      |
| 5                     | Max        | Max Prime mover and 4-axle low loader trailer                      |
| 6                     | Min        | Min Prime mover and 4-axle spread low loader trailer               |
| 8                     | Min        | Min Prime mover and 5-axle low loader trailer                      |
| 10                    | Min        | Min Prime mover and 6-axle platform trailer                        |
| 12                    | Min        | Min Prime mover and 7-axle platform trailer                        |
| 14                    | Min        | Min Prime mover and 8-axle platform trailer                        |
| 16                    | Min        | Min Prime mover and 9-axle platform trailer                        |
| 18                    | Min        | Min Prime mover and 10-axle platform trailer                       |
| 20                    | Min        | Min Prime mover and 11-axle platform trailer                       |
| 22                    | Min        | Min Prime mover and 12-axle platform trailer                       |
| 24                    | Min        | Min Prime mover and 16-axle platform trailer                       |
| 25                    | Max        | Max Prime mover and 16-axle platform trailer                       |
| 26                    | Min        | Min Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 27                    | Max        | Max Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 28                    | Min        | Min Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 29                    | Max        | Max Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 30                    | Min        | Min Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 31                    | Max        | Max Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 32                    | Min        | Min Prime mover, 2 axle dolly and 5-axle low loader trailer        |
| 34                    | Min        | Min Prime mover, 2 axle dolly and 6-axle platform trailer          |
| 36                    | Min        | Min Prime mover, 2 axle dolly and 7-axle platform trailer          |
| 48                    | Min        | Min Prime mover, 4 axle jinker trailer and 4 axle jinker trailer   |

**Table 15 BR29 – Phillips Creek – Class 2 Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 104                   | GML        | 2 Axle Controlled Access Bus    |
| 105                   | GML        | 3 Axle Controlled Access Bus    |



**Table 16 BR30 – Hughes Creek – OSOM Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description                                    |
|-----------------------|------------|--|
| 1                     | Max        | Max Prime mover and 2-axle low loader trailer                      |
| 2                     | Min        | Min Prime mover and 3-axle low loader trailer                      |
| 3                     | Max        | Max Prime mover and 3-axle low loader trailer                      |
| 4                     | Min        | Min Prime mover and 4-axle low loader trailer                      |
| 5                     | Max        | Max Prime mover and 4-axle low loader trailer                      |
| 6                     | Min        | Min Prime mover and 4-axle spread low loader trailer               |
| 8                     | Min        | Min Prime mover and 5-axle low loader trailer                      |
| 10                    | Min        | Min Prime mover and 6-axle platform trailer                        |
| 12                    | Min        | Min Prime mover and 7-axle platform trailer                        |
| 14                    | Min        | Min Prime mover and 8-axle platform trailer                        |
| 16                    | Min        | Min Prime mover and 9-axle platform trailer                        |
| 18                    | Min        | Min Prime mover and 10-axle platform trailer                       |
| 20                    | Min        | Min Prime mover and 11-axle platform trailer                       |
| 22                    | Min        | Min Prime mover and 12-axle platform trailer                       |
| 24                    | Min        | Min Prime mover and 16-axle platform trailer                       |
| 25                    | Max        | Max Prime mover and 16-axle platform trailer                       |
| 26                    | Min        | Min Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 27                    | Max        | Max Prime mover, 2 axle dolly and 3-axle low loader trailer        |
| 28                    | Min        | Min Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 29                    | Max        | Max Prime mover, 2 axle dolly and 4-axle low loader trailer        |
| 30                    | Min        | Min Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 31                    | Max        | Max Prime mover, 2 axle dolly and 4-axle spread low loader trailer |
| 32                    | Min        | Min Prime mover, 2 axle dolly and 5-axle low loader trailer        |
| 34                    | Min        | Min Prime mover, 2 axle dolly and 6-axle platform trailer          |
| 36                    | Min        | Min Prime mover, 2 axle dolly and 7-axle platform trailer          |
| 48                    | Min        | Min Prime mover, 4 axle jinker trailer and 4 axle jinker trailer   |

**Table 17 BR30 – Hughes Creek – Class 2 Vehicles – Governing ERT >1.0**

| Application Vehicle # | Mass Limit | Application Vehicle Description |
|-----------------------|------------|---------------------------------|
| 104                   | GML        | 2 Axle Controlled Access Bus    |
| 105                   | GML        | 3 Axle Controlled Access Bus    |

---

|                        |   |
|------------------------|---|
| <b>MEETING DETAILS</b> | <b>Engineering and Infrastructure Standing Committee</b><br>Wednesday 2 December 2020 |
| <b>AUTHOR</b>          | Niall Tierney   |
| <b>AUTHOR POSITION</b> | Acting Manager Infrastructure   |

---

## **5.5 AMENDMENT TO ENGINEERING AND INFRASTRUCTURE 2020/2021 PROCUREMENT PLAN - SARAJI ROAD PAVEMENT REHABILITATION PROCUREMENT METHOD**

### **EXECUTIVE SUMMARY**

This report requests an amendment to the approved Engineering and Infrastructure 2020/2021 Procurement Plan (Resolution No 6763) for the procurement method for delivery of the Saraji Road Pavement Rehabilitation Project.

### **OFFICER'S RECOMMENDATION**

*That the Committee recommends that Council:*

- 1. Approve the change for delivery of this project from Isaac Regional Council internal resources with wet plant hire to:**
  - a. Procure and Appoint a Principle Contractor to undertake project delivery – through an advertised Open Tender process.**
  - b. Procure and Engage a Contract Superintendent and Support Services through Local Buy arrangement LB279 for contract administration works.**
- 2. Delegates the authority to the Chief Executive Officer to determine the successful tenderer for the works if valued under \$1m under delegation LGR88 – “Power to enter into a medium-sized contractual arrangement or large-sized contractual arrangement in accordance with a quote or tender consideration plan adopted by local government resolution” under Section 230(1) Local Government Regulation 2012 subject to the following conditions;**
  - a. The tender evaluation report be provided to all Councillors at the same time that the Chief Executive Officer is considering the report,**
  - b. Should any Councillor (free of any conflict of interest or material personal interest) notify the Chief Executive Officer that the matter should be escalated for Committee consideration, the Chief Executive Officer shall not exercise his delegated authority to determine the tender and shall instead arrange for the matter to be included in the agenda for the next available Engineering and Infrastructure Standing Committee Meeting or Council Meeting,**
  - c. Should the Chief Executive Officer consider that the tender evaluation gives rise to extraordinary or potentially contentious issues, the Chief Executive Officer shall not exercise his delegated authority to determine the tender and shall instead arrange for the**

*matter to be included in the agenda for the next available Engineering and Infrastructure Standing Committee Meeting or Council Meeting,*

- d. The Chief Executive Officer shall report outcomes of his actions to the Engineering and Infrastructure Standing Committee.*
- 3. Delegates the authority to the Engineering and Infrastructure Standing Committee to determine the successful tenderer for works valued under \$10m under delegation LGR88 – “Power to enter into a medium-sized contractual arrangement or large-sized contractual arrangement in accordance with a quote or tender consideration plan adopted by local government resolution” under Section 230(1) Local Government Regulation 2012 subject to the following conditions;**
- a. The tender evaluation reports be provided to all Councillors at the same time that the Engineering and Infrastructure Standing Committee is considering the report,*
  - b. Should any Councillor (free of any conflict of interest or material personal interest) notify the Chief Executive Officer that the matter should be escalated for Council consideration, the Engineering and Infrastructure Standing Committee shall not exercise its delegated authority to determine the tender and shall instead request the Chief Executive Officer to arrange for the matter to be included in the agenda for the next available Council Meeting,*
  - c. Should the Engineering and Infrastructure Standing Committee resolve that the tender evaluation gives rise to extraordinary or potentially contentious issues, the Engineering and Infrastructure Standing Committee shall not exercise its delegated authority to determine the tender and shall instead request the Chief Executive Officer to arrange for the matter to be included in the agenda for the next available Council Meeting.*
- 4. Delegates the authority to the Chief Executive Officer to negotiate, execute and vary contracts determined under delegation by the Chief Executive Officer or the Engineering and Infrastructure Standing Committee.**

## BACKGROUND

Saraji Road has experienced damage from heavy vehicle movements. As part of the 2020/2021 program development process \$1.58M was allocated under the Saraji Road Pavement Rehabilitation program to undertake pavement repairs. This work is funded from the Transport Infrastructure Development Scheme (TIDS) funding source with the original intent for project delivery by Isaac Regional Council (IRC) crews with wet hire of stabilising plant.

Additional funding was reallocated to this project from savings as part of budget review 1 increasing the budget to \$1.97M. Additional scope, specifically cross-road drainage works and additional pavement improvement areas are now included. With this additional scope it has been identified the works required are outside the current resources of Councils internal crews.

Therefore it is recommended to change the delivery method from internal council crews to an Open tender, contractor delivered method. Additionally, procurement of services to administer the contract will be required with these services procured under Local Buy Arrangements – Project Management Services LB279.

---

## IMPLICATIONS

### Compliance

- There are no compliance implications for these changes.

### Benefits

- With other pending works and the scope changes the delivery of the Saraji Road rehabilitation project was potentially at risk with the original strategy of construction utilising IRC crews. Changing the delivery method will reduce the risk of non-delivery of this project.

## CONSULTATION

- Director Engineering and Infrastructure
- Department Coordinators

## BASIS FOR RECOMMENDATION

Council Officers identified that due to the scope changes the current delivery method of utilising internal IRC crews for the Saraji Road rehabilitation project had potential to cause the project to extend into the next financial year. Changing to an Open Tender process with the appointment of a Principle contractor will significantly reduce that risk.

## ACTION ACCOUNTABILITY

If the amendment to Procurement Plan is approved, Acting Manager Infrastructure to ensure timeframes of delivery are met and satisfactory tender selection and processes carried out.

## KEY MESSAGES

That Council has open communication, oversight and transparency of the Engineering and Infrastructure 2020/2021 Capital Works Program, to ensure Isaac will have effective and sustainable infrastructure that supports the needs of the region's communities and economic sectors.

|   |  |
|---|--|
| <b>Report prepared by:</b>                            | <b>Report authorised by:</b>                                   |
| NIALL TIERNEY<br><b>Acting Manager Infrastructure</b> | ROBERT PERNA<br><b>Director Engineering and Infrastructure</b> |
| Date: 24 November 2020                                | Date: 25 November 2020   |

## ATTACHMENTS

- Nil

## REFERENCE DOCUMENT

- Nil

---

|                        |   |
|------------------------|---|
| <b>MEETING DETAILS</b> | <b>Engineering and Infrastructure Standing Committee</b><br>Wednesday 2 December 2020 |
| <b>AUTHOR</b>          | Sean Robinson   |
| <b>AUTHOR POSITION</b> | Manager Galilee and Bowen Basin Operations  |

---

## **5.6 NORTH GOONYELLA – COMPENSATION AGREEMENT VARIATION**

### **EXECUTIVE SUMMARY**

BHP Mitsubishi Alliance has approached Isaac Regional Council to upgrade Mabbin Road to facilitate long term intermittent dragline shutdowns at Goonyella Riverside Mine. The report seeks to endorse principles for negotiation of the existing compensation agreement and seeks delegation to the Chief Executive Officer to negotiate, execute and vary the existing compensation agreement.

### **OFFICER'S RECOMMENDATION**

*That the Committee recommends that Council:*

- 1. Endorse the Principles for dealing with BHP Mitsubishi Alliance and Peabody for the upgrade of Mabbin Road.***
- 2. Following the provision for Council to review and provide comment on the final draft agreement, delegate Authority to the Chief Executive Officer to negotiate, execute and vary the existing compensation agreement and subsequent deed of assignment and assumption.***

### **BACKGROUND**

There is currently a Compensation Agreement executed for ML6949 titled 'Compensation Agreement ML6949 – Additional Surface Area 2 (ASA2)' executed between Peabody and Council (Compensation Agreement).

In 2015, Peabody, BHP Mitsubishi Alliance (BMA) and Council facilitated the partial surrender of ML6949 with a Deed of Assignment and Assumption transferring the rights and obligations under the Compensation Agreement excluding the "excluded provisions" under Clause 6.2 and 6.3 which remained the responsibility of Peabody. Those obligations related to the provision of a serviceable road over the identified portion of Mabbin Road.

BMA have advised Council of an intention to commence a project for Dragline 3 Shutdown and this project will necessitate an upgrade of the existing Mabbin Road. It is Council's view that obligations under the existing Compensation Agreement and the excluded provisions will require review.

Noting the complexity of the situation, Council have engaged the services of McCullough Robertson who have prepared the draft principals for negotiating an updated agreement.

BMA will be responsible for upgrading the road from its existing condition to that as being safe for the intended traffic. A commercial agreement will be required between Peabody and BMA to provide for the ongoing

maintenance both when BMA intend to impact Mabbin Road and when there is to be no activity from BMA. Any additional depreciation associated with the upgraded works will be funded by BHP.

## IMPLICATIONS

BMA shall undertake any upgrade works required to provide a safe road environment for their intended traffic.

## CONSULTATION

- BHP
- Peabody
- Chief Executive Officer
- Director Engineering and Infrastructure
- Senior Advisor
- McCullough Robertson

## BASIS FOR RECOMMENDATION

The principles provided are consistent with Councils negotiations with other similar proponents.

## ACTION ACCOUNTABILITY

- Chief Executive Officer to ensure that negotiations with the Proponent are in accordance with the endorsed Principles.
- Manager Galilee and Bowen Basin Operations under direction of Chief Executive Officer and Director Engineering and Infrastructure facilitate negotiation in accordance with the endorsed principles.

## KEY MESSAGES

Plan, provide and maintain effective and sustainable road infrastructure to meet the needs of key economic and community activities.

### Report prepared by:

SEAN ROBINSON  
**Manager Galilee and Bowen Basin Operations**

Date: 24 November 2020

### Report authorised by:

ROBERT PERNA  
**Director Engineering and Infrastructure**

Date: 24 November 2020

## ATTACHMENTS

- CONFIDENTIAL Attachment 1– Term Sheet - BMA Dragline 3 Shutdown Pad – Goonyella Riverside Mabbin Road Impacts

## REFERENCE DOCUMENT

- Nil

PAGES 146 TO 147 HAVE INTENTIONALLY BEEN REMOVED DUE TO CONFIDENTIAL REASONS



---

|                        |   |
|------------------------|---|
| <b>MEETING DETAILS</b> | <b>Engineering and Infrastructure Standing Committee</b><br>Wednesday 2 December 2020 |
| <b>AUTHOR</b>          | Sean Robinson   |
| <b>AUTHOR POSITION</b> | Manager Galilee and Bowen Basin Operations  |

---

## **5.7 SARAJI SOUTH HAUL ROAD CROSSOVER – COMPENSATION AGREEMENT VARIATION**

### **EXECUTIVE SUMMARY**

BHP Mitsubishi Alliance has approached Isaac Regional Council to construct a haul road crossover across Golden Mile Road. The report seeks to endorse principles for negotiation of the existing compensation agreement and seek delegation to the Chief Executive Officer to negotiate, execute and vary the existing compensation agreement.

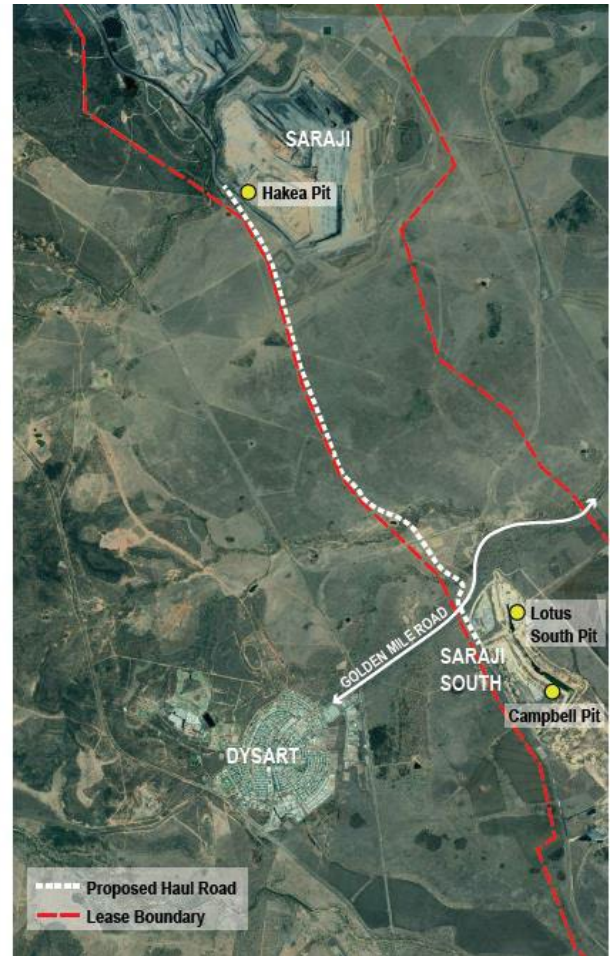
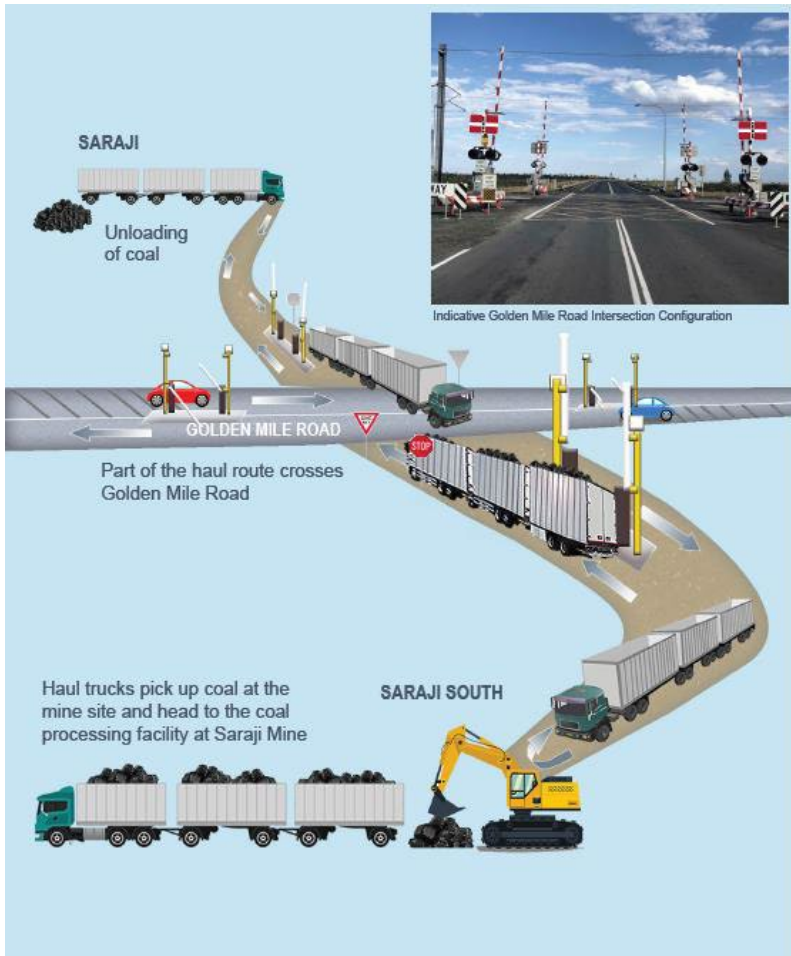
### **OFFICER'S RECOMMENDATION**

*That the Committee recommends that Council:*

- 1. Endorse the Principles for dealing with BHP Mitsubishi Alliance for the Saraji South Haul Road crossover on Golden Mile Road.*
- 2. Following the provision for Council to review and provide comment on the final draft agreement, delegate Authority to the Chief Executive Officer to negotiate, execute and vary the existing compensation agreement dated 6th October 2004.*

### **BACKGROUND**

BHP Mitsubishi Alliance (BMA) wish to construct a haul road crossover on Golden Mile Road to allow the haulage of Coal from Saraji South (formerly Norwich Park) to the Saraji Coal Handling and Preparation Plant (CHPP):



The area of road proposed for the crossover is beneath an existing mining lease, ML70328. Accordingly, there is an existing Compensation Agreement, however BHP have no surface rights over the section of Golden Mile Road.

BMA have proposed to construct a boom gate-controlled intersection that will provide priority to the general road traffic on Golden Mile Road. This matter had been previously raised at the BHP Bi-annual meeting in June 2020.

## IMPLICATIONS

BMA shall undertake any upgrade works required to construct the haul road crossover.

## CONSULTATION

- BHP
- Director Engineering and Infrastructure
- Manager Liveability and Sustainability
- Senior Advisor

---

## BASIS FOR RECOMMENDATION

The principles provided are consistent with Councils negotiations with other similar proponents.

## ACTION ACCOUNTABILITY

- Chief Executive Officer to ensure that negotiations with the Proponent are in accordance with the endorsed Principles.
- Manager Galilee and Bowen Basin Operations under direction of Chief Executive Officer and Director Engineering and Infrastructure facilitate negotiation in accordance with the endorsed principles.

## KEY MESSAGES

Plan, provide and maintain effective and sustainable road infrastructure to meet the needs of key economic and community activities.

|   |  |
|---|--|
| <b>Report prepared by:</b>                        | <b>Report authorised by:</b>                   |
| SEAN ROBINSON                                     | ROBERT PERNA                                   |
| <b>Manager Galilee and Bowen Basin Operations</b> | <b>Director Engineering and Infrastructure</b> |
| Date: 24 November 2020                            | Date: 25 November 2020                         |

## ATTACHMENTS

- CONFIDENTIAL Attachment 1 – Principles for Dealings about BMA Saraji South Haul Road Crossover

## REFERENCE DOCUMENT

- Intersection of Saraji – Norwich Park Haul Road and Golden Mile Road, Dysart - Traffic Impact Assessment – November 2020

PAGES 151 TO 154 HAVE INTENTIONALLY BEEN REMOVED DUE TO CONFIDENTIAL REASONS

---

**MEETING DETAILS**

**Engineering and Infrastructure Standing Committee**  
Wednesday 2 December 2020

---

**AUTHOR**

Robert Perna

---

**AUTHOR POSITION**

Director Engineering and Infrastructure

---

---

**6.1****ENGINEERING AND INFRASTRUCTURE DIRECTORATE  
INFORMATION BULLETIN – DECEMBER 2020**

## EXECUTIVE SUMMARY

The Engineering and Infrastructure Directorate Information Bulletin for December 2020 is provided for Committee review.

## OFFICER'S RECOMMENDATION

*That the Committee:*

1. *Notes the Engineering and Infrastructure Directorate Information Bulletin for December 2020.*

## BACKGROUND

The attached Information Bulletin for December 2020 provides an operational update for Committee review on the Engineering and Infrastructure Directorate.

## IMPLICATIONS

Any specific implications or risks will be outlined in the Information Bulletin.

## CONSULTATION

- Engineering and Infrastructure Directorate Staff

## BASIS FOR RECOMMENDATION

This is an information only report.

## ACTION ACCOUNTABILITY

Information only report.

## KEY MESSAGES

Operational update to Elected Members.

---

|  |  |
|--|--|
| <b>Report prepared by:</b><br>ROBERT PERNA<br><b>Director Engineering and Infrastructure</b><br>Date: 25 November 2020 | <b>Report authorised by:</b><br>GARY STEVENSON PSM<br><b>Chief Executive Officer</b><br>Date: 26 November 2020 |
|--|--|

## ATTACHMENTS

- Attachment 1 – Engineering and Infrastructure Directorate Information Bulletin – December 2020

## REFERENCE DOCUMENT

- Nil

**DATE:** November 2020

## ENGINEERING AND INFRASTRUCTURE SERVICES

### DIRECTORATE HIGHLIGHTS

- Works on the Eaglefield TIDS project is now at Practical Completion stage with final sealing completed 19 November. Remaining works to be completed are road furniture and line marking activities. The project has received very positive comments from locals.
- Below are the projects that are behind scheduled expenditure. Note:
  - Majority of projects are either committed or underway.
  - The exceptions are Saraji Road rehabilitation and Clements Street medium irrigation. Both projects are behind schedule however are still expected to be completed this financial year.

| Project Code             | Project Description                       | Total Budget | YTD Budget  | YTD Actual  | YTD budget less YTD actuals | Commitments |
|--------------------------|---|--------------|-------------|-------------|-----------------------------|-------------|
| <a href="#">CW212886</a> | ISAAC_Surfacing Renewal Program           | \$1,466,075  | \$1,466,075 | \$2,405     | \$1,463,670                 | \$832,173   |
| <a href="#">CW212887</a> | ISAAC_Rural Resheeting Program            | \$4,178,811  | \$2,535,000 | \$1,191,914 | \$1,343,086                 | \$786,491   |
| <a href="#">CW212892</a> | DYS_Saraji Road Pavement Rehabilitation   | \$1,971,000  | \$915,000   | \$2,485     | \$912,515                   | \$7,520     |
| <a href="#">CW202779</a> | Land Resumption Plan in relation to repl  | \$811,389    | \$769,389   | \$26,114    | \$743,275                   | \$510,525   |
| <a href="#">CW212845</a> | Moranbah Access Rd Quarrico Intersect     | \$1,000,000  | \$700,000   | \$68,313    | \$631,687                   | \$716,555   |
| <a href="#">CW212859</a> | Replace Sub Type _31 Passenger Vehicles   | \$1,358,000  | \$679,000   | \$183,858   | \$495,142                   | \$1,009,002 |
| <a href="#">CW182485</a> | MBH - Sarchedon Drive Road Works          | \$591,414    | \$566,414   | \$177,758   | \$388,656                   | \$236,726   |
| <a href="#">CW212937</a> | Shared Footpaths CLM & DYS                | \$933,950    | \$310,000   | \$13,581    | \$296,419                   | \$34,456    |
| <a href="#">CW182455</a> | CLMT - Sportsground Canteen / Kiosk Rene  | \$347,528    | \$277,528   | \$66,394    | \$211,134                   | \$200,045   |
| <a href="#">CW212888</a> | ISAAC_Eaglefield Road Pave and Seal TIDS  | \$1,495,000  | \$1,495,000 | \$1,285,243 | \$209,757                   | \$164,865   |
| <a href="#">CW212913</a> | CLM & MBH Cycle Network Program_Clermont  | \$293,250    | \$186,750   | \$965       | \$185,785                   | \$0         |
| <a href="#">CW212924</a> | MMT_Tennis Courts Lighting & Switchboard  | \$162,476    | \$162,476   | \$4,302     | \$158,174                   | \$116,524   |
| <a href="#">CW202775</a> | ISAAC_P&R Electrical Renewal Program      | \$172,932    | \$172,932   | \$25,659    | \$147,273                   | \$97,342    |
| <a href="#">CW212935</a> | MBH Clements St Median Irrigation Upgrade | \$292,698    | \$117,076   | \$0         | \$117,076                   | \$0         |



|          |                             |           |           |          |             |             |
|----------|-----------------------------|-----------|-----------|----------|-------------|-------------|
| CW192678 | Pasha Road Pave and Seal    | \$166,962 | \$166,962 | \$53,839 | \$113,123   | \$66,713    |
| CW212860 | Replace Sub Type _ 9 Trucks | \$483,000 | \$105,000 | \$893    | \$104,107   | \$313,572   |
|          |                             |           |           |          | \$7,520,879 | \$5,092,508 |

On a sadder note the Directorate sees the departure of a number of key staff in November / December. November saw the departure our Senior Designer Lakshmi and in December our Coordinator East, Scott Lucke is departing. We thank both Lakshmi and Scott for their contributions and wish them well in their new endeavours.

## WORKSHOPS, PLANT AND FLEET

### PREVIOUS MONTH'S ACHIEVEMENTS:

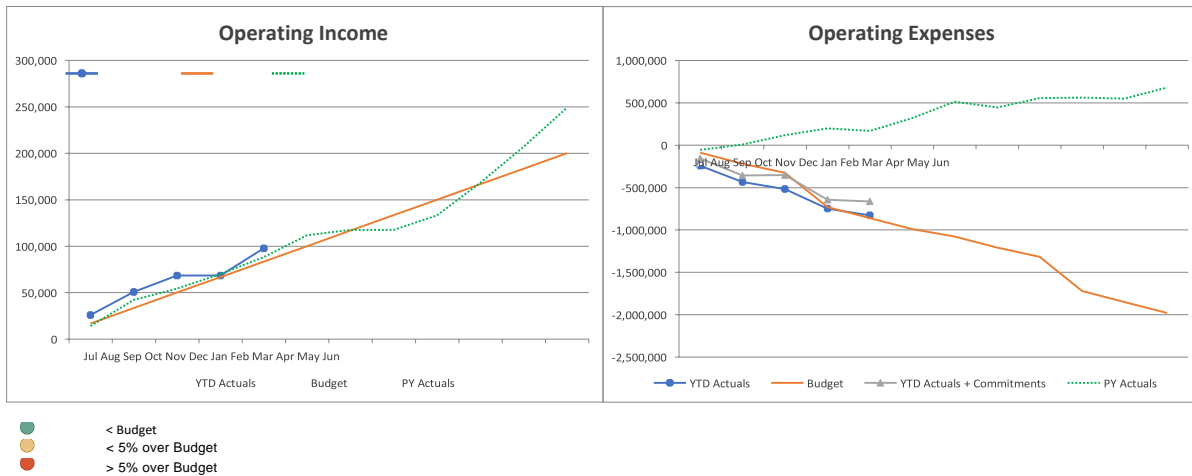
Training in the "Plant Assessor" program is ongoing with those already trained seeing the potential benefits the system can offer council in the long-term software for Fleet and Plant Management.

### PREVIOUS MONTH'S ISSUES:

- This month has been one of planning and consolidation. Specifically, we now have a path forward to introduce improvements in Maintenance Scheduling and Service Delivery. The staff continue to strive to meet all regional needs in a timely basis recognising that priorities changes can make this challenging.
- As part of our commitment to improving service delivery we have examined issues identified and are reviewing processes to ensure teams are better prepared and produce a more positive service delivery model in the future.
- Stakeholder engagement across the organisation is increasing with all departments having a better understanding of operational requirements and programmed works being discussed more frequently.
- Fleet and Plant to meet with the road infrastructure teams bi-monthly to provide updates and accept any feedback as required. The mechanical staff will also commence a familiarisation program with all operators in relation to completing pre-starts and assist in identifying areas of wear.

## FINANCIAL REPORT:

# Operational Result From Period 1 - 5, 2021 Manager Plant, Fleet and Workshops



| Detail at M4 Level (Full Number) |  |                  |                  |                           |                  |                       |                          |
|----------------------------------|--|------------------|------------------|---------------------------|------------------|-----------------------|--------------------------|
| Cost Centre                      | Description  | YTD Actuals      | Commitments      | YTD Actuals + Commitments | YTD Budget       | Annual Revised Budget | Remaining Revised Budget |
| <b>Operational Income</b>        |  |                  |                  |                           |                  |                       |                          |
| 9253                             | Subsidy - Fuel Tax Credit - Isaac                          | 97,697           | 0                | 97,697                    | 83,333           | 200,000               | 102,303                  |
|                                  |  | <b>97,697</b>    | <b>0</b>         | <b>97,697</b>             | <b>83,333</b>    | <b>200,000</b>        | <b>102,303</b>           |
| <b>Operational Expenses</b>      |  |                  |                  |                           |                  |                       |                          |
| 1062                             | Regional Manager - Fleet, Plant & Disaster Management      | 55,802           | 0                | 55,802                    | 60,862           | 143,868               | 88,066                   |
| 1142                             | Plant & Fleet Manager - Isaac                              | 212,940          | 0                | 212,940                   | 209,736          | 495,861               | 282,921                  |
| 1501                             | Fleet Operations - Corporate                               | 69,498           | 30,688           | 100,187                   | 84,052           | 201,320               | 101,134                  |
| 2031                             | Workshop - Nebo  | 20,525           | 632              | 21,157                    | 44,795           | 105,968               | 84,811                   |
| 2120                             | Depot Expenses - Glenden                                   | 720              | 155              | 875                       | 1,317            | 3,400                 | 2,525                    |
| 2121                             | Workshop - Glenden   | 214              | 0                | 214                       | 208              | 500                   | 286                      |
| 2138                             | Depot Expenses - North                                     | 17,990           | 921              | 18,911                    | 5,965            | 14,202                | (4,710)                  |
| 2197                             | Depreciation Expense - Plant                               | 1,121,102        | 0                | 1,121,102                 | 1,050,981        | 2,522,354             | 1,401,252                |
| 2501                             | Fleet Operations - Glenden                                 | (114,297)        | 1,991            | (112,306)                 | (132,109)        | (311,175)             | (198,869)                |
| 2502                             | Fleet Operations - North                                   | (315,464)        | 23,674           | (291,790)                 | (312,743)        | (734,582)             | (442,792)                |
| 2607                             | Depot Buildings, Work Camps - Glenden                      | 8,203            | 1,596            | 9,799                     | 4,417            | 10,600                | 801                      |
| 2608                             | Depot Buildings, Work Camps - North                        | 11,316           | 1,618            | 12,934                    | 8,417            | 20,200                | 7,266                    |
| 3184                             | Depot Expenses - Dysart                                    | 7,704            | 622              | 8,326                     | 11,361           | 27,152                | 18,826                   |
| 3202                             | Depot Expenses - East                                      | 8,148            | 975              | 9,123                     | 6,203            | 14,692                | 5,569                    |
| 3227                             | Depot Expenses - Middlemount                               | 5,366            | 1,285            | 6,652                     | 37,672           | 87,016                | 80,364                   |
| 3284                             | Workshop - St Lawrence                                     | 4,172            | 0                | 4,172                     | 35,831           | 84,756                | 80,584                   |
| 3501                             | Fleet Operations - Dysart                                  | (304,215)        | 14,706           | (289,509)                 | (316,445)        | (742,674)             | (453,165)                |
| 3502                             | Fleet Operations - Middlemount                             | (184,051)        | 5,737            | (178,314)                 | (187,122)        | (440,327)             | (262,013)                |
| 3503                             | Fleet Operations - East                                    | (207,365)        | 4,547            | (202,818)                 | (183,337)        | (433,459)             | (230,642)                |
| 3504                             | Fleet Operations - Rural East                              | (7,227)          | 0                | (7,227)                   | (12,438)         | (29,225)              | (21,999)                 |
| 3610                             | Depot Buildings - Middlemount                              | 7,374            | 0                | 7,374                     | 8,633            | 20,100                | 12,726                   |
| 3611                             | Depot Buildings, Work Camps - Dysart                       | 16,860           | 1,359            | 18,220                    | 14,000           | 31,500                | 13,280                   |
| 3612                             | Depot Buildings, Work Camps - East                         | 24,712           | 4,404            | 29,115                    | 23,095           | 52,363                | 23,248                   |
| 3613                             | Depot Buildings, Work Camps - Moranbah                     | 13,422           | 1,655            | 15,077                    | 8,021            | 18,750                | 3,673                    |
| 3626                             | Workshop - Middlemount                                     | 13,540           | 363              | 13,903                    | 38,460           | 90,981                | 77,078                   |
| 4183                             | Depot Expenses - Moranbah                                  | 10,918           | 0                | 10,918                    | 7,382            | 17,602                | 6,683                    |
| 4241                             | Depot Expenses - Clermont                                  | 19,157           | 0                | 19,157                    | 6,674            | 15,002                | (4,155)                  |
| 4501                             | Fleet Operations - Clermont                                | (720,956)        | 48,442           | (672,514)                 | (861,542)        | (2,025,153)           | (1,352,639)              |
| 4502                             | Fleet Operations - Moranbah                                | (675,409)        | 12,736           | (662,673)                 | (684,033)        | (1,622,336)           | (959,663)                |
| 4606                             | Depot Buildings - Clermont                                 | 17,328           | 2,348            | 19,676                    | 10,208           | 24,500                | 4,824                    |
| 7007                             | Workshop - Clermont (West)                                 | 17,619           | 118              | 17,737                    | 40,848           | 96,706                | 78,969                   |
| 7008                             | Workshop - Moranbah (West)                                 | 17,893           | 1,128            | 19,021                    | 109,303          | 258,466               | 239,445                  |
|                                  |  | <b>(826,460)</b> | <b>161,701</b>   | <b>(664,759)</b>          | <b>(861,330)</b> | <b>(1,981,074)</b>    | <b>(1,316,314)</b>       |
|                                  | <b>Surplus/(Deficit)</b>                                   | <b>924,157</b>   | <b>(161,701)</b> | <b>762,456</b>            | <b>944,663</b>   | <b>2,181,074</b>      | <b>1,418,617</b>         |
| <b>Full Cost Recovery</b>        |  |                  |                  |                           |                  |                       |                          |
| 2841                             | Corp O'Heads & NCP Costs - Plant, Fleet & Workshops        | 397,407          | 0                | 397,407                   | 397,407          | 953,776               | 556,369                  |
|                                  |  | <b>397,407</b>   | <b>0</b>         | <b>397,407</b>            | <b>397,407</b>   | <b>953,776</b>        | <b>556,369</b>           |
|                                  | <b>Operating Surplus/(Deficit) less Full Cost Recovery</b> | <b>526,751</b>   | <b>(161,701)</b> | <b>365,050</b>            | <b>547,257</b>   | <b>1,227,298</b>      | <b>862,248</b>           |

**DEVIATION FROM BUDGET AND POLICY:**

Nil to report.

**OPERATIONAL PLAN / BUSINESS PLAN – EXCEPTION REPORTING**

Nil to report.

**NEXT MONTH'S PROGRAM:**

**Organisation Development Plan or Capital Projects  
 Scheduled to Commence During Next Month**

| Project Name/<br>Description | Start Date | Scheduled<br>End Date | Comments/Exceptions   |
|------------------------------|------------|-----------------------|---|
| Replace 31 Vehicles          | 1/7/2019   | 30/6/2021             | 90% of orders for replacement vehicles have been completed, these assets will be delivered over the FY subject to their availability and OEM having stock available to meet requirements.                                       |
| Various plant replacements   | 17/2019    | 30/6/2021             | Currently finalising Letters of award, all purchase orders will be dispatched by early December. Deliveries programmed subject to availability, build and lead times, all replacements will be completed prior to 30 June 2021. |
| Truck replacements           | 1/7/2020   | 30/6/2021             | Currently finalising Letters of award, all purchase orders will be dispatched by early December. Deliveries programmed subject to availability, build and lead times, all replacements will be completed prior to 30 June 2021. |

**DEVELOPING INITIATIVES / ISSUES:**

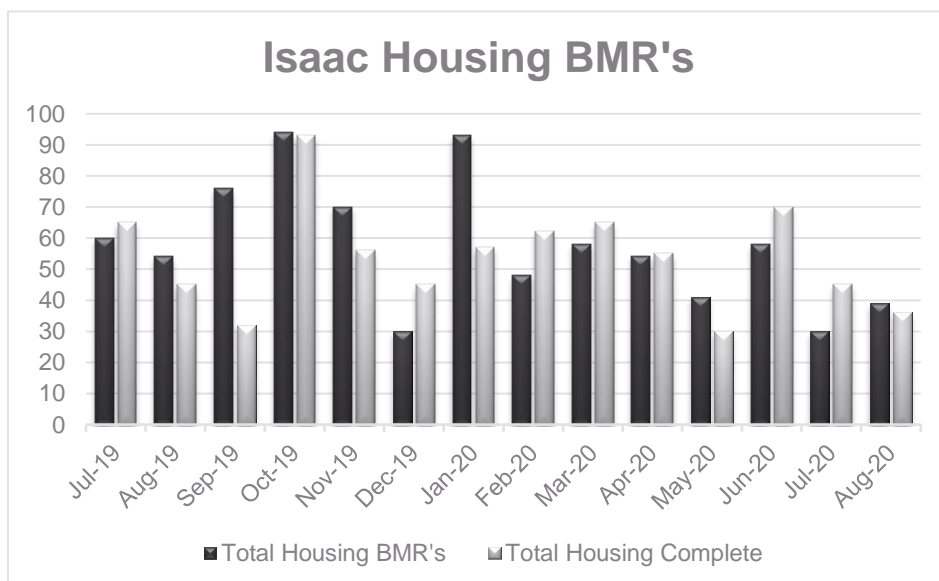
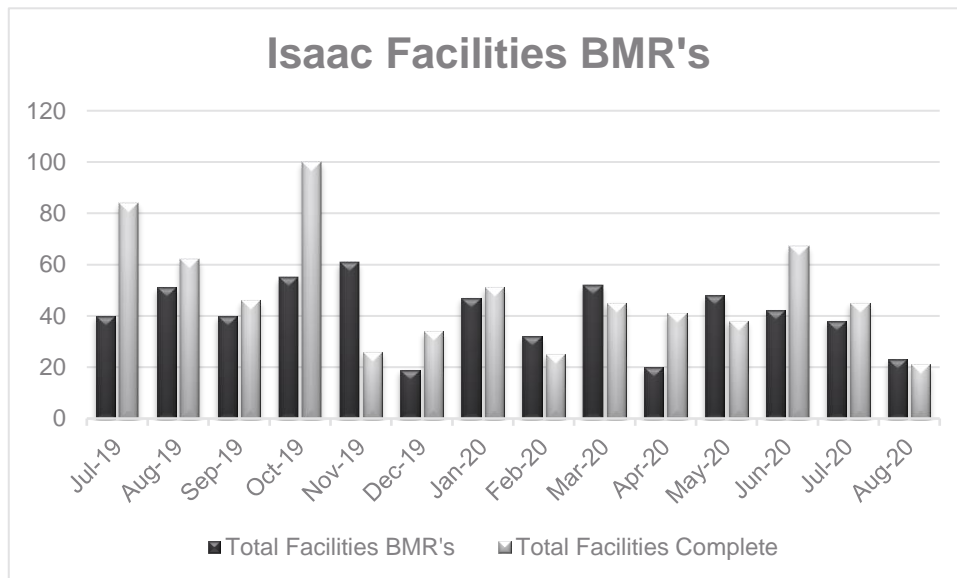
- A full review of current fleet and plant assets has commenced with a report and recommendation to be finalised in December 2020. This will identify areas of improvement and enhanced service levels, this data will also inform the proposed Fleet and Plant Management Strategy – **On Going**.
- The team are currently finalising the Capital Replacement Program for 2021-2022 FY and associated documentation.
- Fleet and Plant Management Plans, Strategy and guidelines are currently being developed with a draft to be completed by the end of February 2021.

## CORPORATE PROPERTIES

### PREVIOUS MONTH'S ACHIEVEMENTS:

The team are in progressing with the delivery of the operational and capital budget. All tenders are out for the capital program with Moranbah Fatigue Accommodation ready for award and St Lawrence fencing project awarded. The property managers have been busy with 8 property contracts and 7 property exits. Smoke alarm compliance and replacement on all residential properties is well underway.

### Isaac Region Building Maintenance Requests (BMR's)



- Completion of Capital works on properties in Middlemount.
- Commencement of Capital Works on properties in Dysart and Clermont.
- Ongoing BMR (Building Maintenance Requests) as required.
- Construction has commenced on the Clermont Sports Ground Grandstand Compliance Rectification.
- RFQ awarded for the Fence replacement at St Lawrence.
- Construction started for the Underpinning of existing footings and building repairs at 26 Norton Court.
- RFT evaluated and awaiting Award for the Design and Construct of 16-person accommodation at 12 Acacia Street.

|                         | Project Name/ Description                           | Start Date | Scheduled End Date | Status Update   |
|-------------------------|---|------------|--------------------|---|
|                         | <b>AOP &amp; ODP – Deliverables</b>                 |            |                    |   |
|                         | As per comments reported in below table             |            |                    |   |
| <b>Capital Projects</b> |   |            |                    |   |
| CW Number               | Project Name/ Description                           | Start Date | Scheduled End Date | Status Update   |
| CW212849                | Regional residential program- MBH- Commence Feb/Apr | July 20    | June 21            | In Planning   |
| CW212853                | NBO- Commence Nov/Jan                               |            |                    | In Planning   |
| CW212931                | CLM- Commence Sep/Nov                               |            |                    | Construction Commenced  |
| CW212848                | MMT- Commenced Jul/Aug                              |            |                    | Construction Complete   |
| CW212932                | DYS- Commenced Jul/Aug                              |            |                    | Construction Commenced  |
| CW212851                | STL- Commence Aug/Sept                              |            |                    | Construction Commenced  |
| CW212850                | GLN – Commence Nov/Dec                              |            |                    | In Planning   |
| CW202876                | Corp - Admin Building Upgrades/Renewals             | Aug 20     | April 21           | In planning   |
| CW202785                | Moranbah Fatigue Accommodation                      | July 19    | June 2021          | Evaluations complete and ready for letter of award                      |
| CW202837                | Depots - Electrical Compliance Rectification        | Aug 20     | April 2021         | St Lawrence, Nebo and Moranbah complete                                 |
| CW202788                | CLMT - Sportsground Grandstand Renovation           | Nov 20     | Jan 21             | Renovations have commenced  |
|                         | 2021-22 Budget bids                                 | Nov 20     | Dec 20             | PAG bids have commenced and are on schedule to be presented in December |

**PREVIOUS MONTH'S ISSUES:**

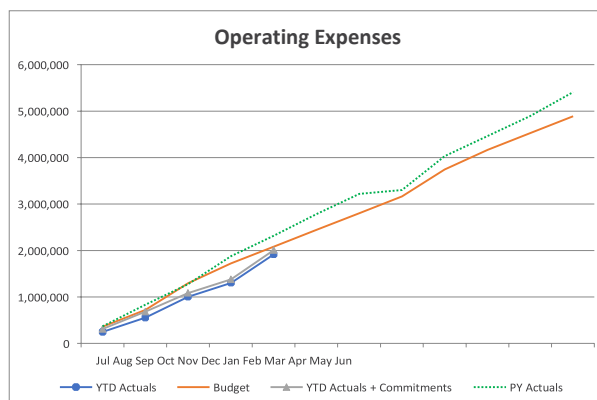
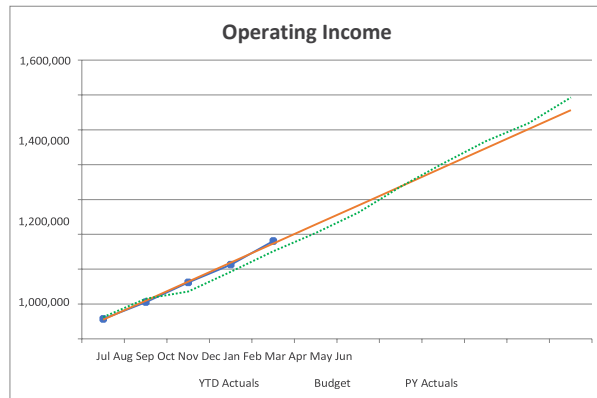
- Commencing all capital delivery programmes for scheduling in 2020/21.
- Ongoing BMR (Building Maintenance Requests) as required.

**DEVIATION FROM BUDGET AND POLICY:**

No major deviations or exceptions to report.

**FINANCIAL REPORT:**

## Operational Result From Period 1 - 5, 2021 Corporate Properties & Fleet



# INFORMATION BULLETIN

- < Budget
- < 5% over Budget
- > 5% over Budget

## Detail at M4 Level (Full Number)

| Cost Centre  | Description  | YTD Actuals        | Commitments     | YTD Actuals + Commitments | YTD Budget         | Annual Revised Budget | Remaining Revised Budget |
|--|--|--------------------|-----------------|---------------------------|--------------------|-----------------------|--------------------------|
| <b>Operational Income</b>                                  |  |                    |                 |                           |                    |                       |                          |
| 9040   | Mac Services Commercial Tenancy Agreement            | 22,727             | 0               | 22,727                    | 22,727             | 54,545                | 31,818                   |
| 9210   | Housing - Community - Glenden                        | 4,839              | 0               | 4,839                     | 3,333              | 8,000                 | 3,161                    |
| 9211   | Housing - Council Employees - Glenden                | 9,360              | 0               | 9,360                     | 20,833             | 50,000                | 40,640                   |
| 9244   | Housing - Community - Isaac North                    | 9,674              | 0               | 9,674                     | 12,500             | 30,000                | 20,326                   |
| 9245   | Housing - Council Employees - Isaac North            | 38,964             | 0               | 38,964                    | 20,833             | 50,000                | 11,036                   |
| 9353   | Administration Office - Sundry Receipts Nebo         | 4                  | 0               | 4                         | 0                  | 0                     | (4)                      |
| 9401   | Accommodation - Council Dongas - Clermont            | 10,689             | 0               | 10,689                    | 20,833             | 50,000                | 39,311                   |
| 9416   | Rent - Aged Housing - Clermont                       | 12,124             | 0               | 12,124                    | 10,417             | 25,000                | 12,876                   |
| 9417   | Rent - Council Employee Housing - Clermont           | 53,121             | 0               | 53,121                    | 41,667             | 100,000               | 46,879                   |
| 9450   | Rent - Affordable Housing - Moranbah                 | 119,252            | 0               | 119,252                   | 125,000            | 300,000               | 180,748                  |
| 9451   | Rent - Other Properties - Moranbah                   | 13,087             | 0               | 13,087                    | 7,500              | 18,000                | 4,913                    |
| 9453   | Rent - Council Employee Housing - Moranbah           | 154,956            | 0               | 154,956                   | 145,833            | 350,000               | 195,044                  |
| 9616   | Rent - Council Emp Housing - Dysart                  | 13,072             | 0               | 13,072                    | 20,833             | 50,000                | 36,928                   |
| 9675   | Rent - Council Emp Housing - East                    | 17,401             | 0               | 17,401                    | 25,000             | 60,000                | 42,599                   |
| 9749   | Rent - Council Employee Housing - Middlemount        | 20,044             | 0               | 20,044                    | 22,917             | 55,000                | 34,956                   |
| 9839   | Fatigue Management House Charges - St Lawrence       | 1,255              | 0               | 1,255                     | 1,250              | 3,000                 | 1,745                    |
| 9847   | Fatigue Management House Charges - Middlemount       | 3,116              | 0               | 3,116                     | 0                  | 0                     | (3,116)                  |
| 9859   | Fatigue Management House Charges - Moranbah          | 17,004             | 0               | 17,004                    | 6,250              | 15,000                | (2,004)                  |
| 9892   | Rent - Council Housing - Private - Dysart            | 160                | 0               | 160                       | 4,042              | 9,700                 | 9,540                    |
| 9903   | Rent - Council Dongas - East                         | 38,788             | 0               | 38,788                    | 33,333             | 80,000                | 41,212                   |
| 9949   | Rental Donga Nebo                                    | 1,527              | 0               | 1,527                     | 1,667              | 4,000                 | 2,473                    |
|  |  | <b>561,163</b>     | <b>0</b>        | <b>561,163</b>            | <b>546,769</b>     | <b>1,312,245</b>      | <b>751,082</b>           |
| <b>Operational Expenses</b>                                |  |                    |                 |                           |                    |                       |                          |
| 1061   | Corporate Properties Manager                         | 414,152            | 9,771           | 423,923                   | 450,976            | 1,067,140             | 643,217                  |
| 1216   | Tenancy & Leasing - Corporate                        | 70,051             | 0               | 70,051                    | 82,373             | 194,911               | 124,860                  |
| 1236   | Community Housing - Dysart                           | 35                 | 0               | 35                        | 8,958              | 21,500                | 21,465                   |
| 1239   | Community Housing - MMT                              | 0                  | 0               | 0                         | 4,072              | 9,625                 | 9,625                    |
| 1390   | COVID-19 Coronavirus                                 | 4,830              | 0               | 4,830                     | 0                  | 0                     | (4,830)                  |
| 2066   | Community Housing - Glenden                          | 3,915              | 2,010           | 5,925                     | 5,821              | 12,650                | 6,725                    |
| 2096   | Community Housing - Nebo                             | 8,641              | 136             | 8,777                     | 8,208              | 17,500                | 8,723                    |
| 2109   | Council Employee Housing - Glenden                   | 17,233             | 364             | 17,596                    | 15,250             | 33,200                | 15,604                   |
| 2114   | Council Employee Housing - Nebo                      | 27,892             | 1,362           | 29,255                    | 24,292             | 51,900                | 22,645                   |
| 2190   | Depreciation Land & Improvements                     | 363,837            | 0               | 363,837                   | 348,804            | 837,129               | 473,292                  |
| 2196   | Depreciation Expense - Building & Other Structures   | 410,862            | 0               | 410,862                   | 356,865            | 856,477               | 445,615                  |
| 2199   | Depreciation Expense - Office Furniture              | 19,642             | 0               | 19,642                    | 19,525             | 46,859                | 27,217                   |
| 2204   | Administration Office - Nebo                         | 12,073             | 199             | 12,271                    | 208                | 500                   | (11,771)                 |
| 2211   | Fatigue Management House - Nebo                      | 0                  | 0               | 0                         | 208                | 500                   | 500                      |
| 2605   | Admin Building - Glenden                             | 3,974              | 0               | 3,974                     | 47,242             | 112,057               | 108,083                  |
| 2606   | Admin Office Maintenance - Nebo                      | 8,836              | 628             | 9,463                     | 38,755             | 90,265                | 80,801                   |
| 3162   | Council Employee Housing - Dysart                    | 48,609             | 5,326           | 53,934                    | 56,431             | 127,222               | 73,288                   |
| 3171   | Council Employee Housing - East                      | 20,605             | 3,945           | 24,550                    | 44,325             | 98,328                | 73,778                   |
| 3178   | Council Employee Housing - Middlemount               | 38,696             | 182             | 38,878                    | 46,125             | 102,700               | 63,822                   |
| 3275   | Fatigue Management House - St Lawrence               | 0                  | 0               | 0                         | 208                | 500                   | 500                      |
| 3276   | Fatigue Management House - Middlemount               | 1,433              | 0               | 1,433                     | 3,458              | 7,500                 | 6,067                    |
| 3278   | Council Dongas - Dysart                              | 308                | 0               | 308                       | 2,708              | 6,500                 | 6,192                    |
| 3279   | Council Dongas - St Lawrence                         | 1,072              | 39              | 1,111                     | 208                | 500                   | (611)                    |
| 3280   | QR Camp Dongas - St Lawrence                         | 14,543             | 449             | 14,992                    | 11,333             | 25,000                | 10,008                   |
| 3281   | Council Dongas - Middlemount                         | 18,248             | 159             | 18,407                    | 1,250              | 3,000                 | (15,407)                 |
| 3607   | Admin Building - Middlemount                         | 11,992             | 637             | 12,628                    | 21,015             | 49,053                | 36,424                   |
| 3608   | Admin Building - Dysart                              | 11,003             | 4,358           | 15,360                    | 10,375             | 24,900                | 9,540                    |
| 3609   | Admin Office Maintenance - St Lawrence               | 15,082             | 2,096           | 17,178                    | 44,037             | 104,495               | 87,317                   |
| 4074   | Aged Housing - Clermont                              | 13,670             | 0               | 13,670                    | 7,583              | 16,900                | 3,230                    |
| 4124   | Community Housing - Moranbah                         | 2,326              | 1,690           | 4,016                     | 10,833             | 26,000                | 21,984                   |
| 4150   | Council Employee Housing - Clermont                  | 40,242             | 5,076           | 45,318                    | 37,250             | 82,000                | 36,682                   |
| 4158   | Council Employee Housing - Moranbah                  | 130,159            | 18,135          | 148,294                   | 104,333            | 235,000               | 86,706                   |
| 4201   | Council Dongas - Moranbah                            | 2,986              | 1,506           | 4,492                     | 0                  | 0                     | (4,492)                  |
| 4203   | Council Dongas - Clermont                            | 14,171             | 4,409           | 18,580                    | 2,500              | 6,000                 | (12,580)                 |
| 4204   | Tenancy & Leasing - Community Lease Facilities       | 0                  | 0               | 0                         | 417                | 1,000                 | 1,000                    |
| 4236   | Affordable Housing - MBH Expenses                    | 10,565             | 2,518           | 13,082                    | 52,917             | 111,000               | 97,918                   |
| 4247   | Fatigue Management House - Moranbah                  | 1,829              | 1,447           | 3,276                     | 6,100              | 14,200                | 10,924                   |
| 4256   | Administration Office - Moranbah                     | 93,061             | 14,449          | 107,510                   | 107,463            | 253,677               | 146,167                  |
| 4257   | MBH Admin (ELT/Customer Service area/Council Chamber | 12,599             | 1,153           | 13,752                    | 26,250             | 63,000                | 49,248                   |
| 4605   | Admin Office Maintenance - Clermont                  | 46,944             | 9,955           | 56,900                    | 75,855             | 180,416               | 123,516                  |
| 9451   | Rent - Other Properties - Moranbah                   | 1,067              | 0               | 1,067                     | 0                  | 0                     | (1,067)                  |
|  |  | <b>1,917,181</b>   | <b>91,997</b>   | <b>2,009,178</b>          | <b>2,084,531</b>   | <b>4,891,103</b>      | <b>2,881,925</b>         |
| <b>Surplus/(Deficit)</b>                                   |  | <b>(1,356,018)</b> | <b>(91,997)</b> | <b>(1,448,015)</b>        | <b>(1,537,763)</b> | <b>(3,578,858)</b>    | <b>(2,130,842)</b>       |
| <b>Full Cost Recovery</b>                                  |  |                    |                 |                           |                    |                       |                          |
| 2825   | Corp O'Heads & NCP Costs - Housing & Facilities      | 921,993            | 0               | 921,993                   | 921,993            | 2,212,784             | 1,290,790                |
|  |  | <b>921,993</b>     | <b>0</b>        | <b>921,993</b>            | <b>921,993</b>     | <b>2,212,784</b>      | <b>1,290,790</b>         |
| <b>Operating Surplus/(Deficit) less Full Cost Recovery</b> |  | <b>(2,278,012)</b> | <b>(91,997)</b> | <b>(2,370,008)</b>        | <b>(2,459,756)</b> | <b>(5,791,641)</b>    | <b>(3,421,633)</b>       |



## OPERATIONAL PLAN / BUSINESS PLAN – EXCEPTION REPORTING

| Strategy (i.e. C5) | Service Area           | Description | Highlight/  |
|--------------------|------------------------|-------------|---|
|                    | All AOP & ODP projects |             | The housing strategy has commenced and is progressing with further data validation. |

### NEXT MONTH'S PROGRAM:

Key focuses for this period are continuation and completion of many maintenance programs, planning and continued delivery of the capital works program for 2020/21. Pag bids due for 2021/22 Capital business cases.

### DEVELOPING INITIATIVES / ISSUES:

Current PSA's that were in place at the beginning of the financial year have expired, this does not hamper service delivery, it does however create a longer procurement process to ensure we meet purchasing policy compliance, please be patient whilst the PSA requirements are reviewed and new agreements are finalised.  
**Ongoing.**

## GALILLEE AND BOWEN BASIN OPERATIONS

### MINING AGREEMENTS

#### PREVIOUS MONTH'S ACHIEVEMENTS:

##### Pembroke

- Continuing negotiations for Infrastructure Access Agreement – Pembroke currently reviewing updated terms of agreement.
- Pipeline license – executed.
- Water Supply Agreement – being progressed by Water and Waste.

##### Futura

- Notifiable Road Use compensation agreement – with IRC for review.
- Compensation Agreement - Dispute regarding reimbursement of costs for preparation, currently with CGFS for internal review.
- Pipeline Licence Final terms of negotiation – with IRC for review.

---

## BMA

- Conclusion of Traffic Count activities on Red Hill Road. IRC currently reviewing initial draft of the Multi Criteria Analysis.
- Council received notification of a proposal to undertake embankment stabilisation works adjacent to Saraji Road, this will result in an access track to allow for inspections to be constructed within road corridor. BMA representatives seek to work with Council for an appropriate tenure for this track, subject to the realignment of Saraji Road by Vitrinite.
- Goonyella Riverside Dragline Shutdown and impact on Mabbin Road– Draft terms of reference have been provided to BHP for consideration.
- Golden Mile Haul Road Crossover – The Traffic Impact Assessment and compensation variation has been received and is under review by IRC.

## Bravus (Adani)

- Infrastructure Access Agreement
  - Maintenance Works are continuing.
  - Council has advised that it can only consider partial approval for construction of the Elgin and Moray Carmichael Boundary Road.
  - Dust continues to be a concern with the Road User intermittently committing to resources to address the problem – patchy rain is providing some temporary relief.
  - There have been a number of instances where it has been identified by Council that The Road User has not fulfilled its obligations under the Agreement.
  - Adani are still contesting the requirement to construct the road to Councils required flood immunity.
  - It is expected that Bravus will commence the dispute resolution process.
  - Construction on 3.15km upgrade for Bulliwallah Road is nearing completion.
  - Automatic digital Road Closure signs to be installed at North Creek within 6 months.

## Vitrinite [Queensland Coking Coal]

- Proponent working with BMA to prepare the necessary applications to open and close the relevant sections of Saraji Road for the realignment.
- Confirmation of Vitrinite Proposal to present to Council regarding the social management strategies that they are looking to implement for their workforce in Dysart.

## Minjar Gold

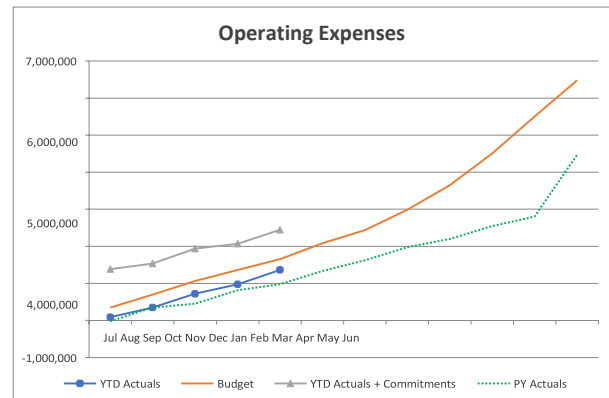
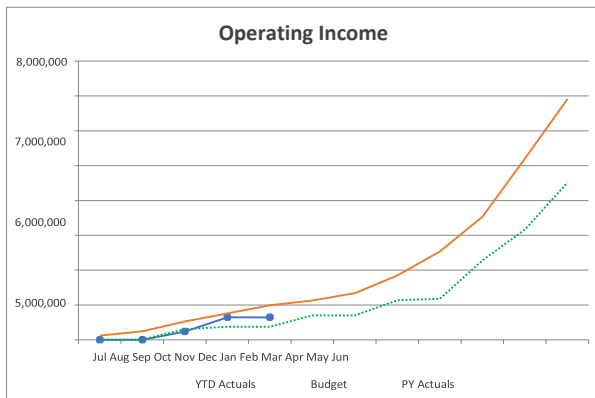
- Negotiation of Compensation Agreement for mining lease renewals - Previous agreement expires with the mining lease and was not novated to the current ML holder.

## PREVIOUS MONTH'S ISSUES:

Not Applicable.

## FINANCIAL REPORT:

# Operational Result From Period 1 - 5, 2021 Bowen Basin and Galilee Operations



- < Budget
- < 5% over Budget
- > 5% over Budget

| Detail at M4 Level (Full Number)                           |                          |                  |                    |                           |                  |                       |  |
|--|--------------------------|------------------|--------------------|---------------------------|------------------|-----------------------|--|
| Cost Centre  | Description              | YTD Actuals      | Commitments        | YTD Actuals + Commitments | YTD Budget       | Annual Revised Budget | Remaining Revised Budget                       |
| <b>Operational Income</b>                                  |                          |                  |                    |                           |                  |                       |  |
| 1393   | TMR Project              | 0                | 0                  | 0                         | 0                | 1,800,000             | 1,800,000 <span style="color: red;">●</span>   |
| 1600   | Galilee Basin Operations | 284,697          | 0                  | 284,697                   | 424,582          | 1,400,997             | 1,116,301 <span style="color: red;">●</span>   |
| 3211   | RMPC Expenditure - Isaac | 360,854          | 0                  | 360,854                   | 560,000          | 3,710,000             | 3,349,146 <span style="color: red;">●</span>   |
|  |                          | <b>645,551</b>   | <b>0</b>           | <b>645,551</b>            | <b>984,582</b>   | <b>6,910,997</b>      | <b>6,265,447</b>                               |
| <b>Operational Expenses</b>                                |                          |                  |                    |                           |                  |                       |  |
| 1252   | Adani Project            | 17,826           | 768                | 18,593                    | 2,065            | 4,882                 | (13,712) <span style="color: red;">●</span>    |
| 1393   | TMR Project              | 0                | 0                  | 0                         | 50,000           | 1,800,000             | 1,800,000 <span style="color: green;">●</span> |
| 1600   | Galilee Basin Operations | 613,656          | 727,138            | 1,340,794                 | 550,752          | 1,496,670             | 155,876 <span style="color: red;">●</span>     |
| 3211   | RMPC Expenditure - Isaac | 732,324          | 354,441            | 1,086,765                 | 1,056,017        | 3,180,020             | 2,093,255 <span style="color: green;">●</span> |
|  |                          | <b>1,363,806</b> | <b>1,082,346</b>   | <b>2,446,152</b>          | <b>1,658,834</b> | <b>6,481,571</b>      | <b>4,035,419</b>                               |
| <b>Surplus/(Deficit)</b>                                   |                          | <b>(718,255)</b> | <b>(1,082,346)</b> | <b>(1,800,601)</b>        | <b>(674,252)</b> | <b>429,426</b>        | <b>2,230,028</b>                               |
| <b>Full Cost Recovery</b>                                  |                          | <b>0</b>         | <b>0</b>           | <b>0</b>                  | <b>0</b>         | <b>0</b>              | <b>0</b>                                       |
| <b>Operating Surplus/(Deficit) less Full Cost Recovery</b> |                          | <b>(718,255)</b> | <b>(1,082,346)</b> | <b>(1,800,601)</b>        | <b>(674,252)</b> | <b>429,426</b>        | <b>2,230,028</b>                               |

---

## **DEVIATION FROM BUDGET AND POLICY:**

The Materials & Services including committed variance is as a result of the three-year purchase order for Shepherd Services for the Engineering and infield support in accordance with the Infrastructure Access Agreement. This is expected to continue through to December 2021.

## **OPERATIONAL PLAN / BUSINESS PLAN – EXCEPTION REPORTING**

Not Applicable.

## **NEXT MONTH'S PROGRAM:**

- Continued negotiation with Pembroke.
- Negotiation Agreements with Futura.
- Monitoring and evaluation of Adani Maintenance Works and progressing road design.
- Negotiation of Compensation Agreement with Minjar Gold.

## **Organisation Development Plan or Capital Projects Scheduled to Commence During Next Month**

Not Applicable.

## **DEVELOPING INITIATIVES / ISSUES:**

- Engineering & Infrastructure and Corporate Governance & Financial Services are working together in the development of standard template agreements that will provide for more effective proponent engagement.
- A detailed register of obligations under each agreement with all resource proponents is currently being prepared, following completion (mid-late 2020), the details shall be presented to council for consideration.
- Water & Waste and E&I are collectively collating the various mining agreement as a joint project to provide efficiency and consistency in dealing with resource proponents.
- Presentation to IPWEAQ regarding the Management of Large Resource Projects on Lower Order Roads
- IRC has been identified as having processed the 2nd highest Oversize Over mass permits in Australia with the fastest response time in the country.

## **INFRASTRUCTURE**

### **PREVIOUS MONTH'S ACHIEVEMENTS:**

#### **Minor Works completed:**

- Recurring pothole patching required on roads around Dysart due to fragile seal.
- Roadside slashing of Saraji Road in progress.

#### **Maintenance Grading:**

- 
- Grading crew in Central area have completed maintenance grading works in conjunction with nearby resheeting projects.
  - Coastal Crew has relocated to grade Council roads off Marlborough-Sarina Road.

## **Resheeting:**

- Peakvale, Glenavon and Valkyrie Road resheeting in progress.

## **RMPC:**

- The combined Council slashing crew has returned to Clermont area with Gregory Highway completed and Gregory Developmental Road in progress. Dysart-Middlemount Road also complete.
- A guide-post replacement program has been implemented for priority locations on main roads at Gregory Highway, Gregory Developmental Road, May Downs Road, Peak Downs Highway (western section) and Bruce Highway.
- Maintenance and shoulder grading in progress on May Downs Road.
- Contractor has commenced maintenance grading works on St Lawrence-Croydon Road.
- Vegetation clearing in progress on Dysart-Middlemount Road.
- Gravel patching and grading commenced on St Lawrence-Croydon Road.

## **Capital Works:**

- Eaglefield Road pave and seal top-coat seal completed 19 November. Line marking and road furniture has been procured and works are programmed.
- Sarchedon Drive drainage is 90% completed with sealing works completed by 20 November. Remaining works include guard rail and fencing works which are additional works to be undertaken internally by Council crew.
- Dysart town entry signs – Contractor has been procured and they are working on the design.
- 20/21 Reseal Program has commenced by Boral Resources with 60% of program completed.
- Urban Stormwater works in progress in Moranbah district.

## **Emergent Works:**

- Issues with bleeding of seal on Dysart-Middlemount Road with high temperatures. Warning signage has been installed and a water truck to cool the surface has been assisting with the issue.

## **PREVIOUS MONTH'S ISSUES:**

- Water supply has become an issue in most areas in the West. A new grader program is being evaluated due to water availability.
- Minor mechanical failures on plant and equipment through region.
- Low staff levels due to resignation and leave reduction and sickness.
- Delays with supply of premix has delayed pothole patching in Central Area.



- Lack of available contractors for plant hire and works to compliment internal staffing deficiencies cause by external demand in current workforce.



**CW182485 Sarchedon Drive – Access driveways – completed**



**CW182485 Sarchedon Drive – Drainage works – completed**





**CW 212888 Eaglefield Pave & Seal – Project Sign Installation**

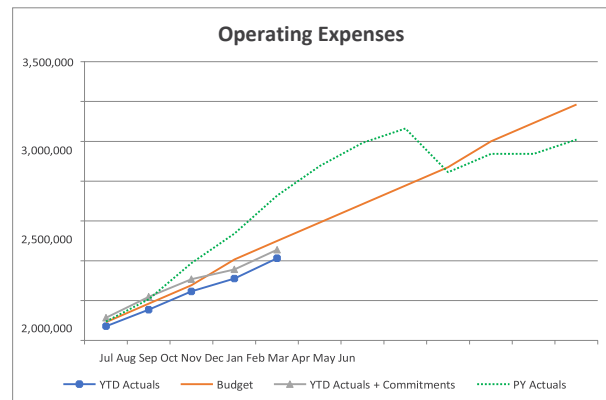
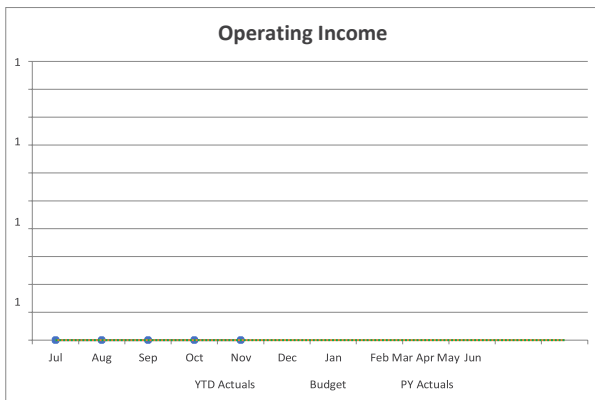




**CW 212888 Eaglefield Pave & Seal – Bottom Coat Seal Works – completed**

## FINANCIAL REPORT:

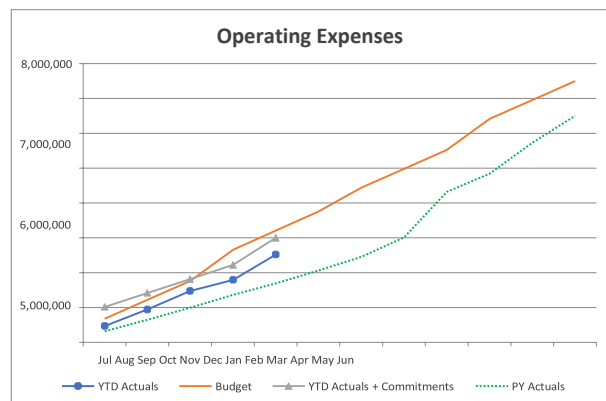
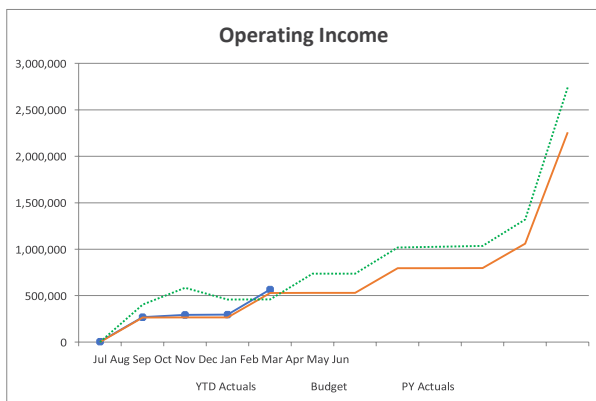
# Operational Result From Period 1 - 5, 2021 Manager Infrastructure East



- < Budget
- < 5% over Budget
- > 5% over Budget

| Detail at M4 Level (Full Number)                    |                                     |                    |                  |                           |                    |                       |   |
|---|-------------------------------------|--------------------|------------------|---------------------------|--------------------|-----------------------|---|
| Cost Centre   | Description                         | YTD Actuals        | Commitments      | YTD Actuals + Commitments | YTD Budget         | Annual Revised Budget | Remaining Revised Budget                      |
| Operational Income                                  |                                     | 0                  | 0                | 0                         | 0                  | 0                     | 0   |
| Operational Expenses                                |                                     |                    |                  |                           |                    |                       |   |
| 1053  | Manager Roads & Urban Services      | 103,975            | 154              | 104,129                   | 112,063            | 265,518               | 161,389 <span style="color: green;">●</span>  |
| 2128  | Roads & Town Assets - Glenden       | 30,222             | 122              | 30,344                    | 60,730             | 144,017               | 113,673 <span style="color: green;">●</span>  |
| 2132  | Roads & Town Assets - Nebo          | 102,253            | 2,452            | 104,705                   | 98,625             | 233,574               | 128,869 <span style="color: orange;">●</span> |
| 2133  | Roads & Town Assets - Rural (North) | 364,754            | 32,972           | 397,725                   | 527,976            | 1,250,011             | 852,285 <span style="color: green;">●</span>  |
| 2140  | Works Administration - Nebo         | 139                | 0                | 139                       | 0                  | 0                     | (139) <span style="color: red;">●</span>      |
| 2149  | Urban Misc Works - Nebo             | 5,249              | 0                | 5,249                     | 0                  | 0                     | (5,249) <span style="color: red;">●</span>    |
| 3165  | Boat Ramps - East                   | 86                 | 0                | 86                        | 1,019              | 2,408                 | 2,322 <span style="color: green;">●</span>    |
| 3186  | Urban Misc Works - Dysart           | 104                | 0                | 104                       | 0                  | 0                     | (104) <span style="color: red;">●</span>      |
| 3199  | Roads & Town Assets - East          | 27,348             | 0                | 27,348                    | 32,875             | 77,986                | 50,637 <span style="color: green;">●</span>   |
| 3253  | Works Administration - Middlemount  | 190                | 0                | 190                       | 0                  | 0                     | (190) <span style="color: red;">●</span>      |
| 3254  | Floating Plant - Middlemount        | 212                | 170              | 382                       | 0                  | 0                     | (382) <span style="color: red;">●</span>      |
| 3267  | Roads & Town Assets - Rural East    | 371,432            | 70,559           | 441,991                   | 416,825            | 990,226               | 548,235 <span style="color: green;">●</span>  |
| 4190  | Urban Misc Works - Moranbah         | 26,073             | 1,310            | 27,383                    | 0                  | 0                     | (27,383) <span style="color: red;">●</span>   |
|   |                                     | <b>1,032,037</b>   | <b>107,738</b>   | <b>1,139,775</b>          | <b>1,250,112</b>   | <b>2,963,739</b>      | <b>1,823,964</b>                              |
| Surplus/(Deficit)                                   |                                     | <b>(1,032,037)</b> | <b>(107,738)</b> | <b>(1,139,775)</b>        | <b>(1,250,112)</b> | <b>(2,963,739)</b>    | <b>(1,823,964)</b>                            |
| Full Cost Recovery                                  |                                     | 0                  | 0                | 0                         | 0                  | 0                     | 0   |
| Operating Surplus/(Deficit) less Full Cost Recovery |                                     | <b>(1,032,037)</b> | <b>(107,738)</b> | <b>(1,139,775)</b>        | <b>(1,250,112)</b> | <b>(2,963,739)</b>    | <b>(1,823,964)</b>                            |

## Operational Result From Period 1 - 5, 2021 Manager Infrastructure West



- < Budget
- < 5% over Budget
- > 5% over Budget

| Detail at M4 Level (Full Number)                           |  |                    |                  |                           |                    |                       |   |
|--|--|--------------------|------------------|---------------------------|--------------------|-----------------------|---|
| Cost Centre  | Description                              | YTD Actuals        | Commitments      | YTD Actuals + Commitments | YTD Budget         | Annual Revised Budget | Remaining Revised Budget                        |
| <b>Operational Income</b>                                  |  |                    |                  |                           |                    |                       |   |
| 3505   | Work camp inmate program - Clermont      | 4,512              | 0                | 4,512                     | 4,583              | 11,000                | 6,488 <span style="color: red;">●</span>        |
| 4193   | Roads & Town Assets - Rural (West)       | 31,281             | 0                | 31,281                    | 0                  | 0                     | (31,281) <span style="color: green;">●</span>   |
| 9022   | Private Works Revenue - Isaac            | 4,405              | 0                | 4,405                     | 0                  | 0                     | (4,405) <span style="color: green;">●</span>    |
| 9242   | Grant/Subsidy - Road Entitlement FAG     | 524,734            | 0                | 524,734                   | 524,734            | 2,246,650             | 1,721,917 <span style="color: orange;">●</span> |
|  |  | <b>564,931</b>     | <b>0</b>         | <b>564,931</b>            | <b>529,317</b>     | <b>2,257,650</b>      | <b>1,692,719</b>                                |
| <b>Operational Expenses</b>                                |  |                    |                  |                           |                    |                       |   |
| 1071   | Regional Manager's Office - IPR          | 270,770            | 1,850            | 272,620                   | 279,367            | 662,382               | 389,762 <span style="color: green;">●</span>    |
| 1178   | Private Works Expenditure - Isaac        | 8,042              | 680              | 8,722                     | 0                  | 0                     | (8,722) <span style="color: red;">●</span>      |
| 1250   | Roads & Town Assets - Clermont           | 143,578            | 1,145            | 144,723                   | 225,801            | 535,030               | 390,306 <span style="color: green;">●</span>    |
| 1352   | Roads West Capitalised Internal Costs    | 113,755            | 0                | 113,755                   | 112,167            | 265,121               | 151,366 <span style="color: orange;">●</span>   |
| 1382   | Roads Assets - Central                   | 484,813            | 297,254          | 782,067                   | 438,289            | 1,039,562             | 257,495 <span style="color: red;">●</span>      |
| 3190   | Roads & Town Assets - Dysart             | 102,513            | 11,352           | 113,864                   | 184,960            | 437,732               | 323,867 <span style="color: green;">●</span>    |
| 3225   | Roads & Town Assets - Middlemount        | 83,988             | 3,432            | 87,420                    | 111,604            | 264,186               | 176,765 <span style="color: green;">●</span>    |
| 3256   | Works Administration - Dysart            | 687                | 0                | 687                       | 0                  | 0                     | (687) <span style="color: red;">●</span>        |
| 3257   | Floating Plant - Dysart                  | 650                | 0                | 650                       | 0                  | 0                     | (650) <span style="color: red;">●</span>        |
| 3505   | Work camp inmate program - Clermont      | 36,013             | 2,239            | 38,252                    | 34,275             | 81,116                | 42,864 <span style="color: red;">●</span>       |
| 4174   | Urban Misc Works - Clermont              | 10,838             | 0                | 10,838                    | 0                  | 0                     | (10,838) <span style="color: red;">●</span>     |
| 4180   | Roads & Town Assets - Moranbah           | 427,973            | 18,337           | 446,310                   | 559,747            | 1,235,402             | 789,093 <span style="color: green;">●</span>    |
| 4193   | Roads & Town Assets - Rural (West)       | 722,484            | 145,466          | 867,950                   | 1,125,887          | 2,662,959             | 1,795,009 <span style="color: green;">●</span>  |
| 4254   | Co-ordinator Infrastructure West         | 113,712            | 33               | 113,745                   | 139,329            | 318,302               | 204,557 <span style="color: green;">●</span>    |
|  |  | <b>2,519,815</b>   | <b>481,788</b>   | <b>3,001,603</b>          | <b>3,211,425</b>   | <b>7,501,791</b>      | <b>4,500,188</b>                                |
| <b>Surplus/(Deficit)</b>                                   |  | <b>(1,954,884)</b> | <b>(481,788)</b> | <b>(2,436,673)</b>        | <b>(2,682,108)</b> | <b>(5,244,141)</b>    | <b>(2,807,469)</b>                              |
| <b>Full Cost Recovery</b>                                  |  |                    |                  |                           |                    |                       |   |
| 2845   | Corp O'Heads & NCP Costs - Private Works | 21,417             | 0                | 21,417                    | 21,417             | 51,402                | 29,984 <span style="color: green;">●</span>     |
|  |  | <b>21,417</b>      | <b>0</b>         | <b>21,417</b>             | <b>21,417</b>      | <b>51,402</b>         | <b>29,984</b>                                   |
| <b>Operating Surplus/(Deficit) less Full Cost Recovery</b> |  | <b>(1,976,302)</b> | <b>(481,788)</b> | <b>(2,458,090)</b>        | <b>(2,703,525)</b> | <b>(5,295,543)</b>    | <b>(2,837,453)</b>                              |

---

## DEVIATION FROM BUDGET AND POLICY:

Not Applicable.

## OPERATIONAL PLAN / BUSINESS PLAN – EXCEPTION REPORTING

Not Applicable.

## NEXT MONTH'S PROGRAM:

### Minor Works

- Slashing to be reviewed in areas that have had rain and the fire risk has been diminished.
- Vegetation clearing contractors have been procured in West.
- Continued constant attention to pothole patching on Clermont-Dysart, Mt Stuart-Bedford Weir, Saraji and Golden Mile Roads due to fragile seal.
- Street sweeping in Dysart.

### Maintenance Grading

- Grading programs ongoing within region.

### Resheeting

- Resheeting on Peakvale, Valkyrie and Glenavon Roads to be completed.
- Commencement of resheeting works on Wuthung Road.
- Tender documents have been issued for Bulliwallah Road with closing date 9 Dec 2020.

### Capital Projects

- Urban Stormwater Renewal – remaining works in Moranbah district to be completed with finalisation of project.
- Commencing construction of Dysart Entry Signage installation.
- Eaglefield Road Pave and Seal – installation of roadside furniture and finalisation of project.
- Saraji Pavement Rehabilitation – Tender documents to be issued.

### RMPC

- Completion of slashing on Gregory Developmental Road. Procurement in process for Bruce Highway slashing prior to Christmas period.
- Guidepost replacement program to continue in West.
- Continued pothole patching on State Controlled roads as required.
- Continuation of maintenance and heavy shoulder grading on May Downs Road.
- Continuation of gravel patching and grading on St Lawrence-Croydon.
- Vegetation clearing on Dysart-Middlemount Road.

## DEVELOPING INITIATIVES / ISSUES:

- Consideration of a trial of surface enrichment on low volume roads.
- Continued drying conditions have been creating water sourcing issues. Additional water carts or deferment until after rain events are possible solutions. Slashing programme will also be monitored with increased fire risk.
- Gravel sourcing is a growing issue whilst a solution to needing a Senior Site Executive at all “quarries” is still to be resolved. Discussion to be held about how to proceed.

## CLERMONT WORK CAMP

### PREVIOUS MONTH'S ACHIEVEMENTS:

- The Clermont Bowls club ramp is in its final stages of sanding, oiling and painting using club colours. Including a concrete pad being laid this rotation to complete the access to the ramp.
- The Clermont Pony Club paint is complete, and we have received kind words and many thanks for all the help and hard work we have done over the last year.
- Our permanent saleyard inmate continues to thrive learning some great new skills and developing a real sense of belonging.
- The CCHAOSI ladies were very appreciative for some extra strong men to pack the building into a shipping container pending renovations.
- Media piece to be released in the Clermont Rag once current rotation complete. Ensuring recognition is given to the great work the inmates are doing in the community but also promoting what work they can do for the Clubs and organisations.
- Recognition plaques have been placed at clubs as we complete major works.
- Community works under-taken:
  - Clermont Bowling club ramp sand and oil. Painting and concrete in progress
  - Clermont Pony Club arena paint – Complete
  - Permanent inmate saleyards.
  - Semi – Permanent inmate Historical centre.
  - CCHAOSI partial building move
  - Vegetation control for SES – Monash Lodge - Frank Dennis Units - Railway



## Pony Club Arena - Complete



## Race Club Plaque



## NEXT MONTH'S PROGRAM:

- Clermont Bowling Club – Ramp completion.
- Kindy maintenance – Schedule for December during their shut down.
- Inmate to saleyards.

- Inmate to Museum.
- CCHAOSI Housing services move.
- Racecourse clean up, set up/pack up for the Clermont races.

## DEVELOPING INITIATIVES / ISSUES:

- Piano Tree Beautification budget bid.
- QLD Police – Cycle safety project collaboration with Parks and Gardens team also PECS.
- Equipment wear and tear – Some new equipment has been purchased which is making a significant difference to the efficiency of the work also the morale of the inmates.
- Management of weather influences and exposure.

## PARKS AND RECREATION

### PREVIOUS MONTH'S ACHIEVEMENTS:

COVID restrictions have been eased once again (as of 4 pm on Tuesday 17 November) and IRC signage in applicable parks locations will be changed accordingly.

The temporary COVID registers at campgrounds will now be replaced with a permanent solution called Newbook. This property management system product is already being used at Theresa Creek Dam and is capable of providing Council with a broad range of information.

Parks & Recreation is about to change the playground auditing from a paper-based process to the use of a tablet with an App. This software has been developed in-house over a period of time, with the assistance of Parks staff who have provided information about what is required to make this effective. The software is currently being trialled, to be followed by an information and training session for Parks Team Leaders (who will be using the tablet and App). It is expected that the usage of the tablet will extend to other audits as well, such as public amenities, high profile areas and Parks facilities.

- **Moranbah** - roofing repairs have been done at Bernborough Park amenities, F5F decals have been installed on the Binda Park pathways and large amounts of tree debris (branches, etc) has been removed from Koala Park and the Mills Ave median as a result of roosting Flying Foxes. A large amount of illegally dumped rubbish has been removed from the Common Grounds. Parks staff also managed the setup in the Town Square for the Miners Memorial Ceremony as well as preparations for the Pike River tragedy commemoration (NZ event).
- **Glenden** - a leading backflow prevention device (RPZ) was repaired, a urinal cistern at Maddern Oval was replaced and Khaki weed was sprayed at Lake Elphinstone.
- **Coast** - Parks staff assisted with the repair and replacement of guideposts along 30 km of the Bruce Highway.
- **Middlemount** - staff backfilled potholes in the Camm Park car park and reinstated a solar bollard light following water penetration of the controller unit.
- **Clermont** conducted a funeral on 28 October and carried out an annual clean of the Hoods Lagoon aerators.



- **Dysart** irrigation repairs were carried out in the gardens near Big Belly park.

## CAPITAL PROJECTS

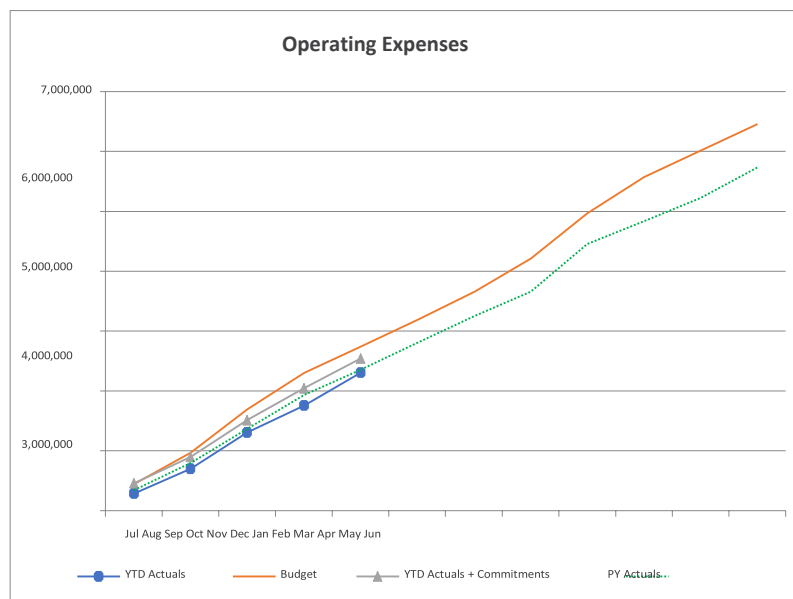
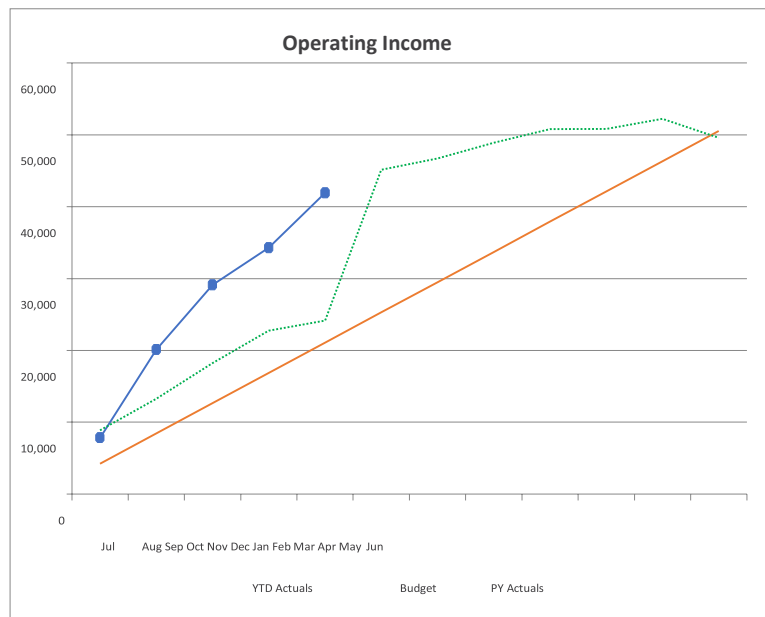
- **Moranbah** - Town Square water fountain project is progressing slowly with an RFQ about to be issued for demolition of the existing infrastructure.
- **Nebo** - Perry Park swing upgrade tender closed on 6 November and evaluation will take place on 18 November.
- In **Glenden** the Lions Park play equipment upgrade tender closed on 6 November and evaluation will take place on 18 November.
- **Coast** - Clairview backup generator concrete slab has been poured in readiness for the generator, although there is a 3-month delay on the generator supply. The switchboard upgrade is scheduled for the 24 November and the septic upgrade has commenced. Bollards for the St Lawrence Recreation grounds have arrived, and installation will begin shortly.
- **Middlemount** - work to commence on the touch footy club house (repairs to walls, electrical and paint) with completion due by 31 December 2020. Tennis Court lighting and switchboard compliance is complete and LED lights have been ordered for the courts and tenders are progressing. Staff met with the local Councillor on 21 October to progress the Storyboard project.
- **Dysart** - power for lighting and irrigation at Lions Park still awaits the connection by Ergon. The all-access playground in Centenary Park will go to tender shortly.
- **Clermont** - tenders for the new sports ground/netball toilet block will go out on 16 November, with a scheduled build date of mid-February 2021.

## PREVIOUS MONTH'S ISSUES:

- **Moranbah** – Roosting flying foxes at Koala Park.
- **Glenden** - Lake Elphinstone is still dry and is averaging about 14 campers per night.
- **Coast** - Nil
- **Dysart** - Vandalism issues. Centenary Park Toilets and AFL toilets have had toilet bowls smashed.
- **Clermont** - bats have returned to Centenary Park. The colony has increased to take up roost along the board walk as well. A new access gate is being installed adjacent to the play park.
- A walkway in Rose Harris park has become a trip hazard and has been barricaded until repairs have been affected. Rose Harris Park has had two fires in the toilets, causing damage to the bins, basins and walls.
- **Middlemount** – Nil

**FINANCIAL REPORT:**

## Operational Result From Period 1 - 5, 2021 Manager Parks and Recreation



# INFORMATION BULLETIN

- < Budget
- < 5% over Budget
- > 5% over Budget

| Detail at M4 Level (Full Number)                           |  |                    |                  |                           |                    |                       |  |
|--|--|--------------------|------------------|---------------------------|--------------------|-----------------------|--|
| Cost Centre  | Description  | YTD Actuals        | Commitments      | YTD Actuals + Commitments | YTD Budget         | Annual Revised Budget | Remaining Revised Budget                         |
| <b>Operational Income</b>                                  |  |                    |                  |                           |                    |                       |  |
| 9094   | Coastal Camping Fees - East                            | 32,687             | 0                | 32,687                    | 14,583             | 35,000                | 2,313 <span style="color: green;">●</span>       |
| 9267   | Sportsgrounds Fees - Nebo                              | 189                | 0                | 189                       | 208                | 500                   | 311 <span style="color: red;">●</span>           |
| 9431   | Sportsgrounds Fees - Clermont                          | 907                | 0                | 907                       | 2,083              | 5,000                 | 4,093 <span style="color: red;">●</span>         |
| 9464   | Sportsgrounds Fees - Moranbah                          | 5,632              | 0                | 5,632                     | 2,083              | 5,000                 | (632) <span style="color: green;">●</span>       |
| 9691   | Sportsgrounds Fees - Recreation Reserve St Lawrence    | 2,496              | 0                | 2,496                     | 2,083              | 5,000                 | 2,504 <span style="color: green;">●</span>       |
|  |  | <b>41,910</b>      | <b>0</b>         | <b>41,910</b>             | <b>21,042</b>      | <b>50,500</b>         | <b>8,590</b>                                     |
| <b>Operational Expenses</b>                                |  |                    |                  |                           |                    |                       |  |
| 1055   | Regional Mgr's Office - Community Facilities           | 177,588            | 0                | 177,588                   | 193,236            | 531,765               | 354,177 <span style="color: green;">●</span>     |
| 2082   | Rec Area - Lake Elphinstone - Glenden                  | 28,843             | 18,288           | 47,131                    | 23,553             | 56,262                | 9,131 <span style="color: red;">●</span>         |
| 2117   | Public Conveniences - Glenden                          | 10,421             | 498              | 10,919                    | 3,779              | 8,954                 | (1,966) <span style="color: green;">●</span>     |
| 2125   | Parks, Gardens & Reserves - Glenden                    | 218,541            | 5,402            | 223,943                   | 289,906            | 654,714               | 430,771 <span style="color: green;">●</span>     |
| 2131   | Recreation Facilities - North                          | 20,163             | 798              | 20,962                    | 15,426             | 35,937                | 14,975 <span style="color: red;">●</span>        |
| 2143   | Parks, Gardens & Reserves - Nebo                       | 135,587            | 3,058            | 138,646                   | 186,239            | 428,507               | 289,861 <span style="color: green;">●</span>     |
| 2169   | Parks, Gardens & Reserves - Rural North                | 4,229              | 91               | 4,319                     | 1,924              | 4,338                 | 18 <span style="color: red;">●</span>            |
| 2203   | Depreciation Expense - Park Furniture                  | 112,670            | 0                | 112,670                   | 109,105            | 261,852               | 149,182 <span style="color: orange;">●</span>    |
| 2613   | Public Conveniences - Nebo                             | 4,500              | 0                | 4,500                     | 2,204              | 5,037                 | 537 <span style="color: red;">●</span>           |
| 3179   | Public Conveniences - Dysart                           | 11,021             | 0                | 11,021                    | 5,499              | 15,477                | 4,456 <span style="color: red;">●</span>         |
| 3181   | Recreation Facilities - Dysart                         | 88,998             | 2,472            | 91,470                    | 43,043             | 98,729                | 7,259 <span style="color: red;">●</span>         |
| 3187   | Parks, Gardens & Reserves - Dysart                     | 184,961            | 3,324            | 188,286                   | 244,125            | 559,824               | 371,538 <span style="color: red;">●</span>       |
| 3196   | Sportsgrounds - East                                   | 7,468              | 0                | 7,468                     | 0                  | 0                     | (7,468) <span style="color: red;">●</span>       |
| 3197   | Recreation Facilities - St Lawrence                    | 20,409             | 44,164           | 64,574                    | 20,422             | 48,480                | (16,094) <span style="color: green;">●</span>    |
| 3198   | Recreation Facilities - East                           | 17,421             | 6,458            | 23,879                    | 17,069             | 39,053                | 15,174 <span style="color: orange;">●</span>     |
| 3223   | Sportsgrounds Skatepark - Middlemount                  | 31,013             | 1,715            | 32,728                    | 0                  | 0                     | (32,728) <span style="color: green;">●</span>    |
| 3224   | Recreation Facilities - Middlemount                    | 18,180             | 109              | 18,289                    | 37,201             | 84,479                | 66,190 <span style="color: green;">●</span>      |
| 3230   | Parks, Gardens & Reserves - Middlemount                | 169,004            | 91               | 169,095                   | 229,242            | 525,738               | 356,643 <span style="color: green;">●</span>     |
| 3262   | Parks, Gardens & Reserves - East                       | 96,796             | 8,995            | 105,791                   | 113,143            | 258,983               | 153,192 <span style="color: green;">●</span>     |
| 3274   | Parks & Garden Assets - Middlemount                    | 310                | 0                | 310                       | 6,009              | 14,210                | 13,900 <span style="color: green;">●</span>      |
| 3622   | Public Conveniences - Middlemount                      | 9,681              | 0                | 9,681                     | 12,708             | 30,092                | 20,410 <span style="color: green;">●</span>      |
| 3624   | Public Conveniences - East                             | 45,570             | 68,500           | 114,070                   | 27,878             | 66,633                | (47,437) <span style="color: red;">●</span>      |
| 4162   | Public Conveniences - Clermont                         | 37,388             | 11,254           | 48,642                    | 22,049             | 52,164                | 3,522 <span style="color: green;">●</span>       |
| 4164   | Recreation Facilities - Clermont                       | 35,323             | 384              | 35,706                    | 61,923             | 143,900               | 108,194 <span style="color: green;">●</span>     |
| 4170   | Parks, Gardens & Reserves - Clermont                   | 262,159            | 8,056            | 270,215                   | 370,888            | 871,102               | 600,887 <span style="color: green;">●</span>     |
| 4186   | Parks, Gardens & Reserves - Moranbah                   | 396,005            | 47,428           | 443,433                   | 505,679            | 1,189,343             | 745,910 <span style="color: green;">●</span>     |
| 4610   | Recreation Facilities - Moranbah                       | 57,243             | 3,729            | 60,971                    | 150,310            | 356,749               | 295,778 <span style="color: green;">●</span>     |
| 4611   | Public Conveniences - Moranbah                         | 18,054             | 507              | 18,561                    | 48,257             | 115,137               | 96,576 <span style="color: green;">●</span>      |
| 6706   | Write Off NCA - Land & Improvements                    | 52,768             | 0                | 52,768                    | 0                  | 0                     | (52,768) <span style="color: red;">●</span>      |
| 6708   | Write Off NCA - Park Furniture                         | 34,731             | 0                | 34,731                    | 0                  | 0                     | (34,731) <span style="color: red;">●</span>      |
|  |  | <b>2,307,047</b>   | <b>235,321</b>   | <b>2,542,368</b>          | <b>2,740,819</b>   | <b>6,457,458</b>      | <b>3,915,090</b>                                 |
| <b>Surplus/(Deficit)</b>                                   |  | <b>(2,265,137)</b> | <b>(235,321)</b> | <b>(2,500,458)</b>        | <b>(2,719,778)</b> | <b>(6,406,958)</b>    | <b>(3,906,500)</b>                               |
| <b>Full Cost Recovery</b>                                  |  |                    |                  |                           |                    |                       |  |
| 2833   | Corp O'Heads & NCP Costs - Parks, Gardens & Cemeteries | (2,199,860)        | 0                | (2,199,860)               | (2,199,860)        | (5,279,664)           | (3,079,804) <span style="color: green;">●</span> |
|  |  | <b>(2,199,860)</b> | <b>0</b>         | <b>(2,199,860)</b>        | <b>(2,199,860)</b> | <b>(5,279,664)</b>    | <b>(3,079,804)</b>                               |
| <b>Operating Surplus/(Deficit) less Full Cost Recovery</b> |  | <b>(65,277)</b>    | <b>(235,321)</b> | <b>(300,598)</b>          | <b>(519,918)</b>   | <b>(1,127,294)</b>    | <b>(826,696)</b>                                 |

## DEVIATION FROM BUDGET AND POLICY:

As per budget review process.

## OPERATIONAL PLAN / BUSINESS PLAN – EXCEPTION REPORTING

Not Applicable.

## NEXT MONTH'S PROGRAM:

Continuation of normal operational works.

## DEVELOPING INITIATIVES / ISSUES:

Not Applicable.

---

## INFRASTRUCTURE PLANNING AND TECHNICAL SERVICES

### PREVIOUS MONTH'S ACHIEVEMENTS:

#### PROJECTS

##### Capital Works 2020-21: Ongoing Projects

- Valkyrie Road Design - RFQ for the design services being completed and will be released through Council's procurement process shortly.
- Pioneer Road Design - Community Engagement survey closing on 18/11/20, review is underway to ensure community concerns are adequately addressed. Road design to follow.
- Barada Barna Welcome to Country Signage - Supply of Signage and posts contract awarded to a local supplier. RFQ in progress for the installation of the signage. .
- Carmila Music Street Stormwater Restoration Project – Remediations options developed with initial costings for consideration.
- Bully Creek Bridge Design - RFQ for the design services for Bully Creek Bridge Replacement has closed with evaluation underway.
- Road Safety Treatments – works continuing on scoping for potential projects.

##### Capital Works 2019-20: Ongoing Projects

- CW202779 Philips Creek Bridge
  - Land resumption: Resumption terms mutually agreed including site access for Telstra service relocation. Formal agreement documentation is being arranged by the Governance team.
  - Telstra Service Relocation: PO issued to Telstra for works. Telstra appointed their Contractor to undertake relocation works. Currently, awaiting Contractor mobilisation at site.
  - Ergon Service Relocation: Relocation works are scheduled for Jan-Feb 2021. Site clearance is to be arranged for upon Ergon request.
- CW202784 Cycle Network Program 2019-20 – Variation approved

##### Capital Works 2018-19: Ongoing Projects

- CW192673 Warwick Park road - NGH offer for Cultural Heritage and Native Title clearance report received.
- CW192669 Grosvenor bridge Investigation – Camera was replaced. Still waiting final ARRB report on monitoring.

##### Operational Works 2019-20: Ongoing Works

- The below table identifies additional ongoing IPTS activities.

| Description              | Activity   | Outcomes   |
|--------------------------|--|--|
| Traffic Counters         | - Install traffic Counters<br>- Update of traffic count data | Nil  |
| Development Applications | -Inputs in assessment of Development Applications            | Development Applications assisted – 6  |
| Permits                  | - Works on Road Corridor<br>- Driveway/Crossover<br>- Grids  | Works on Road corridor – 8<br>Land Access Activity – 4<br>Driveway/Crossover – 0<br>Installation of Grid – 0 |

## PROGRESS ON NATURAL RESOURCES

### Gravel

- All gravel material has been extracted from Brewery Farm for the Peakvale Road resheet works.
- Dozer pushing will begin in early December at Epping Forest pit for Walthum Road resheet that is programmed for mid-January. This pit is nearing the end of its useful life as well as reaching endorsed area boundaries. Investigation and testing into the surrounding area will be carried out to determine if endorsed area can be widened or if a completely new site is discovered. Terrain is very limited. Final stage rehabilitation works will be carried out prior to exiting.

### Water

- Frankfield Road – Charlton road reserve dam (new construction 12ML dam).
- It has been determined by the Clermont-Belyando Native Title Applicants that it is generally unlikely that construction activity will harm cultural heritage and that no further on-site assessment will be necessary by the party. Duty of care to remain.

### Kaarima Bore – Maintenance

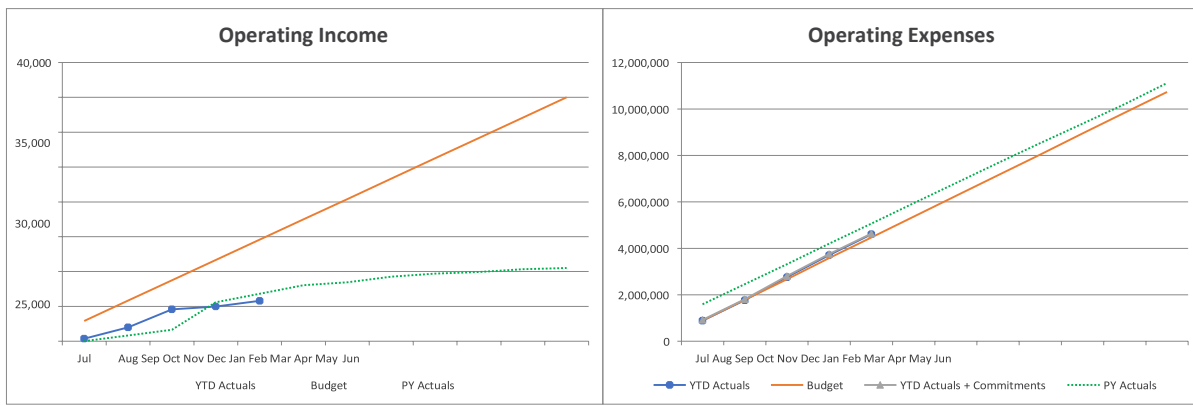
- Investigation and repairs are scheduled for the Kaarima Bore, Golden Downs Road for December. This Council facility has been offline for 4 years and under no easement agreement. Further works are underway into securing with Landowner with initial discussions being positive.

## PREVIOUS MONTH'S ISSUES:

Not Applicable.

## FINANCIAL REPORT:

### Operational Result From Period 1 - 5, 2021 Manager Infrast and Technical Services



| Detail at M4 Level (Full Number)                           |   |                    |                 |                           |                    |                       |   |
|--|---|--------------------|-----------------|---------------------------|--------------------|-----------------------|---|
| Cost Centre  | Description                                       | YTD Actuals        | Commitments     | YTD Actuals + Commitments | YTD Budget         | Annual Revised Budget | Remaining Revised Budget                        |
|  |   |                    |                 |                           |                    |                       | Operational Income                              |
| 1072   | Regional Manager's Office - Technical Support     | 5,798              | 0               | 5,798                     | 14,583             | 35,000                | 29,202 <span style="color: red;">●</span>       |
|  |   | <b>5,798</b>       | <b>0</b>        | <b>5,798</b>              | <b>14,583</b>      | <b>35,000</b>         | <b>29,202</b>                                   |
|  |   |                    |                 |                           |                    |                       | Operational Expenses                            |
| 1072   | Regional Manager's Office - Technical Support     | 310,590            | 27,174          | 337,764                   | 272,520            | 643,413               | 305,649 <span style="color: red;">●</span>      |
| 1608   | Bridge Management                                 | 0                  | 0               | 0                         | 50,000             | 120,000               | 120,000 <span style="color: green;">●</span>    |
| 2157   | Depreciation Expense - Roads & Drainage           | 4,296,708          | 0               | 4,296,708                 | 4,154,436          | 9,970,646             | 5,673,938 <span style="color: orange;">●</span> |
|  |   | <b>4,607,298</b>   | <b>27,174</b>   | <b>4,634,472</b>          | <b>4,476,956</b>   | <b>10,734,059</b>     | <b>6,099,587</b>                                |
| <b>Surplus/(Deficit)</b>                                   |   | <b>(4,601,500)</b> | <b>(27,174)</b> | <b>(4,628,674)</b>        | <b>(4,462,372)</b> | <b>(10,699,059)</b>   | <b>(6,070,385)</b>                              |
|  |   |                    |                 |                           |                    |                       | Full Cost Recovery                              |
| 2832   | Corp O'Heads & NCP Costs - Roads & Urban Services | 4,761,051          | 0               | 4,761,051                 | 4,761,051          | 11,426,522            | 6,665,471 <span style="color: green;">●</span>  |
|  |   | <b>4,761,051</b>   | <b>0</b>        | <b>4,761,051</b>          | <b>4,761,051</b>   | <b>11,426,522</b>     | <b>6,665,471</b>                                |
| <b>Operating Surplus/(Deficit) less Full Cost Recovery</b> |   | <b>(9,362,551)</b> | <b>(27,174)</b> | <b>(9,389,725)</b>        | <b>(9,223,423)</b> | <b>(22,125,582)</b>   | <b>(12,735,857)</b>                             |

## DEVIATION FROM BUDGET AND POLICY:

Not Applicable.

## OPERATIONAL PLAN / BUSINESS PLAN – EXCEPTION REPORTING

Not Applicable.

---

## **NEXT MONTH'S PROGRAM:**

Following works have been scheduled for next month.

Continuation with design and planning of Capital works projects.

- Black Spot Program (BSP) – Applications have been submitted on 17th July 2020. TMR review comments received and clarifications/response provided.
- Bridge Renewal program – Nomination for Bully Creek Bridge Replacement has been successful.
- Cycle Network Program 2021/22 – Among three (3) nominations, one nomination for Option Analysis Study has been successful and the other two nominations for Cycle Pathway in Clermont and Moranbah have not been officially rejected in this funding round.

## **DEVELOPING INITIATIVES / ISSUES:**

Not Applicable.

**Report authorised by:**

ROBERT PERNA

**DIRECTOR ENGINEERING AND  
INFRASTRUCTURE SERVICES**

Date: 25 November 2020

## **ATTACHMENTS**

- Nil