Transport Knowledge Hub

## TRANSPORT DOMAIN PLAN

# FULL LIST OF RECOMMENDATIONS

July 2016

This document should be read in conjunction with the New Zealand Transport Domain Plan, July 2016

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# Introduction

The Ministry of Transport, Statistics New Zealand, the New Zealand Transport Agency, the Civil Aviation Authority and Maritime New Zealand have been leading work on developing the first *New Zealand Transport Domain Plan* (the Domain Plan) for New Zealand over the last two years.

The Domain Plan describes:

- the long-term picture of priorities to improve official transport statistics and transport information
- a co-ordinated plan for addressing the priority initiatives
- a transport sector-wide approach to identifying long term statistical and information priorities.

The extensive engagement generated a large number of topics and associated enduring questions, which have been refined down to 11 topics, 45 enduring questions and 118 recommended initiatives. To help develop and prioritise statistical and information needs, the Domain Plan applied the Triple-4 knowledge development and prioritisation framework and identified 23 high priority initiatives.

This document provides a full record of the enduring questions and the recommended initiatives under each topic. It includes:

- a one-page overview of the findings of the gap analysis and the assessment results of the recommended initiatives
- a full description of each recommended initiative including the purpose, the problem definition or knowledge development opportunity, the response and a cross reference to appropriate enduring questions and related initiatives.

If you have any questions about the material in this document, please email knowledgehub@transport.govt.nz.

The Transport Domain Plan, July 2016 can be downloaded from the Ministry website at:
www.transport.govt.nz/transport-domain-plan.pdf

## Summarising the information

Existing data, statistics and information need to be utilised appropriately to achieve the goal of the Domain Plan. This requires action to ensure safe and efficient sharing and use of such information. Seeking continuous improvement in the ways data, statistics and information are collected, shared and used is also paramount to achieving the goal of the Domain Plan. In turn, these help to inform policy decisions that address long-term strategic issues for the sector.

Reflecting these needs, the recommendations of the Domain Plan have been categorised in six activity streams as shown in the following table.

**Recommended initiatives by activity stream**

| Topic area \ Activity stream | | Improve data access and publication | Improve data sharing, integration and governance | Develop new methods, review or improve current methods and processes | Collect new or additional data | Collect or develop baseline data or information | Develop research and capability |
|---|---|---|---|---|---|---|---|
| **H** | **Overarching recommended initiatives** | 4 | 2 | 3 | | | |
| **T1.** | **Transport fleet** | 1 | 4 | 2 | 3 | 5 | |
| **T2.** | **People and society** | 2 | | 1 | 8 | | 3 |
| **T3.** | **Freight** | 2 | 4 | 2 | | 4 | 1 |
| **T4.** | **Infrastructure and investment** | 3 | 4 | 6 | 2 | 1 | 4 |
| **T5.** | **Transport integration and network resilience** | | 1 | 1 | 3 | 1 | 1 |
| **T6.** | **Transport funding and revenue** | 3 | 1 | 1 | 1 | 1 | 2 |
| **T7.** | **Regulation** | | 1 | 1 | 1 | | 2 |
| **T8.** | **Workforce** | 1 | | 1 | 1 | 1 | 3 |
| **T9.** | **Economy** | | 1 | | | | 1 |
| **T10.** | **Safety and health** | | 3 | | 1 | | 3 |
| **T11.** | **Environment** | | | 1 | 3 | | 6 |
| **Total = 118** | | **16** | **21** | **19** | **23** | **13** | **26** |

There are multiple ways to summarise the topics, enduring questions and the associated recommendations. The Domain Plan adopted the four knowledge themes as outlined in the Transport Research Strategy - user behaviours and needs, transport impacts, system planning and management and future funding and charging. A map showing how the 11 topics relate to the four knowledge themes is provided in the table on the page that follows.

## Treatment of the topic relating to Māori

In the Domain Plan, consideration of the Māori relationship with transport is incorporated in Topic 2: People and Society. It was agreed among stakeholders and the steering group that this topic could not be appropriately addressed without significant further engagement with Māori. This further engagement with Māori is one of the high-priority initiatives outlined in the Domain Plan.

ORIGINAL DOMAIN PLAN TOPICS AND TRANSLATION INTO KNOWLEDGE THEMES

| Topics | Data and information needs | Knowledge themes | | | |
|---|---|---|---|---|---|
| | | User behaviour and needs | Transport impacts | System planning and management | Future funding and charging |
| T1 **Transport fleet** | The vehicle fleet plays a fundamental role in the transport system, moving people and freight where they need to go. This topic is about understanding the characteristics of the transport fleet and, hence, the capability and capacity of vehicles using the system. | | ✓ | ✓ | |
| T2 **People and society** | Transport enables people to access health, education and social support services, and to participate in economic and recreational activities. This topic covers attitudes, perceptions and preferences of all transport users (including Māori as tangata whenua) as well as the underlying factors that influence transport users' decisions. Such information will inform investment planning and system management decisions. | ✓ | ✓ | ✓ | |
| T3 **Freight** | The transport system exists to move freight as well as people. Efficient movement of freight is essential to ensure that the transport system contributes to economic prosperity. This topic is about understanding the volume and value of freight, how it is moved and whether it is moved efficiently. | ✓ | | ✓ | |
| T4 **Infrastructure and investment** | Transport infrastructure is critical to the operation of the transport system. This topic is about understanding the value of capital stock, nature and extent of New Zealand's transport infrastructure across all modes, and what the return on this investment is. Such information will assist policy and planning to support optimum ongoing investment in transport. | | ✓ | ✓ | |
| T5 **Transport integration and network resilience** | An integrated and resilient network is a critical factor in allowing the various elements of transport to combine and operate as a "system". This topic is about understanding how land use affects the transport network across all modes. This knowledge helps to identify the interaction with land use in enabling development and use of the transport system. | | | ✓ | |
| T6 **Funding and revenue** | Building infrastructure is a large source of the cost associated with transport across all modes. The transport system also generates significant revenue, particularly for the Crown, but also for other groups. This topic covers the cost of transport provision and use, as well as funding and revenue. | | ✓ | | ✓ |
| T7 **Regulation** | Transport has the potential to create harms as well as benefits. Regulatory frameworks can minimise risky types of vehicles, behaviour and operations. This topic covers what regulations apply and how effective they are across modes. | ✓ | ✓ | ✓ | |
| T8 **Workforce** | The range of transport-related occupations is vast. To operate the transport system effectively requires a workforce with sufficient capability and capacity to build, maintain, provide and operate the infrastructure and services. This topic covers the nature and extent of the transport workforce across modes. | | | ✓ | |
| T9 **Economy** | Transport contributes directly and indirectly to the economic prosperity of New Zealand from people's ability to travel for employment or business opportunities. This topic covers the relationships between the transport networks, services and economic activities and the role that location plays in the provision of economic transport networks. | ✓ | ✓ | | ✓ |
| T10 **Safety and health** | The transport system can result in harm to people and their health. This topic covers the risk profiles across transport modes and the factors that contribute to these risk profiles. Such information helps to understand how these risks lead to transport-related harms, their causes and the mitigation opportunities. | | ✓ | | |
| T11 **Environment** | The relationship between transport and the environment is critically important. This topic is about understanding the types of emissions that come from the operation of the transport system. This information is critical to understanding not only how transport and the environment interact, but also the mix of policy responses required to address related impacts. | | ✓ | | |

# MAPPING OF ENDURING QUESTIONS AND RECOMMENDED INITIATIVES

| Enduring questions | Gap status | Associated recommended initiatives | Total number of recommended initiatives |
|---|---|---|---|
| EQ1.1 | Small gap | R1.1 R1.4 R1.5 R1.8 R1.9 R1.10 R1.11 | 7 |
| EQ 1.2 | Large gap | R1.6 R1.7 R1.12 R1.15 | 4 |
| EQ 1.3 | Medium gap | R11.1 R11.8 | 2 |
| EQ 1.4 | Medium gap | R1.13 R1.14 | 2 |
| EQ 1.5 | Medium gap | R1.2 | 1 |
| EQ 1.6 | Medium gap | R1.3 | 1 |
| EQ 2.1 | Medium gap | R2.1 R2.2 R2.5 R2.6 R2.9 R2.10 R2.11 R2.12 R2.13 R2.14 R5.6 | 11 |
| EQ 2.2 | Large gap | R2.2 R2.3 R2.4 R2.7 R2.14 | 5 |
| EQ 2.3 | Large gap | R2.7 R2.8 R2.14 | 3 |
| EQ2.4 | Large gap | R2.14 | 1 |
| EQ 3.1 | Medium gap | R3.3 R3.4 R3.5 R3.6 R3.7 R3.8 R3.9 R3.10 | 8 |
| EQ 3.2 | Large gap | R3.3 R3.4 R3.5 R3.6 R3.7 R3.9 R3.10 R3.11 R3.12 R5.6 | 10 |
| EQ 3.3 | Large gap | R3.1 R3.3 R3.4 R3.5 R3.6 R3.7 R3.9 R3.10 R3.13 | 9 |
| EQ 3.4 | Medium gap | R3.2 | 1 |
| EQ 4.1 | Small gap | R4.3 R4.6 R4.7 R4.8 R4.9 R4.10 R4.11 R4.12 R4.13 R4.14 R4.15 R4.16 R4.19 R4.20 R6.6 R6.7 | 16 |
| EQ 4.2 | Medium gap | R4.1 R4.2 R4.3 R4.4 R4.16 R4.17 R4.18 R6.7 R9.2 | 9 |
| EQ 4.3 | Large gap | R4.3 R4.5 R4.15 R4.16 R4.20 R6.6 | 6 |
| EQ 4.4 | Medium gap | R4.2 R4.4 R4.16 R4.17 R6.7 | 5 |
| EQ 5.1 | Medium gap | R5.2 | 1 |
| EQ 5.2 | Large gap | R5.2 R5.3 R5.7 | 3 |
| EQ 5.3 | Large gap | R5.4 R5.5 R6.6 | 3 |
| EQ 5.4 | Medium gap | R5.2 R5.6 R5.7 | 3 |
| EQ 5.5 | Large gap | R5.2 | 1 |
| EQ 5.6 | Medium gap | R5.1 | 1 |
| EQ 6.1 | Medium gap | R6.2 R6.8 R9.2 | 3 |
| EQ 6.2 | Medium gap | R6.3 R6.5 R6.9 | 3 |
| EQ 6.3 | Medium gap | R6.1 | 1 |
| EQ 6.4 | Medium gap | R6.2 R6.3 R6.4 R6.8 | 4 |
| EQ 7.1 | Medium gap | R7.1 R7.2 R7.3 R7.4 | 4 |
| EQ 7.2 | Medium gap | R7.3 | 1 |
| EQ 7.3 | Medium gap | R7.3 R7.5 | 2 |
| EQ 8.1 | Medium gap | R8.4 | 1 |
| EQ 8.2 | Medium gap | R8.1 R8.2 R8.3 R8.6 R8.7 | 5 |
| EQ 8.3 | Medium gap | R8.4 R8.5 | 2 |
| EQ 9.1 | Large gap | R4.1 R4.2 R4.4 R4.5 R4.18 R9.1 R9.2 | 7 |
| EQ 9.2 | Medium gap | R4.3 R4.4 R4.5 R6.2 R6.3 R6.5 R6.8 R6.9 R9.2 R10.2 R10.4 | 11 |
| EQ 9.3 | Medium gap | R3.2 R3.3 R3.5 R3.7 R3.9 R3.13 R4.8 | 7 |
| EQ 9.4 | Medium gap | R3.3 R3.8 R3.9 | 3 |
| EQ 9.5 | Large gap | R3.3 R3.6 R3.9 R4.1 R4.2 R4.3 R9.2 | 7 |
| EQ 10.1 | Small gap | R10.2 | 1 |
| EQ 10.2 | Large gap | R10.1 R10.4 R10.5 R10.6 | 4 |
| EQ 10.3 | Large gap | R10.2 R10.3 R10.7 | 3 |
| EQ 10.4 | Small gap | R10.5 | 1 |
| EQ 11.1 | Medium gap | R11.1 R11.2 R11.3 R11.5 R11.6 R11.7 R11.8 R11.9 | 8 |
| EQ 11.2 | Large gap | R11.3 R11.4 R11.10 | 3 |

Note: Depending on the nature of a recommended initiative, it can be matched to more than one enduring question.

= high-priority initiatives

= medium-priority initiatives

# SUMMARISED HIGH-PRIORITY INITIATIVES BY KNOWLEDGE THEME AND ACTIVITY STREAM

| User behaviour and needs | | | Transport impacts | | | System planning and management | | | Future funding and charging | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R3.2 | Develop approach to monitor freight efficiency * | $$ | R11.1 | Research into transport emission profiles | $$ | R2.4 | Establish baseline accessibility information | $$ | R6.2 E | Improve information on the cost of providing, operating and maintaining the transport network (R6.2) this includes:<br>• Improve access to data on the rail network (R6.8)<br>• Develop infrastructure benchmarking tools (R4.4) | $$$ |
| R2.8 E | Survey user behaviour and preferences:<br>• Collect information on user attitudes and preferences (R2.8)<br>• Research into why people don't travel (R2.7) | $$ | R11.2 | Develop environmental impact framework | $$ | R4.19 | Improve information on local roads capacity and utilisation | $ | | | |
| R2.13 | Collect data on active travel (walking & cycling) | $ | R10.1 | Develop health and safety risk profiles (and exposure) | $$ | R1.1 | Publish vehicle fleet profile (also see R1.4, R1.8, R1.9, R1.10, R1.11) | $ | | | |
| R2.14 | Improve information and understanding of Māori needs from, use of, and involvement in transport | $$ | R11.9 | Improve environmental impact evaluation around road run-off | $ | R3.9 E | Repeat and enhance the National Freight Demand Study (R3.9); this includes:<br>Improve access to domestic airfreight data (R3.10) *<br>Establish data partnership with Cook Strait freight and rail operators (R3.12 and R1.12)<br>Collect baseline data on unrecorded light and urban freight (R3.5 and R3.7) | $$$ # | | | |
| R2.6 | Improve access to public transport patronage data | $ | R9.2 E | Improve economic modelling by developing:<br>• modelling oversight (R9.2)<br>• a set of key baseline assumptions (R4.2) * | $$$ | R5.1 | Develop sector definition of resilience * | $ | | | |
| R2.1 | Improve access to Household Travel Survey data | $ | R11.10 | Impacts of weather- and environment-related network outages | $$ | R5.2 | Integrate transport network and land use data | $$ # | | | |
| | | | R10.6 | Align injury classification definitions across databases | $$$ # | R3.6 E | Develop geospatial capability to track freight and people movements:<br>• Establish data partnership with freight operators (R3.6)<br>• Develop approach for tracking people movements (R1.15) | $$ | | | |
| | | | | | | R4.1 | Research into returns on investment including both monetary (R4.1) and non-monetary (R4.18) returns | $$$ | | | |
| | | | | | | R4.14 | Integrate RAMM data and improve access | $$ # | | | |

Keys:

| | |
|---|---|
| E | Cluster of initiatives as an extension of a specific individual initiative |
| $ | Low cost and effort for an individual initiative or a cluster of initiatives |
| $$ | Medium cost and effort for an individual initiative or a cluster of initiatives |
| $$$ | High cost and effort for an individual initiative or a cluster of initiatives |
| $ | Cost estimates with an underline indicate costs are one-off |
| # | indicates areas with system costs |
| * | indicates areas with some current research activity |
| | Improve data access and publication |
| | Improve data sharing, integration and governance |
| | Develop new methods, review or improve current data, methods and/or processes |
| | Collect new or additional data |
| | Collect or develop baseline data |
| | Develop research and capability |
| | Top 9 |
| | Top 10 to 17 |
| | Top 18 to 23 |

Note: For a detailed description of the recommended initiatives, please refer to Appendix 2.

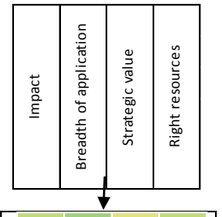
# Recommended overarching initiatives – summary sheet

| Summary of findings from the July 2015 workshop |
|---|
| 1. Operational systems developed for operational purposes are starting to have statistical demands placed on them, but they are not designed to meet these demands. |
| 2. There is already plenty of data generated, the challenge is connecting, managing, sorting, accessing, interpreting and integrating the data |
| 3. We don't need to know everything. |
| 4. The sector requires data at different levels of detail (e.g. national, regional versus local, domestic versus international, aggregate versus industry specific) but there is currently a gap. |
| **5.** Capability, capacity and awareness are important enablers. |

| Summary of findings from the March 2016 workshop | | |
|---|---|---|
| **High-priority initiatives** | | |
| H7 | Review the Transport Indicator Framework | 9 |
| H5 | Improve transport sector information governance | 12 |
| H1 E | Review the content of the 2015 Transport Domain Plan stocktake and investigate the best ways to publish and update the information. | 23 |
| H9 | Enhance transport sector information systems to enable management of significant volumes of network level data that will be generated by intelligent transport systems | 31 |

## Recommended initiatives and the assessment results

### Improving data access and publication




| | | |
|---|---|---|
| H1 | Improve access to and awareness of existing sources of transport information by publishing the Transport Domain Plan stocktake | 23 |
| H6 | Determine stocktake dissemination tool and assess information sources for inclusion | 45 |
| H3 | Enable data custodians and content owners to update and amend information sources of the stocktake | 68 |
| **H1 E** | **Review the content of the 2015 Transport Domain Plan stocktake and investigate the best ways to publish and update the information.** | |

This is of high value but the current stocktake report needs to be modified or improved prior to publication. For example, Mobility Parking Permit scheme related data could be added and some of the metadata fields could be better populated.

| | | |
|---|---|---|
| **H2 R** | **Investigate the opportunity for developing partnerships between the public, private and not-for-profit sectors to improve data and information sharing** | 81 |

There are many instances of government and industry forming partnerships to share data and information for mutual benefit.

### Improving data sharing, integration and governance

| | | |
|---|---|---|
| **H5** | **Improve transport sector information governance** | 12 |

This initiative is consistent with the idea of setting up a Transport Knowledge Hub governance structure.

| | | |
|---|---|---|
| **H4 R** | **Develop a standardised monitoring and reporting approach to manage data and information generated from government funded transport related projects** | 64 |

The wording of this initiative needs to be made clearer. (Note that examples of government funded projects include transport services provision, infrastructure and research projects.)

| | | |
|---|---|---|
| **H3** | **Enable data custodians and content owners to update and amend information sources of the stocktake** | 68 |

This has been incorporated in H1 E.

### Develop new methods, review or improve current methods and processes

| | | |
|---|---|---|
| **H7** | **Review the Transport Indicator Framework** | 9 |

Robust top-level headline information about the performance of the transport sector provides valuable information about the long-term outcomes that we, and other government agencies, are striving to contribute to and see achieved.

| | | |
|---|---|---|
| **H6** | **Determine stocktake dissemination tool and assess information sources for inclusion** | 45 |

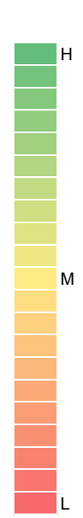
This has been incorporated in H1 E.

| | | |
|---|---|---|
| **H9** | **Enhance transport sector information system to enable management of significant volumes of network level data that will be generated by intelligent transport systems** | 31 |

This is important but it may be too early. We need to monitor the availability of new data and technology and make sure the sector is ready for change in the future. However, investing in a new system too early would risk investing in something that will soon become out-of-date.

| | | |
|---|---|---|
| **H8** | **Identify and develop potential Tier 1 Statistics** | 77 |

Very little tangible benefits and it is unlikely to identify any potential Tier 1 statistics.




E = Expanded initiative
R = Revised

## Recommended overarching initiatives - details

These recommended initiatives were originally described as the "Overarching recommendations" in that they applied well beyond a specific single topic.

**H1 E Review the content of the 2015 Transport Domain Plan stocktake and investigate the best ways to publish and update the information.**

This recommended initiative combines H1, H3 and H6.

**H1 Improve access to and awareness of existing sources of transport information by publishing the Transport Domain Plan stocktake**

The Transport Domain Plan Stocktake identified over 180 different sources of transport related information. There is a significant range of information already available that can inform answers to enduring questions, but limited awareness about the breadth of this information. Therefore, there is a need to make such information easily accessible.

**H3 Enable data custodians and content owners to update and amend information sources**

To facilitate the ongoing publication of the stocktake, it is necessary to consider a platform that allows data custodians and content owners to update or maintain their information and its metadata. An assessment needs to be made of the cost and complexity of the approach chosen.

**H6 Determine stocktake dissemination tool and assess information sources for inclusion**

Publication of the stocktake requires (i) determining appropriate dissemination tool and assessing information source for inclusion and (ii) assessing the data sources for inclusion in the tool.

Key characteristics of the tool include abilities to:

- support large data sets with many variables
- enable information to be amended and updated as necessary
- support both survey and administrative data from both private and public sources
- allow customization by users to access the required data.

**Activity Stream** Develop research and capability

E = Expanded initiative

**H2 R Investigate the opportunity for developing partnerships between the public, private and not-for-profit sectors to improve data and information sharing**

Much of the data required to answer enduring questions is generated from the operation of the transport system and is already collected by private or commercial operators. There are many instances of government and industry forming partnerships to share data and information for mutual benefit. A good example is the Freight Information Gathering system (FIGS)1 that uses information provided by the ports to track freight movements.

The sector recommends establishing or formalising guidelines on the process for establishing public-private data partnerships. Key issues for consideration include:

- How to protect the privacy of personal or commercially sensitive data
- How benefits may manifest and to whom they may accrue
- The prerequisites for government agencies to enter public-private data partnerships
- Governance and oversight of such partnerships
- How resulting data relates to other official statistics
- Who owns the data and the level at which it can be made public.

The sector recommends seeking support from Statistics NZ and the Data Futures Partnership. Statistics NZ is the key data custodian and steward in New Zealand and the Data Partnership can facilitate working relationships with the private sector to break barriers to greater data value.

State Owned Enterprises may be a useful starting point for developing partnerships with commercial providers. Developing and testing the relationships with these operators would provide a test case to demonstrate the benefits that can accrue to both government and industry. In addition, shareholding Ministers, through their letters of expectation, may be able to provide leverage to facilitate the establishment of such partnerships.

**Activity Stream** Improve data access and publication

R= revised

[1] http://www.transport.govt.nz/sea/figs/

| H3 | Enable data custodians and content owners to update and amend information sources |
|---|---|

This recommended initiative has been incorporated in H1 E.

| H4 R | Develop a standardised monitoring and reporting approach to manage data and information generated from government funded transport related projects |
|---|---|

At present, there is no standardised approach to managing data related provisions in government contracts for services (including transport service provision, infrastructure and research related projects). As a result, much of the data that is generated from government funded projects is not routinely made available for analysis and cannot be used to monitor and evaluate delivery, or to inform future policy decisions.

The sector recommends that the transport sector should develop a standardised approach to managing data provisions in contracts for services to ensure that data requirements are considered as part of all contracts, and that sufficient agreements are in place to allow government to retain access to data and information about services it funds in a cost effective way.

**Activity Stream** Improve data sharing, integration and governance

| H5 | Improve transport sector information governance |
|---|---|

Coordinating transport information related initiatives requires a degree of strategic oversight that cuts across agency boundaries and adopts a transport sector-wide focus. A range of groups exist at present that bring together different transport related functional responsibilities. These should continue to operate as effective vehicles for coordination and improvement in the transport sector information arena.

In addition, the sector recommends that the transport sector information governance function be strengthened to deliver a stronger cross-agency foundation for coordination and collaboration to occur. This may take the shape of an information governance or management board that meets regularly to consider the direction of transport information-related work from a multidisciplinary perspective.

**Activity Stream** Improve data sharing, integration and governance

| H6 | Determine stocktake dissemination tool and assess information sources for inclusion |
|---|---|

This recommended initiative has been incorporated in H1 E.

| H7 | Review the Transport Indicator Framework |
|---|---|

The Ministry of Transport collates transport indicators using data from the Civil Aviation Authority, Maritime NZ, NZ Transport Agency and Local Government NZ. There are 183 indicators across 11 topics.

The quality and completeness of the indicators is variable. Some indicators are regularly updated, while others are out of date by a number of years. Thirty-five indicators (19 percent) have no data available and have never been measured. An additional 11 indicators (6 percent) are considered incomplete because only partial data is available to inform their measurement. This means one quarter of all indicators are deficient in some way.

The sector recommends that the indicators be reviewed and assessed for relevance. Indicators unlikely to have an on-going use should be removed, and the indicator framework streamlined to focus on the top-level headline information needed to understand and monitor the transport system including the need to remove administrative barriers to access and share data. Detailed information that will be required to answer enduring questions and specific policy questions, but which is not a headline indicator, should continue to be collected, stored and managed elsewhere.

Consideration should be given to developing one or more transport sector data dashboards. This may include an overall transport sector, and sub-sector dashboards that use information from the transport indicator framework. This may include working with Statistics NZ to identify how longitudinal Business Data can be incorporated into dashboards.

**Activity Stream** Develop new methods, review or improve current methods and processes

| H8 | Identify and develop potential Tier 1 Statistics |
|---|---|

Tier 1 statistics have been agreed by Cabinet as the most important statistics for understanding New Zealand as a country. Stewardship of Tier 1 statistics resides with Statistics NZ. This includes a regular five-yearly review, and annual purchase advice to the Minister of Finance on how best to invest in Tier 1 statistics.

There is currently only one designated, transport related, Tier 1 statistic – "quarterly transport movements". This was identified as unfunded, unproduced and requiring development in the most recent Transport Review in 2012. This means it has been identified as providing important insight on New Zealand's performance. The sector recommends that transport sector agencies investigate into whether this Tier 1 statistic can be developed with guidance and advice from Statistics NZ.

The sector recommends investigate into whether there are any other candidates for inclusion in the Tier 1 list when it is next reviewed in 2016/17, and that work begin to ensure they are developed to a suitable standard for inclusion. Guidance on the principles and protocols for Tier 1 statistics is available at **http://www.statisphere.govt.nz/about-official-statistics-oss-aspx**.

| **Activity Stream** | Develop new methods, review or improve current methods and processes |
|---|---|

| H9 | Enhance transport sector information system to enable management of significant volumes of network level data that will be generated by intelligent transport systems |
|---|---|

As intelligent transport systems are deployed, the volume of transport related data and information is set to expand exponentially in coming years. A vast range of specific person and vehicle centric data will be generated and used to operate and manage transport systems. A critical challenge for the transport sector is to develop and implement information management systems that can collect, store, analyse and access this information in a way that enables not only real-time network management, but which also allows robust statistical analysis to be conducted that can inform evidence based policy.

The sector recommends that transport agencies monitor the availability of new data and technology to assess the timing of enhancing the information systems to enable management of the significantly higher volume of information. Such assessment should include development of new systems and rationalisation and integration of existing systems to allow for the smooth flow of large volumes of data.

| **Activity Stream** | Develop new methods, review or improve current methods and processes |
|---|---|

# Topic 1: Fleet – Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. The sector already has very detailed information for three modes – aviation, maritime, and rail especially for vehicles requiring certification. There is less information and less interest for those that do not require certification. |
| 2. There is good aggregate level information for road but it lacks the richness of other modes. |
| 3. Statistical demands are being placed on operational systems. There is a mismatch between these demands and the ability of systems to meet them. |
| 4. Technology is changing the transport fleet at a rapid pace. New information is required to help us understand this but change is happening quicker than our ability to collect information about it. |

| Summary of findings from the March 2016 workshop | | |
|---|---|---|
| **High-priority initiatives** | | |
| R1.1 | Regularly publish vehicle fleet profiles, across all modes | 5 |
| R1.12 | Explore a data partnership with rail operators to share rail data | 21 |
| R1.15 R | Develop geospatial capability to track people movements | 33 |
| **Medium-priority initiatives** | | |
| R1.14 | Integrate road vehicle fleet data held in disparate sources | 41 |
| R1.10 | Develop a fleet profile for specialist wharf-side fleets | 51 |
| R1.11 | Develop a rail fleet profile | 51 |
| R1.13 | Enhance road fleet statistics by integrating ownership data | 59 |
| R1.6 | Gather information on how aircraft are used for domestic freight purposes | 59 |

## Recommended initiatives and the assessment results

### Improve data access and publication

Impact | Breadth of application | Strategic value | Right resources

**R1.1 Regularly publish vehicle fleet profiles, across all modes** — 5

This information will support a range of end uses, including infrastructure and operational planning, maintenance and investment, productivity, safety and environmental monitoring and reporting.

### Improve data sharing, integration and governance

**R1.12 Explore a data partnership with rail operators to share rail data** — 21

The key benefits are in the area of better understanding public transport use patterns.

**R1.14 Integrate road vehicle fleet data held in disparate sources** — 41

Adding good information on fuel type (electric, plug in hybrid, conventional hybrid, and hydrogen) would be useful, as would information on crash-worthiness, safety and ITS features.

**R1.13 Enhance road fleet statistics by integrating ownership data** — 59

This is a useful exercise but there are data quality issues and inconsistencies between industry class, vehicle usage and owner type on the register.

**R1.5 R Upgrade the aircraft database to include avionics status of aircraft to be captured and integrated with other information about the physical characteristics of aircraft** — 64

Technically, it is not the aircraft register that needs to capture this information but the aircraft details database recorded by CAA from which the register is generated.

### Collect new or additional data

**R1.6 Gather information on how aircrafts are used for domestic freight purposes** — 59

Currently it is not compulsory for operators to report such information and previous attempts have failed. In addition to how aircraft are used, it is useful to know the actual freight types and volumes.

**R1.2 R Gather information on methods and locations of disposal of vehicles, across all modes** — 113

The multitude of parties involved suggest this would require regulation, which would seem both low value and unlikely.

**R1.3 Gather information on disposal of vehicle related waste** — 113

The multitude of parties involved suggest this would require regulation, which would seem both low value and unlikely.

### Collect or develop baseline data or information

**R1.10 Develop a fleet profile for specialist wharf-side fleets** — 51

The wharf-side fleet is a critical component of the transport system, and a reliable data set on infrastructure changes will be important for assessing flow-on effects throughout the supply chain.

**R1.11 Develop a rail fleet profile** — 51

This is do-able for KiwiRail but there may not be much merit in holding or releasing the information.

**R1.8 R Develop a maritime commercial fleet profile** — 72

This information will assist in the planning and investment for maritime infrastructure (on port and wharf-side), and further along the supply chain.

**R1.4 Develop an aviation fleet profile** — 83

A useful exercise, but probably with some information gaps – such as age of the fleet and condition of the fleet (may be just air-worthy versus not air worthy).

**R1.9 R Develop a maritime recreational fleet profile** — 92

Using existing data to develop a maritime recreational fleet may require some specialist skills and systems.

### Develop new methods, review or improve current methods and processes

**R1.15 R Develop geospatial capability to track people movements** — 33

This will eventually be a high quality data source, and the ease and practicality of implementation will improve over time. It is the right time to undertake a pilot assessment, as the technology is progressing rapidly; and the potential benefits are significant.

**R1.7 Streamline the categories used to classify the reported nature of flights** — 77

This should improve reporting efficiency and increase data usability.

### Develop research and capability

none

H / M / L

R = Revised

## Topic 1: Fleet - details

The vehicle fleet plays a fundamental role in the transport system, moving people and freight where they need to go. In order to understand the transport system it is critical to have an understanding of the vehicle fleet, which exists across all modes.

Our stakeholder engagement process identified six broad enduring questions (suffix EQ) for this topic. We have relatively good information about vehicles that comprise specific fleets and good information about where vehicles come from before entering the fleet.

The following table identifies the extent to which the enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring question | Information gap |
|---|---|---|
| EQ1.1 | What is the size, age, condition, capacity, capability and modal composition of New Zealand's domestic and international transport fleet, and how are these things changing including regionally, nationally and temporally? | Small |
| EQ1.2 | How is the fleet being used and how is this changing, including modally, temporally, regionally and nationally? | Large |
| EQ1.3 | How much, and what types of energy does New Zealand's domestic and international transport fleet use, and how is energy use changing, including modally, temporally, regionally and nationally? | Medium |
| EQ1.4 | Who owns the vehicle fleet, what is the value of capital stock invested in it, and how is this changing, including modally, and temporally? | Medium |
| EQ1.5 | Where, how and in what quantity are New Zealand's vehicles sourced and disposed of, how often are they changing hands, and how are these things changing including modally, temporally and geographically? | Medium |
| EQ1.6 | What are the maintenance requirements of the vehicle fleet, how well are these being met and how are these things changing, including modally, temporally, regionally and nationally? | Medium |

### *Recommended initiatives*

| R1.1 | Regularly publish vehicle fleet profiles, across all modes |
|---|---|
| **Purpose** | To improve access and publication of vehicle fleet profile across all modes |
| **Problem definition and knowledge development opportunity** | The sector indicates a need to make vehicle fleet profiles publicly available across all modes. This information will help to inform policy intervention decisions around fleet management. |
| **Response** | The sector recommends publishing vehicle fleet summary profiles for each mode, where feasible and practical. |
| **Related enduring question** | EQ1.1 |
| **Activity Stream** | Improve data access and publication |

| R1.2 | Gather information on disposal of vehicle related waste |
|---|---|
| **Purpose** | To understand how vehicle waste (such as used oil, lubricants, tyres, brake fluid, coolants, batteries and other types of vehicle waste) are disposed of |
| **Problem definition and knowledge development opportunity** | The sector has very little understanding of where and how vehicle related waste is disposed of. This information is necessary to understand whether the impacts of vehicle waste disposal should be managed. |
| **Response** | The sector recommends that additional information be gathered on vehicle waste disposal (such as used oil, lubricants, tyres, brake fluid, coolants, batteries and other types of vehicle related waste). |
| **Related enduring questions** | EQ1.6 |
| **Activity Stream** | Collect new or additional data |

## Aviation

| R1.3 | Develop an aviation fleet profile |
|---|---|
| **Purpose** | To collect additional information around the characteristics of the registered aviation fleet |
| **Problem definition and knowledge development opportunity** | Information currently available on the Aircraft Register (published on the Civil Aviation Authority website) only includes high-level information such as manufactured model, serial number and towing tonnage. It is necessary to improve understanding of the age, type, condition and ownership of the registered aviation fleet to help inform policy intervention around fleet management. |
| **Response** | The sector recommends undertaking additional analysis of the specific information about individual aircraft that is available. This should include developing a profile of registered aviation vehicles (by age, type, size, condition and ownership). |
| **Related enduring questions** | EQ1.1 |
| **Activity Stream** | Collect or develop baseline data or information |

| R1.4 R | Upgrade the aircraft database to include avionics status of aircraft to be captured and integrated with other information about the physical characteristics of aircraft |
|---|---|
| **Purpose** | To support more accurate and automated navigation systems for aircraft |
| **Problem definition and knowledge development opportunity** | The current aircraft database maintained by Civil Aviation Authority does not include avionics status of aircraft. Technological developments in recent years have meant that an understanding of the avionics systems deployed in aircraft is now critical to managing aircraft navigation. The New Southern Sky project seeks to modernize the New Zealand aviation system through introducing more accurate and automated navigation systems for aircraft. |
| **Response** | The sector recommends that the aircraft database should be modernised and upgraded to capture and integrate avionics data. |
| **Related enduring questions** | EQ1.1 |
| **Activity Stream** | Improve data sharing, integration and governance |

R= revised

| R1.5 | Gather information on how aircraft are used for domestic freight purposes |
|---|---|
| **Purpose** | To capture information on domestic air freight, and to consider establishing an aviation data-sharing partnership between government and commercial operators |
| **Problem definition and knowledge development opportunity** | Information on international air freight is captured by Customs and reported to Statistics NZ. No information is captured on domestic air freight. Such information would be useful for informing planning and investment decisions. |
| **Response** | The sector recommends establishing an aviation data sharing partnership between government and commercial operators (in consultation with Statistics NZ and the Data Futures Partnership) to improve information access while maintaining protection of commercially sensitivity information. |
| **Related enduring questions** | EQ1.2 |
| **Activity Stream** | Collect new or additional data |

| R1.6 | Streamline the categories used to classify the reported nature of flights |
|---|---|
| **Purpose** | To improve the quality of the data on the reported nature of flights |
| **Problem definition and knowledge development opportunity** | Aircraft operators must report to the Civil Aviation Authority on the number of hours flown and nature of flights. This information can provide useful insight to how aircraft are used. However, the current categories are too detail and complex, and therefore diminish the utility of this information. |
| **Response** | The sector recommends that the categories used to classify the reported nature of flights should be streamlined to deliver a smaller number of more meaningful categories. We also recommend provision of clearer guidance to operators about information reporting. |
| **Related enduring questions** | EQ1.2 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

## Maritime

| R1.7 R | Develop a maritime commercial fleet profile |
|---|---|
| **Purpose** | To develop a maritime commercial vessel fleet profile |
| **Problem definition and knowledge development opportunity** | The sector indicates a need to make vehicle fleet profiles publicly available across all modes. This information will help to inform policy intervention decisions around fleet management. |
| **Response** | The sector recommends development of a profile of registered maritime commercial vessels (e.g. by age, type, size, condition and ownership) using the Register of Ships database and other publicly available data. |
| **Related enduring questions** | EQ1.1 |
| **Activity Stream** | Collect or develop baseline data or information |

R= revised

| R1.8 R | Develop a maritime recreational fleet profile |
|---|---|
| **Purpose** | To establish and collect baseline data on the recreational boating fleet |
| **Problem definition and knowledge development opportunity** | The recreational boating fleet is large, disbursed throughout New Zealand and accounts for around 20 percent of all drowning deaths. However, no information is collected on how extensive it is, or what type of vessels comprise it. Such information will help to gain a better understanding of risk exposure and the relative safety of recreational boating. |
| **Response** | The sector recommends establishing baseline information (e.g. using a survey or a modeling technique) on the recreational boat fleet to supplement self-reported survey on recreational boating participation rates. Important factors for consideration include the type, size and location; use patterns (frequency, distance and purpose) and fuel use. |
| **Related enduring questions** | EQ1.1 |
| **Activity Stream** | Collect or develop baseline data or information |

R= revised

| R1.9 | Develop a fleet profile for specialist wharf-side fleets |
|---|---|
| **Purpose** | To develop a fleet profile for the specialist wharf-side vehicle fleet |
| **Problem definition and knowledge development opportunity** | As a key link in the logistic chain, a range of specialist wharf-side fleets (such as straddle carriers, reach stackers, container forklifts, and log stackers) used to unload ships and transport cargo play an important role in the effective and efficient movement of freight. |
| **Response** | The sector recommends development of a specialist wharf-side vehicle fleet profile. Information that could be collected includes the number, capacity, location and age profile of such vehicles. |
| **Related enduring questions** | EQ1.1 |
| **Activity Stream** | Collect or develop baseline data or information |

## Rail

| R1.10 | Develop a rail fleet profile |
|---|---|
| **Purpose** | To develop and publish a rail fleet profile |
| **Problem definition and knowledge development opportunity** | The sector indicates a need to make vehicle fleet profiles publicly available across all modes. Rail operators hold much of the required data, and access to it may require data partnerships to be established with these rail operators. |
| **Response** | The sector recommends establishing partnership with the rail operators to develop of a rail fleet profile (including by age, type, size, condition and ownership) for public release. |
| **Related enduring questions** | EQ1.1 |
| **Activity Stream** | Collect or develop baseline data or information |

| R1.11 | Explore a data partnership with rail operators to share rail data |
|---|---|
| **Purpose** | To establish a data partnership with rail operators that promotes the sharing of administrative data with policy makers. |
| **Problem definition and knowledge development opportunity** | Rail operators hold much of the required data, and access to it may require data partnerships to be established with these rail operators. |
| **Response** | The sector recommends exploring data partnership with the rail operators considering the following factors:<br>• The core data that would be required to inform policy decisions<br>• How to protect the commercial sensitivity of rail operators<br>• How to ensure that mutual benefits accrue to both policy makers and to rail operators.<br>This initiative should be combined with R3.9. |
| **Related enduring questions** | EQ1.2 |
| **Activity Stream** | Improve data sharing, integration and governance |

## Road

| R1.12 | Enhance road fleet statistics by integrating ownership data |
|---|---|
| **Purpose** | To enhance the road vehicle fleet statistics by including detail on ownership profile |
| **Problem definition and knowledge development opportunity** | There is an opportunity to enhance the road vehicle fleet statistics currently published by the Ministry of Transport by integrating ownership information held in the Motor Vehicle Register (MVR). The enhanced dataset will better inform policy intervention decisions around fleet management. |
| **Response** | The sector recommends integrating ownership information (by owner type, vehicle type, industry type and region) held in the MVR with road vehicle fleet statistics. This ownership profile could be published as an annual supplement to the fleet statistics or included in the fleet statistics report as a new category. |
| **Related enduring questions** | EQ1.4 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R1.13 | Integrate road vehicle fleet data held in disparate sources |
|---|---|
| **Purpose** | To integrate road vehicle fleet data held in disparate sources |
| **Problem definition and knowledge development opportunity** | The Motor Vehicle Register (MVR) is a rich source of administrative data such as safety features and characteristics of vehicles. Integration of road vehicle fleet data with MVR data could unlock additional value by extending it uses beyond its primary purposes. |
| **Response** | The sector recommends that the different sources of information should be integrated to provide a single point of access to road vehicle fleet information. When integrating the vehicle fleet data, consideration should be given to the following factors:<br>• How to maintain the privacy of individuals?<br>• Where any integrated data set should be hosted?<br>• What are the specific features or characteristics that need to be captured?<br>• Whether any additional data that could be gathered during routine or roadside vehicle inspections?<br>• Whether third party sources of data, such as ANCAP Safety Ratings, vehicle repairers and insurers can be integrated with other vehicle fleet data? |
| **Related enduring questions** | EQ1.4 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R1.14 | Develop geospatial capability to track people movements |
|---|---|
| **Purpose** | To develop geospatial capability to maximise the value of vehicle travel data arising from intelligent transport technologies |
| **Problem definition and knowledge development opportunity** | A better understanding of how the network is used will allow us to design solutions that reduce congestion, improve travel efficiency, and reduce harm incidents such as crashes. Current information on how vehicles use the network is largely limited to aggregate numbers of vehicles on particular routes for selected population centres. As new technology, such as intelligent transport systems, arrives the amount of data generated about vehicle use in New Zealand will increase exponentially, as will our ability to interpret, analyse and understand it. It is likely that in time technology will enable us to collect data on individual journeys across most - or all - of the road network. Preparation for these technological developments needs to begin now to extract the maximum value from them. |
| **Response** | The sector recommends:<br>• developing a pool of analytical capability and expertise in relevant agencies to exploit new technological developments in the area of geospatial information<br>• carrying out a pilot study to assess the feasibility, risks, opportunities, benefits, costs and challenges of using real world vehicle travel data in a geospatial manner |
| **Related enduring questions** | EQ1.2 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

# Topic 2: People and Society – Summary Sheet

## Findings of gap analysis presented at the July 2015 workshop

1. This topic was seen as one of the most important by stakeholders. Stakeholders identified that a key challenge relating to this topic was consolidating multiple sources of information, to make data more accessible and easier to use.
2. There is currently a lack of good information about attitudes, preferences and perceptions of different types of transport.
3. The sector's understanding of how disabled people travel is not well developed. Often information about disabled peoples' travel is framed by surveys designed to understand what we want to know about the population in general, and may fail to recognise specific challenges or requirements that disabled people have. This information sits in multiple locations (e.g., Total Mobility Scheme, Census and NZ Disability Survey) and is not integrated to provide a detailed picture.
4. The level of interest in road transport, including public and pedestrian modes of transport, was significantly greater than the interest in other modes.

## Summary of findings from the March 2016 workshop

| | | |
|---|---|---|
| **High-priority initiatives** | | |
| R2.4 | Establish baseline information on 'accessibility' | 1 |
| R2.8 | Gather additional information on peoples' attitudes, preferences and perceptions about transport | 7 |
| R2.13 | Gather additional information about pedestrian and active mode person travel | 11 |
| R2.7 | Gather additional information on the reasons why people don't travel | 13 |
| R2.6 | Improve access to high quality public transport patronage data | 19 |
| R2.1 | Improve awareness of and access to information from the New Zealand Household Travel Survey | 27 |
| **Medium-priority initiatives** | | |
| R2.2 R | Identify the need for oversampling in the new Household Travel Survey for different population groups | 37 |
| R2.5 | Expand the scope of travel surveys to include commercial person travel | 58 |

## Recommended initiatives and the assessment results

### Improve data access and publication

Impact | Breadth of application | Strategic value | Right resources

**R2.6 Improve access to high quality public transport patronage data** — 19

This may be easier once the integrated ticketing is rolled out. This may require specialist skills and systems.

**R2.1 Improve awareness of and access to information from the New Zealand Household Travel Survey** — 27

Good initiative but need to recognise that developing Confidentialised Unit Record Files (CURF) for the 2003-2014 Household Travel Survey data will require incremental efforts and resources.

### Collect new or additional data

**R2.8 Gather additional information on peoples' attitudes, preferences and perceptions about transport** — 7

Some of this work may start to be addressed through some proposed new questions within the NZ Household Travel Survey (research currently underway).

**R2.13 Gather additional information about pedestrian and active mode person travel** — 11

This would be of interest to a large number of audiences. Worth investigating alternative data sources such as commercial fitness tracker data.

**R2.5 Expand the scope of travel surveys to include commercial person travel** — 58

Such data will have a wide range of end uses but may require additional effort to collect.

**R2.3 Improve geographic data on the distribution and location of people with disabilities** — 62

This is practical and easy to implement if there is sufficient funding. But the information will be for a very specific purpose and there are timing issues in relation to census work.

**R2.10 Gather information about Cook Strait passenger trips** — 83

This is likely to be of interest to specific groups. Commercial sensitivity would be an issue.

**R2.9 Gather additional person-centric data about domestic air travel** — 93

Useful for modelling work but strong difficulties due to commercial sensitivity.

**R2.11** and **R2.12** ➔

### Develop new methods, review or improve current methods and processes

**R2.2 R Identify the need for oversampling in the new Household Travel Survey for different population groups** — 37

Easiest at the geographic level with respect to local and regional government. Ethnicity, disability and age may be more suitably investigated through the Household Travel Survey panel.

**R2.11 Improve information on recreational boating participation rates** — 93

This information is likely to have narrow use.

**R2.12 Gather information about intercity and inter-region person travel by rail** — 113

This information is likely to have narrow use. Commercial sensitivity would be an issue.

R = Revised

### Improve data sharing, integration and governance

None

### Collect or develop baseline data or information

### Develop research and capability

**R2.4 Establish baseline information on 'accessibility'** — 1

This involves researching into the definition of 'accessibility' and how it should be measured.

**R2.14 Improve information and understanding of Māori views and needs from the use of and involvement in transport**

There is a lack of understanding of Māori views and therefore it is important to start building and development engagement and enduring relationships with Māori groups.

**R2.7 Gather additional information on the reasons why people don't travel** — 13

This is a research question.

H

M

L

## Topic 2: People and Society – Details

The transport system plays an important role in enabling social, civic and economic participation. Transport enables people to access health, education, and social support services, to participate in recreational activities such as sport or community activities and to participate in the economy through accessing employment and business opportunities.

Understanding how people use transport, why they travel, and what the purposes and lengths of their journeys are, allows us to identify the role that transport plays in facilitating different types or social, civic and economic participation. Likewise, information about who experiences barriers, and the nature and extent of them allows us to develop policy that reduces or eliminates barriers to enable greater levels of participation. This type of information is of use to policy makers across a range of policy domains, including health, justice, education and social policy.

Information about attitudes, perceptions and preferences of transport users allows us to identify the underlying factors that influence people's transport decisions. Understanding the root causes for people's transport choices allows us to develop policies that can target the reason for a particular decision and in doing so make alternative transport choices more or less attractive.

Our stakeholder engagement process identified four broad enduring questions for this topic. The following section summaries the key statistical and information requirements to understand the transport needs for all people, including Māori as tangata whenua.

Māori as tangata whenua have a strong and enduring relationship with the land and waterways of New Zealand. Māori have aspirations to succeed and enhance the well-being for Māori as a people (from a Māori world view) and Māori as contributors to the success and well-being of New Zealand as a whole. Well-being refers to, but is not limited to cultural, spiritual, social, physical, economic and political well-being, and therefore any future consideration of transport impacts needs to be done with these key dimensions of Māori well-being in mind[2].

The following table identifies the extent to which the enduring questions can be answered by existing information. Where there is considerable information available there is a "Small" gap to meet the information needs, where there is little or no information available there is a "Large" gap to meet the information needs and in between there is a "Medium" gap to meet the information needs.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ2.1 | How, when and in what numbers do people[3] travel to, from and within New Zealand, for what purposes, what are the origins and destinations of their journeys, and how are these things changing, including modally, temporally and spatially? | Medium |
| EQ2.2 | Who uses transport, how accessible is transport, who experiences barriers to access or use, what are those barriers and how are these things changing, including modally, temporally, demographically, and spatially? | Large |
| EQ2.3 | What attitudes, perceptions and preferences do people3 have toward different modes of transport, what are the reasons for these attitudes, perceptions and preferences, what is the impact on travel patterns, and how are these things changing, including modally, temporally, spatially, and demographically? | Large |
| EQ2.4 | What is the relationship between Māori and transport, what impact does transport have on Māori traditions, aspirations and well-being, and how are these things changing over time? | Large |

[2] As shown in recommended initiative R2.14, a specific Māori research framework which considers the role of Māori values and concepts in low-impact urban design and development is helpful for informing the appropriate approach to ensure the broad enduring questions and associated initiatives in the Transport Domain Plan is specifically inclusive of Māori.
[3] The word people here includes people in general and in specific groups (including Māori as tangata whenua).

## *Recommended initiatives*

| R2.1 | Improve awareness of and access to information from the New Zealand Household Travel Survey |
|---|---|
| **Purpose** | To improve use of information from the New Zealand Household Travel Survey. |
| **Problem definition and knowledge development opportunity** | The New Zealand Household Travel Survey (HTS), administered by the Ministry of Transport, is a continuous survey of the travel patterns of New Zealand households. With information published annually, the survey captures demographic information about people, how, where and why they travel. It provides data at a person centric level and covers all modes of transport and highly detailed information is available down to the regional level. The HTS meets many of the information needs that stakeholders have but do not necessarily know that the data was available or where to access it. |
| **Response** | The sector recommends improving awareness of the HTS data and investigating into the feasibility and practicality of developing HTS confidentialised unit record files for publication purposes. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Improve data access and publication |

| R2.2 R | Identify groups of interest for oversampling in the new Household Travel Survey for different population groups |
|---|---|
| **Purpose** | To enhance value gained from the new HTS by oversampling |
| **Problem definition and knowledge development opportunity** | From 2015, the HTS will be using online methods and the option of Global Positioning Systems (GPS) logging to gather data, further enhancing the accuracy and detail available in the survey data. The new survey design also allows for Crown Agencies such as central or local government authorities to purchase additional sampling units for specific population groups. Such groups may include individual regions or cities, groups by ethnicity, disability status or age. |
| **Response** | As HTS data can be utilised for multi agencies and purposes, the sector recommends exploring opportunities to collaborate with other agencies to:<br>• identify the need for oversampling for different population groups<br>• purchase any oversampling units where an identified need exists. |
| **Related enduring questions** | EQ2.1, EQ2.2 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

R= revised

| R2.3 | Improve geographic data on the distribution and location of people with disabilities |
|---|---|
| **Purpose** | To better understand the transport needs of people with disabilities |
| **Problem definition and knowledge development opportunity** | People with disabilities have very specific transport needs, yet the sector only has limited information available on the geographic distribution and location of these populations. Such information is important to inform decisions about the types of infrastructure required in local areas to meet their needs and to understand the extent to which transport enables their participation in economic and social opportunities. |
| **Response** | The sector recommends improving the geographic data on the location and distribution of people with disabilities (e.g. via analysing the Census and NZ Disability Survey). This may include by region, urban versus rural breakdowns, or detailed analyses at the meshblock level. |
| **Related enduring questions** | EQ2.2 |
| **Activity Stream** | Collect new or additional data |

| R2.4 | Establish baseline information on 'accessibility' |
|---|---|
| **Purpose** | To better understand accessibility in New Zealand |
| **Problem definition and knowledge development opportunity** | Accessibility is an important but difficult concept to consider and there is a lack of a clear definition. There are three aspects of access:<br>• *access to mobility (or transport services)* – how different groups can access transport services, considering a 'whole of journey' perspective<br>• *access to specific destinations or locations* – how well connected are different destinations (e.g. by function such as 'work', 'school', 'healthcare' and 'home') for different groups at different times<br>• *barriers to access* – what are the barriers to accessing transport for any user groups and the reasons why |
| **Response** | The sector recommends that a definition of accessibility be articulated and agreed, and that baseline information (for different regions and subpopulations) is established and maintained into the future. This may include working with multiple agencies to identify and develop the key performance indicators for accessibility. |
| **Related enduring questions** | EQ2.2 |
| **Activity Stream** | Develop research and capability |

| R2.5 | Expand the scope of travel surveys to include commercial person travel |
|---|---|
| **Purpose** | To better understand commercial personal travel in New Zealand |
| **Problem definition and knowledge development opportunity** | The HTS provides a high degree of detailed information about household travel in New Zealand. The same degree of detailed information is not available for commercial travel. Commercial travel includes travel for business purposes, or in the course of a person's employment, and represents a large component of all travel in New Zealand. |
| **Response** | The sector recommends investigating into the opportunity to enhance or expand the HTS survey to gather and report information on commercial person travel. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Collect new or additional data |

| R2.6 | Improve access to high quality public transport patronage data |
|---|---|
| **Purpose** | To better understand public transport patronage |
| **Problem definition and knowledge development opportunity** | Public transport is an important part of the transport network. Currently the sector has some high-level public transport patronage data, some of which can be broken down to a lower level of detail. Most sources of public transport data are not disaggregable to the level of detail required to gain useful insights around mode choice decisions. These include: data broken down by specific route; passenger and demographic information; data from tag-on/tag-off cards; data on patronage by fare type and data on unique and repeat passengers. |
| **Response** | The sector recommends:<br>• establishing a data partnership to obtain mutual benefits for commercial operators and policy making agencies, and<br>• improving or standardising contracting provisions for public transport services to ensure a standard set of data is available from publicly subsidized or funded public transport services. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Improve data access and publication |

| R2.7 | Gather additional information on the reasons why people don't travel |
|---|---|
| **Purpose** | To better understand the reasons why people do not travel. |
| **Problem definition and knowledge development opportunity** | Information about why people travel is gathered in the HTS. No information is collected about why people do not travel. The reasons people don't travel may include particular barriers to accessing transport, or intentionally avoided travel – such as when an employee works from home. Information about why people do not travel is an equally important part of the picture as the reasons why they do. |
| **Response** | The sector recommends conducting research into the reason why people do not travel. This recommended initiative could be combined with R2.8. |
| **Related enduring questions** | EQ2.2, EQ2.3 |
| **Activity Stream** | Develop research and capability |

| R2.8 | Gather additional information on peoples' attitudes, preferences and perceptions about transport |
|---|---|
| **Purpose** | To better understand peoples' attitudes, preferences and perceptions about transport |
| **Problem definition and knowledge development opportunity** | Attitudes, perceptions and preferences that people hold greatly influence their transport choices. This type of information would be useful to supplement economic modeling techniques. At present, data on peoples' attitudes, preferences and perceptions is limited largely to a small number of surveys conducted by commercial operators (which are not publicly available), and individual, often qualitative, studies carried out in the academic sector. |
| **Response** | The sector recommends gathering additional information on peoples' attitudes, preferences and perceptions of the cost, reliability, security safety and convenience across the different modes of transport. This could also include the effect of peoples' cultural values on transport choices. This recommended initiative could be combined with R2.7. |
| **Related enduring questions** | EQ2.3 |
| **Activity Stream** | Collect new or additional data |

## Aviation

| R2.9 | Gather additional person centric data about domestic air travel |
|---|---|
| **Purpose** | To gain better understanding about domestic air travel |
| **Problem definition and knowledge development opportunity** | As arrival and departure cards are not required for domestic air passengers, information about domestic air passengers is limited. The only information about domestic air passengers that must be reported by airlines is the total number of passengers carried (for calculating passenger levies). The quality of domestic air passenger data could be improved by requiring airlines to report a breakdown on passenger numbers by flight, route, and time (such as day, week and month) in additional to total number of passenger carried. |
| **Response** | The sector recommends collecting additional information on domestic air travel while ensuring the privacy of any commercially sensitive domestic air passenger data can be maintained (in consultation with Statistics NZ). |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Collect new or additional data |

## Maritime

| R2.10 | Gather information about Cook Strait passenger trips |
|---|---|
| **Purpose** | To understand Cook Strait passenger trips |
| **Problem definition and knowledge development opportunity** | Currently no information about Cook Strait passenger trips is available. This is collected by the respective commercial operators. It is not available to policy makers or transport planners. The commercial sensitivity of this information is acknowledged, however, there would be benefits to New Zealand and the transport network if policy makers and transport planners had access to this information. |
| **Response** | The sector recommends establishing a data partnership with commercial operators (in consultation with Statistics New Zealand) to gain access to Cook Strait passenger data. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data about any one operator. This recommended initiative should be combined with R3.12 and R5.6. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Collect new or additional data |

| R2.11 | Improve information on recreational boating participation rates |
|---|---|
| **Purpose** | To improve the information available on recreational boating participation rates |
| **Problem definition and knowledge development opportunity** | Information on the rates of participation in recreational boating is important for gaining a better understanding of risk profiles and harm incident rates in recreational boating. However, current available information is sourced from self-reported survey, which may be subject to recalling errors. |
| **Response** | The sector recommends investigating into methods to improve information on recreational boating participation rates. This may be part of a one off study or research project. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Collect new or additional data |

## Rail

| R2.12 | Gather information about intercity and inter-region person travel by rail |
|---|---|
| **Purpose** | To better understand intercity and inter-region travel by rail |
| **Problem definition and knowledge development opportunity** | Information about urban rail commuting in Auckland and Wellington is captured in the New Zealand household Travel Survey (HTS). There is virtually no information gathered or reported about inter-regional rail travel. |
| **Response** | The sector recommends collection of baseline information on inter-regional rail travel, including:<br>• total numbers of passengers<br>• passenger demographics<br>• passenger origins and destinations. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Collect new or additional data |

## Road

| R2.13 | Gather additional information about pedestrian and active mode person travel |
|---|---|
| **Purpose** | To better understand pedestrian and active mode person travel |
| **Problem definition and knowledge development opportunity** | Pedestrian and active modes of transport, such as walking, running and cycling are an important type of transport, especially in urban areas where the distance between destinations is short, but may be highly congested. There is a lack information about the extent to which pedestrians use the footpath network, and the extent to which cyclists use cycle paths. In order to understand modal shifts, and to inform decisions about investment in services to support the pedestrian and active modes of transport we need better data. |
| **Response** | The sector recommends gathering additional information on the extent to which these active modes of transport are used. A starting point may be to capture data for the main centers and investigate data from new technological sources eg commercial fitness tracking data. |
| **Related enduring questions** | EQ2.1 |
| **Activity Stream** | Collect new or additional data |

| R2.14 | Improve information and understanding of Māori views and needs from the use of and involvement in transport |
|---|---|
| **Purpose** | To improve information and understanding of Māori views and needs from the use of and involvement in transport. |
| **Problem definition and knowledge development opportunity** | Māori as tangata whenua have a strong and enduring relationship with the land and waterways of New Zealand. Māori have aspirations around economic well-being. In a post-Treaty settlement environment, Māori groups and organisations are increasingly involved in diverse economic activities. Māori are commercial users of transport, but may increasingly become a supplier to the transport workforce and providers of investment funding for transport infrastructure. The focus of their investment may be in tribal rohi/traditional areas which may be more rural and critical to strong ongoing regional economic development. |
| **Response** | The sector recommends building on and developing engagement and enduring relationships with Māori groups across all transport issues of interest to Māori. A specific Māori research framework[4] which considers the role of Māori values and concepts in low-impact urban design and development is helpful for informing the appropriate approach to take to ensuring the broad enduring questions and associated initiatives in the New Zealand Domain Plan is specifically inclusive of Māori. |
| **Related enduring questions** | EQ2.1, EQ2.2, EQ2.3, EQ2.4 |
| **Activity Stream** | Develop research and capability |

[4] Garth Harmsworth, *The role of Māori values in Low-impact Urban Design and Development (LIUDD)*

# Topic 3: Freight – Summary Sheet

## Findings of gap analysis presented at the July 2015 workshop

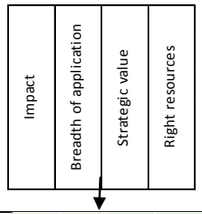
1. Overall, the sector found a mixed level of information about the transportation of freight. Maritime freight is the area where the strongest understanding exists, due in large part to the Freight Information Gathering System (FIGS). Road freight was an area where the most gaps existed, due to the sheer size of the road freight task, and the commercially sensitive nature of much of this information.
2. There was a good understanding of freight at a New Zealand wide level, including net imports and exports. However, information required to explore freight patterns at a lower level of detail was often missing or incomplete.
3. Stakeholders agreed that the question of "what" freight is being moved is of fundamental importance. Once we know about the movement of freight by type, it is possible to gain insight into value of freight, efficiency, productivity of routes, and much more.
4. There were many instances where stakeholders have established partnerships with industry to gain access to freight data. These partnerships are not formalised and have been established on a case-by-case basis.

## Summary of findings from the March 2016 workshop

| | | |
|---|---|---|
| **High-priority initiatives** | | |
| R3.2 | Develop an agreed approach and set of indicators for monitoring freight efficiency | 4 |
| R3.10 | Improve collection of and access to data on domestic air freight | 13 |
| R3.9 | Repeat and enhance the National Freight Demand Study | 13 |
| R3.12 R | Develop a workable approach to collecting data from operators on Cook Strait freight | 13 |
| R3.6 R | Develop geospatial capability to track freight and people movements | 20 |
| R3.5 | Develop baseline data on non-categorised or unrecorded light freight | 33 |
| **Medium-priority initiatives** | | |
| R3.7 | Develop baseline information on urban freight | 44 |
| R3.13 R | Investigate whether data on the number of road freight vehicle movements could be established as Tier 1 statistics | 42 |
| R3.1 | Develop baseline estimates on the annual New Zealand freight spend | 56 |

## Recommended initiatives and the assessment results

### Improve data access and publication




**R3.10 Improve collection of and access to data on domestic air freight** — 13

This would enhance NFDS. CAA is consulting in February 2016 on legislation to collect air freight data.

**R3.13 R Investigate whether data on the number of road freight vehicle movements could be established as Tier 1 statistics** — 42

This was one of the recommendations in a 2012 review by SNZ.

### Improve data sharing, integration and governance

**R3.6 R Develop geospatial capability to track freight and people movements** — 20

The systems available for geospatial mapping are improving steadily, so any pilot work should examine both current and emerging technologies.

**R3.4 Develop guidance for public-private freight data partnerships between government agencies and industry operators** — 76

To encourage public-private data sharing, it is important to have a clear framework for the management of administrative data to deal with key issues such as privacy or commercial sensitivity.

**R3.11 Improve integration of different classification systems for maritime freight** — 96

Text supporting recommendation requires modification. Maritime NZ only has an oil spill incident response capability and HAZNO is not an international convention

**R3.12 R Develop a workable approach to collecting data from operators on Cook Strait freight** — 13

This data will enhance the quality of the NFDS. It would require establishing data roles and responsibilities to maintain commercial independence

### Collect new or additional data

None

### Collect or develop baseline data or information

**R3.5 Develop baseline data on non-categorised or unrecorded light freight** — 33

There is currently no information source for light freight movement. A possible approach could require doing a pilot study to develop method to assess the extent of light freight throughout NZ.

**R3.7 Develop baseline information on urban freight** — 44

Inter regional movement dominates and we are missing urban information. This could be developed as a module of a future National Freight Demand Study.

**R3.1 Develop baseline estimates on the annual New Zealand freight spend** — 56

This dataset has the potential to support both industry and policy planning on freight structures and moves to improve efficiency. Scope of work include: annual freight expenditure, by mode, region, freight type and industry

**R3.3 Establish baseline information on non-containerised freight movements** — 68

This could enhance NFDS and could potentially be included with existing Freight Information Gathering System.

### Develop new methods, review or improve current methods and processes

**R3.2 Develop an agreed approach and set of indicators for monitoring freight efficiency** — 4

This can be used in a range of applications to track changes in freight efficiency over time. However, it would require defining taxonomy of indicators.

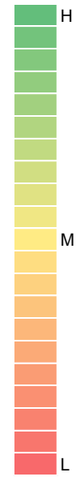
**R3.9 Repeat and enhance the National Freight Demand Study** — 13

Regular updating the NFDS (e.g. every 5 years) and inclusion of urban, light, and final destinations as modules would add value.

### Develop research and capability

**R3.8 Develop a method for determining and recording data on the final destination of imports and exports** — 82

This recommendation may require new and innovative approaches to track cargoes to their final destinations. The potential use is unlikely to justify the cost of collecting the information.




R = Revised

## Topic 3: Freight - Details

International trade is important for New Zealand's economic prosperity. Overseas merchandise trade amounts to around 40 percent of the nation's Gross Domestic Products (GDP). A good understanding of the freight services that allow New Zealand to trade goods with the rest of the world is therefore an important starting point for decisions about how to maximise the value of exports to the economy.

In addition to international trade, it is also important to understand the characteristics of domestic freight services because they provide final links between ports, firms and final customers. This requires information about the contributions respective modes make to moving freight for different industries, and how this is changing in different regions and over time.

There are many different types of transported goods that may constitute freight, including high value light freight such as pharmaceutical products and low value heavy freight such as scrap metal. Information on the volume and value of freight by commodity can help us to understand the role of transport in moving them.

Our stakeholder engagement process identified four broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ3.1 | What is the volume and value of freight moving to, from and around New Zealand, what are the origins and destinations of this freight, and how are these things changing over time? | Medium |
| EQ3.2 | What freight is moving to from and around New Zealand, how is it comprised, how are different industries affecting the volume and value of freight, and how are these things changing, including regionally, and temporally? | Large |
| EQ3.3 | How and when does freight move to, from, and around, New Zealand, by what routes, and how are these things changing, including modally, regionally, and temporally? | Large |
| EQ3.4 | What barriers exist to efficiently transporting freight to, from and around New Zealand, and how are these changing, including regionally, temporally, and modally? | Medium |

### *Recommended initiatives*

| R3.1 | Develop baseline estimates on the annual New Zealand freight spend |
|---|---|
| **Purpose** | To better understand the annual New Zealand freight spend |
| **Problem definition and knowledge development opportunity** | Good information about the total amount spent on moving freight in New Zealand can inform questions about economic activity, freight efficiency, and New Zealand's international competitiveness. Currently the most useful proxy for freight expenditure is the Transport, Postal and Warehousing classification in the national GDP statistics. It is not a good measure of freight expenditure as it includes movement of people. |
| **Response** | The sector recommends establishing baseline estimates on annual freight expenditure, by mode, region, freight type and industry. |
| **Related enduring questions** | EQ3.3 |
| **Activity Stream** | Collect or develop baseline data or information |

| R3.2 | Develop an agreed approach and set of indicators for monitoring freight efficiency |
|---|---|
| **Purpose** | To understand how freight efficiency is changing over time |
| **Problem definition and knowledge development opportunity** | The concept of efficiency means different things to different stakeholders. Some are interested in cost efficiency, while others are interested in fuel efficiency, or time efficiency and emissions efficiency. The Ministry of Transport currently publishes some indicators on the website, but such data are incomplete. |
| **Response** | The sector recommends development of a set of freight efficiency indicators for ongoing monitoring purposes. This includes reviewing current transport indicators to ensure they are fit for purpose and to identify areas for further development. Important dimensions for consideration include:<br>• Total volume and value of freight<br>• Freight tonne kilometres<br>• Vehicle load factors and emissions from freight<br>• Time taken to transport freight between locations |
| **Related enduring questions** | EQ3.3, EQ3.4, EQ9.3 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R3.3 | Establish baseline information on non-containerised freight movements |
|---|---|
| **Purpose** | To understand non-containerised freight movements |
| **Problem definition and knowledge development opportunity** | The Freight Information Gathering System (FIGS) provides a rich source of data about the volumes and movements of all containerised (20' and 40') freight moving to, from and around New Zealand. There are currently no systems in place to capture information about the volumes and movements of non-containerised freight. |
| **Response** | The sector recommends collection of baseline information on non-containerised freight (such as break bulk and bulk freight) for inclusion in FIGS to allow a one-stop shop for all freight information. Important dimensions to consider include: total volumes, values, composition, and modal journeys. |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3, EQ9.3, EQ9.4, EQ9.5 |
| **Activity Stream** | Collect or develop baseline data or information |

| R3.4 | Develop guidance for public-private freight data partnerships between government agencies and industry operators |
|---|---|
| **Purpose** | To obtain more detailed freight data |
| **Problem definition and knowledge development opportunity** | There is a large volume of administrative data being held by commercial transport operators which could be utilised to inform policy development. |
| **Response** | The sector recommends, in consultation with Statistics NZ and the Data Futures Partnership, establishing a clear framework to encourage public-private data sharing. Key issues for consideration include:<br>• privacy of personal or commercially sensitive data<br>• relative benefits and costs incurred to interested parties<br>• roles and responsibilities of the interested parties and industry bodies<br>• governance and oversight of such partnerships<br>• data quality, ownership, publication |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R3.5 | Develop baseline data on non-categorised or unrecorded light freight |
|---|---|
| **Purpose** | To understand non-categorised or unrecorded light freight movements |
| **Problem definition and knowledge development opportunity** | Vehicles under 6 tonnes need not be registered as freight vehicles, yet have the potential to move significant volumes of freight. Courier deliveries, businesses that offer delivery services, and online shopping all constitute examples of non-categorised, unrecorded light freight. While any individual delivery may be unremarkable, taken together these types of deliveries represent a significant category of freight. In addition, these types of deliveries are often finished consumer goods, meaning that they have a specific low volume – high value profile. In order to understand freight in New Zealand the sector needs better information about this unique category of freight. |
| **Response** | The sector recommends conducting a pilot study to develop methods to assess the extent of light freight throughout New Zealand. |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3, EQ9.3 |
| **Activity Stream** | Collect or develop baseline data or information |

| R3.6 E | Develop geospatial capability to track freight and people movements |
|---|---|
| **Purpose** | To establish geospatial mapping capability |
| **Problem definition and knowledge development opportunity** | There is currently some information about the places that freight flows to and from, but this is largely limited to inter-regional flows at a high level of aggregation. As technology improves, it is likely that our ability to track vehicle and freight movements will increase. To maximise the value of these technological advances New Zealand needs to be an early adopter. |
| **Response** | The sector recommends enhancing analytical capability within government agencies in handling geospatial freight data and developing a small pilot study to assess the feasibility of geospatial freight mapping before expanding to cover larger areas. This recommended initiative should be implemented with R1.15. |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3, EQ9.5 |
| **Activity Stream** | Improve data sharing, integration and governance |

E= an extension of the original recommended initiative

| R3.7 | Develop baseline information on urban freight |
|---|---|
| **Purpose** | To understand urban freight movements |
| **Problem definition and knowledge development opportunity** | The National Freight Demand Study (NFDS) provides a large amount of information about the demand for many different types of freight at a broad level of categorisation, including by freight commodity type, mode and region. Currently there is no information on urban freight movements between two locations in the same city. |
| **Response** | The sector recommends establishing baseline information on urban freight, either as a standalone study or for inclusion in future editions of NFDS. Of particular value would be an understanding of important freight corridors, as well as volumes, values and types of freight for key cities. |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3, EQ9.3 |
| **Activity Stream** | Collect or develop baseline data or information |

| R3.8 | Develop a method for determining and recording data on the final destination of imports and exports |
|---|---|
| **Purpose** | To understand the value of information on the final destination of imports and exports |
| **Problem definition and knowledge development opportunity** | Information on the final destination of imports and exports may be useful for understanding the full cost of shipping international cargoes. However, such information is currently unavailable. |
| **Response** | The sector recommends researching into the value of information on the final destination of imports and exports, the feasibility and practicality of obtaining such information. |
| **Related enduring questions** | EQ3.1, EQ9.4 |
| **Activity Stream** | Develop research and capability |

| R3.9 | Repeat and enhance the National Freight Demand Study (NFDS) |
|---|---|
| **Purpose** | To obtain detailed freight data on regular basis |
| **Problem definition and knowledge development opportunity** | In 2008 the Ministry of Transport published the first NFDS to provide a comprehensive understanding of the sector and to provide forecasts of future activity at both a nationwide and regional level which could be used as the basis for planning. Such information was later updated in 2014. In the second edition of the NFDS, the analysis was expanded to include additional information from the FIGS. |
| **Response** | The sector recommends repeating the NFDS on a regular basis (such as every five years) and expanding the scope to include detail on urban freight, non-categorised or unrecorded light freight, inter-city freight movements for key cities. One way of achieving this may be to include these enhancements as modules that are produced and published in intervening years between editions of the NFDS. |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3, EQ9.3, EQ9.4, EQ9.5 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

## Aviation

| R3.10 | Improve collection of and access to data on domestic air freight |
|---|---|
| **Purpose** | To understand domestic air freight movements |
| **Problem definition and knowledge development opportunity** | Good information about international air freight is available using Customs data, accessed from Statistics NZ. Since air freight is likely to be low in volume but high in value, and often comprises highly perishable goods that require timely transport to market, domestic air freight serves as an important link in the logistical chain for certain industries. Although domestic air freight data is collected for administrative purposes by airlines, airport and Airways Corporation, it is not available to government policy makers. |
| **Response** | The sector recommends establishing a data partnership with commercial operators (in consultation with Statistics New Zealand) to gain access to domestic air freight data. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data. |
| **Related enduring questions** | EQ3.1, EQ3.2, EQ3.3 |
| **Activity Stream** | Improve data access and publication |

## Maritime

| R3.11 | Improve integration of different classifications systems for maritime freight |
|---|---|
| **Purpose** | To understand maritime movements of hazardous or noxious substances |
| **Problem definition and knowledge development opportunity** | New Zealand has a dataset that can tell us about the total volume of imports and exports by commodity type (through data recorded under the NZ Harmonised System Classification), but not which imports and exports are hazardous or noxious substances. As the classification system[5] that would allow identification of such goods is not applied, there is no straightforward way to identify the total volume of hazardous or noxious substances freighted by sea and whether these are imported, exported or shipped domestically. The sector believes such information is important for conducting macro-level analysis of chemical import and export time series data, which is required from time to time for safety audit purposes. |
| **Response** | The sector recommends improving how these classification systems integrate. This may be achieved by a mapping exercise to establish clear rules about how cargo classified under the NZHSC relates to the IMO's IMDG code. Once a set of mapping rules has been established it may be possible to reclassify the data and enable macro-level analysis. |
| **Related enduring questions** | EQ3.2 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R3.12 R | Establish a methodology for collecting data on Cook Strait freight movements while maintaining privacy of commercially sensitive data |
|---|---|
| **Purpose** | To understand Cook Strait freight movements |
| **Problem definition and knowledge development opportunity** | Cook Strait freight movement data is important for understanding the demand of such freight and the factors affecting freight owners' decisions. At present, operators are unwilling to share such data because of the sensitive nature of the data, and the potential for competitors to gain insight to the profit margins of other operators. |
| **Response** | The sector recommends establishing a data partnership with commercial operators (in consultation with Statistics New Zealand) to gain access to Cook Strait freight data. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data. This recommended initiative should be combined with R3.9 and R5.6. |
| **Related enduring questions** | EQ3.2 |
| **Activity Stream** | Improve data sharing, integration and governance |

R= revised

[5] The New Zealand Harmonised System Classification (NZHSC) is based on the World Customs Organisation's Harmonised Commodity Description and Coding System and is designed to provide an internationally comparable system for levying customs tariffs and compiling international trade statistics. All freight entering or leaving New Zealand is coded by NZ Customs according to the NZHSC, but sea freight that is shipped domestically receives no code because it is not exported and does not pass through customs. In addition to the NZHSC, all sea freight in New Zealand – including imports, exports and domestic coastal freight – is subject to classification under the International Maritime Dangerous Goods (IMDG) Code. The World Customs Organisation (WCO) harmonised classification system for goods is very detailed but is not integrated with IMDG or other IMO conventions covering bulk dangerous goods.

## Road

| R3.13 R | Investigate whether data on the number of road freight vehicle movements could be established as Tier 1 Statistics |
|---|---|
| **Purpose** | To include road freight vehicle movements as Tier 1 statistics |
| **Problem definition and knowledge development opportunity** | There are currently no transport related Tier 1 statistics in production, however at the most recent tier 1 review, completed in 2012, "transport movements" was listed as a potential tier 1 statistic requiring development. It was listed in the business activity section of the economic statistics. To date it remains undeveloped and is not in production.<br>**Note**: This recommended initiative should be considered in conjunction with R3.1 to R3.9. |
| **Response** | The sector recommends investigating into how baseline data can be established on transport movements for inclusion as a Tier 1 statistics, with guidance and advice from Statistics NZ. |
| **Related enduring questions** | EQ3.3, EQ9.3 |
| **Related initiatives** | R3.1 to R3.9 |
| **Activity Stream** | Improve data access and publication |

R= revised

# Topic 4: Infrastructure and Investment – Summary Sheet

## Findings of gap analysis presented at the July 2015 workshop

1. Stakeholders agreed that "road" was of more interest than other modes. This related largely to the size, and extent of the network and the public investment required to build, maintain and operate it.
2. The commercial nature of many transport infrastructure operators (including private or publicly listed companies such as SOEs) limits the availability of information that the sector needs.
3. Commercial operation of infrastructure is more common in the aviation, rail and maritime sectors. This means that the greatest knowledge needs pertain to the road network, where investment decisions more frequently intersect with policy processes, such as the Government Policy Statement on Land Transport.
4. It was identified that the level of detail at which information could be analysed was problematic. For public investment there is often very detailed information contained in individual business cases, however these can often not be collated across projects or aggregated to a national level. This means we are unable to develop a meaningful view of investment at a network level.

## Summary of findings from the March 2016 workshop

| | | |
|---|---|---|
| **High-priority initiatives** | | |
| R4.19 | Improve information on the capacity and use of local roads | 2 |
| R4.1 | Conduct research into the return on investment in transport infrastructure at a network level | 26 |
| R4.18 | Research into non-monetised returns on transport infrastructure investment | 31 |
| R4.14 | Integrate RAMM data and improve its access | 33 |
| **Medium-priority initiatives** | | |
| R4.2 | Establish and implement a set of baseline assumptions for use in transport related business cases | 37 |
| R4.4 | Develop a transport infrastructure performance benchmarking tool or framework | 37 |
| R4.13 | Develop detailed data collections about non-road land transport infrastructure | 42 |
| R4.17R | Develop an agreed set of outcome indicators for assessing the Government Policy Statement on Land Transport | 50 |
| R4.16 | Improve systems to allow integration of data about investment in road network infrastructure | 51 |
| R4.11 | Establish a minimum rail infrastructure data set and publish it annually | 51 |
| R4.8 | Implement benchmarking and ongoing monitoring of seaport capacity and utilisation rates | 51 |
| R4.20 | Gather additional data on investment in public transport infrastructure | 57 |

## Recommended initiatives and the assessment results

### Improve data access and publication

Impact | Breadth of application | Strategic value | Right resources

**R4.11 Establish a minimum rail infrastructure data set and publish it annually** — 51

Work with KiwiRail to agree on a core set of data that is required to inform transport policy decisions and publish it annually.

**R4.5 Improve access to publicly held information about investment in, and the performance of, airports** — 96

Information is available but not easily accessible. The issue is lack of awareness.

**R4.9 Produce annual summary information on the state of New Zealand's seaports** — 64

Publication for information gathered as a result of recommendations R4.7 and R4.8

### Improve data sharing, integration and governance

**R4.14 Integrate RAMM data and improve its access** — 33

Improve national consistency and include measures for all users of the road corridor.

**R4.16 Improve systems to allow integration of data about investment in road network infrastructure** — 51

Having a consistent local roads and state highways information system will improve efficiency to access to such data (currently performed manually).

**R4.3 Build data partnerships with commercial providers to improve access to data about transport infrastructure** — 88

The data to be collected will help understand relative infrastructure cost by mode. However, aggregation to maintain confidentiality may limit end use.

**R4.10 Improve collection of information about maritime navigational infrastructure** — 113

Suggest wider application than is evident from the assessment requires major co-ordination.

### Collect new or additional data

**R4.20 Gather additional data on investment in public transport infrastructure** — 57

There are interest in accessing to such data (covers all modes). Information on performance may be more useful.

**R4.7 Improve collection of data on seaport infrastructure condition** — 83

This helps to understand port efficiency and potentials to accommodate a range of ship and cargo types. This overlaps with R4.8. [NB: The explanation needs to remove reference to security inspections.]

**R4.8 Implement benchmarking and ongoing monitoring of seaport capacity and utilisation rates** — 51

As an initial step, this could be developed based on the BITRE methodology. Guidance on how to apply will be required.

**R4.12 Review the Road Assessment and Maintenance Management database to ensure consistency** — 68

There are needs to resolve regional inconsistency and to include measures for all users of the road corridor. This could be combined with R4.14.

### Collect or develop baseline data or information

**R4.6 Establish baseline data about the condition of airport infrastructure** — 110

Performance (R4.5) more important than condition.

### Develop new methods, review or improve current methods and processes

**R4.19 Improve information on the capacity and use of local roads** — 2

This information will be useful for a range of analyses and should be nationally consistent (e.g. information that is comparable with that of State highways) and easily accessible.

**R4.4 Develop a transport infrastructure performance benchmarking tool or framework** — 37

Information on ex-post performance of infrastructure is very important. This needs to consider all transport users.

**R4.13 Develop detailed data collections about non-road land transport infrastructure** — 42

This data is currently missing. This could be done by adapting a RAMM type model to other infrastructure assets.

**R4.17 R Develop an agreed set of outcome indicators for assessing the Government Policy Statement on Land Transport** — 50

Developing outcome indicators of how public value is manifested with help assess the GPS. This work should not replicate or duplicate the monitoring and evaluation of NLTP.

← **R4.8** and **R4.12**

### Develop research and capability

**R4.1 Conduct research into the return on investment in transport infrastructure at a network level** — 26

This can be a first step to understand productivity of infrastructure. It will need to consider end-to-end journeys and services.

**R4.18 Research into the non-monetised returns on transport infrastructure investment** — 31

This will provide a better picture of outcomes delivered.

**R4.2 Establish and implement a set of baseline assumptions for use in transport related business cases** — 37

Include post implementation monitoring data

**R4.15 Conduct research into privately owned roading infrastructure** — 93

This will require clear definition of private road infrastructure. It is unclear about its potential use.

**R** = Revised

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## Topic 4: Infrastructure and investment - Details

Infrastructure, including roads, bridges, rail tracks, tunnels, runways, sea and air ports, wharves, cranes footpaths, cycle tracks, and waterways, is a critical and tangible part of New Zealand's transport system. It enables the movement of vehicles, people and freight.

Some infrastructure is privately owned (such as some ports). Other infrastructure such as public roads and state highways is paid for by government on behalf of all New Zealanders, mainly through fuel excise duties and road user charges. Given this complexity we need to understand the profile of investment in the different types of transport infrastructure as well as how returns on this investment are manifested and distributed. This information helps us to understand the relative costs and benefits as well as the returns on investment that can be gained from development of new infrastructure or improvements of existing infrastructure.

Transport activities utilise land and water resources. These activities can impact on Māori well-being through effects on the ownership rights, and use of land and water. Māori would view these wahi tapu sites as a taonga (an asset of significance, usually with restrictions and prohibitions applied to use) and they have a right to protected access to wahi tapu as an obligation under the Treaty of Waitangi. For example, there are sites Māori consider to be wahi tapu, and they would see the use of these sites for transport purposes as possibly putting at risk and potentially reducing well-being provided under the Treaty of Waitangi.

Our stakeholder engagement process identified four broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ4.1 | How extensive is New Zealand's transport infrastructure, how is it comprised, what is its capacity, condition, and geospatial location, and how are these things changing, including modally, temporally, nationally and regionally? | Small |
| EQ4.2 | What is the value of capital stock invested in New Zealand's transport infrastructure, what is the return on this investment, and how is this changing, including modally, regionally and temporally? | Medium |
| EQ4.3 | What and how do different groups[6] invest in transport infrastructure, by what mechanisms, how affordable and sustainable are these investments, what benefits do different groups receive from this investment, and how is this changing, including modally, regionally and temporally? | Large |
| EQ4.4 | What are the domain planned and actual costs of building and maintaining New Zealand's transport infrastructure, and how are these changing, including modally, regionally, and temporally? | Medium |

[6] These include iwi corporations.

## *Recommended initiatives*

| R4.1 | Conduct research into the return on investment in transport infrastructure at a network level |
|---|---|
| **Purpose** | To understand the return on investment in the transport networks |
| **Problem definition and knowledge development opportunity** | Information about the actual returns on investment would provide a useful starting point to examine the productivity of transport infrastructure, including at a national and sub-national level. Currently there is information on the expected returns on investment for individual projects but not at a network level. Actual returns are generally not available. This information gap has also been identified by the Productivity Commission and the National Infrastructure Unit. |
| **Response** | The sector recommends researching into the realised returns on investment in transport infrastructure for the following road networks:<br>• the state highway network,<br>• local road networks in individual regions,<br>• the entire local roading network,<br>• all roads, both state highways and local roads.<br>The research may also be expanded to include the returns and distribution of returns on investment in privately owned transport infrastructure, such as airports and seaports. This recommended initiative should be combined with R4.18. |
| **Related enduring questions** | EQ4.2, EQ9.1, EQ9.5 |
| **Activity Stream** | Develop research and capability |

| R4.2 | Establish and implement a set of baseline assumptions for use in transport related business cases |
|---|---|
| **Purpose** | To standardise the baseline assumptions for use in transport infrastructure related business cases |
| **Problem definition and knowledge development opportunity** | It is difficult to compare the relative merit of different projects at a national level because transport infrastructure business cases often use different assumptions (such as economic and population growth) to model the likely impacts and effects of different projects or investment choices. The lack of consistency can result in inconsistent assessments of the costs and benefits of investment in infrastructure. |
| **Response** | The sector recommends developing a set of agreed national and regional assumptions for use in business cases for infrastructure projects. |
| **Related enduring questions** | EQ4.2, EQ4.4, EQ9.1, EQ9.5 |
| **Activity Stream** | Develop research and capability |

| R4.3 | Build data partnerships with commercial providers to improve access to data about transport infrastructure |
|---|---|
| **Purpose** | To capture information on commercial investment in transport infrastructure |
| **Problem definition and knowledge development opportunity** | Across the transport system, there are many providers of infrastructure. While central and local government finance, build or maintain most roads, some transport infrastructure is commercially financed or operated. This includes airports, seaports and the rail network. Information about commercial transport infrastructure is not necessarily in the public domain. This information would be useful to understand the relative infrastructure costs between modes. |
| **Response** | The sector recommends establishing a data partnership with commercial providers (in consultation with Statistics New Zealand and Data Futures Partnership) to gain access to such data. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of any commercially sensitive data. |
| **Related enduring questions** | EQ4.1, EQ4.2, EQ4.3, EQ9.2, EQ9.5 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R4.4 | Develop a transport infrastructure performance benchmarking tool or framework |
|---|---|
| **Purpose** | To benchmark transport infrastructure performance |
| **Problem definition and knowledge development opportunity** | One of the critical gaps in the ability to answer enduring questions is the lack of evaluative information on the post construction performance of infrastructure. |
| **Response** | The sector recommends developing a transport infrastructure performance benchmarking tool or framework to enable comparisons of the performance of different infrastructural projects (for publicly funded infrastructure projects and potentially for wider application in the future). |
| **Related enduring questions** | EQ4.2, EQ4.4, EQ9.1, EQ9.2 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

## Aviation

| R4.5 | Improve access to publicly held information about investment in, and the performance of, airports |
|---|---|
| **Purpose** | To capture information on investment in and performance of airports |
| **Problem definition and knowledge development opportunity** | The Crown Ownership Monitoring Unit of the New Zealand Treasury (COMU) has a role in monitoring the Crown's investment in, and the performance of, several airports. As COMU makes summary information available as PDF only, this makes accessing the investment and performance information a manual and time-consuming task. |
| **Response** | The sector recommends making COMU's data more readily accessible and investigating into whether information from other commercial airports could be obtained (e.g. through a data sharing partnership arrangement). |
| **Related enduring questions** | EQ4.3, EQ9.1, EQ9.2 |
| **Activity Stream** | Improve data access and publication |

| R4.6 | Establish baseline data about the condition of airport infrastructure |
|---|---|
| **Purpose** | To understand the condition of airport infrastructure |
| **Problem definition and knowledge development opportunity** | One of the factors affecting the performance of the transport system is the condition of the assets. Information on the condition of airport infrastructure is collected by the individual airports but is not publicly available. The sector identified that such information is useful to inform strategic policy decisions about the configuration and integration of New Zealand's air transport network. |
| **Response** | The sector recommends establishing high-level information on the condition of airport infrastructure (via establishing a data partnership with airports). This information might include age structure and maintenance and replacement plans for airports, runways, security screening, terminals and baggage handling facilities. |
| **Related enduring questions** | EQ4.1, EQ9.3 |
| **Activity Stream** | Collect or develop baseline data or information |

## Maritime

| R4.7 | Improve collection of data on seaport infrastructure condition |
|---|---|
| **Purpose** | To understand the condition of seaport infrastructure |
| **Problem definition and knowledge development opportunity** | One of the factors affecting the performance of the transport system is the condition of the assets. Information on the condition of seaport infrastructure is collected by the individual ports for safety and security reasons but is not publicly available. Since ninety-nine percent of international trade by volume is transported by seas, the sector believes that having access to the condition of seaports is important to inform strategic policy decisions about the configuration and integration of New Zealand's sea and land-base transport networks. |
| **Response** | The sector recommends establishing high-level information on the condition of airport infrastructure (via establishing a data partnership with seaports). This information might include such things as the age structure, condition information and maintenance and renewal schedules for port infrastructure such as cranes, wharf piles, tanks and warehouses. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Collect new or additional data |

| R4.8 | Implement benchmarking and ongoing monitoring of seaport capacity and utilisation rates |
|---|---|
| **Purpose** | To understand the capacity and utilisation of the seaport network |
| **Problem definition and knowledge development opportunity** | To assess port capacity and utilisation rates, the Australian Bureau of Infrastructure, Transport and Regional Economics (BITRE) has developed a methodology to measure elapsed crane time and elapsed labour time. There are acknowledged difficulties in using the methodology to compare individual ports against each other, because of differences in the locations and types of cargo being loaded, but the methodology does provide a sound basis for comparing the same port against its own performance over time where freight types and call positions remain relatively constant. Information on capacity and utilization of the seaport network is useful to inform strategic policy decisions about the configuration and integration of New Zealand's sea and land-base transport networks. |
| **Response** | The sector recommends assessing and monitoring New Zealand's collective seaport capacity and utilisation rates using the BITRE methodology. This will allow benchmarking results against Australian ports. The sector also recommends the Ministry of Transport to provide ongoing guidance and support to assist ports in applying the BITRE methodology in a consistent manner. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R4.9 | Produce annual summary information on the state of New Zealand's seaports |
|---|---|
| **Purpose** | To understand performance of seaports over time |
| **Problem definition and knowledge development opportunity** | This recommended initiative aims to combine reporting of R4.7 and R4.8 |
| **Response** | The sector recommends publishing results of R4.7 and R.48 in an easily accessible location. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Improve data access and publication |

| R4.10 | Improve collection of information about maritime navigational infrastructure |
|---|---|
| **Purpose** | To capture maritime navigational infrastructure information |
| **Problem definition and knowledge development opportunity** | Information about the condition and the cost profile for maintenance and renewal of maritime navigational infrastructure is limited. This includes navigational infrastructure such as lighthouses, beacons, buoys, antennae and landmarks. The resulting information can assist ongoing management of these navigational assets. |
| **Response** | The sector recommends carrying out a stocktake of information about the condition and cost profile for maintaining and renewing maritime navigational infrastructure. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Collect new or additional data |

## Rail

| R4.11 | Establish a minimum rail infrastructure data set and publish it annually |
|---|---|
| **Purpose** | To capture rail network infrastructure investment information |
| **Problem definition and knowledge development opportunity** | In New Zealand, rail infrastructure is owned and operated by a single provider – KiwiRail. Due to the commercial nature of KiwiRail's operation, limited information is available on the state and performance of New Zealand's rail infrastructure. |
| **Response** | The sector recommends establishing a data partnership between the Ministry of Transport, the NZ Transport Agency and KiwiRail (in consultation with Statistics New Zealand) to gain access to a core set of rail network infrastructure data. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data. This recommended initiative should be implemented with R6.2 and R6.8. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Improve data access and publication |

## Road

| R4.12 | Review the Road Assessment and Maintenance Management database to ensure consistency |
|---|---|
| **Purpose** | To standardise road assessment and maintenance management data in New Zealand |
| **Problem definition and knowledge development opportunity** | The Road Assessment and Maintenance Management (RAMM) database is used by road controlling authorities to catalogue information about, and to manage, state highway and local road infrastructure throughout New Zealand. The RAMM database provides a detailed account of the physical assets that exist, their location, and road layout. However, there is a degree of regional inconsistency in the way that road controlling authorities define and collect information. |
| **Response** | The sector recommends reviewing the RAMM asset data definitions to identify regional discrepancies and improve national consistency. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R4.13 | Develop detailed data collections about non-road land transport infrastructure |
|---|---|
| **Purpose** | To capture non-road land transport infrastructure information |
| **Problem definition and knowledge development opportunity** | The RAMM database contains highly detailed and useful information about roading infrastructure. Many road controlling authorities and Territorial Local Authorities do not capture or record information about other types of land transport infrastructure. |
| **Response** | The sector recommends that collection of data on other types of land transport infrastructure, such as walkways, footpaths, and cycle ways (e.g. by expanding the existing RAMM database). |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R4.14 | Integrate RAMM data and improve its access |
|---|---|
| **Purpose** | To make information on physical attributes and features of the road network accessible |
| **Problem definition and knowledge development opportunity** | Currently access to RAMM data is limited. Road controlling authorities can only access data which they input. This is despite much information about the public road network being publicly observable. |
| **Response** | The sector recommends integrating the data entered into the RAMM database by different road controlling authorities into a single national data set, with access to non-confidential data be improved via a centralised point of access. At a minimum, information about the publicly observable physical attributes and features of the road network should be made more accessible. |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R4.15 | Conduct research into privately owned roading infrastructure |
|---|---|
| **Purpose** | To understand the nature, extent and location of privately owned roading infrastructure |
| **Problem definition and knowledge development opportunity** | In addition to a large network of public roads (the state highway and local roads), there are also a small number of private roads. These private roads are located in places like ports, farms and forests, and are built mainly to enable access for freight trucks so goods can be transported to markets. Private roads link with the wider transport network making them a source or destination for traffic. In order to conduct effective network planning, it is important to understand where vehicles will be moving to and from in relation to private roads. |
| **Response** | The sector recommends researching into the nature, extent and location of private roads in New Zealand, their role in moving freight, the costs and benefits of private roads to local economies, and the impact of private roads on state highways and local roading networks. |
| **Related enduring questions** | EQ4.1, EQ4.3 |
| **Activity Stream** | Develop research and capability |

| R4.16 | Improve systems to allow integration of data about investment in road network infrastructure |
|---|---|
| **Purpose** | To improve access to data on investment in New Zealand road network infrastructure |
| **Problem definition and knowledge development opportunity** | Information about the state highway network is available from the NZ Transport Agency, which collaborates with regional authorities to coordinate and administer the National Land Transport Programme (NLTP). Information about local roads that are not part of the NLTP is held in a range of disparate sources, largely local authorities, across New Zealand. This makes accessing information about the total investment profile in public roads a time consuming manual task. |
| **Response** | The sector recommends integrating information on the investment in the public road network using a standardised format, and providing a centralised point of access to the data. |
| **Related enduring questions** | EQ4.1, EQ4.2, EQ4.3, EQ4.4 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R4.17 R | Develop an agreed set of outcome indicators for assessing the Government Policy Statement on Land Transport |
|---|---|
| **Purpose** | To understand the effectiveness of the Government Policy Statement on Land Transport |
| **Problem definition and knowledge development opportunity** | The Government Policy Statement on Land Transport (GPS) is the primary mechanism for setting the strategic direction for land transport policy in New Zealand. It sets out broad activity classes to which funding is allocated. The National Land Transport Programme (NLTP) then uses that funding to purchase outputs in each category of activity class in a way that gives effect to the strategic objectives of the GPS. The NZ Transport Agency undertakes annual assessment of the NLTP regarding how well the NLTP gives effect to the strategic objectives of the GPS. However, no monitoring or evaluation of the GPS itself is undertaken to assess whether the GPS delivers the outcomes that New Zealanders want. |
| **Response** | The sector recommends developing an agreed set of indicators to assess the GPS, without replicating the monitoring and evaluation of the NLTP conducted by the NZ Transport Agency. The focus should be on end outcome indicators that assess (i) whether the results of the prioritisation and activity classes from the GPS are delivering public value, and (ii) how that public value is manifested. |
| **Related enduring questions** | EQ4.2, EQ4.4 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

R= revised

| R4.18 | Research into the non-monetised returns on transport infrastructure investment |
|---|---|
| **Purpose** | To understand the extent to which non-monetised returns from infrastructure investment are realised |
| **Problem definition and knowledge development opportunity** | In addition to the tangible, often monetised, expected returns on investment that are described in business cases for new infrastructure, various non-monetised benefits may also be expected to accrue. These include outcomes like improved safety, reduced risk, or improved accessibility. As with the monetised types of expected returns, the non-monetised types of expected returns are also infrequently monitored and there is little or no information about the rate and extent to which these non-tangible returns are realised. |
| **Response** | The sector recommends researching into the extent to which non-monetised returns on investment in infrastructure are realised. |
| **Related enduring questions** | EQ4.2, EQ9.1 |
| **Activity Stream** | Develop research and capability |

| R4.19 | Improve information on the capacity and use of local roads |
|---|---|
| **Purpose** | To better understand the capacity and utilisation of local roads |
| **Problem definition and knowledge development opportunity** | Local roads comprise 88 percent of the road network by length (with the State highway network making up the other 12 percent), and are operated in a decentralised manner by local authorities. National information about local road capacity and utilisation is not available. |
| **Response** | The sector recommends collecting of information about capacity and utilisation of local roads (including different types of local roads, such as arterial routes, unsealed roads, footpaths and pedestrian or cycle routes). |
| **Related enduring questions** | EQ4.1 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R4.20 | Gather additional data on investment in public transport infrastructure |
|---|---|
| **Purpose** | To capture information on investment in public transport infrastructure |
| **Problem definition and knowledge development opportunity** | Public transport plays a critical part in the wider transport network. Insufficient information is available to understand infrastructure that relates to public modes of transport. The sector expressed the need to collect additional information about public transport infrastructure. This includes information on the levels and types of investment in public transport, service capacity, age and condition of such infrastructure, and geospatial information about the location of such infrastructure. |
| **Response** | The sector recommends investigating into the importance of collection of such information and, if necessary, establishing a data partnership between central and local governments to access, store and publish such information in a consistent and comparable manner. |
| **Related enduring questions** | EQ4.1, EQ4.3 |
| **Activity Stream** | Collect new or additional data |

# Topic 5: Integration and Resilience – Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. Information about land use was deemed to be good at an aggregate level, but poorer at the more detailed level, including urban land use, occupancy rates by land use, secondary land use purposes, and land use over time. |
| 2. Stakeholders agreed that there was very good information about the physical integration of transport infrastructure, but less information about whether the use of transport occurs in an integrated way. |
| 3. This topic focuses more on intangible features of the transport system, such as levels of use and integration, which make it more difficult to conceptualise and measure. While this necessitates a more complex range of information to answer enduring questions, it also makes it more difficult to assess. |

| Summary of findings from the March 2016 workshop | |
|---|---|
| **High-priority initiatives** | |
| R5.1 Develop an agreed sector definition of resilience | 17 |
| R5.2 Integrate transport network and land use data | 18 |

## Recommended initiatives and the assessment results

### Improve data access and publication

None

### Collect new or additional data

Impact | Breadth of application | Strategic value | Right resources

**R5.6 Gather information on Cook Strait passenger and freight volumes** — 77

The needs to preserve commercially sensitive data may limit practicality.

**R5.4 Gather information about passenger congestion at airports** — 96

This may be of high value to a small number of end users.

**R5.5 Gather information about aircraft congestion at airports** — 102

Legislation recently changed to mandate the collection of aircraft movement data to CAA.

### Develop new methods, review or improve current methods and processes

**R5.1 Develop an agreed sector definition of resilience** — 17

This is a required precursor to collecting data and understanding resilience.

### Improve data sharing, integration and governance

**R5.2 integrate transport network and land use data** — 18

Land use information is useful for a range of integration and resilience application. This recommendation is about improving integration between existing separate data (e.g. ONRC and LINZ).

### Collect or develop baseline data or information

**R5.3 Establish baseline information on air transport integration** — 102

This information can help better understand ability to connect (between modes, location and transport purposes).

### Develop research and capability

**R5.7 Conduct research into the integration of seaports with their surrounding environments** — 83

This is an extension of R5.2 with a specific focus on seaports land use and transport integration.

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## Topic 5: Transport integration and network resilience - Details

An integrated and resilient network is a critical factor in allowing the various elements of transport to combine and operate as a "system".

Our stakeholder engagement process identified six broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ5.1 | How is land being used, how does land use affect the transport network, and how is this changing, including modally, regionally and temporally? | Medium |
| EQ5.2 | How well connected are different parts of the transport network, how directly and seamlessly can people and freight get where they need to go, and how are these things changing, including modally, regionally and temporally? | Large |
| EQ5.3 | What are the different types and levels of network congestion, where and when do they occur, what are the causes and effects, and how are these things changing, including modally, regionally and temporally? | Large |
| EQ5.4 | What and where are the strategic corridors, gateways, hubs and supply chains to, from and within New Zealand, what is their capacity and contribution to moving people and freight and how are these things changing, including modally, regionally, and temporally? | Medium |
| EQ5.5 | How effectively do the different transport system planning, governance and investment mechanisms interface, how cohesive are decision making processes and how does this impact on network integration? | Large |
| EQ5.6 | How well prepared is the transport network to respond to changing patterns of demand, and to endure shocks and crises? | Medium |

### *Recommended initiatives*

| R5.1 | Develop an agreed sector definition of resilience |
|---|---|
| **Purpose** | To better measure resilience |
| **Problem definition and knowledge development opportunity** | The transport system needs to be able to respond to shocks, crises and changing demands in a 'resilient' way. There is currently no sector agreement on how to define the concept of resilience, and no common understanding about how it applies at different levels within the transport system. The concept of resilience has many different applications with respect to transport, and further work is needed to articulate and describe what these might be. Once agreement is reached, consideration should be given to developing and publishing key performance indicators that can be used to assess resilience on an ongoing basis. |
| **Response** | The sector recommends developing a framework to articulate the concepts of resilience::<br>• operational resilience, such as network recovery from incidents or crises;<br>• strategic resilience, such as sustainable planning, and the ability for the network to accommodate changes in demand for different types of transport;<br>• fiscal resilience, such as the ability to accommodate changes in funding levels;<br>• resilience to disruptive change, such as the impact of new technology; and<br>• environmental resilience, such as the ability to prepare for the effects of climate change. |
| **Related enduring questions** | EQ5.6 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

## Aviation

| R5.2 | Integrate transport network and land use data |
|---|---|
| **Purpose** | To better understand how land is used |
| **Problem definition and knowledge development opportunity** | The way land is used is critical to understanding questions of integration and resilience and helps to frame or define the transport task. The integration issue is largely about how effectively transport enables links between different locations to occur. There are several deficiencies in the way that land use data is reported:<br>• Land use data is not available at a more specific level of detail to cater for a diverse range of transport requirements within a single land use zone (such as rural, industrial and residential)<br>• Land use data does not include broad categorisation of industry as an additional data layer (e.,g. rural dairy farming versus rural forestry) to help identify different transport requirements for different industries<br>• Information about secondary land uses is not captured or recorded to help fully understand the transport requirements of a particular location<br>• Land transport network is defined or classified differently in different regions due to differences in the way that land use classifications or network coding decisions have been administered<br>• Network data (e.g. One Network Road Classification being developed by NZ Transport Agency) is not readily or easily comparable with land use data (mainly held at Land Information New Zealand) as they are held in different and disparate systems. |
| **Response** | The sector recommends enhancing the data on how land is used by different industries, any substantive secondary uses of land, and information about populations demographics (in so far as it is useful to help define and understand the transport requirements for particular areas).<br>In addition, the sector also recommends improving the way how roads are classified across regional and jurisdictional boundaries by continuing work on the One Network Road Classification and integrating road network and land use data to allow a high degree of insight about levels of integration. |
| **Related enduring questions** | EQ5.1, EQ5.2, EQ5.4, EQ5.5, |
| **Activity Stream** | Improve data sharing, integration and governance |

| R5.3 | Establish baseline information on air transport integration |
|---|---|
| **Purpose** | To understand the levels of integration within and between air transport and other modes |
| **Problem definition and knowledge development opportunity** | The concept of integration is used to describe the ability to connect between modes of transport and is an important consideration for all modes of transport. The commercial aviation sector requires a high degree of integration to operate (e.g. code share of aviation services and interface with navigation and airport services). While such information may be held by commercial operators, they are not publicly available. In addition to integration within the aviation sector, there is also a need to understand integration between air transport and other modes and locations. |
| **Response** | The sector recommends establishing baseline information to assess the levels of integration within aviation sector. The sector recommends establishing a data partnership with commercial operators (in consultation with Statistics New Zealand) to gain access to integrated aviation services. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data.<br>The sector also recommends establishing baseline information to assess the levels of integration between air transport and other modes. This may require information about airport catchment areas, the demand for air transport from passengers and freight and the types of connections available to passengers to get to and from airports. |
| **Related enduring questions** | EQ5.2 |
| **Activity Stream** | Collect or develop baseline data or information |

| R5.4 | Gather information about passenger congestion at airports |
|---|---|
| **Purpose** | To better understand passenger congestion at airports |
| **Problem definition and knowledge development opportunity** | Information about the ability of the network and its parts to accommodate traffic flows and deal with congestion is important for answering questions about integration and resilience. |
| **Response** | The sector recommends gathering information on passenger flows through airports and any resulting congestion to provide additional insight to integration and resilience of the aviation network. This includes total passenger numbers passing through airports and average wait times that passengers experience for check in, security screening, baggage claim and egress via car parks and public transport for key strategic airports, such as international and major domestic airports. |
| **Related enduring questions** | EQ5.3 |
| **Activity Stream** | Collect new or additional data |

| R5.5 | Gather information about aircraft congestion at airports |
|---|---|
| **Purpose** | To better understand aircraft congestion at airports |
| **Problem definition and knowledge development opportunity** | Information about the ability of the network and its parts to accommodate traffic flows and deal with congestion is important for answering questions about integration and resilience. |
| **Response** | The sector recommends gathering information about aircraft capacity and congestion at airports. This includes information on the numbers of aircraft that land at airports in a given period, information about delayed landings due to congestion, or a utilisation rate that expresses levels of aircraft throughput relative to capacity. A logical starting point would be to establish such information for key strategic airports, such as international and major domestic airports. |
| **Related enduring questions** | EQ5.3 |
| **Activity Stream** | Collect new or additional data |

## Maritime

| R5.6 | Gather information on Cook Strait passenger and freight volumes |
|---|---|
| **Purpose** | To better understand Cook Strait passenger and freight movements |
| **Problem definition and knowledge development opportunity** | The Cook Strait is a critical strategic corridor in New Zealand's transport system. if this key strategic link in the transport network is not well integrated it has the potential to act as a bottle neck between inter-island transport, introducing cost and inconvenience. Information on Cook Strait passenger and freight movements is currently collected by operators but is not publicly available. |
| **Response** | The sector recommends establishing a data partnership with commercial operators (in consultation with Statistics New Zealand) to gain access to Cook Strait passenger and freight data. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data. This recommended initiative should be combined with R2.10 and R3.12. |
| **Related enduring questions** | EQ2.1, EQ3.2, EQ5.4 |
| **Activity Stream** | Collect new or additional data |

| R5.7 | Conduct research into the integration of seaports with their surrounding environments |
|---|---|
| **Purpose** | To better understand how ports are integrated with their surrounding environments |
| **Problem definition and knowledge development opportunity** | In addition to recommended initiative R5.2, the sector identified the following information gaps around integration of seaports (or hereinafter, ports) with their surrounding environments:<br>• identify how land use in areas surrounding ports contributes to the freight task in different areas and regions<br>• examine how able ports are to meet the freight demand that is generated from their surrounding hinterlands<br>• identify any strengths and weaknesses to the national economy and to regional economies from the integration of ports with their surrounding environments<br>• identify how land zoning decisions for areas adjacent to ports are made, and the extent to which these decisions promote integration and resilience of ports with their immediate surrounds<br>• identify how ports integrate with the road and rail networks, and the extent to which this allows freight from neighbouring regions to reach ports. |
| **Response** | The sector recommends researching into the integration of ports with their surrounding environments to cover the items listed above. |
| **Related enduring questions** | EQ5.2, EQ5.4 |
| **Activity Stream** | Develop research and capability |

# Topic 6: Funding and Revenue - Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. It was noted that while the costs of using the transport system are largely borne by businesses and consumers, this is of interest to policy makers who need information to understand the price signals that different policy options may send, and the types of behaviours policy options may incentivise. |
| 2. Basic financial information is available where commercial operators provide parts of the transport network, however this information is increasingly limited in its specificity and accessibility the more commercial the sector is. At the same time, our "need to know" this information decreases the more commercial the sector is, so this lack of specificity and accessibility does not necessarily prevent us from knowing what we need to. |

| Summary of findings from the March 2016 workshop | | |
|---|---|---|
| **High-priority initiatives** | | |
| R6.8 | Improve access to information on the costs of providing, operating and maintaining the rail network | 5 |
| R6.2 | Establish baseline information on the costs of providing, operating and maintaining the transport network | 24 |
| **Medium-priority initiatives** | | |
| R6.9 | Develop a profile of the costs of using private motor vehicles | 37 |
| R6.3 | Conduct research into where and how the incidence of transport related costs are borne | 46 |

## Recommended initiatives and the assessment results

### Improve data access and publication

Impact | Breadth of application | Strategic value | Right resources

**R6.8 Improve access to information on the costs of providing, operating and maintaining the rail network** — 5

This is part of R6.2 and relates to the 2005 STCC work. This requires making data more accessible and publically available while maintaining the privacy of commercially sensitive data.

**R6.7 Develop industry summary reports on seaports** — 64

This requires collating disparate sources into a single source. This covers financial performance, pot condition, capacity and utilisation.

**R6.6 Develop performance summary reports on the airport industry** — 99

This will be partially met by recent regulatory changes.

### Collect new or additional data

**R6.5 Gather additional information on the total costs of air travel for passengers** — 99

Low impact outside of identified policy needs

### Develop new methods, review or improve current methods and processes

**R6.4 Improve the way that information on aviation passenger levies is collected** — 90

Currently collected by Avsec for invoicing but not suitable for publication

### Improve data sharing, integration and governance

**R6.1 Supplement revenue data with industry data to enable industry level analysis of revenue** — 108

This is about establishing methods to track where transport fees and levies are paid within industries.

### Collect or develop baseline data or information

**R6.9 Develop a profile of the costs of using private motor vehicles** — 37

Should not just be confined to private vehicles

### Develop research and capability

**R6.2 Establish baseline information on the costs of providing, operating and maintaining the transport network** — 24

This covers all modes and ownership arrangements and relates to the 2005 STCC work.

**R6.3 Conduct research into where and how the incidence of transport related costs are borne** — 46

How public and private costs are covered directly and indirectly

H

M

L

## Topic 6: Funding and Revenue - Details

Building infrastructure is a large source of the cost associated with transport across all modes. The transport system also generates significant revenues, particularly for the Crown, but also for other groups. This topic covers the cost of transport provision and use as well as funding and revenue.

Our stakeholder engagement process identified four broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ6.1 | What are the costs of providing, maintaining and operating New Zealand's transport system, by whom and in what proportions are these costs borne, and how is this changing, including modally, regionally and temporally? | Medium |
| EQ6.2 | What are the costs of using New Zealand's transport system, where, when, how and in what proportions are these costs borne, and how is this changing, including modally, regionally and temporally? | Medium |
| EQ6.3 | How much revenue does New Zealand's transport system generate, what are its sources, flows and destinations, how and for what purposes is it used and how are these things changing, including modally, regionally and temporally? | Medium |
| EQ6.4 | How sustainable are current funding and revenue-generating mechanisms and how well placed are these to meet future needs? | Medium |

### *Recommended initiatives*

| R6.1 | Supplement revenue data with industry data to enable industry level analysis of revenue |
|---|---|
| **Purpose** | To understand the make up of the transport revenue by industry |
| **Problem definition and knowledge development opportunity** | There are many fees and levies paid by transport operators across the transport system. These include Road User Charges, Air Passenger Levies and Maritime oil pollution levies. The revenue from these fees and levies is used to recover some of the cost associated with regulation and administration of the transport system. The financial accounting systems in place to track and process the payment of fees and levies means that there is good information available on the amount of fees and levies charged. However, it is not currently possible to identify the levies paid by specific industries. |
| **Response** | The sector recommends supplementing current data on revenue from fees and levies with industry data to enable analysis of contribution to crown transport revenue from payment of fees and levies by industry. |
| **Related enduring questions** | EQ6.3 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R6.2 | Establish baseline information on the costs of providing, operating and maintaining the transport network |
|---|---|
| **Purpose** | To understand the costs of providing, operating and maintaining the transport network in New Zealand |
| **Problem definition and knowledge development opportunity** | Good information about the total costs of operating the state highway network is available. Less information is available about the total costs of providing, operating and maintaining local roads provided by local government, and the rail network. Information about the costs of providing, operating and maintaining air transport and maritime transport are held by commercial operators and are unavailable to inform policy decisions. |
| **Response** | The sector recommends researching into the total costs of providing, operating and maintaining the transport network in New Zealand. A starting point may be to examine the costs to the crown and taxpayers, and consideration should be given to whether there is scope for increasing the breadth of enquiry to include the costs to all operators of transport services. This recommended initiative should be implemented with R4.4 and R6.8. |
| **Related enduring questions** | EQ6.1, EQ6.4, EQ9.1 |
| **Activity Stream** | Develop research and capability |

| R6.3 | Conduct research into where and how the incidence of transport related costs are borne |
|---|---|
| **Purpose** | To understand where and how the incidence of transport related costs are borne |
| **Problem definition and knowledge development opportunity** | The existence of a cost is different from who pays it. In an economic sense, transport is often a cost of production that may be passed on to consumers or may be absorbed by the producer. Where a producer absorbs the cost, then the producer bears the incidence of the cost. Limited information is available about where the incidence of transport related costs are borne. There is also limited information about where the incidence of government imposed transport costs, such as fees, taxes and levies, are borne. |
| **Response** | The sector recommends that research should be conducted into the following areas:<br>• where and how transport as a cost of production in the wider economy is borne by industries, producers and consumers<br>• where and how government imposed costs (such as taxes, fees and levies) on transport are borne, distinguishing between the productive sector of the economy as well as households. |
| **Related enduring questions** | EQ6.2, EQ6.4, EQ9.2 |
| **Activity Stream** | Develop research and capability |

## Aviation

| R6.4 | Improve the way that information on aviation passenger levies is collected |
|---|---|
| **Purpose** | To better understand domestic aviation passenger travel |
| **Problem definition and knowledge development opportunity** | As noted under recommended initiative R2.9, the sector lacks sufficient information about the way in which people use domestic air transport to inform planning and investment decisions. Current regulations allow commercial operators to forward passenger levies[7] they have collected to the Civil Aviation Authority (CAA) in aggregated form for a given period (e.g. monthly). While this is an efficient system for collecting revenue, its potential statistical value is not fully realised. If additional passenger details were required to support the payment of passenger levies, it would enable a much greater level of insight into the use of domestic air passenger travel. |
| **Response** | The sector recommends expanding collection of information on air passenger levies to include a breakdown of passenger levies by route and day. This may involve establishing a data partnership with commercial operators (in consultation with Statistics New Zealand) to developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data. |
| **Related enduring questions** | EQ6.4 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R6.5 | Gather additional information on the total costs of air travel for passengers |
|---|---|
| **Purpose** | To understand the total costs of air travel for passengers |
| **Problem definition and knowledge development opportunity** | Air ticket prices are comprised of many different components, including airfare, passenger levies, landing fees charged by airports, taxes and other charges. While the total cost is relatively obvious to passengers, there is currently very little information available that allows policy makers, regulators and the general public to understand the components of the total cost of an air ticket. Ongoing monitoring over time will allow policy makers to assess the impact of different policy options on the cost profile of an air ticket, as well as being informative to the general public. |
| **Response** | The sector recommends collecting and publishing information on the component costs of air tickets, and their breakdown in an on-going basis. |
| **Related enduring questions** | EQ6.2, EQ9.2 |
| **Activity Stream** | Collect new or additional data |

[7] Every commercial aircraft operator in New Zealand, that carries more than 20,000 passengers per year, must pay a passenger levy for each passenger they carry. The cost of this passenger levy is usually included in the total ticket price, collected by the operator, and passed on to the Civil Aviation Authority (CAA).

| R6.6 | Develop performance summary reports on the airport industry |
|---|---|
| **Purpose** | To understand the performance of the airport industry |
| **Problem definition and knowledge development opportunity** | Many of New Zealand's airports are owned and operated by commercial operators such as private companies or Council Controlled Organisations. They are monitored by the Commerce Commission, or where a significant public shareholding exists (such as in the case of Council Controlled Organisations), by the Treasury's Crown Ownership Monitoring Unit (COMU). A wide range of information is collected in order to monitor airport performance. The performance information is publicly available, often in PDF format from the Commerce Commission or COMU websites. This format makes collecting and synthesising airport performance information a time consuming and manual task. |
| **Response** | The sector recommends making airport industry performance information more readily accessible with a single point of access. This might take the form of an annual performance summary report for the airport industry. |
| **Related enduring questions** | EQ4.1, EQ4.3, EQ5.3 |
| **Activity Stream** | Improve data access and publication |

## Maritime

| R6.7 | Develop industry summary reports on seaports |
|---|---|
| **Purpose** | To better understand port industry performance in New Zealand |
| **Problem definition and knowledge development opportunity** | To supplement port capacity and utilisation information (R4.8), the sector needs information on the financial performance of the port industry. This information would be useful for comparison of domestic and international port industry performance. A range of financial information currently exists, but this information is kept in disparate sources (from individual port companies' websites or from local councils or from market disclosure information). This makes collecting information about port performance a manual and time consuming task. |
| **Response** | The sector recommends collating and combining port financial performance information in the public domain with information about port condition, capacity and utilisation rates to produce a regular port industry summary report. |
| **Related enduring questions** | EQ4.1, EQ4.2, EQ4.4 |
| **Activity Stream** | Improve data access and publication |

## Rail

| R6.8 | Improve access to information on the costs of providing, operating and maintaining the rail network |
|---|---|
| **Purpose** | To better understand the costs of providing, operating and maintaining the rail network |
| **Problem definition and knowledge development opportunity** | In New Zealand, rail infrastructure is owned and operated by a single provider – KiwiRail. Due to the commercial nature of KiwiRail's operation limited information is available on the costs of providing, operating and maintaining the rail network. |
| **Response** | The sector recommends establishing a data partnership between the Ministry of Transport, the NZ Transport Agency and KiwiRail (in consultation with Statistics New Zealand) to gain access to information about the costs of providing, operating and maintaining the rail network. This involves developing an approach that generates benefits to all parties, while maintaining the privacy of commercially sensitive data. This recommended initiative should be implemented with R4.11 and R6.2. |
| **Related enduring questions** | EQ6.1, EQ6.4, EQ9.2 |
| **Activity Stream** | Improve data access and publication |

## Road

| R6.9 | Develop a profile of the costs of using private motor vehicles |
|---|---|
| **Purpose** | To better understand the costs of using private motor vehicles |
| **Problem definition and knowledge development opportunity** | Motorists face a range of costs associated with operating private motor vehicles. Policy decisions may need to consider the impact of price signals on consumer choices and behaviour. Without understanding how the total cost of using private motor vehicles is comprised, it is difficult to assess how changes to the configuration of taxes, fees and levies may be used to encourage different behaviours. |
| **Response** | The sector recommends developing the cost profiles for different groups of private motor vehicle users on the total costs of operating a private motor vehicle under a range of use patterns, as well as a breakdown of the component parts of those costs |
| **Related enduring questions** | EQ6.2, EQ9.2 |
| **Activity Stream** | Collect or develop baseline data or information |

# Topic 7: Regulation – Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. Regulatory behaviour describes all efforts made to influence the behaviour of transport users or operators. It extends beyond legislative types of regulation into things like training, provision of information, education and social marketing. This topic specifically excludes economic regulation which is captured under the economy topic. |
| 2. The sector has a very high degree of information about 'what' regulations apply to transport in New Zealand, but less about costs and benefits of regulation or how effective regulations are. |
| 3. Regulation of the aviation sector is moving towards a more risk based regulatory approach, where the focus of regulatory activity becomes more about emerging issues and risks to safety, and less about process driven application of rules. This will require increased monitoring of safety outcomes over time to identify emerging risks, and will also require information on a case by case basis to understand the causes of trends, and the most appropriate response type. |
| 4. The ability for the sector to identify benefits from regulation is limited when those benefits accrue in other sectors, such as the health sector. For example, while a particular regulation results in fewer crashes, but the benefit cannot be traced through to the cost saving from treating fewer injuries in the health system, or to the increase in wellbeing. |

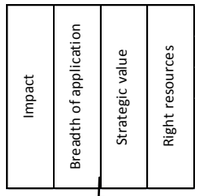
| Summary of findings from the March 2016 workshop | |
|---|---|
| **High-priority initiatives** | |
| None | |
| | |
| | |
| **Medium-priority initiatives** | |
| R7.4 Develop a national picture of maritime regulations | 59 |
| | |
| | |
| | |

## Recommended initiatives and the assessment results

### Improve data access and publication

None

### Collect new or additional data




**R7.2 Consolidate information on non-legislative regulatory effort** — 105

It is difficult to see how one would usefully consolidate information about these, and what could be usefully inferred from such consolidated information.

### Develop new methods, review or improve current methods and processes

**R7.1 Improve monitoring and evaluation of transport regulatory effectiveness** — 63

The potential tangible benefits from this could be high for a limited range of applications. However, the practicality is low and it would involve a significant culture change, and probably up-skilling of staff.

### Improve data sharing, integration and governance

**R7.5 R Enhance infringement management operational systems to enable statistical interrogation** — 63

This is a very specific issue.

### Collect or develop baseline data or information

None

### Develop research and capability

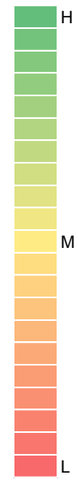
**R7.4 Develop a national picture of maritime regulations** — 59

This may be of interest to a small number of users only.

**R7.3 Conduct research into attitudes and behaviours towards regulation** — 74

There may be value to understanding buy-in from individuals or businesses especially if it can generate comparative information across different regulations in order to identify changes in attitudes. However, there is potential political risk and considerable resource implications.

R = revised



## Topic 7: Regulation - Details

Transport has the potential to create harms as well as benefits. Regulatory frameworks can minimise risky types of vehicles, behaviours and operations.

There is a wide range of regulations applying to vehicles across modes, as well as regulations around use of the various transport networks. Information about the levels of awareness of these regulations coupled with information about the rates and frequency of breaches and the costs and benefits of regulations provide a rich understanding of how effective particular regulatory regimes are at reducing harms. Understanding the likely costs and benefits of regulation also allows us to make informed judgements and decisions about the efficiency of the regulatory environment at a macro level.

Our stakeholder engagement process identified three broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ7.1 | What regulations apply to transport services operating in New Zealand, what are the costs and benefits of different regulations, how effective are different regulatory frameworks, and how are these things changing, including, modally, regionally and temporally? | Medium |
| EQ7.2 | To what extent are transport users and operators aware of rules and regulations, and how are these things changing, including modally, regionally and temporally? | Medium |
| EQ7.3 | How often are rules and regulations breached by transport users and operators, what is the impact of breaches, and how is this changing, including demographically, modally, regionally, and temporally? | Medium |

### *Recommended initiatives*

| R7.1 | Improve monitoring and evaluation of transport regulatory effectiveness |
|---|---|
| **Purpose** | To better understand transport regulatory effectiveness |
| **Problem definition and knowledge development opportunity** | The sector has good information about the regulations that are in effect and the costs of administering them but limited information about how effective these regulations are. Good information is also produced in Regulatory Impact Statements about the expected impact of new regulations, but monitoring and evaluation of whether these expectations were met is not regularly undertaken. |
| **Response** | The sector recommends monitoring and evaluating the effectiveness of regulatory efforts. This may include developing key performance indicators to assess the chain of causality from inputs, through to regulatory outputs, impacts and intermediate and end outcomes. It should also include an assessment of regulatory 'fitness for purpose', or in other words an assessment of whether a given regulation is having its intended effect, and whether it represents value for money. |
| **Related enduring question** | EQ7.1 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R7.2 | Consolidate information on non-legislative regulatory effort |
|---|---|
| **Purpose** | To understand the range of non-legislative efforts undertaken by regulatory agencies |
| **Problem definition and knowledge development opportunity** | Non-legislative regulatory effort includes things such as social marketing, education and information provision. These types of effort are undertaken with the intention of raising awareness and increasing understanding of – and ultimately compliance with – legislatively based regulations. Information about this type of non-legislative regulatory effort is not well understood other than at individual project level, so there is no transport sector wide perspective on the total cost or effectiveness. |
| **Response** | The sector recommends collecting and publishing information on non-legislative regulatory effort by individual agencies. This should include information on the scope of non-legislative regulatory effort undertaken across modes of transport, the cost of non-legislative regulatory effort, and information about its effectiveness. |
| **Related enduring question** | EQ7.1 |
| **Activity Stream** | Collect new or additional data |

| R7.3 | Conduct research into attitudes and behaviours towards regulation |
|---|---|
| **Purpose** | To understand attitudes and behaviours towards regulations |
| **Problem definition and knowledge development opportunity** | Public policy outcomes are the result of a discourse between the policy choices government makes and the public's considered reaction to those choices. To understand the effectiveness of regulations, it is necessary to understand individual attitudes and behaviours towards regulation. |
| **Response** | The sector recommends researching into the following aspects:<br>• public awareness – understand whether people know about a given regulation<br>• public attitudes – understand what people think about regulation<br>• public behaviour – understand people what actually do in response to a given regulation.<br>Together with monitoring and evaluative information about regulatory effectiveness (R7.1), this should provide a sound basis for more targeted education and enforcement of regulation. |
| **Related enduring question** | EQ7.1, EQ7.2, EQ7.3 |
| **Activity Stream** | Develop research and capability |

## Maritime

| R7.4 | Develop a national picture of maritime regulations |
|---|---|
| **Purpose** | To develop a national picture of maritime regulations |
| **Problem definition and knowledge development opportunity** | Nationally, New Zealand has a minimum set of regulations that apply to the maritime sector. In addition, local authorities are empowered to make additional regulations. This has led to a situation where different regulations apply in different locations. There is no single picture of the regulations that apply throughout New Zealand, and to identify regulations in effect in a given area an interested person must approach each authority to seek information. |
| **Response** | The sector recommends developing a national picture of maritime regulations. This might be as simple as a stocktake of national regulations that is reported annually. |
| **Related enduring question** | EQ7.1 |
| **Activity Stream** | Develop research and capability |

## Road

| R7.5 R | Enhance infringement management operational systems to enable statistical interrogation |
|---|---|
| **Purpose** | To enhance operational systems to enable statistical interrogation |
| **Problem definition and knowledge development opportunity** | The New Zealand Police use two systems to track infringements:<br>• The NZ Police infringement management system - an operational system used to track and process infringement notices issued by police for minor driving offences (such as low level speeding)<br>• The National Intelligence Application links with the Ministry of Justice - used to coordinate court summonses and appearances.<br>Because the infringement management system is an operational system largely designed to help manage workflows and process infringement notices, it cannot be used to conduct statistical analyses. While it is possible to identify high level information, such as the total number of infringements issued in a given year, much of the data of interest to policy makers is not available at the right level of detail to be of use. For example, while information about the total number of vehicle impoundments nationwide would be useful to inform evaluation of the new 'boy racer' legislation, it is not available from the NZ Police infringement system. |
| **Response** | The sector recommends reviewing the key items of statistical interest that are held in the NZ Police infringement system and identifying how this information can be made more accessible. Consideration should be given to the possibility of developing the capability to extract data from this system for purposes of statistical analyses. This may require a one-off project to be established to identify the data required, test feasibility, and design and implement a solution. |
| **Related enduring question** | EQ7.3 |
| **Activity Stream** | Improve data sharing, integration and governance |

R = revised

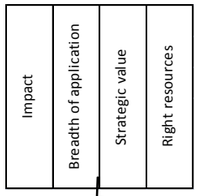
# Topic 8: Workforce – Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. This topic was identified to have fewer information requirements and fewer gaps. |
| 2. Information about the workforce is required to inform safety regulation and workforce planning decisions. Beyond this, information needed to answer enduring policy questions is limited. |
| 3. Very detailed information exists for particular pockets of the workforce, such as border security or aviation. However, this is not consistent across the transport sector. |
| 4. There is a lack of clarity about how the transport workforce is defined. In some instances it is defined as those with a particular transport qualification, in other instances it is defined as those who are working in the transport sector (regardless of whether they hold a qualification). |
| 5. The information required to understand the transport workforce seems to be collected, but it is not connected or accessible in a way that allows us to answer the questions that we have |

| Summary of findings from the March 2016 workshop | |
|---|---|
| **High-priority initiatives** | |
| None | |
| | |
| | |
| **Medium-priority initiatives** | |
| R8.1 Develop transport industry workforce profiles | 49 |
| | |
| | |
| | |

## Recommended initiatives and the assessment results

### Improve data access and publication




**R8.6 Improve access to data on certificated seafarers and develop industry workforce profiles** — 89

Of use to maritime industry and training providers. There is a potential issue around protecting privacy.

### Collect new or additional data

**R8.3 Gather data on aviation workforce ethnicity** — 112

While of value in understanding workforce demographic changes (but only 1 aspect), it was unclear how it helped ensure effective workforce planning. This could be covered by R8.1, which is across all transport modes.

### Develop new methods, review or improve current methods and processes

**R8.4 Improve understanding of demand for and supply of aviation workforce** — 99

R8.5 can address strategic economic implications (e.g. recruitment of foreign nationals) of aviation licensing better and this could be subsumed into R8.5.

### Improve data sharing, integration and governance

None

### Collect or develop baseline data or information

**R8.7 Develop baseline information on the risk-profile of the owner-operator and employed workforces** — 106

This dataset will support work on labour and skills, investment and innovation uptake. However, result may not result in distinguishable groups, so tangible benefit may be limited.

### Develop research and capability

**R8.1 Develop transport industry workforce profiles** — 49

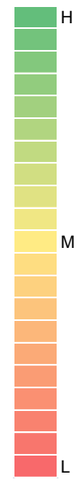
This can help understand changes in demographics over time and identify risk of labour and skill shortages. Three of the six pieces of information required could be difficult to obtain.

**R8.2 Conduct research into the transport workforce's uptake and use of technology** — 87

This has little tangible benefit and is too specific. It may be worth reframing this to focus on the impact of technology on the workforce.

**R8.5 Conduct research into aviation workforce training and retention rates** — 90

Of value to the training sector but this is quite a specific focus. There is also an issue with coverage (i.e. does this include New Zealand workforce only?).



## Topic 8: Workforce - Details

It is important to have a sound understanding of the transport workforce requirements. Around 80,000 people are employed in the New Zealand transport system. The range of transport related occupations is vast. To operate the transport system effectively requires a workforce with sufficient capability and capacity to design, build and maintain infrastructure, operate, maintain and service vehicles, coordinate logistics and navigate routes, provide security screening, serve passengers, crew vessels, load and unload vehicles and much more. Shortages in one area can impact on the ability of the entire transport system to operate effectively.

A good understanding of the demographic profile of the transport workforce including age, skill level and distribution is also required as well as clarity on the situations and occupations where operators must be licensed.

Our stakeholder engagement process identified three broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ8.1 | What are New Zealand's transport workforce requirements, how are these met by domestic and international sources of labour, in what roles and locations do workforce shortages exist, and how are these things changing, including demographically, modally, regionally and temporally? | Medium |
| EQ8.2 | What are the demographic features of the domestic and international workforce, what skills are possessed by the workforce, and how are these things changing, including modally, regionally, temporally and across roles? | Medium |
| EQ8.3 | What transport workforce planning is conducted, and how is New Zealand placed to address skills shortages, to train and up-skill its transport workforce, and how are these things changing, including modally, regionally, temporally and across roles? | Medium |

## *Recommended initiatives*

| R8.1 | Develop transport industry workforce profiles |
|---|---|
| **Purpose** | To better understand demand for labour in the transport system |
| **Problem definition and knowledge development opportunity** | Information on the transport workforce is limited. Employment statistics produced by Statistics NZ include a "transport, postal and warehousing" classification. This provides only an aggregate number for those employed in this industry and does not include the many transport-related types of employment, such as road engineering and construction, port workers, administration and enforcement of regulation and vehicle inspections. |
| **Response** | The sector recommends that transport industry workforce profiles be developed. Apart from total number of people employed in the transport industry, additional information to collect include:<br>• employment in specific sub industries within the wider transport sector, such as construction, agricultural transport, professional drivers, navigation and logistics and transport administration<br>• the qualifications, skills and experience of the transport workforce<br>• the demographic profile of the transport workforce (age, sex, socioeconomic status, etc)<br>• the 'absentee' workforce (those who hold a transport workforce qualification but are working in a different industry or are based offshore)<br>• employment status (e.g. owner-driver versus employee)<br>• health, safety and wellbeing of the transport workforce, such as accident rates and health outcomes. |
| **Related enduring question** | EQ8.2 |
| **Activity Stream** | Develop research and capability |

| R8.2 | Conduct research into the transport workforce's uptake and use of technology |
|---|---|
| **Purpose** | To understand the uptake and use of technology by the transport workforce |
| **Problem definition and knowledge development opportunity** | Technology is transforming the transport sector, and will continue to do so for the foreseeable future. In order to leverage maximum value from technological change, it is important that the transport workforce is able and willing to adopt new technology. The demographic features of the transport workforce may present a barrier to the adoption of new technology, which in turn may affect the ability of the transport sector to harness efficiencies. Further investigation is required into the demographic features of the transport workforce, and its disposition to the use of new technology. |
| **Response** | The sector recommends researching into the transport workforce's uptake and use of new technology. This should include investigation of whether any barriers prevent the transport workforce from adopting new technology, and should compare rates of uptake across sub-industries within the transport workforce. |
| **Related enduring question** | EQ8.2 |
| **Activity Stream** | Develop research and capability |

## Aviation

| R8.3 | Gather data on aviation workforce ethnicity |
|---|---|
| **Purpose** | To understand workforce demographic changes in the aviation sector |
| **Problem definition and knowledge development opportunity** | To operate within New Zealand's civil aviation system, individuals and organisation must be granted an aviation document. These aviation documents (certificates, licenses and suchlike) are issued by the Civil Aviation Authority (CAA) and recognise that an operator has met the minimum requirements for training and experience. In issuing aviation documents, the CAA collects personal information about document holders used to administer the Civil Aviation Act and associated rules. While this information is primarily collected for administrative purposes, it also has significant potential to inform statistical analyses, providing that privacy of personal information is maintained. Ethnicity information is not collected by the CAA in the course of issuing aviation documents. Ethnicity data is not required in order to issue aviation documents, but it would have significant value to policy makers and safety regulators in understanding workforce demographic changes, and ensuring effective workforce planning. |
| **Response** | The sector recommends collecting information on the ethnicity of aviation document holders, for example, by updating the application form for aviation documents to require ethnicity information. |
| **Related enduring question** | EQ8.2 |
| **Activity Stream** | Collect new or additional data |

| R8.4 | Improve understanding of demand for and supply of aviation workforce |
|---|---|
| **Purpose** | To understand the demand for and supply of aviation workforce |
| **Problem definition and knowledge development opportunity** | There is limited information about the flow of certificated aviation workers to, from and around New Zealand. The flow of workers was seen as an important factor to understand from a safety regulation perspective. There may be certain risks that emerge when the sources of skilled aviation labour occur and workers who trained under overseas jurisdictions with different rules or standards enter the New Zealand aviation system. Such a situation may require a particular regulatory response or focus from aviation regulators. Without information about where labour is sourced, it is not possible to understand the full range of risks that may require a regulatory response. |
| **Response** | The sector recommends improving modeling of the demand for and supply of aviation workforce to provide greater insight to the demand for certificated aviation workers. |
| **Related enduring question** | EQ8.1, EQ8.3 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

| R8.5 | Conduct research into aviation workforce training and retention rates |
|---|---|
| **Purpose** | To understand training and retention in the New Zealand aviation sector |
| **Problem definition and knowledge development opportunity** | New Zealand trains a large number of aviation workers, particularly pilots, each year, yet no information is available on how our investment as a country translates into retention of New Zealand trained pilots. |
| **Response** | The sector recommends researching into the rates at which New Zealand trained aviation workers are employed in New Zealand or overseas, which overseas countries New Zealand trained aviation workers are employed in, and how this compares to other countries internationally. |
| **Related enduring question** | EQ8.3 |
| **Activity Stream** | Develop research and capability |

## Maritime

| R8.6 | Improve access to data on certificated seafarers and develop industry workforce profiles |
|---|---|
| **Purpose** | To understand seafarers industry workforce profile |
| **Problem definition and knowledge development opportunity** | Maritime NZ issues seafaring certificates to individuals employed in maritime industries. As the current system used to store and manage information about certificated seafarers were developed solely for the purposes of administering certificates, it does not have built-in statistical functions to allow better utilisation of such data. However, Maritime NZ alerts that its new SeaCert system will include the capability to provide statistical reports on certificated seafarers. |
| **Response** | The sector recommends developing and regularly publishing maritime industry workforce summary profiles. Such profiles might include the number of certificated seafarers that hold each class of certificate and demographic information about certificated seafarers, such as age, sex, geographic location, ethnicity and qualifications held. |
| **Related enduring question** | EQ8.2 |
| **Activity Stream** | Improve data access and publication |

## Road

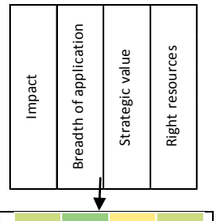
| R8.7 | Develop baseline information on the risk-profiles of the owner-operator and employed workforces |
|---|---|
| **Purpose** | To better understand the risk profiles of the owner-operator and employed workforces |
| **Problem definition and knowledge development opportunity** | Road transport owner-operators who own and drive their own vehicles may be affected by different commercial imperatives than the employed transport workforce. Owner-operators may also be subject to a different set of incentives than employed road transport workers. In particular:<br>• They need to bear any costs associated with observing or breaching rules and regulations (such as taking rest breaks), and this may influence the frequency with which rules and regulations are followed or observed.<br>• They are more likely to work longer hours to compete with other providers due to small profit margins in the road freight industry.<br>• Owner-operators require a significant capital investment in their business. Due to their commitment, they are likely to have higher levels of truck operation experience compared to other employed drivers.<br>• Some employed transport workers are seasonal workers who may have a varying degree of experience and qualifications, which will affect their risk profiles.<br>Each of these factors may result in specific risk factors or profiles applying to each of the owner-operator and employed road transport workforce groups. |
| **Response** | The sector recommends collecting baseline information on the risk profiles of each of the owner-operator and employed-driver groups as a basis for targeting regulatory and enforcement effort. As a starting point, it is necessary to assess whether data integration might provide the required information. Important data sources might include, tax and income data, ACC data, health data, NZ Police, Motor Vehicle Register and Drivers License Register. |
| **Related enduring question** | EQ8.2 |
| **Activity Stream** | Collect or develop baseline data or information |

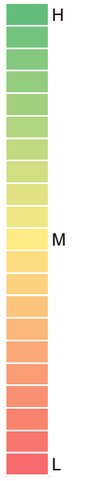
# Topic 9: Economy – Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. The sector sees the need to develop robust economic modelling to be more important than the availability of data because many effects transport has on the economy cannot be directly measured.<br>2. There were some data gaps identified, but even if these were filled, the sector would still struggle to answer enduring questions because:<br>• Inconsistent assumptions and frameworks exist that allow us to utilise existing data to the fullest extent.<br>• While it is easy to quantify some benefits, it becomes harder to quantify them at a network / NZ Inc level, or to isolate the benefits of transport at a macroeconomic level.<br>3. Stakeholders identified that a large amount of the information required to answer questions about the size and distribution of economic costs and benefits are held by commercial operators. It was agreed that the lack of formalised partnerships with industry groups constrained our ability to access data that could be used to answer questions.<br>4. Stakeholders suggested that information about transport and the economy was more likely to be required on a case-by-case basis in relation to specific issues or for specific studies. Without knowing the questions that will arise on specific issues, it is difficult to predict the information that will be needed to answer them. |

| Summary of findings from the March 2016 workshop | |
|---|---|
| **High-priority initiatives** | |
| R9.2 Improve economic modelling oversight and governance function | 27 |
| **Medium-priority initiatives** | |
| | |

## Recommended initiatives and the assessment results

| Improve data access and publication | Collect new or additional data | Develop new methods, review or improve current methods and processes |
|---|---|---|
| None | None | None |
| **Improve data sharing, integration and governance** | **Collect or develop baseline data or information** | **Develop research and capability** |
|  <br>**R9.2 Improve economic modelling oversight and governance function** 27<br>Strengthen governance around direction and support of transport modelling | None | **R9.1 Develop a transport satellite account** 68<br>Business industry classifications for more detailed breakdown of the contribution that transport makes to GDP |



## Topic 9: Economy - Details

Transport, postal and warehousing industries contribute to the New Zealand economy in many different ways. Directly, the industries contribute between 4 and 5 percent of New Zealand's GDP through employment in transport, freight and passenger transport services, construction of new infrastructure and the range of support services required to keep the transport system operating.

Transport also makes a very significant indirect contribution to the economic prosperity of New Zealand. This is through the need to move both raw materials and finished goods around domestic and international locations for the purpose of manufacture or preparation for market as well as to the markets and points of sale in New Zealand and internationally. Peoples' ability to travel for employment or business opportunities also makes a significant contribution to New Zealand's economic prosperity.

Our stakeholder engagement process identified five broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ9.1 | What are the main sources, types and quantities of economic benefits from transport, how and where are these distributed and how are these things changing, including modally, regionally and temporally? | Large |
| EQ9.2 | What are the sources, types and quantities of economic costs from transport, how and where are these borne, and how is this changing, including modally, regionally and temporally? | Medium |
| EQ9.3 | What transport services operate to, from and within New Zealand, how competitively are these services provided, and how are these things changing, including modally, regionally and temporally? | Medium |
| EQ9.4 | What and where are the important international import and export markets for New Zealand, how effectively and efficiently can goods be transported to or from these markets and how are these things changing, including modally, regionally and temporally? | Medium |
| EQ9.5 | What is the relationship between the existence and location of the transport network and transport services and economic activity in New Zealand? | Large |

### *Recommended initiatives*

| R9.1 | Develop a transport satellite account |
|---|---|
| **Purpose** | To better understand the value of transport to the New Zealand economy |
| **Problem definition and knowledge development opportunity** | While good information is available for calculating GDP, the classification used may not fully reflect the value of transport to the New Zealand economy. There are many types of transport that occur, and which generate significant economic activity in New Zealand, but which may not be included in the transport, postal and warehousing industry classification, which is used to produce industry GDP statistics. It would be useful to have a more detailed breakdown of the contribution that transport makes to GDP, but which is not captured using the current business industry classification codes. |
| **Response** | The sector recommends developing a transport satellite account to measure the size of the transport sector's contribution to economic activity across business industry classifications. |
| **Related enduring question** | EQ9.1 |
| **Activity Stream** | Develop research and capability |

| R9.2 | Improve economic modelling oversight and governance function |
|---|---|
| **Purpose** | To improve the quality of economic modeling |
| **Problem definition and knowledge development opportunity** | The ability to conduct economic analyses is limited by disagreement and technological difficulties about which economic modeling techniques should be used in which circumstances, and how they should be applied. A level of agreement is a prerequisite that is needed before economic modeling can occur. |
| **Response** | The sector recommends strengthening the governance of the transport sector economic modeling function to ensure that there is high-level direction and support from relevant agencies about the programme of economic modeling work. This recommended initiative should be combined with R4.2. |
| **Related enduring question** | EQ4.2, EQ9.1, EQ9.2, EQ9.5 |
| **Activity Stream** | Improve data sharing, integration and governance |

# Topic 10: Safety and Health – Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. There is a wide range of good data is collected about the types of harm incidents that occur, their frequency, location and outcome. However, this information is held in disparate systems across multiple agencies and it is not integrated. This prevents the sector from using the data in a joined up way to tell powerful stories. |
| 2. While there is rich information collected about the occurrence of harm related incidents, there is little information available about the risk profiles that lead to harm incidents, or the downstream effects that follow harm incidents. |
| 3. Transport data classifications were often too broad to provide useful insight to questions about safety and health. |
| 4. The largest gaps in this topic relate to the risk profiles for different modes of transport, and quantifying the impacts of harms and benefits from transport. |

| Summary of findings from the March 2016 workshop | |
|---|---|
| **High-priority initiatives** | |
| R10.1 R Develop health and safety risk profiles and exposure that lead to transport related harm | 9 |
| R10.6 R Align injury classification across different datasets | 25 |
| **Medium-priority initiatives** | |
| R10.7 Improve data collection about injuries suffered on the pedestrian network | 36 |
| R10.2 R Integrate data sources to develop transport harm cost profiles | 46 |
| R10.3 R Review and update the Value of Statistical Life | 46 |

## Recommended initiatives and the assessment results

### Improve data access and publication

None

### Collect new or additional data

Impact | Breadth of application | Strategic value | Right resources

**R10.7 Improve data collection about injuries suffered on the pedestrian network** — 36

This is an important area with our aging population. This would require a pilot study to determine the size of the problem and to gauge the usefulness of the outcomes in terms of remedial actions.

### Develop new methods, review or improve current methods and processes

None

### Improve data sharing, integration and governance

**R10.6 R Align injury classification across different datasets** — 25

This would improve assessment of road injury risk and costs, which would be useful for policy, enforcement and road controlling authorities. There are likely to be skills and system resource implications.

**R10.2 R Integrate data sources to develop transport harm cost profiles** — 46

If wide ranging then this is likely to be expensive including interviews etc to find out about long-term costs and economic outcomes – for individuals and families. Smaller scale studies with limited scope may be more do-able.

**R10.5 Integrate data sources to improve insight into visiting drivers' risk profile** — 74

Safety benefits likely to be fairly low (addressing about 5% of road crash problem). However, potential benefits in public perceptions about overseas driver safety – possible flow on benefits to tourism, the self drive industry and the economy.

### Collect or develop baseline data or information

None

### Develop research and capability

**R10.1 R Develop health and safety risk profiles and exposure that lead to transport related harm** — 9

This can have a wide range of applications. However, affordability will depend on the scale of individual projects within what is potentially quite a large suite of projects.

**R10.3 R Review methods for updating the Value of Statistical Life** — 46

Amongst other things, a good understanding of VOSL is critical for a good cost benefit analysis of safety related interventions. The first stage investigation should focus on reviewing appropriate methodology (which is likely to be an affordable and valuable study).

**R10.4 Develop and publish risk profiles that lead to harm incidents for recreational boating** — 108

This is a quite specific focus. It has a difficult catchment to identify and approach and it could be quite expensive to complete.

R = revised

H

M

L

## Topic 10: Safety and Health - Details

The transport system is regulated in a number of ways, however there are still instances where harm can occur. Transport users can face risks of harm, which are generally small and manageable at the level of the individual. At the system level risks can result in serious incidents including damage to property, minor injury, or less commonly serious injury, to people and in relatively rare cases the result can be death.

Transport also has the potential to impact adversely on public health. Emissions of particles, noise and gasses into the atmosphere can all lead to adverse health outcomes. Transport can also impact favourably on public health as active modes of transport like walking or cycling have well established health benefits.

Our stakeholder engagement process identified four broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

### *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ10.1 | How safe are different forms of transport, what are the types and impacts of harm incidents, who experiences harms, and how are these things changing demographically, modally, regionally, and temporally? | Small |
| EQ10.2 | What is the risk profile of different types of transport, what factors contribute to this risk and in what quantities and proportions, and how are these things changing, including modally, regionally and temporally and in response to interventions? | Large |
| EQ10.3 | What are the sources and types of health impacts from transport, what are the harms and benefits of these impacts, who experiences them, and how are these things changing, including modally, regionally and temporally? | Large |
| EQ10.4 | What international transport safety and security obligations does New Zealand have, how well are these met, and how are these things changing? | Small |

## *Recommended initiatives*

| R10.1 R | Develop health and safety risk profiles and exposure that lead to transport related harm |
|---|---|
| **Purpose** | To understand the risks and risk exposure profiles that lead to transport related harm |
| **Problem definition and knowledge development opportunity** | In the context of a policy framework, to help control outcomes it is necessary to develop targeted interventions that help to reduce particular risks. This requires a good understanding of the risk profiles that lead to the occurrence of harm outcomes. There is good information about the occurrences of harms, but only limited information is available about the risk profiles that lead to harm incidents.<br>Much of the data required to develop risk profiles may already be collected for administrative purposes, but some additional data collection around attitudes and behaviours is likely to be necessary (see R2.8). Additionally information about behaviours could be sourced from a range of existing collections including:<br>• NZ Police data on road infringements and rail level crossing complaints<br>• Ministry of Justice data on convictions for serious road offences<br>• Regulatory agencies' records of harm incidents. |
| **Response** | The sector recommends researching into transport risk profiles for each transport mode. This includes better understanding attitudes and behaviours and their correlations with harm outcomes. |
| **Related enduring question** | EQ10.2 |
| **Activity Stream** | Develop research and capability |

| R10.2 R | Integrate data sources to develop transport harm cost profiles |
|---|---|
| **Purpose** | To understand the relative effectiveness of interventions in reducing harm |
| **Problem definition and knowledge development opportunity** | Transport harm incidents incur social, economic and environmental costs. The sector only has limited information about the downstream costs of those harm incidents. Although the Ministry of Transport publishes the social cost of road crashes and injuries, many of the cost components are based on uplifting old unit cost estimates by inflation. Additional information about environmental impacts for example may also be required. |
| **Response** | The sector recommends investigating the opportunities and benefits of integrating existing various sources of harm related data to provide a more detailed profile of the downstream costs associated with different types of transport harm incidents. |
| **Related enduring question** | EQ9.2, EQ10.1, EQ10.3 |
| **Activity Stream** | Improve data sharing, integration and governance |

R= revised

| R10.3 R | Review methods for updating the Value of Statistical Life |
|---|---|
| **Purpose** | To improve the methodology for determining the Value of Statistical Life |
| **Problem definition and knowledge development opportunity** | A key component of the social cost of harm is the cost of pain and suffering. In New Zealand, this is estimated by the willingness-to-pay based Value of Statistical Life (VOSL). The current value is based on a Value of Safety survey conducted in 1991. Since that time the VOSL has been adjusted to current dollars by indexing to ordinary time wage rate. This is problematic, because while it maintains the value against changes in income, it fails to account for any change in individual preferences to risk. A new VOSL is now overdue. However, prior to conducting another survey, it is necessary to find out whether the approach used in the past continues to be valid. |
| **Response** | The sector recommends researching into the best way to establish the VOSL. Where a change in the methodology is recommended, a pilot study should be conducted prior to implement a full scale survey. |
| **Related enduring question** | EQ10.3 |
| **Activity Stream** | Develop research and capability |

R= revised

## Maritime

| R10.4 | Develop and publish risk profiles that lead to harm incidents for recreational boating |
|---|---|
| **Purpose** | To understand the risks and risk profiles for recreational boating |
| **Problem definition and knowledge development opportunity** | This recommendation is similar to R10.1 but with a focus on recreational boating. According to Water Safety NZ, approximately 20 percent of all drowning deaths in New Zealand over the past five years have involved recreational boating. However, information on the risk exposures and risk profiles is currently unavailable. |
| **Response** | The sector recommends researching into the risk profiles for recreational boating to cover information such as knowledge, attitudes and behaviours and demographic information of those who participate in recreational boating. |
| **Related enduring question** | EQ9.2, EQ10.2 |
| **Activity Stream** | Develop research and capability |

## Road

| R10.5 | Integrate data sources to improve insight into visiting drivers' risk profile |
|---|---|
| **Purpose** | To better understand the risk profile of visiting drivers |
| **Problem definition and knowledge development opportunity** | New Zealand attracts a significant number of international visitors who choose to drive while visiting. With international visitors comprising a substantial proportion of vehicle drivers in New Zealand at any given time, it is inevitable that some will be involved in motor vehicle crashes. |
| **Response** | The sector recommends investigating the opportunity to establish data sharing partnerships with the rental vehicle industry to develop a better picture of risk patterns and profiles of international visitors, while at the same time ensuring that privacy of personal information, and commercially sensitive information is maintained. |
| **Related enduring question** | EQ10.2, EQ10.4 |
| **Activity Stream** | Improve data sharing, integration and governance |

| R10.6 R | Align injury classification across different datasets |
|---|---|
| **Purpose** | To improve the quality of injury data |
| **Problem definition and knowledge development opportunity** | Data about the types of injuries sustained in road crashes is too broadly classified to answer questions about harm outcomes. Different agencies are currently using different classifications:<br>• *Police crash reports* – classify injuries as fatal, serious or minor with no information on injuries sustained<br>• *Hospital data* – includes information on the types of treatment provided to patients, however this may not include details of the injury sustained and how<br>• *ACC data* – provides insight to the cost of treatment and rehabilitation for road crashes and includes injury type, but does not allow for identification of the harm incident in which the injury occurred.<br>Integration of these three datasets would provide greater levels of insight into the types of injuries sustained in road transport harm incidents and the cost of treating these injuries. This information, combined with information about driver attitudes and behaviours and risk profile would provide a deep level of insight into policy questions about where and how to target interventions to reduce harm. |
| **Response** | The sector recommends improving integration between crash data, ACC data and health data by aligning the definitions of injuries by injury severity. Once completed, this should provide greater levels of insight into the types of injuries sustained in road transport harm incidents and the cost of treating these injuries. |
| **Related enduring question** | EQ10.2 |
| **Activity Stream** | Improve data sharing, integration and governance |

R= revised

| R10.7 | Improve data collection about injuries suffered on the pedestrian network |
|---|---|
| **Purpose** | To understand injuries occurring on the pedestrian network |
| **Problem definition and knowledge development opportunity** | The pedestrian network, such as footpaths and cycle ways, is an important part of the wider transport system. There is currently no information collected about injuries sustained by pedestrians using the pedestrian network, unless a motor vehicle is involved. This lack of information has the potential to disproportionately affect particular groups that use the pedestrian network, such as disabled people, the elderly, and lower socio-economic populations. |
| **Response** | The sector recommends gathering data on injuries sustained by pedestrians using the pedestrian network for large urban areas with high number of pedestrians. ACC data should be examined to assess whether it would provide sufficient detail. |
| **Related enduring question** | EQ10.3 |
| **Activity Stream** | Collect new or additional data |

# Topic 11: Environment - Summary Sheet

| Findings of gap analysis presented at the July 2015 workshop |
|---|
| 1. Aggregate level estimates for greenhouse gas emissions exist at the national level. However, insufficient information is available at the sub-national level, or for particular parts of the fleet. This is required to inform and evaluate policy interventions. |
| 2. The sector can often measure or estimate quantities of emissions to an acceptable standard, but the ability to quantify the impact on the environment from those emissions is limited. |

| Summary of findings from the March 2016 workshop | |
|---|---|
| **High-priority initiatives** | |
| R11.1 Research into transport emissions profiles | 3 |
| R11.2 Develop environmental impact framework for emissions and infrastructure | 8 |
| R11.9 Incorporate findings from road run off research into environmental impact monitoring and evaluation | 21 |
| R11.10 Gather information about weather and environment related network outages | 29 |
| **Medium-priority initiatives** | |
| None | |

## Recommended initiatives and the assessment results

### Improve data access and publication

None

### Collect new or additional data

**R11.10 Gather information on the impacts of weather and environment related network outages** — 29

The information would significantly contribute to resilience related work of the transport network.

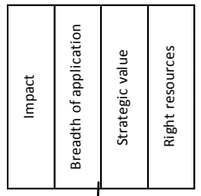
**R11.4 Gather data on weather related delays in the aviation sector** — 107

Useful information for the government, but its need is not pressing. Airports, airlines and Airways corporation are the key stakeholders who need to act on the information, and they already have it.

**R11.5 Gather additional data on intentional/permitted discharges from ships** — 113

There are tight controls around discharges within territorial sea. Therefore, the scope of data gathering would be quite narrow.

### Develop new methods, review or improve current methods and processes




**R11.7 Improve data collection, reporting and monitoring of the impact of ships on marine wildlife** — 111

The intended geographic scope of this initiative is not clear. Is the initiative more about joining the dots (e.g. with data collected by DOC) to capture existing information that has not attracted the same level of attention?

### Improve data sharing, integration and governance

None

### Collect or develop baseline data or information

None

### Develop research and capability

**R11.1 Research into transport emissions profiles** — 3

The information is very useful for testing policy options or measures to reduce greenhouse gas and harmful emissions from transport.

**R11.2 Develop environmental impact framework for emissions and infrastructure** — 8

Important for NZ's ability to show internationally what we are doing to mitigate GHG emissions and environmental impacts of transport. Ongoing monitoring is important to understand the trends and for future planning.

**R11.9 Incorporate findings from road run off research into environmental impact monitoring and evaluation** — 21

Very useful information for better assessing environmental impacts of transport network on human health and ecological systems.

**R11.8 Conduct research into the lifecycle emissions of electric vehicles [completed]** — 30

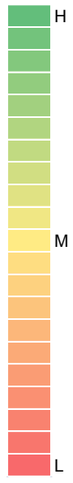
New research has been completed and was released at the end of 2015. The report can be downloaded from ECCA's website.

**R11.3 Conduct strategic environmental horizon scanning** — 72

The scope of the problem and what needs to be done is not clearly defined.

**R11.6 Conduct research into the impact of large ships on local environments while in port** — 77

Good quality information on this would help to understand real as opposed to perceived impacts, gauge their relative significance, and consider feasible mitigation options.



# Topic 11: Environment - Details

The relationship between transport and the environment is critically important. It is widely accepted that the emission of greenhouse gasses leads to climate change (Inter-Governmental Panel on Climate Change 2014.) Understanding the types of emissions that come from the operation of the transport system is critical to understanding not only how transport impacts on the environment and how the environment impacts on transport but also the mix of policy responses required to address these impacts.

The relationship between transport and the environment is not unidirectional. the effects of climate change have the potential to impact severely on the ability of the transport system to function effectively. Increases to the sea level would place parts of the transport network at risk. Similarly any increases in precipitation could impact on the resilience of the transport system through road closures and increases in weather related accidents. If the frequency of powerful storms increases this is likely to cause disruptions to sea and air modes of transport and potential infrastructure damage.

Our stakeholder engagement process identified two broad enduring questions for this topic. The following table identifies the extent to which these enduring questions can be answered by existing information. Where there is little or no information available there is a "Large" gap to meet the information needs and in between a "Small" gap and a "Large" gap there is a "Medium" gap to meet the information needs. A summary of the key statistical and information needs follows.

## *Enduring questions and information availability*

| EQ No. | Enduring Question | Information gap |
|---|---|---|
| EQ11.1 | In what ways and to what extent does the transport system impact on the environment and how is this changing, including spatially, modally, and temporally? | Medium |
| EQ11.2 | In what ways and to what extent does the environment impact on the transport system and how is this changing, including spatially, modally, and temporally? | Large |

## *Recommended initiatives*

| R11.1 | Research into transport emissions profiles |
|---|---|
| **Purpose** | To understand how the transport system impacts on the environment |
| **Problem definition and knowledge development opportunity** | Vehicles emit many different gasses, particles, noises and substances into the environment. Aggregate, high level estimates are available for some types of emissions, and these estimates are of sufficient quality for the purpose they are designed to serve.<br>Emissions from road vehicle fleet may be estimated using vehicle emission models, but there are some issues with their emission factors. This limits their ability to give robust estimation about the emissions of different types of vehicles within a fleet, such as heavy vehicles versus light vehicles, or petrol vs diesel vehicles.<br>In addition, good information about the emissions from the rail fleet is not available. It would be useful to have a breakdown of vehicle emissions by industry classification. This type of information would be useful in modeling expected changes in greenhouse gas (and other) emissions from anticipated changes in the fleet composition. |
| **Response** | The sector recommends researching into transport emissions profiles. These profiles should provide a summary of emissions by mode, emission type, vehicle type and industry. |
| **Related enduring question** | EQ1.3, EQ11.1 |
| **Activity Stream** | Develop research and capability |

| R11.2 | Develop environmental impact framework for emissions and infrastructure |
|---|---|
| **Purpose** | To improve assessment of environmental impacts for transport decisions |
| **Problem definition and knowledge development opportunity** | Currently, we do not have a sufficient method for translating the total amount of emissions into environmental impact. In addition to emissions from vehicles, transport and the transport network can also affect the environment in other ways. Noise and visual pollution, changes to land contours and runoffs, and alterations to the course of waterways are all examples of other types of impacts that transport can have on the environment.<br>Very detailed information about the likely environmental impact of new transport infrastructure is included in environmental impact assessments as part of the resource consenting process. This includes information about how new infrastructure will affect waterways, airflows, water tables, water runoff, sediment accumulation and so on. While this detailed information is available at individual project level as part of the resource consenting process, it does not scale up to a network level. There is little ongoing monitoring of environmental impacts from transport infrastructure projects. |
| **Response** | The sector recommends developing an environmental impact assessment framework to help evaluate and monitor the impact of transport on the environment. This includes:<br>• isolating and quantifying the impact of transport on the environment and enabling comparisons with other sources of environmental impacts<br>• enabling ongoing monitoring of transport related environmental impacts over time, including the ability to assess positive and negative environmental impacts<br>• facilitating multi-agency collaboration between the transport sector, environmental sector and Statistics NZ. |
| **Related enduring question** | EQ11.1 |
| **Activity Stream** | Develop research and capability |

| R11.3 | Conduct strategic environmental horizon scanning |
|---|---|
| **Purpose** | To understand the key long term environment impacts from transport |
| **Problem definition and knowledge development opportunity** | The 'environment' includes not only ecological features, but can also refer to the aggregate of surrounding elements, conditions and influences, including social and cultural factors. Therefore, the environment has the potential to generate significant and disruptive changes that will affect the transport system, for example technological changes such as autonomous navigation. The sector lacks a process for identifying potential sources of disruptive changes from our surrounding environment. |
| **Response** | The sector recommends conducting and publishing a strategic environmental horizon scanning of the transport system. |
| **Related enduring question** | EQ11.1, EQ11.2 |
| **Activity Stream** | Develop research and capability |

## Aviation

| R11.4 | Gather data on weather related delays in the aviation sector |
|---|---|
| **Purpose** | To understand the impacts of weather on aviation operation |
| **Problem definition and knowledge development opportunity** | No information about weather events that affect aircraft operation is gathered, unless it poses a safety risk to an aircraft – in which case it is reported to the Civil Aviation Authority. This means that no information is available about severe weather, such as fog or wind, which results in the cancellation or delay of flights. This type of information is important to answer questions about the impacts of climate change on the transport system, and to assist in modeling of economic costs of weather related events. While this information is not currently gathered by government agencies, it is likely to be captured for administrative purposes by airlines, airports, and Airways Corporation. |
| **Response** | The sector recommends exploring the opportunity to develop data sharing partnership with the aviation sector to enable wider access to industry held information about weather related delays and cancellations in the aviation sector. |
| **Related enduring question** | EQ11.2 |
| **Activity Stream** | Collect new or additional data |

## Maritime

| R11.5 | Gather additional data on intentional/permitted discharges from ships |
|---|---|
| **Purpose** | To understand the scale of discharges from ships |
| **Problem definition and knowledge development opportunity** | All vessels in New Zealand territorial waters must follow strict rules about what they discharge into the sea. While the rules are strict, they do allow for some 'permitted discharges'. For example, sewage cannot be discharged within 500m of shore or in less than 5m of water, and oily waste such as bilge water can only be discharged into the sea if it contains less than 15mg of hydrocarbon per litre of water. Under current maritime rules, discharges of waste that are operational in nature (ie, which are not cargo), should adhere to the rules, but need not be reported. Any discharge, leak or spill of waste which is from cargo, or which exceeds the permitted amounts must be reported to relevant coastal authorities. This lack of information about permitted discharges is a small but important gap in our understanding of overall discharges into the sea. |
| **Response** | The sector recommends gathering additional data (or estimating using a modeling technique) the total volume and the distribution of permitted discharges. |
| **Related enduring question** | EQ11.1 |
| **Activity Stream** | Collect new or additional data |

| R11.6 | Conduct research into the impact of large ships on local environments while in port |
|---|---|
| **Purpose** | To understand the environmental impact of large ships on local environments |
| **Problem definition and knowledge development opportunity** | In recent years, New Zealand has experienced an increase in large cruise ships visiting. Cruise ships have a high demand for electricity due to the number of passengers that remain on board at any one time. This results in visiting cruise ships often continuing to run diesel-powered generators while in port, generating significantly more emissions than visiting cargo ships. Given the large increase in the number of cruise ship visits in recent years, information about the impact of large ships on local environments would help us to make informed decisions about whether additional interventions were needed to manage environmental impacts, and if so what types of interventions. |
| **Response** | The sector recommends researching into the impact of emissions from large ships, in particular cruise ships, on local environments. |
| **Related enduring question** | EQ11.1 |
| **Activity Stream** | Develop research and capability |

| R11.7 | Improve data collection, reporting and monitoring of the impact of ships on marine wildlife |
|---|---|
| **Purpose** | To understand the impact of ships on marine wildlife |
| **Problem definition and knowledge development opportunity** | One of the environmental impacts that is specific to the maritime mode of transport relates to the collision of ships with sea life, particularly whales and dolphins. While incidents of ships striking whales are not common, there are some areas where this is more problematic. In recent years, instances of ships colliding with endangered Bryde's Whales in Auckland's Hauraki Gulf has been highlighted by media reports and the Ports of Auckland. While media reports provide anecdotal evidence of collisions, there is limited information about the frequency and extent of collisions between ships and marine wildlife. Where carcasses of marine animals are discovered and necropsies are undertaken, it may be possible to attribute a cause of death. A recent study identified that of the 43 Bryde's whale carcasses found between 1996 and 2012, ship strike was the cause of death in 86 percent of cases for which a cause could be determined .<br>While necropsy data will continue to provide important insight to the causes of marine animal mortality, additional data is needed on collision rates. This will provide the ability to monitor collisions over time, and alongside mortality and necropsy information from the Department of Conservation, would allow more detailed evaluation of the impact of ships on marine wildlife. |
| **Response** | The sector recommends identifying the high risk areas for collisions between ships and endangered marine mammals and collecting data on the rates of collisions. |
| **Related enduring question** | EQ11.1 |
| **Activity Stream** | Develop new methods, review or improve current methods and processes |

## Road

| R11.8 | Conduct research into the lifecycle emissions of electric vehicles |
|---|---|
| **Purpose** | To understand the lifecycle emissions of electric vehicles |
| **Problem definition and knowledge development opportunity** | The sector does not have sufficient information about the lifecycle emissions from electric vehicles. While emissions generated by electric vehicles during their on-road use is lower than the emissions from conventional vehicles, the manufacture of electric vehicles' batteries may generate significant levels of emissions that could cancel any net benefit in terms of emissions when compared to conventional vehicles. |
| **Response** | The sector recommends that the Energy Efficiency and Conservation Authority research that is underway into the lifecycle emissions of electric vehicles should continue and the findings be published. This recommended initiative was completed in December 2015. |
| **Related enduring question** | EQ1.3, EQ11.1 |
| **Activity Stream** | Develop research and capability |

| R11.9 | Incorporate findings from road run off research into environmental impact monitoring and evaluation |
|---|---|
| **Purpose** | To improve environmental impact monitoring and evaluation |
| **Problem definition and knowledge development opportunity** | The NZTA is currently conducting research into road run off pollution. This includes things like heavy metals, tyre particles, and fluid run off such as brake and clutch fluid, oil and fuel that can be washed from the surface of roads into surrounding waterways by rain. The very small size of the particles contained in this type of run off means that they can easily be disbursed into the environment and ingested by animals. |
| **Response** | The sector recommends utilising the NZTA research on road run off in the ongoing monitoring and evaluation of the environmental impact of transport. |
| **Related enduring question** | EQ11.1 |
| **Activity Stream** | Develop research and capability |

| R11.10 | Gather information on the impacts of weather and environment related network outages |
|---|---|
| **Purpose** | To understand the impacts of severe weather on the transport network |
| **Problem definition and knowledge development opportunity** | The environment has the potential to impact on the transport network. Severe weather has the potential to cause slips and floods, which can block parts of the network. There are good information about severe weather events that occur on the state highway network and the length of time taken to reopen the network, further information was needed to assess (a) the impact of severe weather events on the local road network, and (b) the downstream economic impact of network outages arising from severe weather events. This type of information will be useful in assessing economic thresholds for when it is cost effective to improve particular areas of the network. |
| **Response** | The sector recommends gathering information from road controlling authorities on network outages (by road type, outage type, cause, length of outage and location) and carrying out economic modelling to assess the national and regional costs of weather related network outages. |
| **Related enduring question** | EQ11.2 |
| **Activity Stream** | Collect new or additional data |