Future Funding
Optimal funding
November 2014

Ensuring our transport system helps New Zealand thrive
Future Funding: Optimal Funding

The Future Funding project is one of three Strategic Projects that the Ministry of Transport undertook in 2014. The other two projects are Future Demand and Economic Development and Transport. These projects consider the changing world and how our transport systems, including funding, can be 'future proofed' while adapting to known and uncertain economic, environmental and social changes.

Future Funding addresses land transport funding. The project aims to promote informed and critical thinking among Ministry staff and external stakeholders regarding how much we should invest in the land transport system and how we should raise that money.

The key questions considered in this project are set out in the quadrants of the circle in the diagram below with key reports produced for each question outlined in the adjacent boxes. This report outlines a framework for determining optimal funding in response to question two.

Figure 1: Key questions of Future Funding and its associated reports

This paper is presented not as policy, but with a view to inform and stimulate wider debate.
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1. **Executive summary**

1. For this paper, optimal funding is defined as the amount of funding required to maximise social welfare (net of that funding), and covers both efficiency and equity concerns.

2. In relation to optimal funding, the Ministry has a number of roles, the largest of which is that it is an adviser on the supply of transport. While there are gaps, the Ministry collects much information on the state and performance of the network, but little about what users and the public want from the network and whether projects exist that can narrow the gap between demand and supply. As with other producers, the Ministry must understand demand and how much people are willing to pay in order to determine how much to spend on transport.

3. The proposed framework is similar to other policy frameworks, and is consistent with the National Infrastructure Unit’s pressure-state-response model:

   (I) The **status quo** step involves understanding the state and performance of the network and educating representative user and public groups so that they can make informed decisions about what they want out of the network.

   (II) The **objectives** step involves using stated and revealed preference techniques to understand what users and the public want from the network.

   (III) The **problem** step involves understanding the difference between what users currently receive from the network, and what they want from the network.

   (IV) The **options** step involves understanding whether there are options to address the difference between demand and supply, and the extent to which users and the public are willing to pay for those options.

4. The framework is complemented by an identified set of questions and sources of information with which to answer those questions. Though many of these areas are already being explored, it will not be possible for the Ministry to undertake all this analysis immediately. The Ministry will further scope and prioritise this work as part of future work programmes.
2. Current approach to setting funding levels

2.1. Current system

5. Most goods and services are traded between buyers (demand) and sellers (supply) in markets. Buyers and sellers respond to market/price signals, and buyers purchase goods and services up to the point where they are no longer willing and able to do so.

6. Land transport infrastructure is, for the large part, purchased by government rather than individuals.

7. The key features of the current land transport planning process are outlined below. Several layers of government – the Cabinet, the Minister of Transport, the Ministry of Transport, the NZ Transport Agency, local authorities – are involved. The Ministry of Transport is responsible for advising the Minister and Cabinet on stages (I) and (II). This paper addresses only the role of the Ministry of Transport, in particular stage (II) which is where decisions about funding levels are made.

(I) The petrol excise duty, road user charges, and the motor vehicle registration fee are periodically set via legislation and regulation. Revenue is dedicated to the National Land Transport Fund for expenditure on the land transport system.¹

(II) Every three years, the Government issues a Government Policy Statement on land transport setting out its desired outcomes and priorities, and the levels of funding for different transport activities (activity classes). The Government must engage with the public in developing the Government Policy Statement.

(III) Through regional land transport committees established by regional councils, regions prepare regional land transport plans. Plans reflect the GPS and regions’ own priorities. Proposed transport activities are submitted to the NZ Transport Agency for consideration.

(IV) The NZ Transport Agency assesses its own proposals and regions’ proposals against the Government’s objectives in the GPS. Based on that assessment, the NZ Transport Agency prepares a National Land Transport Programme (NLTP), which includes planned spending on transport activities.

¹ Some projects are also funded from Crown funding outside of the National Land Transport Fund.
2.2. Analysis and advice

8. Without market signals on the willingness of users to pay for infrastructure, the Ministry must interpret a range of data and feedback from the public, and use frameworks to turn that data into advice.

9. The Ministry and other transport agencies generate a large amount of statistical data. Much of this has been used in developing GPS 2015.

10. There are gaps, however:
   - in the information the Ministry uses, in particular, how much the Ministry understands about what transport users want and are willing and able to pay for, and
   - in the frameworks and processes it uses to generate advice.

11. These gaps mean that the Ministry’s understanding of ‘optimal funding’ is incomplete.

12. For instance, on GPS 2015 the Ministry was able to say much about the relative performance of different transport activity classes. As a result, the Ministry was able to advise with reasonable confidence about the general direction of funding, but with much less confidence about the level of funding. The overall effect is that funding advice is limited to an assessment of current levels plus or minus a bit depending on the relative performance of each activity class.
3. Foundations for an approach to setting funding levels

13. Chapter 3 summarised how funding levels are set currently. This chapter summarises how it could happen in a way that improves the determination of funding.

3.1. Philosophy

3.1.1. Defining ‘optimal funding’

14. The simplest way to describe the framework for optimal funding is one of demand and supply. As discussed in Chapter 3, this is the way in which markets efficiently allocate resources, and the closer the Ministry can replicate this information, the closer the Ministry will be to understanding efficient levels of funding.

15. It is important to note here that efficient is not the same as optimal. Society is interested in equity, such as transport options for disadvantaged people, as well as efficiency.

16. For this paper, optimal funding is defined as the amount of funding required to maximise social welfare (net of that funding), and covers both efficiency and equity concerns.

17. Understanding the supply of transport involves understanding such things as the state and performance of the network and why it is that the network performs as it does. To understand demand, the Ministry needs to know what the public wants from the transport network.

3.1.2. The Ministry should drive, but not set, the agenda

18. The need for good information, in particular what users want, is a focus of both the Ministry’s Statement of Intent and of its Performance Improvement Framework review.

19. Those documents also outline the role of the Ministry in the transport sector. Broadly, the Ministry’s main role in the context of optimal funding is to facilitate public discussion about the best collective choice, and then to drive, but not set, that agenda (see Appendix 1).

20. Effectively the Ministry’s role is to be part of the supply of transport: understanding what transport users want and advising the Government on the quantum of supply.

3.2. Information requirements

21. To understand what the public wants, there are a number of information requirements. This paper separates evidence into three broad groups: ‘macro’ data, project-level data, and willingness to pay information. For the reasons outlined in the following sections, all this evidence is required to have strong confidence in spending decisions.
3.2.1. ‘Macro’ data

22. ‘Macro’ data does not have a tight definition for the purpose of this paper, but include performance and use data collected by transport agencies, Statistics New Zealand, and other agencies for example on road usage, public transport patronage, and safety outcomes. These data can give us a reasonable amount of information about the state and performance of the network (supply). They can also tell us a bit about demand. Excess congestion, for example, is excess demand for transport (either due to too low a price or not enough supply of road or public transport). However, these data do not tell us whether any identified excess demand can actually be met – whether there are projects that can satisfy the demand – or how much people are prepared to pay to have their demand met.

23. Most of the time, however, this analysis is about use rather than demand. For instance, analysis of vehicle kilometres travelled shows a period of weak (no) growth in road use since the mid-2000s. This period coincided with a period of rapid growth in spending on roads. One conclusion might be that there has been little new demand for road transport. Another different conclusion might be that the demand has existed, but the particular projects undertaken have not met that demand. Because multiple possible conclusions can be drawn from this data about use, further analysis is required to understand demand.

3.2.2. Project-level data

24. Project-level data include information about projects currently being pursued, projects that have been delivered in the past, and projects that could yet be considered. The most reliable source of these kinds of data come from the NZ Transport Agency’s Transport Investment Online (TIO) database. The TIO database includes data on projects including by:

(I) activity (eg, state highway, public transport)
(II) sub-activity (eg, bridge replacements)
(III) region
(IV) cost
(V) the NZ Transport Agency’s assessment against its three assessment criteria: strategic fit, effectiveness, efficiency
(VI) the benefit-cost ratio of the project.

25. The TIO database could be expanded to begin recording information about the types of benefits expected and the timing of those benefits.
26. If project-level data were perfect and comprehensive — that is, it covered all possible projects — then they could be relied upon alone to determine optimal funding. Project-level data would tell us everything about supply (the cost-benefit analysis of each project would include the kinds of projects that could be supplied). Transport would be supplied down to a benefit-cost ratio of $1^2$. Alternatively, if the public or Ministers wished to achieve a different mix of outcomes than maximising net benefit, the data could be examined to see what kinds of projects would be approved if funding levels were increased or what kinds of projects would not be approved if funding levels were decreased. Different spending options could be tested and the types and size of benefits from these projects assessed.

27. The TIO data are neither perfect nor comprehensive, with the biggest restrictions on current data being:

(I) the lack of recording of the types and size of different benefits (time saving, safety, etc) achieved

(II) that the GPS and the NZ Transport Agency’s assessment process influences the types of projects currently proposed. That is, regions may not propose projects where they know or believe that the project will not be approved given current national or local policy and spending settings.

28. There may be some value in the Ministry exploring other projects that regions are interested in but which have not been included in their regional land transport plans, or in encouraging regions to put forward more projects for assessment by the NZ Transport Agency even if they think these projects will not be approved under current policy and spending settings.

3.2.3. Willingness-to-pay information

29. Willingness to pay information is data generated from stated and revealed preference techniques to estimate demand in the absence of markets.

30. Stated preference techniques are surveys of the public about how much they would be willing to pay to achieve particular outcomes. One method involves a series of choices between pairs of items (made up of, for instance, transport, other items, and dollar amounts). Analysis of the choices people make can help identify the tradeoffs people are willing to make between transport, other spending, and taxes. Another approach may be to ask people to populate a hypothetical transport budget with hypothetical transport projects.

$^2$ This assumes the data in the cost-benefit analysis was perfect. In reality, there are several reasons why the minimum benefit-cost ratio should be higher including the deadweight loss of taxation, optimism bias, uncertainty and risk about cost and future demand, and many factors that can impact on the quality of cost-benefit analysis.
31. The difficulty with these methods is that what people say they want and what they actually choose in real world scenarios can differ. These techniques are most reliable if people believe that they will bear the consequences of their choices. Some councils use these methods in transport, asking landowners how much they would be prepared to pay for improvements in local roads. As councils have the ability to target rates, landowners can be expected to give reasonably robust valuations.

32. There are less direct links between preferences and consequences in expenditure questions the Ministry is involved in. While the Ministry is involved in advising on tax levels, the funds raised go into the NLTF and there can be significant redistribution. This may mean that people overstate their willingness-to-pay to achieve certain outcomes if they know other people are going to help pay for them. Care must be taken in designing surveys to account for these biases.

33. Revealed preference techniques involve estimating the public’s willingness to pay by examining how people actually respond in related markets. For example, people might avoid travel times by living closer to work, and pay a higher price for that housing. If the only difference between that house and a house further out is the travel time, then the willingness to pay of people to avoid travel can be estimated using the difference in house prices. Another, more direct method, might be to examine the use of toll roads versus non-toll alternative routes.

34. One difficulty with revealed preference techniques is in isolating the impact of transport from the impact of other things that affect the choices and valuations people put on things (though getting accurate measures is also a challenge for stated preference techniques). Another difficulty is that revealed preference techniques are based on how people respond to choices they currently face. That is, the data that can be gathered are bounded. If there is no real world situation equivalent to the option you want to investigate, it can be difficult to gather information about preferences.

35. A further limitation of willingness to pay techniques is that they generally estimate the willingness to pay of the public as it is currently constituted. As transport investment is typically long-lived, willingness to pay analysis should be complemented by more ‘macro’ analysis including changing demographics and industry composition. That is, if willingness to pay techniques suggest that younger people wish to see more investment in a particular activity, analysis should be done about how large this cohort of people will be over the short, medium, and long term.
3.3. Broad framework

3.3.1. Status quo-objectives-problem-options

36. Government policy frameworks follow a standard status quo-objectives-problem-options formula (see regulatory impact analysis). These frameworks tend to suggest a linearity that does not always follow in some areas, including transport.

37. In the narrow area of transport investment\(^3\), there is a single overarching problem statement: whether the state and performance of the network is different from what users want and are prepared to pay for.

38. If the status quo is the state and performance of the network under current policy and spending setting, and what users want is the objectives, then the problem comes after the objectives – the problem is the difference between what people want and what they have.

39. Finally, the options are an infinite range of funding levels.

3.3.2. National Infrastructure Unit – pressure-state-response

40. The National Infrastructure Unit within the Treasury uses a slightly different framework: pressure-state-response.


42. ‘State’ and ‘pressure’ form the problem. Objectives are a part of ‘pressure’; what people want out of the transport system, and how much they are willing to pay. ‘Response’ is the options chosen.

43. The main difference between the pressure-state-response framework and the status quo-objectives-problem-options approach is in how time is accounted for. In the pressure-state-response framework, ‘state’ is the state of the network now, while pressure includes the state of the network over time. In the status-quo-objectives-problem-options framework, status quo captures both the state of the network now and how it will change if funding and policy settings are unchanged.

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\(^3\)The scope of this project was restricted to the question of funding levels. The optimal level of funding is also affected by other policy settings. For instance, road pricing that better captures the true cost of transport might modify demand such that building to increase capacity is no longer the best way to address congestion. Road pricing may also mean that the second-best solution of subsidising public transport to alleviate congestion is no longer required, which would mean that funding levels, at least from the NLTF or government, could reduce.
44. Figure 1 shows how the two align:

Figure 1. Alignment between status quo-objectives-problem-options and pressure-state-response

![Diagram showing alignment between status quo, state, objectives, pressure, problem, and options.]

45. The Ministry considers that both frameworks have their advantages. By dividing analysis into time-based segments, the pressure-state-response framework encourages agencies to think long-term, but has a disadvantage of being less intuitive to use (compared to the status quo-objectives-problem-options framework’s more natural approach of asking what the state and performance of the network is and will be, with what users want it to be). Because both approaches have advantages, both are used to outline an approach to setting optimal funding.

3.4. Current Ministry work

46. To begin to construct a framework around the loose pressure-state-response arrangement, we need to know what work the Ministry and other entities are already doing in this area. Figure 2 shows a first attempt at identifying the work of the Ministry of Transport and the NZ Transport Agency and how it maps to pressure-state-response.

47. Though there are gaps in some areas which the ‘GPS Monitoring’ project should address, the Ministry already has much work underway to understand the state and performance of the network.

48. The biggest remaining gap – supported by the Ministry documents cited in Appendix 1 – appears to be the Ministry’s understanding of customer level of service expectations and willingness to pay.
Figure 2: Current agency activity mapped to pressure-state-response

1. Monitoring framework
   MOT - GPS monitoring framework and system
   NZTA - NILOS/NLTF monitoring and reporting

2. Understanding & modelling demand
   NZTA - NZIER 30 year model
   NZTA - Light AV trends, heavy AV trends
   MOT - Transport Demand Modelling
   MOT - Environmental SCAN

3. Scenario Testing
   MOT - Future Demand project
   MOT - Transport & Economy
   NZTA

4. Pressure (Demand)
   NZTA - Future Funding work-stream 3, optimal funding level
   MOT - Investment modelling
   MOT - Transport & Demand management

5. State (Supply)
   NZTA - Post Implementation review programme
   NZTA - 10/20 project stream 1, 3 criteria
   NZTA - 10/20 Stream 2: GPS Criteria

6. Customer level of service expectations
   Local Govt - REPs
   (Also communicated through political process, direct feedback on services, and research)

7. Network condition
   NZTA - One Network Road Classification
   NZTA - Asset management
   MOT - Construction Industry report

8. NZTA policies and processes for management of the NLTF
   Financing options including borrowing
   Financial risk management

9. Individual projects of interest
   Additional Waitemata Harbour Crossing
   Central Rail Loop
   Puhinui-Wellsford RONs
   East-West Link

10. Revenue Modelling
    MOT - Revenue forecasting model
    NZTA - Peer input and quality assurance

11. Funding mechanisms
    MOT - Future Funding work-stream 1, revenue tools
    NZTA - Revenue diversification
    NZ - Alternative revenue proposals

12. MOT land transport funding policies
    Future Funding work-stream 2, hypothesis
    Financing and revenue options

13. Common evidence base
    MOT = Domain Plan

14. Other agencies’ inputs
    MBIE - Regional development
    MPI - Agricultural sector modelling
    Statistics NZ - Regional GDP series
    Treasury – Demand management (NZI)
3.5. Constructing a framework

49. What follows are the beginnings of planning for an improved framework. Such a framework will necessarily be loose. Public policy is not a science. Conclusions are not generated by an algorithm. Conclusions are reached based on the weight of inconsistent, incomplete, and sometimes, incompatible, evidence.

50. Figure 3 identifies the questions that should be answered in order to determine optimal funding against the pressure, state, and response elements from the NIU’s framework. The questions are separated by the three types of evidence from Chapter 4.2: macro indicators, project-level data, and willingness to pay information. Also included in the figure is work already underway in the Ministry to address these questions. Note the absence of any work in the willingness to pay area.4

51. Figure 4 cuts the questions by the more natural status quo-objectives-problem-options layout. Responding to the conclusions from earlier chapters, consultation with users and the public repeatedly appears in order to better understand demand.

52. The status quo step involves understanding the state and performance of the network and educating representative user and public groups so that they can make informed decisions about what they want out of the network.

53. The objectives step involves using stated and revealed preference techniques to understand what users and the public want from the network. This is the big addition to current analysis. As discussed earlier, revealed preference techniques should generally be favoured for smaller decisions, while stated preference techniques might be required for spending decisions involving significant departures from the status quo. As long as the GPS continues to involve a level of redistribution by favouring some outcomes or users over others, stated preference techniques can also help inform what weighting society wants to place on these objectives.

54. The problem step involves understanding the difference between what users currently receive from the network, and what they want from the network.

55. The options step involves understanding whether there are options to address the difference between demand and supply, and the extent to which users and the public are willing to pay for those options.

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4 The NZ Transport Agency and other transport agencies do use stated and revealed preference techniques such as the value of a statistical life in assessments of projects. An obvious starting point for incorporating stated and revealed preference values into our analysis will be to investigate these.
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<th>POLICY INFORMATION</th>
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<th>Evidence [Questions, Work]</th>
<th>Willingness to pay</th>
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<td><strong>STATE</strong>&lt;br&gt;Means understanding the ‘current state and performance of infrastructure’.&lt;br&gt;&lt;br&gt;Existing policy and spending settings, includes central and local government&lt;br&gt;What objectives existing policy and spending settings intend to achieve</td>
<td>What is the current state of assets: condition, capacity of the network, etc?&lt;br&gt;What is the performance of network: reliability, resilience, etc?&lt;br&gt;GPS monitoring&lt;br&gt;NZTA reporting (annual, quarterly reports, NLTP snapshot)&lt;br&gt;NZTA – One Network Road Classification&lt;br&gt;NZTA – Asset management&lt;br&gt;MOT – Construction industry report&lt;br&gt;MOT – State of the sector reports&lt;br&gt;NZTA – Light vkt trends; heavy vkt trends</td>
<td>What projects are currently underway?&lt;br&gt;What outcomes do these projects hope to achieve?&lt;br&gt;When are the benefits scheduled to arrive?&lt;br&gt;What types of benefits will be achieved by these projects?&lt;br&gt;How much funding is committed, and when?</td>
<td>NZTA’s Transport Investment Online&lt;br&gt;Given current policy settings and investment levels, what is the implied willingness to pay of people for these settings?&lt;br&gt;What the public thinks of the state of the network.</td>
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<td><strong>PRESSURE</strong>&lt;br&gt;Means understanding ‘future infrastructure demands – drivers of demand’&lt;br&gt;To understand demand, we have to understand the difference between the desired level of performance and the expected level of performance under current policy and spending settings.&lt;br&gt;Requires understanding:&lt;br&gt;• how current policy and spending settings will affect the state and performance of network over time&lt;br&gt;• future policy settings (other than funding, such as the extent of road pricing)&lt;br&gt;• what the network should look like&lt;br&gt;• understanding the difference between what the network does and will look like and what it should look like.&lt;br&gt;&lt;br&gt;Existing policy and spending settings, includes central and local government&lt;br&gt;What objectives existing policy and spending settings intend to achieve</td>
<td>What is the planned level of investment if current policy settings are unchanged?&lt;br&gt;What is the projected impact of the status quo on outcomes over time?&lt;br&gt;What is expected of transport demand over time by mode? Analysis of drivers of demand like industry composition, demographics; changing tastes and preferences; complements (eg petrol, cars); substitutes (air travel).&lt;br&gt;How might transport demand behave over time under other, non-funding, policy settings (such as the increasing extent of road pricing)?&lt;br&gt;MOT – Transport Demand Modelling&lt;br&gt;MOT – Freight Demand Study&lt;br&gt;NZIER – 30-year model&lt;br&gt;NZTA – Light vkt trends; heavy vkt trends&lt;br&gt;MOT – Environmental scan&lt;br&gt;MOT – Future Demand project&lt;br&gt;MOT – Transport &amp; Economy project&lt;br&gt;MD T – Future Funding work-streams 1 and 2</td>
<td>What projects are tagged for the medium term if policy settings are unchanged?&lt;br&gt;What outcomes do these projects hope to achieve?&lt;br&gt;What projects exist that are unfunded?&lt;br&gt;What kinds of projects are needed to meet user needs?&lt;br&gt;</td>
<td>NZTA’s Transport Investment Online&lt;br&gt;Regional land transport plans&lt;br&gt;What objectives do the public and the Government want to achieve from investment?&lt;br&gt;What the network should look like&lt;br&gt;What is the desired state of assets?&lt;br&gt;What is the desired performance of the network?&lt;br&gt;What is the difference between the public desires and the current state and performance of the network?</td>
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<td><strong>RESPONSE</strong>&lt;br&gt;Means the funding and policy settings to meet demand. Note that other policy settings (revenue tools, hypothecation, etc) sit within the pressure analysis.</td>
<td>What are the impacts on the state of assets of different levels of funding?&lt;br&gt;What are the impacts on the performance of assets of different levels of funding?&lt;br&gt;How much is demand satisfied by different levels of funding?&lt;br&gt;What criteria/metrics can be developed from the objectives to analyse options.&lt;br&gt;How much people are prepared to pay for different types of benefits, different states and performances of the network?</td>
<td>What sorts of projects should be funded?&lt;br&gt;When would benefits be scheduled to arrive?&lt;br&gt;What types of benefits would be achieved by these projects?&lt;br&gt;What kinds of outcomes would be expected from increased or decreased funding for different activities?&lt;br&gt;What approximate amount of funding need to achieve outcomes?</td>
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### Status quo

Describe existing policy and spending settings (central and local government), includes objectives sought by these settings.

- Analysis of probable future policy settings (other than spending settings) such as the extent of road pricing.

Establish preliminary view of state of the network.

- Test view with NZTA and other informed stakeholder groups who have specialist knowledge.
- Survey public and user groups on their views about the state of the network.
- Ministry finalises analysis of the state of the network.

Ministry publishes analysis and data.

Ministry begins user and public consultation. Focus on educating group so that they have sufficient information on which to form judgements about appropriateness of policy and spending settings.

### Objectives

Compose a set of objectives for transport investment. Identifies objectives that are in conflict / where tradeoffs are required.

- Consult with users, the public, and the Minister about the weighting of objectives. Given the transport system is not user pays, should also consider distribution of spending and equity.

Willingness to pay

- Objectives users, the public, and Government/Minister want to achieve; what condition and performance the network should be in.
- Revealed preference techniques.
- Intensive surveying / stated preference techniques. Using hypothetical choice sets: a list of hypothetical projects or packages, including different levels of spending that achieve various objectives to differing degrees.
- Metrics to measure the condition and performance of the network.

### Problem

Revisit the status quo in light of objectives. What is the difference between the state and the performance of the network, and what users and the public want out of the state and the performance of the network. This is the problem. (There is no problem in the sense of market failure. The problem is matching supply to demand). As it is difficult to be assured of reliable stated preference data needs to be checked against project-level and indicator data for.

- Test view with NZTA, stakeholder groups with specialist knowledge.
- Survey public and user groups about whether the differences between the preferred state and performance of the network and the current state and performance of the network are accurate.
- Finalise analysis of the problems.

Use objectives to develop preliminary assessment of what problems are the most important

### Options

Develop preliminary options: levels of spending by activity, total amount of spending.

- Preliminary analysis of options. Assessment of likely impacts against objectives.
- Consult with users and public on options and analysis.
- Consult with Minister.

Finalise preferred spending options.

**Evidence and Tools Used**

- **Macro data**
  - The current state of assets: condition, capacity of the network, etc.
  - The performance of network: reliability, resilience, safety, etc.
  - Projected impact of the status quo on outcomes over time.
  - Transport demand response to other policy settings (eg. extent of road pricing).

- **Project-level data**
  - Projects currently underway.
  - Projects tagged for the medium term if policy settings are unchanged.
  - Outcomes these projects hope to achieve.
  - When benefits are expected to arrive.
  - Types of benefits delivered by projects.
  - 'Committed' spending.

- **Willingness to pay**
  - Implied willingness to pay of users (from current settings).
3.6. Alternative approaches

56. This chapter summarises alternatives and variations to the above approach.

3.6.1. Metrics and international comparisons

57. An alternative approach considered, was to link spending on transport to a metric, for example spending the same proportion of GDP on transport as other OECD countries. The value of comparing spend is in assessing affordability; it does not help assess need.

58. Approaches which attempt to ‘benchmark’ against other countries are limited in value they can add to decision-making. The Ministry estimates that New Zealand spends 1.3% of GDP on road improvements while OECD countries average 1.0%. This only tells us that we spend more than other countries on on road improvements. Using this metric, we do not know whether there are still good high-value projects that are unfunded and warrant more spending; whether we are already spending on low-value projects which warrant reduced spending; what problems are going unaddressed; what users want from the network.

59. Even where there are reliable international data, international comparisons often fail to take into consideration the problems faced by different countries, the resources of different countries, the rigour or otherwise of their decision processes, the quality of existing networks, and the preferences of people in those countries. Indeed, even if an econometric analysis could account for all these differences, it would only help explain why there are differences in spending (along with some level of unexplained difference due to unobservable characteristics), and generate little information to guide future investment.\(^5\)

60. What matters is helping the New Zealand public achieve what it wants, having considered all options and against the public’s varied preferences.

61. Government should be able to demonstrate that it is spending the appropriate amount and in the right areas across all its portfolios. A similar test to the international comparison one might be to compare transport’s 1.3% of GDP to government health spending of about 6.9% of GDP, yet this has the same problems as the international comparison. What are we getting out of the transport and health spending? What problems are going unaddressed in each? What problems have received too much attention? What would we get from a dollar more or a dollar less from each? What does the public think is the most important outcome from a dollar more to each?

62. Benchmarking can add value if we could be sure that other countries allocated funding better than we did (the idea being that you mimic other countries until you establish your own processes).

\(^5\) This is not to say that international comparisons do not have value. Much can be learned from other countries about how they address policy problems, but such analysis involves identifying precise problems and solutions and then testing that with the New Zealand public.
However, as the International Transport Forum’s Spending on Transport Infrastructure 1995-2011 report\(^6\) notes:

► An investment level of 1% per GDP became a de facto political benchmark in Western European countries in the 1980s, though with no theoretical basis behind it. The investment needs for transport infrastructure depend on a number of factors, such as the quality and age of the existing infrastructure, geography of the country and transport-intensity of the country’s productive sector, among other things. The fact that the share of GDP dedicated to transport infrastructure has tended to remain constant in many countries suggests that investment levels may be affected by factors other than real investment needs. Level of transport spending may be guided by historical budget levels, institutional budget allocation procedures or budgetary constraints taking into account also needs in the other sectors of the economy (e.g. education, health care).

This is not to say there is no value in this type of analysis. With limited resources, the Ministry will need to prioritise what work it does. Those areas where New Zealand spends significantly more or significantly less may be natural areas to investigate first.

3.6.2. Government preferences

The process outlined in Figure 4 emphasises understanding what users want. This does not preclude Government from making decisions. The ‘objectives’ step in Figure 4 explicitly states that the analysis should be considered against several different sets of objectives, including those of users, the wider public, and the Government.

The role of government agencies is to understand the choices and tradeoffs available to Ministers so that they can make informed choices, and so that society can be informed about the ramifications of Ministers’ choices.

The process outlined in Figure 4 allows for either society’s preferences or Government’s preferences to determine the desired state and performance of the network. Whichever preferences are used in the objectives step, the rest of the process is unchanged.

3.6.3. Increasing user pays

If transport funding moves increasingly towards user pays and road pricing, the amount of redistribution and need for central planning to achieve the best outcome lessens. Projects which users are willing to directly pay for will go ahead and those that users are not willing to directly pay for will not. If efficiency becomes an increasingly important objective, transport planning could increasingly move away from directional documents like the GPS and towards more decentralised decision-making.\(^7\)

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\(^7\) Government might provide for social or environmental objectives separately.
69. Potentially, the need for the Ministry to know as much about the transport system would decrease. At an extreme end, if land transport were commercialised as it is in some other countries whether by regulated natural monopolies or state-owned enterprises, the information in Figures 3 and 4 would be collected by those agencies in order to properly set tolls or charges.

70. The Ministry’s role might then evolve into one of a regulator like the Commerce Commission: understanding the value of the transport network and regulating a rate of return.

3.6.4. Constrained Ministry resources

71. Figure 4 represents an ‘ideal’ approach; one unbound by resource constraints. It may be that the Ministry does not have the time, or expertise to undertake all the analysis called for in this paper.

72. Second-best processes that exclude less important aspects in Figures 3 and 4 may be necessary for a period with a goal of establishing a full framework in the medium- to long-term.

73. This analysis should be done as part of project planning for the next phase of this work.
Appendix 1: Ministry’s role as a facilitator

The Ministry’s role as articulated in the following documents is to understand the sector, including demand and what transport users want, to help the sector set the agenda, and then to drive the agenda.

The Greatest Imaginable Challenge

The Ministry’s role as set in the Greatest Imaginable Challenge (GIC) is to ‘create the environment to double the value from transport initiatives’.

‘Value’ is made up of all sorts of things, and individuals value different things. ‘Create the environment’ suggests the Ministry knows it is not there to determine what should be delivered or to deliver it itself, but to assist others to determine what should be delivered.

The Statement of Intent

The facilitative approach suggested by the GIC is partly picked up in the Ministry’s Statement of Intent 2014-2018.

On page 5, the Statement of Intent says that the Ministry must understand needs rather than set direction:

▶ The Ministry is focused on developing a transport system that maximises the economic and social benefits to New Zealand and minimises the harm that arises from the system. To do that, the Ministry needs a good base knowledge of the transport sector. It also needs to understand the future drivers for transport and their implications for government policy and investment decisions.’

Page 23 of the Statement of Intent talks about understanding demand and the factors that impact demand:

▶ The Ministry has to form a view on both what the right level of investment is in the land transport system, and when that investment should be made. However, we know that the investment equation is dynamic. It changes as the demand for and supply of transport adjusts over time, and in response to the country’s fiscal constraints.

▶ The Ministry has a role in advising the government on the demands for future passenger travel, and for walking and cycling. Analysing changing demographics and the economic rationale for increasing expenditure in these areas inform our decisions for future policies.

Performance Improvement Framework review

The Ministry’s response to 2013’s Performance Improvement Framework (PIF) review noted that the Ministry should bring together conflicting views and facilitating a resolution. The Ministry is to ‘drive’ the agenda, but not set the agenda.
The agenda is set by the public, assisted by the Ministry.

► Our role, as reflected in our Greatest Imaginable Challenge, is to create an environment that will allow other parts of the system to deliver better value and lift the contribution the transport sector makes to meeting New Zealand’s economic and social objectives. This will require us to engage more effectively with our stakeholders. As the reviewers have noted, there are a range of private and public sector stakeholders in the transport sector with multiple channels of influence on transport policy and strong views which are often conflicting. We are uniquely positioned to provide a strategic leadership role and drive the policy agenda for transport, but in order to fulfil that role we will need to continue to invest in our capability and our key relationships. (p. 3)

Comments from the reviewers support this (emphasis added):

► The Ministry is in the key position to survey and analyse the transport landscape and to participate in the conversations on, and give advice about, large scale strategic options and significant projects, funding streams and regulatory interventions. To do so it needs to establish its role clearly and set its high level goals and principles in place to guide what it will try to achieve and how.

► It needs a strong programme of external engagement with myriad stakeholders so as to fully earn its place among the powerful and not so powerful interests in the sector, and establish the value it can add. It then needs to build on this engagement to promote and encourage the deep interaction, analysis, problem solving and decision making that will be needed to ensure the sector contributes strongly to economic growth and wellbeing. (p. 7)

► The Ministry should also consider how it can build a more ongoing, not just initiative based, understanding of the public’s views and expectations on transport. This is likely to involve working with the other agencies in the sector who have more direct contact with the public, on ongoing analysis of public experience. This knowledge of the public’s expectations of service quality and trust would help inform the Ministry’s system-wide thinking and future policy work (e.g. on subjects as diverse as the environmental impact of transport, public transport service delivery changes and the regulation of air-based adventure tourism). (p. 39)