The cost of consenting infrastructure projects in New Zealand

A report for The New Zealand Infrastructure Commission / Te Waihanga

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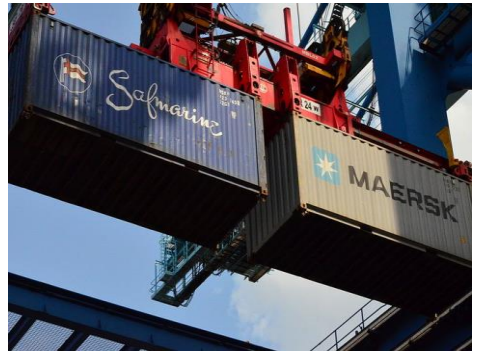

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Executive summary

This report provides a detailed picture of the costs that infrastructure developers face when consenting projects under the Resource Management Act 1991 (the RMA). It provides a baseline against which any changes to the RMA can be tracked.

Our analysis is based on insights and detailed cost-data from a sample of 87 infrastructure projects (from 41 firms) and is supported by an additional dataset of 99 projects supplied by an environmental planning firm.

RMA consenting imposes significant costs on infrastructure

New Zealand infrastructure developers collectively spend $1.29 billion each year getting their projects consented — in council fees, expert and legal costs, and internal staffing costs. This is an extrapolation from analysing a sample of 186 projects.

Although costs vary depending on the project and the sector, a typical New Zealand infrastructure project requires a firm to spend, on average, 5.5% of their total project budget seeking a resource consent.

Smaller projects face disproportionate costs

The consenting process creates a significant hurdle for smaller infrastructure projects, with developers facing disproportionately high costs. Infrastructure projects costing under $200,000 spend on average 15.9% of their budget on consenting, compared to 0.7% for projects costing between $100m and $1b.

Consenting is becoming more complex and costly

The firms we interviewed were unanimous that consenting has become more complex over the past decade. This is borne out by our analysis.

There is evidence that local authorities are now requiring more evidence about a wider range of impacts, in response to increasingly risk-averse behaviour. They are also outsourcing expert advice to external providers, in response to a decline in in-house capability. This added effort, and change in effort, are likely to be key reasons why the cost of consenting infrastructure projects has increased by 70% since 2014 – with firms incurring substantial costs engaging external experts (representing 70% of all consenting expenditure).

Consent applications are now taking much longer to be processed. For all consent applications (not just infrastructure), the average time taken by authorities to make a decision has increased by 50% from 2014/15. Our analysis indicates the time taken to make decisions on consent applications for infrastructure projects may have increased by as much as 150% over the same period.

Increased complexity and prolonged consenting processes have very real consequences. From our sample, a low or medium-complexity project incurred, on average, $4,000 in direct consenting costs each day that a local authority takes to consider a consent application.

Consenting also imposes significant indirect costs

In addition to the money spent to secure a consent, infrastructure developers are also incurring significant indirect costs – including from the consequences of delay, costs created by uncertainty of outcome and the costs of designing and redesigning projects to improve the prospect of a favourable decision.

Applicants in 37% of sampled projects reported facing significant indirect costs, which comprised on average 1.4% of their total project cost (see Figure 9 for our cost classification framework).

The most significant indirect costs were associated with delays from protracted consenting processes, with 17% of firms incurring holding costs (i.e. the cost of holding money for a project that could be invested elsewhere) at an average cost of 1.7% of their total project cost.

International benchmarking indicates NZ is at the upper end of approval costs

Our literature review and interviews with firms operating in New Zealand and overseas indicates that New Zealand is not a low-cost consenting regime for infrastructure and is likely to be at the upper end of regulatory approval costs.

For example, the cost of an Environmental Impact Assessment in the UK and EU varies from 0.1-5% of total project costs, compared to our assessment of 5.5% for consenting in New Zealand.

Another relevant comparator is 'pre-construction costs'. The consensus of quantity surveyors is that pre-construction costs for infrastructure in New Zealand typically represent up to 10% of project costs — this compares with 5-10% in Australia, 3-5% in North America, and 3-5% for roading in the EU and 5-10% for EU energy projects.

Additional insights from our interviews

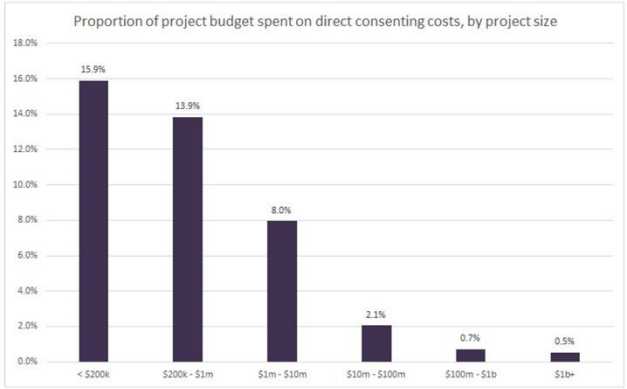
Our analysis of infrastructure projects and interviews with stakeholders has also highlighted some important themes:

- there are a large range of consenting experiences and there is rarely a consistent consenting experience for infrastructure developers,
- a lack of institutional knowledge within consenting authorities and a heavy reliance on expert advice may be contributing to consenting becoming more complex and costly,
- many infrastructure developers felt that local authorities often focused on any negative localised impacts of their projects without giving due weight to the wider societal benefits (which were often national in scope),
- replacement assets and reconsenting do not escape the high costs of consenting,
- project design has become a consenting issue, with many firms often not choosing the optimal design for their project, but choosing designs that will provide a 'path of least resistance' through the consenting process,
- consenting costs are 10 times higher for projects that require a public hearing,

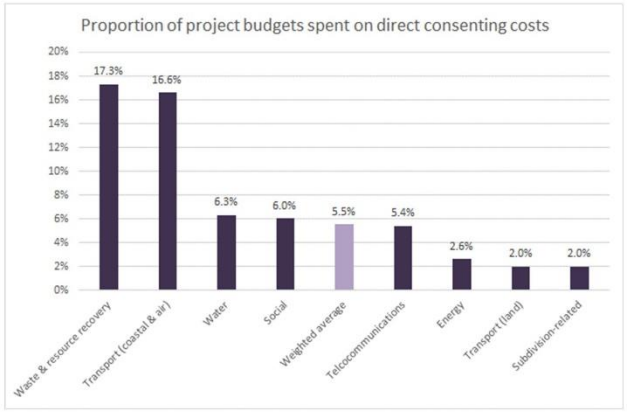
- larger infrastructure firms recognise the benefits from engaging in District and Regional Planning to make the consenting of their planned activities easier, and
- national rules are not reducing uncertainty and sometimes add to it (e.g. wetlands).

1. Dashboard — a quick summary

Disproportionate costs for smaller projects



Significant differences between sectors



$1.29b p.a.

The amount spent each year by NZ infrastructure developers to consent their projects

5.5%

The median proportion of infrastructure budgets spent on acquiring a resource consent

$4,000/day

The average direct costs incurred by developers (for projects of low-medium complexity) for each day it takes to process a consent application

Time to consent varies considerably

Project complexity	Average time to consent (with significant outliers)
Typical	63 – 91 days
Some complexities	167 – 214 days
Complex / unusual	365 – 425 days

Consenting is becoming more complex

- Direct consenting costs have increased by 70% since 2014
- Time to get a consent decision has increased by 150% since 2010-14

37% of firms incur additional indirect costs

- When present, indirect consenting costs comprise 1.4% of total project costs
- 17% projects reported significant financial disadvantage from delay, at an average of 1.7% of total project costs
- 31% of firms redesigned their project to secure consent: average cost of $150,000

2. Introduction

Sapere has been asked by the Infrastructure Commission / Te Waihanga to quantify and evaluate the costs, including in relation to time, and risks of consenting infrastructure in New Zealand.

This report provides a detailed picture of the costs that infrastructure developers face when seeking to consent new projects and outlines some issues with the current regulatory framework. Our analysis is based on a sample of 186 infrastructure projects, large and small, around the country.

RMA reforms provide an opportunity to address the cost/risk burdens on infrastructure developers

Sustainable infrastructure is the foundation of any prosperous community. Without it we cannot ultimately maintain the quality of life to which all New Zealanders aspire.

The Resource Management Review Panel found that New Zealand has a costly, high risk, and time-consuming planning environment. Significant criticisms of the RMA have been its increasing complexity, cost and delay caused by its processes, uncertainty, and lack of responsiveness to changing circumstances and demands.[1]

New Zealand's relatively low infrastructure spend provides some context for this research. Following decades of underinvestment, the nation has begun to realise the task facing it to restore levels of service and many (if not most) of our infrastructure developers now face a step change in their investments.

Our task is to evaluate and quantify the consenting burden for infrastructure

This report examines the real cost to infrastructure developers of navigating the planning regime. It provides quantitative and qualitative data to measure the magnitude of current costs, risks and complexities experienced by applicants when they apply for consents for public and private infrastructure in New Zealand under the current RMA system. The purpose is to provide a baseline to assist in measuring whether any RMA reforms have successfully reduced consent-related costs for projects. It aims to fill a gap in understanding how developers of infrastructure experience the consenting process.

Scope of the project

The focus of this report is identifying and quantifying the costs to the applicant of the consenting process. It does not address the myriad of other costs or benefits inherent in the resource management regime.

For example, we know there are other broader costs associated with the RMA — including the costs imposed by sub-optimal consenting decisions, the

[1] Report of the Resource Management Review Panel, June 2020

ongoing compliance costs imposed by consent conditions, the costs of developing and engaging on District and Regional Plans and national standards, and the costs to the community/submitters from engaging on consent applications.

Similarly, there are societal benefits from having a robust planning regime, and the potential consequences from an overly permissive planning regime could be significant. It is outside the scope of this paper to examine the benefits of the current consenting regime.

Our methodology

Defining infrastructure

We have adopted Te Waihanga's definition of infrastructure for this project: 'A system of inter-connected physical structures that employ capital to provide shared services to enhance wellbeing.'

Our analysis has focused on capturing costs for the following key categories of infrastructure:

- energy,
- telecommunications,
- social (education, health, corrections),
- transport (coastal and airports),
- transport (road and rail),
- water,
- waste and resource recovery, and
- large scale, subdivision-related infrastructure.

Our analytical framework for capturing cost-data

Consenting costs to applicants have many components and can be direct and indirect. Our focus is identifying and quantifying the costs that are incurred by applicants prior to construction of a project and include costs incurred prior to application, during the application's assessment, and during processes to impose conditions.

The scope of our costs is outlined in more detail in Appendix B.

Direct costs of consenting are those directly attributable to the process of obtaining a resource consent and can usually be verified in financial accounts. These direct costs include:

- planning and legal advice for consenting the project,
- council fees in applying for resource consent,
- expert reports to establish and measure impacts,
- appeal and hearing costs, and
- consultation processes throughout the project (e.g. surveying).

Costs related to the initial design of the project or assessing its feasibility (e.g. business cases) are not imposed by consenting and are excluded from our analysis.

The indirect costs of consenting are often much harder to quantify. They are the consequential costs incurred that are not directly attributable to the process of obtaining resource consent. The indirect costs we have sought to capture include:

- delays: the effect on capital costs and project finance,

- project redesign: costs incurred designing and redesigning projects to secure consent, and
- uncertainty: effect of regulatory uncertainty on investment decisions.

Quantifying cost data at the project level

Our analysis is based on a bottom-up analysis of project-level data for infrastructure projects undertaken across New Zealand over the past two decades.

There were two main data sources for this project:

1. 41 of New Zealand's leading infrastructure firms provided us with financial data for 87 infrastructure projects. For each project we had access to detailed cost information as well as qualitative insights from the firms. A list of the projects is provided in Appendix C.
2. We partnered with Mitchell Daysh, an environmental planning firm, who gave us access to its historical consenting data on a further 99 infrastructure projects. This data was used to analyse consenting timeframes and to help weight our sample dataset.

We also convened a panel of three individuals who together have significant experience consenting infrastructure projects. We held a workshop where these experts were given access to our dataset and provided estimates as to the cost distribution and weightings that should apply for each sector.

Unless otherwise stated, the figures we have used in this report have been weighted to address known biases in our sample dataset (project complexity and project size). Detailed information on our modelling is provided in Appendix D.

International benchmarking

We also undertook an international benchmarking exercise to help inform our views on the regulatory burden imposed on infrastructure developers. This literature review identified efforts conducted overseas to quantify the cost of regulatory approvals for infrastructure developers and focused on Australia (wholly, and by state), Ireland and England, Europe, and North America (including Canada). We also interviewed firms operating in New Zealand and overseas to test their views on the relative costs imposed by the RMA.

The findings from our international benchmarking are available in Appendix E.

Structure of this report

This report is structured as follows:

- chapter 3 outlines the direct costs that infrastructure providers in New Zealand incur when consenting their projects,
- chapter 4 describes the nature and scale of the additional indirect costs that are imposed on infrastructure providers through the consenting process,
- chapter 5 provides context by describing the growth in the planning industry in New Zealand,
- chapter 6 covers the international benchmarking of the regulatory approval costs for infrastructure projects, and
- chapter 7 provides our reflections and conclusions.

3. Investors face significant direct costs to consent infrastructure projects

- $1.29b is spent on average annually by infrastructure developers to consent their projects
- Firms spend 5.5% of a project's budget on consenting
- Consenting disproportionately affects smaller projects: projects under $200,000 spend 15.9% of their budget on consenting
- Money is primarily spent on engaging external experts
- Low and medium complexity projects incurred, on average, $4,000 in direct consenting costs each day that a local authority takes to consider a single consent application
- Costs and delays are increasing

Infrastructure investors are spending an average of $1.29b annually to consent their projects

Our modelling indicates New Zealand firms spend $1.29 billion annually on direct consenting costs.

These costs include the cost of council fees, the cost of engaging external experts (including to conduct impact assessments of projects and legal advice), the costs of engaging in hearings and appeals, and the internal staff time spent on consenting.

As noted in the following section of this report, many infrastructure firms also incur material indirect costs from trying to consent their activity.

Infrastructure firms typically spend 5.5% of a project's budget on direct consenting costs

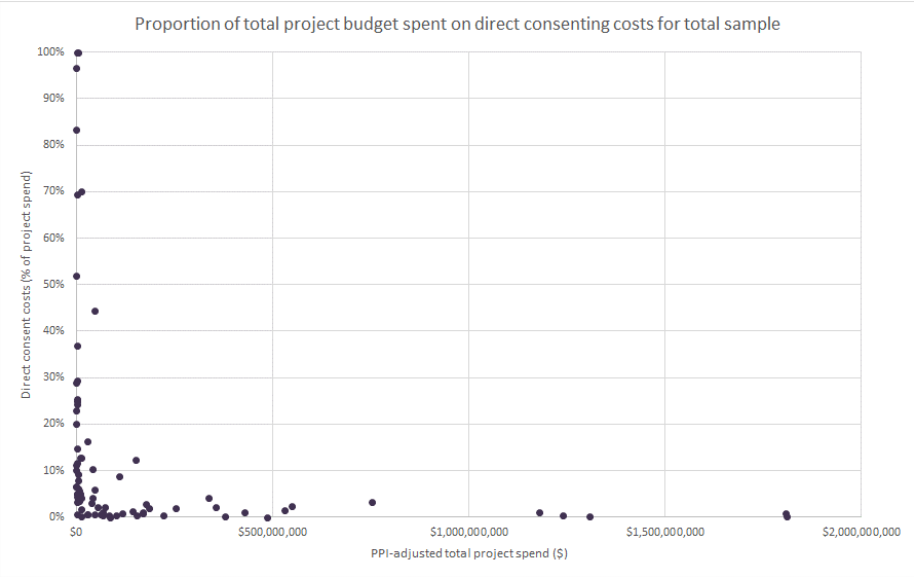
Spending on RMA consenting varies considerably and it is difficult to make generalisations: there are a range of different consenting pathways, different regional and local sensitivities to manage, and a wide range of project types with different impacts and significance.

Our modelling indicates that for a typical New Zealand infrastructure project a firm spends on average 5.5% of the total project budget seeking a resource consent.

Further detail on our modelling is outlined in Appendix D, which shows our two approaches to modelling produced median estimates of the per-project cost burden of 4.8% and 6.1%. We are confident the direct consenting cost per project lies between these two figures and that the midpoint of 5.5% represents a reasonable estimate.

The wide range of experiences is highlighted in the chart below – which shows all the projects within our sample dataset, showing for each project the project size and proportion of the budget spent on RMA consenting.

Figure 1: Total project budgets versus direct consenting costs

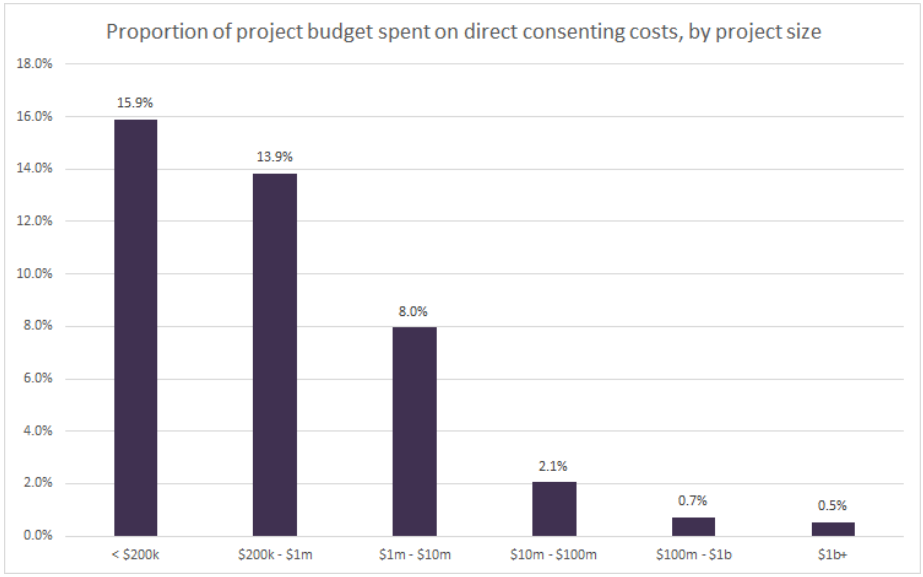


Smaller infrastructure projects face disproportionate costs

To a large extent, the RMA imposes a degree of fixed costs on infrastructure developers to consent their projects. There is very rarely a 'low-cost' consenting experience for infrastructure – and once a council seeks expert advice on the impact of a project then the costs can quite quickly spiral.

The effect of a regulatory regime that regularly requires quite costly expert advice on the impacts of infrastructure is that smaller projects face disproportionately high consenting costs. As outlined below in Figure 2, infrastructure projects that cost under $200,000 incur, on average, direct consenting costs that represent 15.9% of their total budget, and projects between $200,000 and $1 million incur on average direct consenting costs of 13.9%. While larger projects invariably have greater consenting costs, their relative burden is considerably less.

Figure 2: Direct consent expenditure by project size



Source: Sapere analysis

Table 1 below from the Infrastructure Commission Pipeline shows that smaller projects comprise most of the infrastructure activity in New Zealand by project count, albeit their relative capital expenditure is smaller.

Table 1: Infrastructure activity by project size from Infrastructure Commission Pipeline

Size of infrastructure project:	Estimated share of infrastructure projects (by count):[2]	Estimated share of infrastructure spending:[3]	Estimate of annual project capital expenditure[4]
<$5m	56.8%	6%	$637,000,000
$5-25m	29.6%	18%	$1,992,000,000
$25-50m	6.0%	9%	$1,003,000,000
$50-100m	3.7%	12%	$1,249,000,000
$100-250m	2.4%	17%	$1,866,000,000
$250-500m	1.0%	15%	$1,613,000,000
$500-1b	0.3%	10%	$1,122,000,000
$1b+	0.3%	12%	$1,309,000,000

For example, projects with capital expenditure of less than $5m represent 57% of infrastructure projects in New Zealand and comprise approximately 6% of the value of total infrastructure spending in New Zealand each year (nearly $640m). These projects are spending on average 12.7% of their total project budgets to get their activity consented.

Case study: clearing gravel from a stream bed

A Council-owned water infrastructure firm recently sought a resource consent to clear some gravel that had built up on the bed of a small stream in order to maintain the watercourse.

This was a small piece of work, which would have cost no more than $3,500 to complete (including $2,000 to scope and design the work and $1,500 to remove the gravel). The consenting costs in this instance came to $7,500, more than twice the entire cost of physically undertaking the work – primarily because the council required external advice on the potential impact of the work on the aquatic environment.

The firm noted that these sorts of costs for minor operational works are not unusual – and that these semi-regular reactive projects (particularly involving watercourses) can incur disproportionally high consent fees.

Direct costs of resource consent: $7,500 (68% of project)

- $2,500 in Council fees
- $3,000 spent on external experts to assist with the application
- $2,000 spent on internal staff time
- Total budget for project: $11,000

[2] Source: Infrastructure Commission Pipeline, https://www.tewaihanga.govt.nz/projects/pipeline/. The Pipeline does not capture all projects but is the most reliable indicator of infrastructure activity by project size.

[3] Calculated by multiplying known activity by the midpoint size estimates; shown as a share of all capital expenditure in the Infrastructure Commission Pipeline.

[4] Shown as a share of total infrastructure expenditure from MBIE's Pipeline Report, as adjusted to meet our definition of infrastructure sectors. MBIE's Pipeline Report is the most reliable indicator of total annual infrastructure spending in New Zealand (MBIE, 2020). Available here: https://www.mbie.govt.nz/assets/national-construction-pipeline-report-2020.pdf.

These smaller infrastructure projects are typically maintenance projects that require a consent or minor replacement / supplementary investments (e.g. upgrading a cell-tower to 5G, replacing pipes). They can also often be unplanned investments.

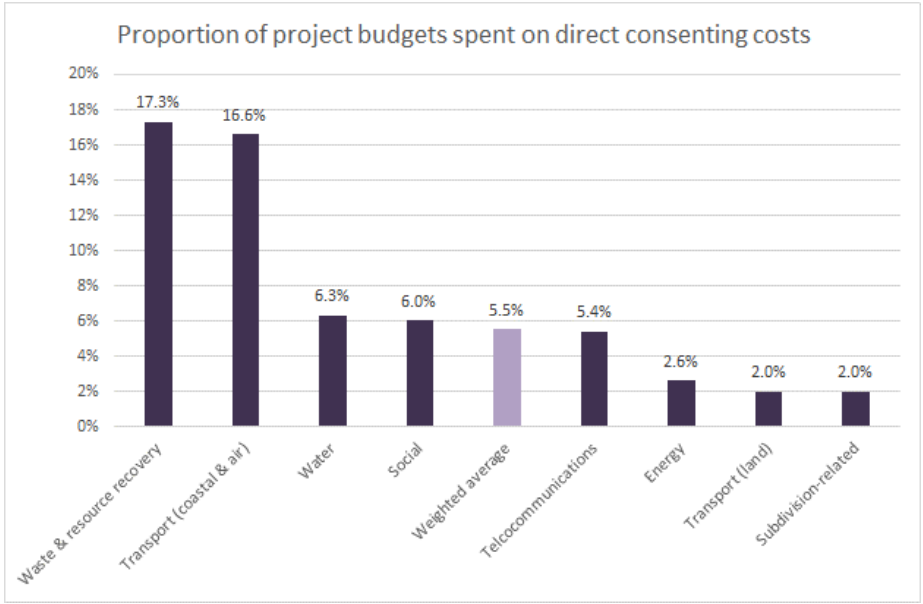
As one stakeholder observed:

> "While the big projects have big [consenting] numbers that are quite impressive, they are kind of expected and can be factored in early in the budgeting cycle, which might take 10 years and will evolve throughout time as more precise costing becomes clear…. For the day-to-day operations, especially in regard to reactive works… we don't have the luxury of being able to budget 10 years out and every dollar spent on a consent is a dollar not being spent on providing service or support to our communities."

Costs vary considerably by sector: particularly high for waste, water, and coastal infrastructure

There are some very clear differences in terms of how the consenting cost burden falls across different sectors. Investors face materially higher consenting costs when investing in waste and coastal transport infrastructure, and lower relative costs when investing in roading, rail, and large-scale subdivisions.

Figure 3: Direct consenting costs by infrastructure sector[5]



Our cost-data here mirrors what interviewees told us about their experiences, particularly for water — any infrastructure that is near the coast or includes water taking or discharges is immediately more complex and requires considerably more expert advice and intensive engagement with the community. Consenting waste facilities is also a lengthy and complex task, with relatively high costs incurred.

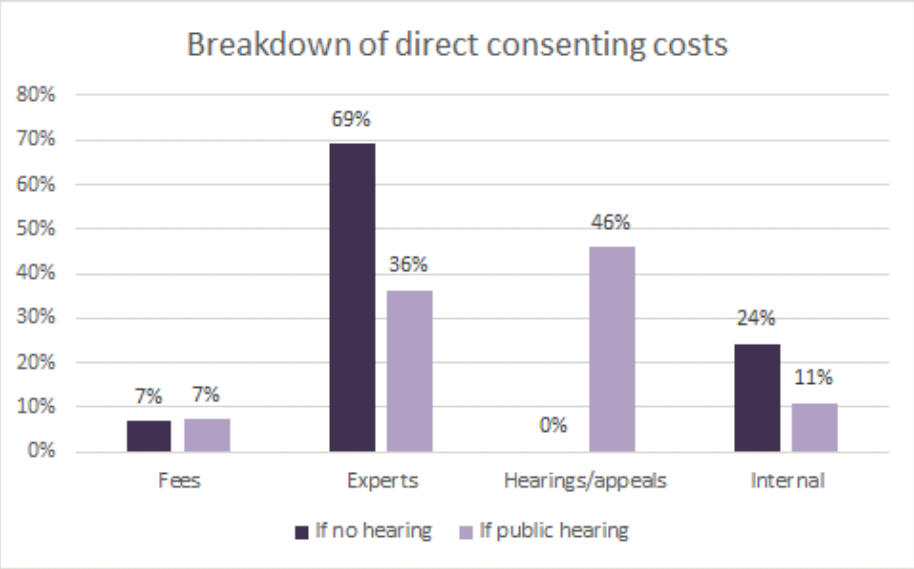
[5] See Appendix D for methodology on how the 5.5% weighted average was calculated.

Insights into cost drivers

Money is primarily spent seeking expert advice

Figure 4 below highlights that spending on external experts to support a consent application is the most significant driver of consenting costs for infrastructure projects — comprising nearly 70% of consent-related expenditure for projects (including external experts and costs incurred during hearings/appeals). Local authority fees are a small proportion of costs, comprising 7% of total consent expenditure by infrastructure firms.

Figure 4: Direct consent cost breakdown by hearing versus no hearing



The input from experts depends on the project, but some more common categories of cost to support a consent application include engineers, noise engineers, ecologists, hydrologists, economists, social scientists, landscape architects, surveyors, traffic engineers, archaeologists, and cultural assessors.

Many infrastructure firms told us that the spending on external experts reflected two aspects of the consenting process:

1. councils are risk adverse, which means they often require applicants to provide detailed expert advice on a wide range of potential impacts, even for very low-likelihood probabilities. Many firms noted that council staff are process-driven rather than outcome-driven and request expert reports simply to cover themselves and reduce the risk of appeals.
2. councils are less likely now to have in-house experts and so look to external experts to independently verify the impacts of projects. This outsourcing of consenting and planning functions to external experts keeps council fees low (only 7% of total consenting costs) but effectively passes costs through to relatively higher paid external consultants.

Case study: upgrading antennae on an existing cell tower

A telecommunications company applied for a resource consent to switch out existing antennae on a cell tower in order to upgrade coverage to 5G. A new resource consent was required as the existing consent specified the technology being used on the cell tower.

The change involved replacing existing antennae with antennae that were the same size, shape and colour, with no change to the tower footprint.

This particular tower was in a built-up CBD environment adjacent to the waterfront and the council required advice from a coastal marine expert before it could grant a new resource consent. Analysis was also undertaken on the potential risks of 5G.

The council took three months to consider the application and charged the firm fees of $6,000.

Direct costs of resource consent: $33,000 (17% of project)

- $6,000 paid in council fees
- $2,000 spent on external experts to assist with the application
- $25,000 spent on internal staff time
- Application duration: 3 months from application to decision
- Total budget for project: $200,000

Consenting costs are linked to complexity and time to consent

As one might expect, there is a relationship between the costs that an infrastructure developer faces and the time it takes a local authority to consent an infrastructure project. Projects that are more complex require additional evidence and consideration – resulting in a more drawn out consenting process and more costs incurred by the applicant.

It is also apparent that the complexity of a project impacts consenting costs, regardless of how long a council takes to reach a decision:[6]

- low and medium complexity projects incurred, on average, $4,000 in direct consenting costs each day that a council takes to consider a consent application, and
- high complexity projects incurred, on average, $7,000 in direct consenting costs each day that a council takes to consider a consent application.

As we explore more below, the time it took to receive a consenting decision was often the most frustrating aspect of the consenting experience for infrastructure developers.

[6] Further information on the relationship between cost and time to consent can be found in Appendix D.

Table 2 below shows the length of time it takes, on average, to secure a resource consent for an infrastructure project – showing the median duration to make a consent decision for both our sample dataset and that dataset provided by Mitchell Daysh:

Table 2: Comparison of time data across data sources (time between submission date and granting of consent)

Project complexity	Average days to consent (Sapere sample)	Average days to consent (Mitchell Daysh dataset)
Typical	91	63
Some complexities	214	167
Complex / unusual	425	365

There is significant commonality between the two datasets. We can therefore have some confidence in our findings – indicating it takes on average between 2-3 months for a local authority to consent a typical infrastructure project, and over a year for an infrastructure project with complex consenting issues.

Consents with public hearings have 10x higher costs

Our analysis confirmed the impact that public hearings can have on the costs faced by infrastructure developers. For infrastructure projects with a public hearing:

- councils took four times longer to make a decision than cases where there was no hearing, and
- applicants ended up spending 10 times more on direct consenting costs than cases where there was no hearing.[7]

This finding mirrors the Ministry for the Environment's (MfE's) own analysis of all resource consents, which found council consent fees were 10 times more expensive for consents with a hearing compared to non-notified consents.[8]

Several nationwide infrastructure firms commented that the costs of delay are so significant they are forced to follow the 'path of least resistance'. Their investment decisions are not simply prioritised based on the desirability of the investment, but by the ease by which they can expect a consent. Many firms (particularly telecommunications providers) noted that the costs of delay are so material that they will invest elsewhere if there is the prospect of a public hearing or strong public opposition.

The strong motivation to avoid public hearings was a key theme that came through our interviews with developers. Some developers invested heavily upfront to work with affected parties and seek their agreement to the project, in the knowledge that these upfront costs would be more than saved if they could convince council officials that there was no need for the consent to be publicly notified.

[7] MfE, Trends in Resource Management Act Implementation (April, 2020).

[8] MfE, Trends in Resource Management Act Implementation (April, 2020).

Others we spoke to felt that council officers were aware of the costs and delays that a public hearing would create and sometimes used this as leverage to get a developer to voluntarily agree to consent conditions. One such example is outlined below:

> Quote from an email from a council official to a consent applicant suggesting they could avoid public notification of their consent if they voluntarily adopted conditions drafted by the Council:
>
> > 'The draft conditions embody the intent of the proposal and the requirements of the [Council] and the RMA and, if accepted and proffered as part of the application by the application, I consider that I would be in a position to recommend that the application not be given public or limited notification and that a hearing would not be required.'

Consenting is becoming more complex

There was a clear consensus amongst all interviewees that consenting has become more complex over the past decade and that it is now taking considerably longer for councils to make decisions. This is supported by our analysis:

- MfE's National Monitoring System shows the median time taken by local authorities to reach a decision on a consent application has increased by 50% from 2014/15 to 2018/19. This is for all resource consents, not just infrastructure, and there is reason to believe the impact has been worse for infrastructure consents.
- Our analysis of the Mitchell Daysh dataset shows that the time taken by local authorities to reach a decision on consent applications for infrastructure projects has increased by 150% for consents issued between 2010-14 compared to 2015-19.

Consenting is becoming more costly

The views of infrastructure firms that consenting is becoming more costly is borne out by our dataset. Direct consenting costs (as a proportion of project budget) have increased by 70% for consents lodged since 2014.

Our calculation of this rate of growth is supported by national-level data on the consent fees charged by councils – which can be a useful proxy for tracking the cost burden on consent applicants:[9]

- council fees for all non-notified consents have increased by 66% over the five years from 2014/15 to 2018/19, and
- council fees for notified consents with a hearing have increased by 124% over the same five-year period.

[9] MfE's National Monitoring System, 2014/15 and 2018/19 datasets

4. Additional indirect costs are a material burden for many projects

- 37% of projects incur material indirect costs from consenting
- These indirect costs comprise 1.4% of the total budget for the infrastructure project
- Indirect costs are primarily driven by delays and having to redesign projects to secure a consent

In addition to the direct costs incurred in securing a consent for their project, infrastructure developers can often face significant indirect costs that are imposed through the consenting process.

These costs can include, for example, the costs incurred by delaying a project, the costs created by uncertainty of the RMA process, and the costs of designing an infrastructure project to improve the odds of a favourable consenting decision.

More than one-third of applicants report facing material indirect costs

Applicants in 37% of sampled projects reported facing material indirect costs from the consenting process in addition to the direct costs they spent on consenting. These indirect costs represented an average of 1.4% of their total project budget.

There are some common characteristics amongst projects with significant indirect costs. Projects with indirect consenting costs were much larger projects (involving three times larger capital expenditure than projects without indirect costs), took twice as long to get a consent decision from a council, and were twice as likely to have a public hearing.

Case study: a new windfarm

This application is worth highlighting as an example of some of the indirect costs infrastructure developers can face.

The proposed site was in a working rural environment, with local water sources that were very important to farmers and a skyline that is an important local feature. There was considerable opposition from the local community: 22 houses were within 3.5km of the proposed turbines, with two houses being particularly close.

To improve the prospect of receiving a consent the firm paid all the affected neighbours to withdraw their objections. In exchange the affected neighbours each received a one-off payment and were given the right, once the windfarm was built, to sell their property to the firm at a premium or to draw an annuity.

The firm also eventually realised that the land-use consent they were granted to build the windfarm could be used by the landowner to 'go to the market' and offer the land to another windfarm operator. In order to have their interests registered on the title the firm committed to substantial one-off and ongoing payments to the land-owner as well as ongoing royalties from the windfarm.

Costs incurred for resource consent: $7,000,000 (1.4% of project)

The most significant indirect costs are those associated with delay

Delays caused by protracted consenting processes are not only a significant driver of direct costs for infrastructure developers but are also the biggest driver of indirect costs.

The clearest predictor of the incidence of indirect costs is delay – firms that reported material indirect costs faced, on average, a wait time of 2.5 times longer to get a consent decision than firms reporting no indirect costs.

The cost of delay materialises as holding costs, which is the inability to use capital while awaiting a favourable consenting decision. Holding costs were only calculated for projects where the applicant confirmed capital was tied up pending a consent decision.[10]

Many firms observed that their internal sequencing of projects meant that capital funding was not set aside for a project until after consent had been granted. However, for larger infrastructure projects, capital is often raised or set-aside for early phases of the project and significant delays at the consenting stage means the firm loses the opportunity of using that capital.

From our dataset, 17% of infrastructure projects incurred material holding costs due to the delays imposed by consenting – at an average cost of 1.7% of the project's budget.

Case study: a renewal of a stormwater discharge consent

A renewal of a consent was sought to discharge stormwater from a prison into a nearby lake, which had degraded over time due to contaminated groundwater.

The applicant proposed to re-sleeve the stormwater network to prevent contaminants entering their network, to install a new filter system, and to remove weed from the lake. Expert advice was provided that this would improve the water quality of the lake and that closing the prison would not affect the flow of contaminated groundwater into the lake (which comes from other sources).

The application was heard by independent commissioners and was publicly notified. The Regional Council recommended that the application be declined due to the degraded state of the lake.

It took seven years from lodging the consent application to receive a decision – and that decision is on hold as the process now moves to the appeal stage. Concerns have been voiced that the local community may be relying on potential unjustifiable environmental concerns to try to close the prison.

Costs incurred for renewing resource consent: $15,911,000

- $211,000 in Council fees
- $2,200,000 spent on external experts
- $300,000 spent on hearing costs
- $1,200,000 spent on internal staff time
- $12,000,000 costs incurred to improve prospects of a favourable decision
- Application duration: 93 months for decision (appeal pending)

[10] We multiplied the time the capital was held by the amount of capital by a weighted average cost of capital (WACC). If the WACC was not specified we used an infrastructure company average of 6.7%. See Appendix B.

Applicants frequently face substantial project design costs to secure consent

Infrastructure investors are regularly incurring costs by designing their project to a specification that improves their prospects of a favourable consent decision.

Project design is now a consenting issue, with final designs often reflecting significant compromises between applicants and councils. From our interviews, 46% of firms made changes to the design of their infrastructure project to secure a consent – with 17% of firms reporting making significant design compromises.

These design costs typically fall within two categories:

- The infrastructure project is more expensive from the outset than might otherwise be the case because project designers know what is required to secure a consent (for example, a new hospital building will likely be designed from the outset to minimise shading of adjacent high-value areas or buildings in the knowledge the council will examine this facet of the design).
- Through the consenting process, discussions with council staff lead to infrastructure investors making design concessions or changes to the project to improve the prospects of a favourable decision (for example, costs incurred rescoping and redesigning turbine blades on a windfarm to alleviate concerns about noise).

The costs incurred from having to redesign projects can, depending on the project, be very significant. From our dataset, where 31% of firms were able to quantify the project redesign costs that were imposed through the consenting process the average additional cost per project was $150,000.

Case study: replacing a small rail bridge

The applicant sought resource consents to replace a small bridge. The consent was not publicly notified.

As part of their consent application the firm proposed putting in temporary culverts (multiple pipes 1m in diameter) to allow traffic to cross the river during the construction period. The Council concluded that 4m diameter pipes were needed to avoid the risk of flooding if river levels were to significantly rise.

The firm expressed frustration that the Council was applying the same standards to a temporary culvert as would be applied to a permanent culvert. In their view Council staff were unnecessarily bound by Council policy and did not consider the much lower risk of flooding during the three-month construction window (as opposed to if the culvert was a permanent fixture).

Sourcing the 4m pipes would have led to considerable delays. In the end the firm built a temporary bridge that could be used by traffic during the construction window – a solution that was not their preferred option, or the cheapest, but one which would avoid further delays to their project.

Costs incurred for resource consent: $234,000 (6.9% of project)

- $3,925 paid in Council fees
- $40,000 spent on external experts to assist with the application
- $190,000 spent on internal staff time
- Plus additional unquantified redesign costs to build bridge
- Application duration: 8 months from application to decision
- Total budget for project: $3.4m

5. Growth in the planning industry may be indicative of increasing complexity

Our preceding chapters highlighted some key themes from our interviews and data analysis: consenting has become more complex and costly; councils are requiring more evidence about more types of impacts from infrastructure projects; councils are outsourcing much of their analysis of impacts under the RMA; and infrastructure firms are spending considerable sums on external experts.

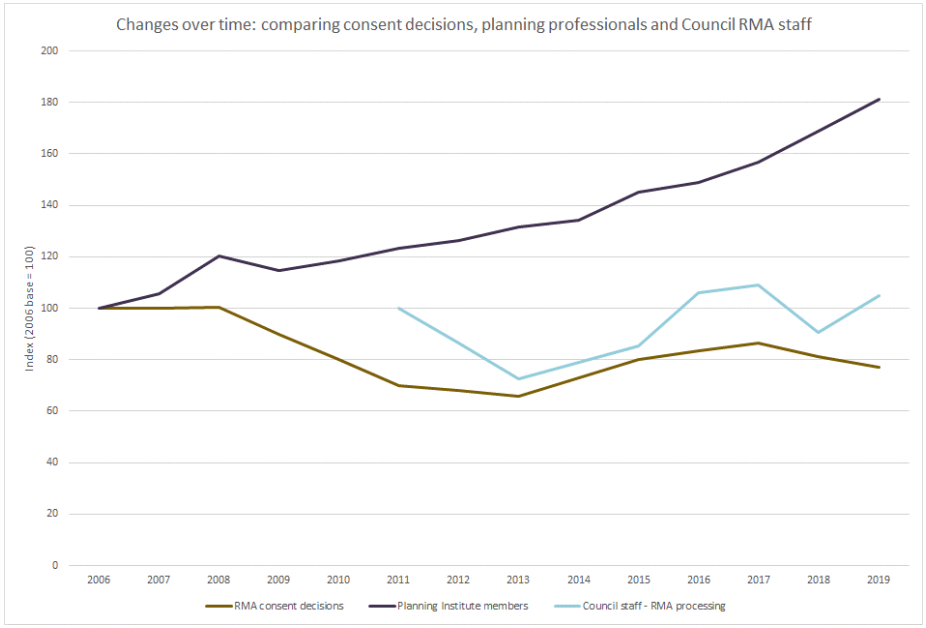
We sought to test the foundation for these conclusions by examining whether there had been any observable growth in the planning industry in New Zealand.

There is no single proxy that we can use to test whether consenting has become more complex. Figure 5 compares changes in three metrics over time: annual RMA consent decisions (since 2006), membership of the NZ Planning Institute (since 2006), and the number of council staff involved in RMA processing (since 2011).

From this data we can observe:

- consent decisions have decreased by 23% since 2006
- membership of the New Zealand Planning Institute (NZPI) has increased by 81% since 2006
- the number of council staff responsible for processing consents has increased by 5% since 2011

Figure 5: Consents and planning industry over time



By themselves these figures are not determinative. But when coupled with our earlier analysis they indicate there may be an increasing role for external experts in the consenting process.

We are using NZPI membership as a proxy for the level of employment in the wider planning and consenting 'industry'. The steady and material growth in

NZPI membership — at a time when consent volumes are falling — could be indicative there is increasing demand for planners in New Zealand.[11] If so, this would support a contention that there is an increasing level of complexity associated with the consenting process and that planning experts are increasingly being relied upon by both councils and infrastructure developers.

This contention is also supported when we note that in the face of declining consent applications and stable council staff numbers, local authorities in New Zealand have increased their consent fees by 63% since 2014/15, while also taking at least 50% longer to issue decisions (for all consents).

Case study: Waterview connection in Auckland

The applicant firm applied to the Environmental Protection Authority (EPA) in 2010 for the use of the Board of Inquiry (BOI) process (i.e. of national significance, therefore fast-tracked). At the time, this was one of the biggest and most complex roading projects undertaken, and the first ever roading project to be able to use the BOI process.

The applicant identified that there were very likely financial benefits from going through the BOI process as opposed to the Local Authority (LA) process due to the certainty of the length of time required by the BOI. By contracting when it did and through the more-sure BOI process rather than the less certain LA process, the applicant estimated they may have been able to save between $200-300 million.

The draft decision by the BOI granting consent was issued in May 2011, with the project completed and opened to the public in July 2017.

Costs incurred for resource consent: $13m (1.1% of project)

- $1.6m in Council fees
- $6.3m spent on external experts to assist with the application
- $4.0m spent on external experts and legal fees for the hearing
- $1.2m spent on internal staff time
- $0.4m incurred in indirect costs (holding costs of capital)
- Application duration: 10 months (BOI process)
- Total budget for project: $1.4 billion

[11] We are not assuming a causal relationship between NZPI membership and consent complexity or that the growth in membership is solely due to demand for RMA support.

6. International benchmarking indicates NZ at upper end of approval costs

Our research indicates that the cost of securing a resource consent for infrastructure projects in New Zealand is likely to be at the upper end of regulatory approval costs compared to similar jurisdictions.

We undertook an extensive literature review to locate research where efforts have been made to quantify the regulatory approvals process in other countries and interviewed infrastructure firms operating in New Zealand and overseas. This chapter provides a summary of this review, with more detailed information on the international benchmarking and sources available in Appendix E.

While we found some relevant studies, we observed there was a lack of similar bottom-up modelling of infrastructure approval costs. Where research had been undertaken the cost of regulatory approval was often combined with other 'pre-construction' costs.

To enable comparisons with these overseas studies we contacted 25 quantity surveyors and asked them to give their best estimate of the 'pre-construction' costs for infrastructure in New Zealand (including costs of design, engineering, businesses case, procurement, and planning and approval) . There was a consensus that, although there was significant variance depending on the project, these pre-construction costs typically represented up to 10% of project budgets.

Summary benchmark indicators

*The cost of regulatory approvals [**NZ: 5.5%**]:*

- **EU and UK**: the cost of an Environmental Impact Assessment (EIA) varies from 0.1%-5% of total project cost (with any project over 1% an exception).
- **Australia**: $0.66-$2.3m for an EIA and on average $1.2m for Environmental Effects Statement (EES) with approvals taking on average 2 years.
- **Canadian pipelines**: 4%-11% of total construction cost to develop and apply for regulatory approval.

*Pre-construction costs (includes design, planning, and approval) [**NZ: up to 10%**]:*

- **Australia:** pre-construction costs range between 5%-10% of total project costs
- **EU**: total cost by sector:
    - Motorways: 3%-5% on 'planning and design'
    - Water supply: 5%-7.5% on 'planning and design'
    - Sewerage: 3%-5% on 'planning and design'
    - Energy: 5%-10% on 'planning and design'
- **North America**: 3%-5% on early stage 'engineering and design'

Key international insights

It is important to note some of the limitations in developing a robust evidence base about international consenting costs from literature reviews:

- There is variation in the literature on the definition of consenting costs, with some including the substantive cost of complying with requirements (e.g. the construction cost of a noise barrier), while other research only includes the administrative time and delays.
- Some papers are unclear what costs are included as consent costs.
- Much of the information that is available focuses on large and complex projects in excess of $200 million. The size and complexity of these projects likely inflates the data found, particularly the consenting timeframes.

Australia

- Most of our Australian desktop research references the Commonwealth EIA process under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act),[12] which is managed by the Commonwealth Department of Agriculture, Water and the Environment. There is, however, strong interaction with State and Territory environment laws, with accreditation and bilateral processes in place to reduce duplication.[13]
- The typical cost of approvals is around $0.66-$2.3m for EIAs for infrastructure projects, with approvals taking about 2 years. But costs can vary significantly, depending on the project.[14]
- Pre-construction costs (including design, engineering, business case, procurement costs, approvals etc) are in the range of less than 5% to 10% of total project costs and represent an upper bound for approval costs.
- The Productivity Commission Inquiry Report (2014) provides the most comprehensive discussion of approval costs. It found:
  - There was an escalation in complexity and scope of regulatory approval requirements up to about 2014.
  - A vast array of legislation and regulatory instruments may apply to a project, some duplicative and others contradictory, depending on its size, type, and location.
  - Unnecessary costs arise where regulations are poorly designed, coordinated and/or administered.
- After 2014, some streamlining of approvals processes occurred e.g. by introducing bilateral agreements on approvals between the Commonwealth and State Governments.

[12] EIA is often used as a collective term, which can also refer to the EES, the Environmental Impact Study or the Environmental Study ES, all indicating some sort of environmental evaluation. In some cases the term EIA may have a formal or legal specificity, while in other cases it is a descriptive term comparable with the ES, the EES or the EIS. In some jurisdictions however the difference between EIA and EES is very clear e.g. in Victoria, EIAs of proposed development projects are conducted through the EES process.

[13] For example, NSW will assess projects under NSW's *Environmental Planning and Assessment Act 1979*.

[14] Most information found was on large and complex projects, more than $200m.

- Roads Australia observed that there seems to be less concern amongst the industry about approvals costs than there was 10 years ago, due to streamlining of processes and increased experience and competence of proponents. Other pre-construction costs (e.g. procurement processes) now appear to be more costly and of greater concern to industry.
- However, a 2020 Independent Review of the EPBC Act found key issues for the infrastructure industry with EIA decisions are the length of time it takes to receive an approval and perceived duplication with State/Territory processes for little additional environmental benefit. On average, complex resource-sector projects can take nearly 3 years to assess and approve.
- A large construction stakeholder operating in NZ and Australia reported that the regulatory landscape is broadly similar in these countries. Both have duplicated regulatory frameworks across different jurisdictions or frustrating differences in regulatory approach. In both countries, regulatory costs are becoming higher due to community expectations increasing around standards required (e.g. environmental/aesthetic).

Other countries

- Similar findings emerge for the cost of environmental impact consents in other countries (Europe, UK, North America). Costs vary widely from low to very large for very complex, large and challenging projects.
- In Europe the cost of performing an EIA is typically less than 1% of the overall project cost.
- In the UK, the average duration for approval of an EIA was just over one year. However, it can take up to 2.5 years to complete the entire EIA process / get approval.
- A 2019 European Commission project found of the projects examined, 60% had an EIA cost amounting to less than 0.5% of capital cost and took under two years to complete and gain approval. Anything over 1% was an exception.
- Canadian consent costs and the time to make decisions appear to be on the high side for major infrastructure projects:
    - A 2016 study found the average approval duration across different energy approval categories is just over 3 years or 37 months (pipelines, oil sands, LNG, power generation, power transmission).
    - A 2018 study found an average of 41 months (nearly 3.5 years) for approvals to be completed. Hydro, roads and transmission projects all had an average timeline of 30 months or less. Pipelines averaged 33 months. Mining and coal projects were around 50 months, and port projects averaged 69 months.
    - Another Canadian study noted pipeline industry estimates that the direct costs for project proponents of development and regulatory applications account for 4%-11% of total pipeline development and construction costs, with an average of 7%.

7. Our reflections

There is rarely a consistent consenting experience for infrastructure developers

Our interviews with infrastructure developers highlighted the difficulties in trying to make generalisations about consenting infrastructure projects. The metrics we have presented in this report reflect our best estimate of the typical experience – but we accept that many experiences will fall outside of our point estimates. For example, one energy company noted they were spending under $100,000 to consent a 200MW gas-fired power station, while they were anticipating spending up to $10,000,000 to consent a new 400MW geothermal station.

Consent costs are a complex matter to capture. There are a myriad of consenting pathways (which vary considerably depending on District and Regional Plans), different regional and local sensitivities to manage, and a wide range of project types, including projects of national and regional significance.

Consenting infrastructure has become more complex and costly

We have heard universally from infrastructure developers that consenting has become more complex over the past decade – and, as a consequence, costs are increasing. No interviewees believed their consenting costs had fallen over time.

We observed three themes from our interviews as to what might have caused the increase in consenting complexity:

1. councils are considering a wider range of potential impacts from infrastructure projects,
2. councils are requiring more evidence about those impacts, and
3. communities have less tolerance of impacts.

One area where consenting complexity has increased regards activity in the marine and coastal space. For example, consents for marine dredging now require supporting analysis (and potentially mitigation steps) on the impact of noise on marine life – which is an impact that hasn't been well understood until recently. Similarly, public interest and the recognition of cultural values in the coastal environment mean there is a lot more focus on the potential impacts of activity than ever before.

It was put to us that infrastructure developers now need forgiving topography and supportive district plans to get back down to the levels of scrutiny that were expected ten years ago.

Within councils, a perceived lack of institutional knowledge makes infrastructure developers feel that the costs to get to consent approval are higher, even though they may be doing the same types of project again and again.

Figure 6 was generated through an online workshop tool to capture infrastructure firms' views of their consenting experiences:

Figure 6: Word cloud of infrastructure firms' experiences with consenting

Localised concerns often outweigh societal benefits

Infrastructure developers often have the negative localised impacts of their projects examined in detail through the consenting process, but they can find it difficult to have the broader (often national) benefits of their projects captured alongside. Many interviewees felt that local authorities failed to consider the wider economic benefits that their infrastructure would deliver to society.

This theme comes into sharp relief when comparing the consenting of coastal infrastructure, landfills, and prisons to less visible or more socially accepted infrastructure like schools, telecommunications infrastructure, or underground pipes. Our dataset shows that the consenting costs were materially higher for coastal, waste, and water infrastructure – which are often seen as disruptive and locally undesirable.

Compare for example a Notice of Requirement for two new schools with consenting costs of $120,000 versus a new landfill site with costs of $5.2 million. Aside from the National Grid upgrade, our highest consent cost example was $16.6 million for a new landfill.

Larger firms recognise the benefits from engaging in Plan reviews

Our interviews also highlighted the value to infrastructure developers from engaging in the development of District and Regional Plans. Many of the larger firms we spoke to noted that, as one-off consenting applications were costly and relatively uncertain, there were considerable benefits from investing to ensure that local planning requirements anticipated their planned activities. These firms noted that while such activity made the consenting of projects easier, it did not necessarily reduce their overall costs.

One national infrastructure firm we spoke to has a team with an annual budget of $1m that is dedicated to ensuring that local authority planning processes give effect to a relevant national policy statement – an effort that front-loads their costs, but significantly simplifies subsequent consenting.

We also observed that the relationship between the local authority and the infrastructure firm was very important to the smooth processing of consent applications. Firms that regularly consent the same activity and know the local officials appeared to have a better experience. These firms had regular

meetings about projects, provided regular updates and were able to constructively talk through potential consenting challenges.

Case study: a university invests in local plan development

A university observed how investing in local council processes significantly simplified their consenting experience.

The first generation of the relevant District Plan did not anticipate the need for the university to erect signs within its campus. The university incurred substantial administrative costs obtaining over 30 consents for signage of various types including buildings' names, changing names on buildings, directions, ceremonial flags, and student notice boards.

The university had the choice to either invest in making the Plan work for the university or paying to overcome all the obstacles in a poorly written Plan. The university invested significant resources and money into the drafting of subsequent District Plan iterations and noted that it is now reaping the benefits in terms of cost, consultation, and processing times for straightforward resource consents.

Replacement assets do not escape high costs

Infrastructure developers not only face significant costs in consenting new projects, but they incur material costs when replacing infrastructure on a like-for-like basis, or reconsenting existing infrastructure. Having already made substantial sunk investments, many firms felt they were hostage to the consenting process – they did not have the option of walking away from their investments and often had to relitigate issues that had already been dealt with.

One example highlighted above was the need to seek a new consent to replace antennae on a cell tower as part of a 5G upgrade – with the antennae being the same colour, size and shape as those being replaced. The firm in question incurred direct consenting costs of $33,000.

Other examples include reconsenting a landfill at a cost of $510,000 and the cost of reconsenting a hydro power station with direct consent costs of $4.5 million.

One firm captured the frustration that many observed — that there is no streamlined process for reconsenting existing infrastructure:

> "We are treated like we are a fresh applicant. Councils don't seem to hold an institutional 'memory', so the consideration of effects doesn't consider the history of management approaches that we've used in the past. For example, we spent $20k on a groundwater consent even though we've done the same consent before, same experts, same effects, same management conditions imposed. This was because there were new people dealing with the application, with little experience. This is a capacity and expertise problem. So, it's implementation of the Act that's as much at fault as the Act itself."

Project design has become a consenting issue

As noted above, most projects are designed with consentability in mind. Infrastructure developers often do not choose the optimal design for their project, instead favouring designs that will minimise any issues that might arise through the consenting process.

We heard several examples from infrastructure firms where consenting agencies became de facto project designers. Local officials would advise on the changes that would be required to an infrastructure project to receive consent or to avoid public notification and could negotiate or set prescriptive conditions that might curtail a project.

The consenting process has also front-loaded infrastructure design costs. As one firm observed:

> "There is always a tension between the applicant's desire to keep the design as flexible as possible and under the RMA the council and submitters wanting to fully evaluate wanting every last actual and potential effect to remove any uncertainty…. The Councils did keep pushing us for more detailed design in the application and we provided this where we considered it to be appropriate. Where we didn't, we accepted consent conditions which impose constraints on flexibility and result in costs."

National rules are not reducing uncertainty, and sometimes add to it

We did not hear many examples of National Policy Statements (NPS) or National Environmental Standards (NES) solving complexity – but we heard numerous examples where they added it.

The most often mentioned example was the change in rules around wetlands. The Government changed freshwater policy late in 2020 and introduced the NPS for Freshwater Management (providing direction to local authorities on how to manage freshwater) and NES for Freshwater (setting standards that must be met for anyone carrying out activities that pose risks to freshwater and associated ecosystems).

These new freshwater policies created two sources of complexity, according to infrastructure firms we spoke to.

First, while the policies have useful features, they can be difficult to interpret together. For example, the new NES can be enforced as a backstop by council, and the NPS can streamline the process but nowhere is a hierarchy established.[15] This means that firms are having to navigate council plans and

[15] The lack of a hierarchy was also raised in relation to having competing NPSs. National rules have created complexity where they overlap – for example, the NPS on Electricity Transmission has streamlined consenting for transmission projects but has created considerable new complexity when those investments take place in a coastal environment – which there is an interplay with the applicable NZ Coastal Policy Statement.

the NES alongside the NPS. This can cause regulatory uncertainty and have unintended consequences, including regional variation.

Secondly, the NES introduced a new definition for wetlands, which is much more likely to capture wetland areas than the ordinary RMA/plan definition. The rule is stricter and applies instead of more flexible local requirements.

Because of these two matters, interviewees told us that it has become much harder to consent certain activities, particularly if activities inadvertently create or impact wetlands. Quarries appear to be unintentionally affected by this rule as quarries always cause some water to leak, which creates a wetland that falls under this new rule.

One windfarm investor highlighted the costs (and inevitable delays) they incurred due to a 20 square-metre patch of land that met the definition of a wetland:

> "At the very last minute - last minute as in we had done the final walk over the sites with the councils and the site has had ecologists say there are no wetlands – we had to obtain additional consents. We were caught because the rules around wetlands changed in September last year, so the definition of a wetland changed. This threw up a problem and delayed the windfarm. Now we still have a consenting process to run where we have 20 sqm of land that under the new definitions is a wetland – in the middle of the access track. We need to get another consent for that [which cost $62,000]."

Case study: a wastewater treatment plant

The applicant firm applied for resource consents to build a new wastewater treatment plant. They sought consents to extract water from a river to use for sterilising wastewater and cleaning, as well as consents to discharge water back into the river.

This consent had a public hearing, with submissions received from three parties. The applicant noted they did a lot of preparation work designing a proposal that they thought would get consented.

There was some disagreement about the investment schedule, with the council wanting upgrades within five years, rather than by Year 15. In the end the parties reached an agreed outcome – which still involved bringing forward some planned infrastructure upgrades.

The firm said the 10% of the project budget spent on consenting was similar to other similar projects and was reasonable in the circumstances. The firm observed that the environmental impact of a poorly designed wastewater treatment plant could have been serious and they considered it a 'cost of doing business' to ensure the local authority and community has any concerns addressed in a transparent manner.

Costs incurred for resource consent: $1,537,000 (10% of project)

- $258,000 in Council fees
- $971,000 spent on external experts to assist with the application
- $108,000 spent on external experts and legal fees for the hearing
- $200,000 spent on internal staff time
- Application duration: 23 months
- Total budget for project: $15,000,000

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Appendix A – Definitions

Applicant administration costs – Any costs that are associated with the applicant's consent application preparation and in response to the council's processing activities in relation to the consent process.

Expert advisors – Experts employed by the applicant to assist in the preparation of the resource consent or the presentation of associated materials. Advisors include planners, surveyors, architects, engineers, engineering geologists, hydrologists, ecologists and other experts.

Council – Local government organisation, including regional councils, territorial authorities (city and district councils), and unitary authorities.

Council fees and charges – Fees and charges imposed by councils during the pre-application and application stages of a consent, up until project implementation and completion. These include both the deposit and any processing time charged by the council over and above the deposit, and the cost of council-appointed agents. These exclude financial or development contributions and monitoring costs.

Direct costs – Costs directly attributable to the process of obtaining resource consent, and usually able to be verified in accounts or records.

Holding costs – Costs that a business incurs in waiting for resource consent to be granted. Two aspects relating to processing time are particularly important: risk and time value of money. Holding costs are estimated as a required rate of return multiplied by the capital cost of the project, over the period of delay. Holding costs can be attributed to application administration, third parties or unforeseen consent conditions.

Indirect costs – Costs not directly attributable to the process of obtaining resource consent. In this study the focus was on broader impacts on business because of obtaining resource consent. For example, impacting on the ability of the business to obtain finance.

Notified consent – Fully notified or limited notified resource consent.

Overheads - Any cost of supporting employees in the business that is not directly or indirectly included in the estimate of salary, wage or charge out rate given. It may include costs of recruitment, IT, lighting, heating, office rent and so on.

Public participation– participation in a hearing as a result of public or limited notification of the consent, or consulting iwi, neighbours or other affected parties.

RMA – the Resource Management Act 1991.

Typical – Average or expected in a population group.

Unforeseen costs – Any cost that was not anticipated by the applicant during planning, including costs associated with compulsory purchases that were unforeseen. Holding costs may also be unforeseen.

Appendix B – Scope and cost framework

Focus on infrastructure developers

We are interested in infrastructure developers as a 'regulated party' under the RMA. If a cost is borne by a developer building new infrastructure and the cost stems from the need to obtain a consent under the RMA, then we are interested in it. These costs can be hard to verify without research as they are embedded in the cost of projects.

Scope of infrastructure

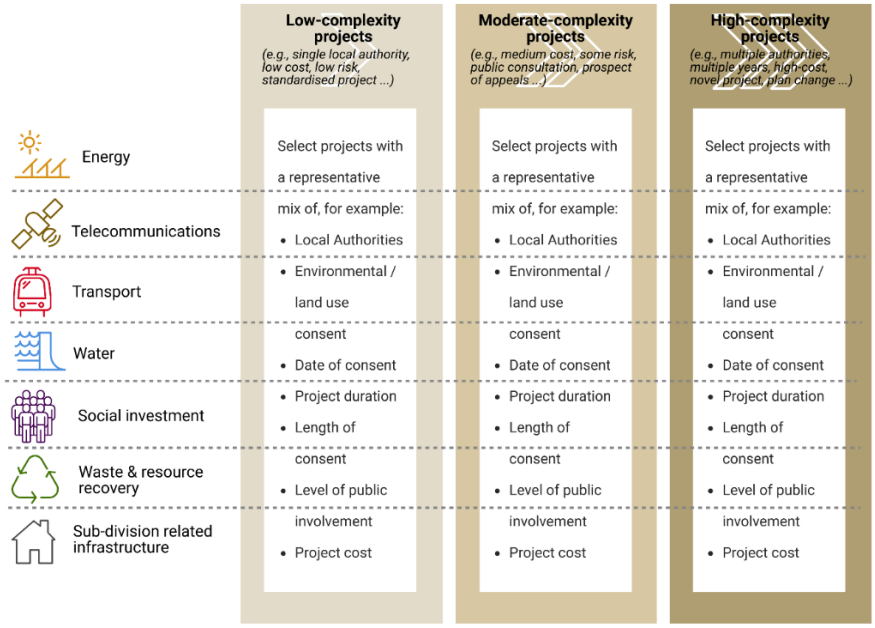
We apply Te Waihanga's published definition of infrastructure: 'A system of inter-connected physical structures that employ capital to provide shared services to enhance wellbeing.' Practically, Te Waihanga has recognised six key categories of infrastructure: energy, telecommunications, social (education and health), transport, water, and waste and resource recovery infrastructure.[16]

The project aims to capture a range of costs and experiences associated with consenting infrastructure. Interviews will be conducted with firms across the full spectrum of infrastructure types and project complexities.

We also have a category for large-scale property development (30+ lots) which incorporates infrastructure.

Figure 7 illustrates our approach to building a sample dataset. We sought cost data for projects across all sectors, with developers asked to assess the relative complexity of their projects.

Figure 7: Sapere approach to building a sample dataset



[16] https://infracom.govt.nz/assets/Uploads/Te-Waihanga-Infrastructure-Under-One-Roof-2020.pdf

Scope of consenting

For many infrastructure or network firms there are several avenues available to seek the authorisations required to undertake a project. For example, for state highway projects there would likely be a mix of designations (new, rolled over, and altered), outline plans of works, route recognitions, and resource consents (single and global). Plan changes are also sometimes necessary when an activity is prohibited, or non-complying and the policies and objectives would not enable consents to be granted.

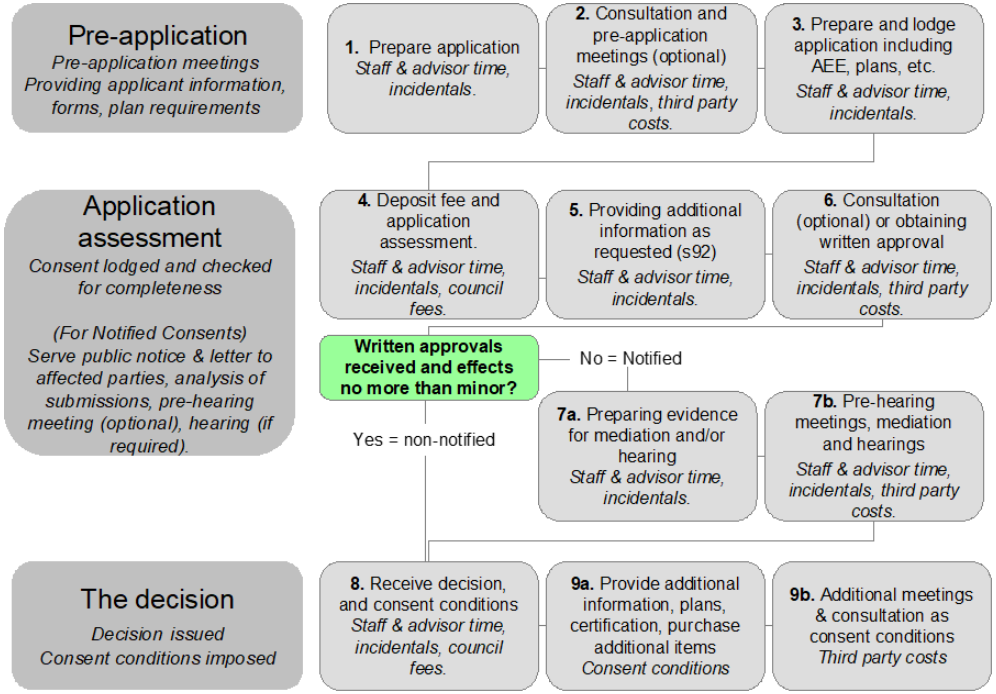
We have included all types of consents/authorisations that are typically required for 'new' projects. Consent renewals are within scope if they are effectively acting as a new consent.

Our definition of consenting includes obtaining certificates of compliance for a permitted activity, notified consents and non-notified consents, and applications for global consent (where a group of small or minor consents involving the same activity at multiple locations are lumped-together in the same application). In each case, 'consenting' means applying for an approval under the RMA, to undertake an activity that might affect the environment or the use of land, that is not allowed as of right i.e. is not permitted by the RMA or a National Environment Standard; or contravenes the RMA, or a rule in a district or regional plan.

Non-RMA approvals like from Heritage NZ Pouhere Taonga and concessions from DOC that are involved in authorising a project are excluded from scope.

A simplified diagram of the process of consenting, is reproduced below in Figure 8.

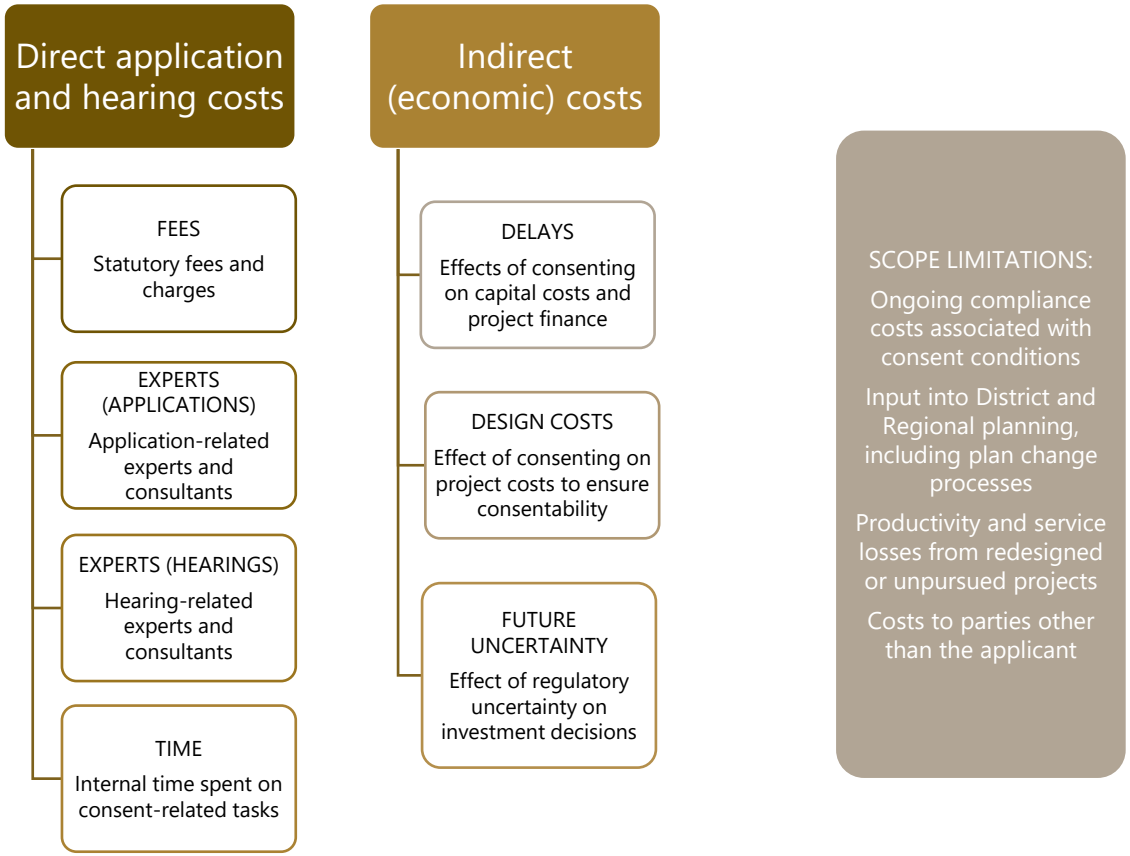
Figure 8: Diagram of the process of consenting (simplified)



Our cost framework

Figure 9 illustrates how we have captured costs incurred by consent applicants.

Figure 9: Organising framework for costs of consenting for the applicant



Measurement rules of thumb

Measuring internal costs

For internal costs staff time can be valued at (staff days x daily rate) x (1+overhead%). Daily rates worked out using a weighted average value derived from the NZPI Salary expectations survey (2021).

Inflation to generate real cost estimates

Costs were adjusted to December 2010 using the Statistics New Zealand production price index (PPI).

The holding cost calculation

Holding costs are calculated using a combination of processing times, a rate of return and capital values 'held-up'.

Holding costs will be valued at elapsed days/365 x WACC x capital value x (1 – tax rate).

- An estimate of the number of days it took to prepare the application
- No accounting for internal delays (e.g. having to go through a budget or board process or something not related to the consent itself). If suitable data is unavailable, a proxy will be used.
- Elapsed days include weekends and time when the "clock stopped" due to s92 requests etc. The reason for using elapsed days is that it allows for a more accurate calculation of holding costs: interest accrues regardless of whether it is the weekend or whether the clock has stopped.
- Daily rate of return calculated on an assumed cost of capital of 6.7% (for all time periods). The table below demonstrates the sample from which this median value was chosen. The range in this sample was 4.7% to 9.9%, with a median and mean of 6.7%.

Table 3: Holding cost of capital

Business name	WACC (per cent)
Ryman Healthcare Limited	9.9
Summerset Group Holdings Limited	8.8
Infratil Limited	5.7
Vital Healthcare Property Trust	5.0
Property for Industry Limited	4.9
Auckland International Airport Limited	7.5
Port of Tauranga Limited	6.0
Marsden Maritime Holdings Limited	6.7

South Port New Zealand Limited	6.7
Fletcher Building Limited	8.3
Steel & Tube Holdings Limited	8.1
Metro Performance Glass Limited	8.7
Telstra Corporation Limited	5.0
Spark New Zealand Limited	5.3
Chorus Limited	6.1
Meridian Energy Limited	9.7
Mercury NZ Limited	7.5
Contact Energy Limited	7.6
Vector Limited	4.7
Genesis Energy Limited	7.2
TrustPower Limited	5.2
Tilt Renewables Limited	5.2
NZ Windfarms Limited	4.7

Source: PwC Cost of Capital Report 2019 (post-tax, nominal)

Appendix C – Our project dataset

For this project we received detailed cost data and qualitative insights on the consenting experience for 90 projects (we have removed much of the identifying information where information had been supplied in confidence):

Table 4: Project dataset, by sector and description

Sector	Project description
Energy	Geothermal power station
Energy	Electricity generation - new scheme development
Energy	Reconsent of existing hydro
Energy	Gas pipeline adjacent to stream
Energy	Renewal of existing consents for a hydro scheme. Changes sought in relation to minimum flows below the station and lake operating levels.
Energy	Replace the ageing conductors on two 118km transmission lines
Energy	Duplexing of a 220kV transmission line
Energy	North Island grid upgrade project
Energy	Two new grid exit points (220kV substations) and associated transmission line deviations
Energy	Consent to operate and maintain a wind farm
Energy	Consent to take, use and divert water for hydroelectric generation; consent to build and maintain a hydro station
Energy	A wind farm project
Energy	Wind farm consents

Energy	A geothermal power station
Social	A new build for a hospital
Social	Construct new administration block and 3x new classrooms, with associated groundworks. Campus site works. Remove old buildings.
Social	Two new facilities for specialist mental health services
Social	Global water take consent for a prison
Social	A large new facility for a DHB
Social	Designation of site for a new high school
Social	Designation and Outline Plan of Works process for a primary school
Social	Designation for a primary and secondary school
Social	Designation for a new primary school
Social	Trades training centre, 3-storey educational building
Social	New university residential college being built
Social	Installation of new storage shed at a university research centre
Social	Polyculture array in marine environment near a research centre
Social	Change to permitted number of students in university residential college
Social	A new fume hood was required for a building on the university campus
Subdivision-related	A 45-lot housing development with all associated civil works
Subdivision-related	Small comprehensive care retirement village
Subdivision-related	Large comprehensive care retirement village

Subdivision-related	A large subdivision
Telecommunications	Existing cell site upgrade
Telecommunications	New mobile cell site
Telecommunications	Installation of fibre to the home in one region
Telecommunications	Cell site roll out nationwide
Telecommunications	Installation of a submarine telecommunications cable
Transport (land)	Replacement of an existing rail bridge over a watercourse
Transport (land)	Waterview connection roading project
Transport (land)	Mackays to Peka Peka Northern Corridor build
Transport (land)	Christchurch Southern Motorway Stage 2
Transport (land)	Christchurch Southern Motorway Stage 1
Transport (land)	Tauranga Eastern Link
Transport (land)	Matakana Link Road – the construction, operation and maintenance of a new 1.35km road between State Highway 1 and Matakana Road.
Transport (land)	New Lynn to Avondale Shared Path Stage 2A
Transport (land)	Tāmaki Drive Cycleway
Transport (land)	Replacement and upgrade of bridges, culverts and tunnels along an approximately 100km length of track to enable larger containers to be moved via train
Transport (land)	Replacement of an existing bridge over a watercourse with a new bridge of similar scale and in the same location.

Transport (land)	Construction of a tunnel deviation, requiring significant realignment of existing land transport networks and large volumes of earthworks.
Transport (land)	The decommissioning of an existing state highway culvert and construction of a new culvert, involving the damming and diverting of water, vegetation clearance and stream recontouring.
Transport (land)	Slope remediation works related to safety improvement works on State Highway 2
Transport (land)	To replace an existing guardrail with a new guardrail and timber retaining wall.
Transport (land)	East West Link - A new four lane road connection between State Highway 20, Onehunga and State Highway 1, Penrose.
Transport (land)	Whirikino - The State Highway 1 Whirokino Trestle bridge south of Foxton was nearing the end of its design life. A safer, more resilient structure has been constructed that can now accommodate High Productivity Motor Vehicle trucks.
Transport (land)	Peka Peka to Otaki - This project forms the northern stage of the Kapiti Expressway which realigns State Highway 1 to bypass the town centres along the Kapiti Coast.
Transport (land)	Papakura to Drury South - Stage 1A is to widen the existing State Highway 1 motorway between Papakura and the BP Drury service centre (all works are within designation).
Transport (land)	Warkworth to Wellsford - A full realignment of State Highway 1 between Warkworth and Wellsford. This project will connect into the Pūhoi to Warkworth realignment of State Highway 1.
Transport (land)	Manawatū to Tararua Highway - A realignment of State Highway 3 between Woodville and Ashhurst to provide a safe, efficient and resilient replacement to former Manawatū Gorge alignment.
Transport (land)	Ngauranga to Petone: An off-highway walking and cycling connection between Ngā Ūranga, Wellington and Pito-One, Lower Hutt.
Transport (coastal and air)	Rebuild wharves and marine infrastructure.
Transport (coastal and air)	Dredging navigation channel
Transport (coastal and air)	Wharf extension involving piling work on land in the sea. Extension of wharf to 200 metres, involved demolishing half of wharf and some buildings, piling in sea and on landside.

Transport (coastal and air)	Introduction of jet services at airport
Waste and Resource Recovery	New landfill
Waste and Resource Recovery	Redevelopment of waste transfer station to a resource recovery mark. Including designation change, regional consents and vertical construction consents for contaminated land disturbance.
Waste and Resource Recovery	A new resource recovery development with multiple site activities
Waste and Resource Recovery	A new landfill and renewable energy generation facility
Waste and Resource Recovery	A waste and resource recovery facility
Waste and Resource Recovery	Expand an existing managed fill site
Waste and Resource Recovery	Development of new landfill and supporting infrastructure to extend life by 10 years
Waste and Resource Recovery	Develop a community recycling centre, including stormwater, car park, drop off, retaining wall
Waste and Resource Recovery	Develop existing community recycling centre
Waste and Resource Recovery	Develop existing community recycling centre. Site located on flood plain.
Waste and Resource Recovery	Develop existing community recycling centre.
Waste and Resource Recovery	Develop new site for community recycling centre
Water	Global minor streamworks consent for maintenance of structures in streams.
Water	A wastewater treatment plant
Water	A comprehensive upgrade to a mill, including wastewater treatment systems
Water	Water storage reservoir to provide resilient supply
Water	Drainage works to remediate land instability

Water	Stream flood improvements
Water	Streambed clearing gravels
Water	Resource consents required for the replacement of approximately 14km of watermain, predominantly within road reserve
Water	Wastewater pipeline replacement in road corridor
Water	A wastewater treatment plant

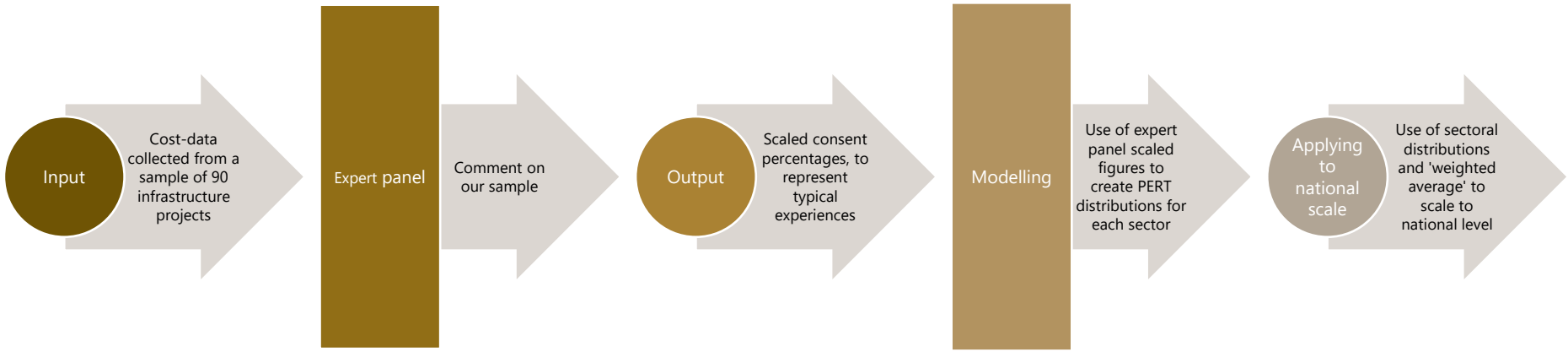
Appendix D– Our modelling

We used two approaches to model the direct consenting costs from our sample dataset, which we describe below.

Approach one: Modelling using the input of an expert panel

The figure below shows the process by which we translated detailed cost data from a sample of infrastructure projects to generate a weighted average at a national level for calculating total consenting spend (i.e. aggregated) – using an expert panel to provide comment on the representativeness of our sample.

Figure 10: Process of data capture through to modelling



Input

For this project, we sourced detailed cost and time data for 87 infrastructure projects across eight different infrastructure sectors: coastal and air transport, land transport, social, subdivision-related, energy, water, waste, and telecommunications. This information was captured from infrastructure firms through a range of techniques, including interviews, an online workshop tool (Mentimeter), as well as through written questionnaires. We asked firms to provide data on a range of projects (ranging from the routine to the complex) and to self-assess each project as to how typical it was.

The cost data was adjusted using the Statistics New Zealand production price index (PPI), where December 2010 was the base (i.e. indexed so that everything is in 2010 $NZD). The purpose of PPI-adjustment is to make all costs comparable on the same base, to account for changes in input prices over time and allow relative comparison.

Expert panel

We anticipated that our sample dataset would be subject to a degree of selection bias: infrastructure firms would be likely to want to discuss larger and more complex projects and may want to discuss projects where they experienced significant difficulties in the consenting process. An expert panel of three experienced planning professionals was formed and used to align/scale the data we had captured with their expert oversight and typical experiences in the wider infrastructure sector. The expert panel used our sampled data as a reference point to comment on the representativeness of the projects, and how it related to the typical consenting experience across different infrastructure sectors.

Output

The outputs of the expert panel were scaled direct consent cost percentages for each infrastructure sector. The expert panel commented on the 10th and 90th percentiles and mode (i.e. 3 data points) and commented on the approximate shape of the distribution of direct consent cost percentages for each sector.

Modelling

This section outlines the modelling approach used to estimate potential distributions of direct consent cost percentages by sector, and for the entire infrastructure industry.

Sectoral PERT distributions

Three estimated points (via the expert panel) were used to estimate a distribution curve representing the percent of total infrastructure costs spent on consenting fees. The three points represent the:

- 10th percentile – only one in ten projects would have a consent percentage lower than this figure
- mode – the most common/likely consent percentage
- 90th percentiles – only one in ten projects would have a consent percentage higher than this figure.

We used a PERT distribution to fit a distribution curve to these three points. PERT distributions are commonly chosen in the field of risk analysis to represent uncertainty when relying on subjective estimates. An advantage of the PERT distribution is that it is defined by three relatively

intuitive parameters: the minimum, maximum and mode. The same principles apply in this case.

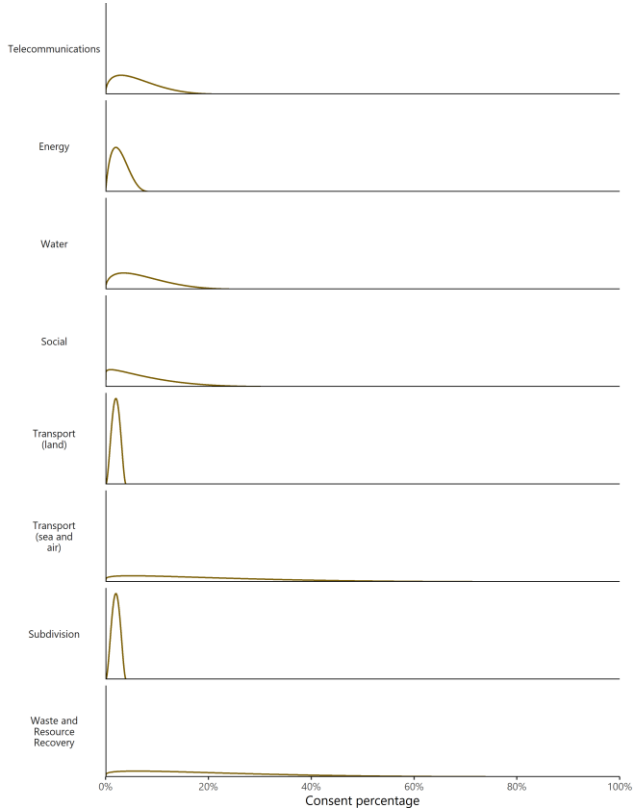
The PERT distribution also has some further properties that make it apt for this application.

- It is bounded by a minimum and maximum value (unlike a normal distribution). In this case, this property ensures that the distribution cannot produce consent percentages outside of 0% or 100%.
- The distribution can be skewed; there can be a 'longer tail' on one side, generating different values for the mean, median and mode.

For our purposes, we chose for the panel to estimate the 10th and 90th percentiles, rather than the minimum and maximum. This methodology is also borrowed from the field of risk analysis. The extremes, by definition, almost never happen, while the 10th and 90th percentiles should each occur 10% of the time.[17] Therefore, the 10th and 90th percentiles are often easier for panels to discuss and estimate.

To fit an appropriate PERT curve, we then solved for the minimum and maximum parameters that best align with the values produced in the moderation session.[18] The resulting distribution parameters for each sector are shown in below in 13.

Figure 11: Sectoral distributions using PERT modelling based off expert panel



[17] Under the PERT distribution, the probability of the minimum and maximum values occurring is zero.

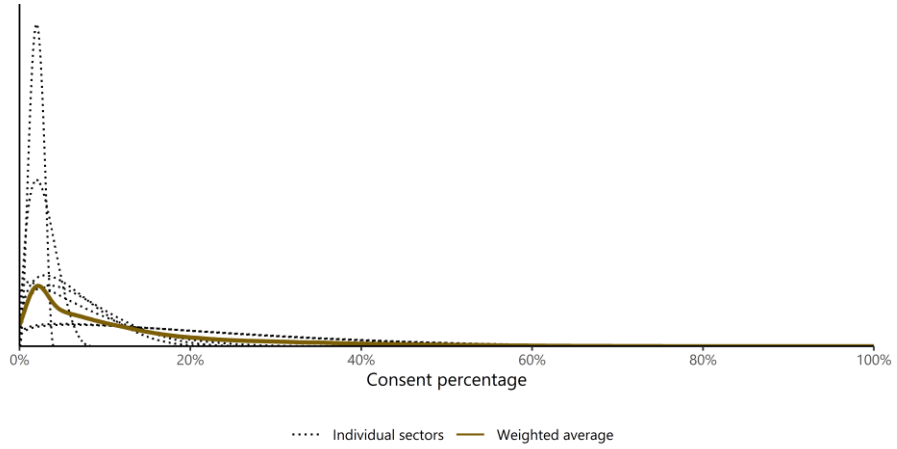
[18] In conjunction with the mode and 10th and 90th percentiles, the minimum and maximum were also constrained to be greater than or equal to zero and less than or equal to one respectively.

Weighted average distribution for total infrastructure consenting expenditure in New Zealand

A microsimulation was used to combine the individual sectoral distributions into a single distribution. This weighted average distribution was generated using by randomly sampling 100,000 consent percentages across the various sectoral distributions. The sampling was a two-stage process:

1. randomly sample a sector weighted by proportion of total infrastructure spend for that sector, and
2. randomly sample a consent percentage from the distribution for the sector sampled in step 1.

Figure 12: Creating a single distribution

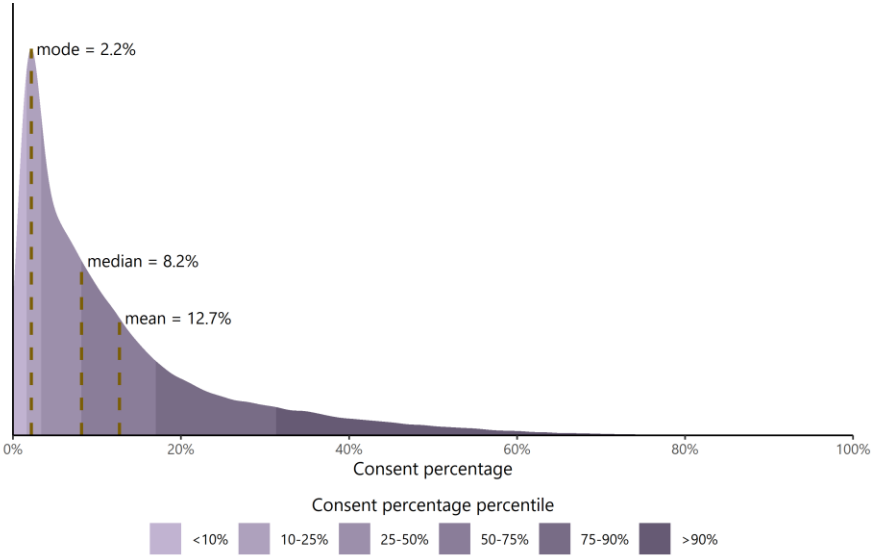


The combination of these 100,000 sampled values were then used to generate the 'weighted-average' consent percentage distribution. This distribution represents the percentage of total infrastructure costs spent on consent fees, assuming a relatively consistent proportional spend by each sector.

The tangible outputs of this process are the individual sector distributions for direct consent cost percentages, and a distribution for direct consent costs for the entire infrastructure industry (i.e. aggregate of all individual sectors).

This weighted average distribution is pictured in Figure 13 below.

Figure 13: Weighted average distribution for total infrastructure consenting spend



For instance, for infrastructure spending of $10 billion:

- the most likely outcome (the mode) is that $220 million is spent on consent fees,
- approximately 50 per cent of the time, consent fees spend will be below $820 million, while the other 50 per cent will be above, and
- if $10 billion is spent every period, for a number of periods, total consent fee spend will converge towards an average of $1.27 billion each period.

This PERT analysis provides us with insight into the percentage of total infrastructure expenditure spent on consenting at a national level. This is different from answering the question "what are the likely consent costs of a project?" This question would best be answered by looking at the individual sectoral distributions (discussed further below).

Approach two: weighting our raw sample

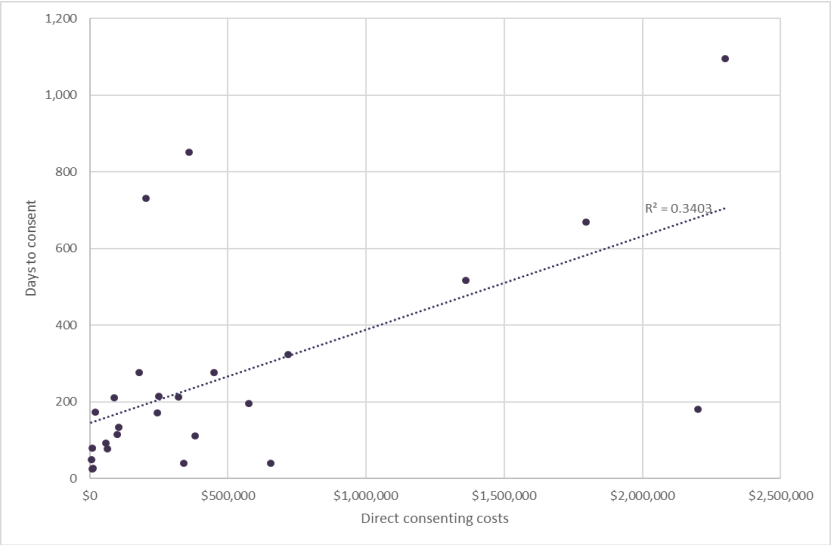
In parallel to our PERT modelling (which was derived from the views of the expert panel), we also looked to model a national average by adjusting our dataset to account for known biases – that our sample dataset had too many highly complex projects and too many large projects.

Adjusting consenting costs for complexity

As outlined in our report above, we know there is a relationship between direct consenting costs and the time it takes for a council to make a decision on a consent application.

Figure 14 below shows the positive association between days taken to consent and direct consenting costs for 'low' and 'medium' complexity projects (omitting 3 outliers).

Figure 14: Relationship of delay and consent costs for low/medium complexity projects



We also know that the projects infrastructure firms nominated to discuss with us were more complex and took longer to consent that typical projects.

To account for this, we used data supplied by Mitchell Daysh on the infrastructure projects where they had assisted with the resource consent application. Mitchell Daysh staff went through their dataset and assessed each project on the same basis as our dataset: as either being typical, having some complexities, or being complex / unusual. On the basis that

Mitchell Daysh was likely to have a more representative mix or projects (not being self-selected for an interview) we were able to identify how much more complex the projects in our dataset were – and the factor by which the costs needed to be scaled:

Table 5: Comparing days to consent

Project Complexity	Our sample – median days to consent	Mitchell Daysh – median days to consent	Factor to scale our sample for complexity
Typical	91	63	0.69
Some complexities	214	167	0.78
Complex / unusual	425	365	0.86

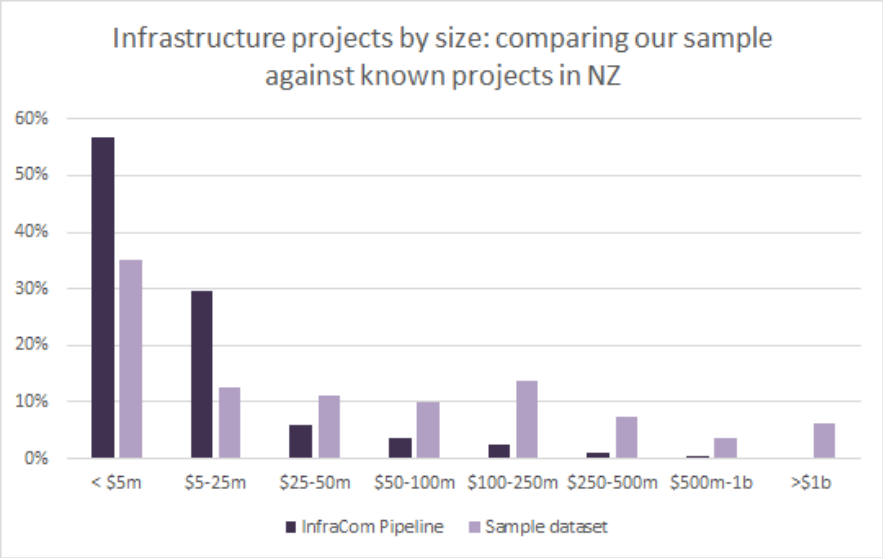
Each project in our dataset then had its direct consenting costs scaled down by the above factors to reflect that they were likely to be overly-complex compared to the norm.

Adjusting consenting costs for project size

The second aspect for which we scaled our sample dataset was to adjust for project size. As outlined in our report, consenting costs and project size are highly correlated, with smaller projects facing disproportionately high costs.

A comparison against known national infrastructure projects confirmed that our sample dataset contained too many large projects and not enough smaller infrastructure projects:

Figure 15: Comparing Sapere sample against Infrastructure Commission Pipeline



The median proportion of consenting costs for each category of project size was then weighted to ensure that our sample dataset matched the known project sizes of the Infrastructure Commission's published Pipeline.

Scaling to a national figure

To calculate a national estimate for consenting expenditure it was necessary to weight the estimates generated from our two modelling methodologies to account for the relative activity in each sector.

Table 6 below shows an annualised average from three years of infrastructure spending (2018, 2019, 2020) as outlined in MBIE's

infrastructure pipeline reports. This provides a figure for national annual infrastructure investment of $10.79 billion (for the sectors in scope).

Table 6: Scaling our findings to a national level

Sector	Estimated annual spending ($ billions)	Percentage of total infrastructure spend
Telecommunications	1.11	10.3%
Waste	0.06	0.6%
Water	1.57	14.5%
Subdivision-related	2.06	19.1%
Energy	0.55	5.1%
Social	2.45	22.7%
Transport (coastal and air)	0.63	5.8%
Transport (land)	2.38	22.0%
Total	**$10.79b**	**100%**

We applied the above sectoral weightings to generate two estimates at the project-level of the proportion of infrastructure budgets that are spent on direct consenting costs:

- PERT model: median estimate of 4.8%
- Sample weighting: median national estimate of 6.1%

Our best estimate is that the median project budget spent on direct consenting costs is between 4.8-6.1%. In the body of this report we used the figure of 5.5%, which reflects the mid-point between the two estimates.

To calculate the cumulative spending on infrastructure consenting we adjusted the national figure for infrastructure investment ($10.79b) downwards, as that figure includes both consented and unconsented activity (e.g. activity that is permitted under a District Plan). There is no accepted figure for the proportion of unconsented infrastructure activity, but we considered it reasonable to discount the national infrastructure expenditure ($10.79b) by 6% to reflect of our best estimate of total consented infrastructure expenditure ($10.14b).[19]

We then applied the mean proportion of spending on infrastructure consenting generated from the PERT model (12.7% - as described above).[20] This produces our estimate of the annual cost of consenting for all New Zealand infrastructure developers of $1.29b.

[19] MfE's National Monitoring System shows that the number of resource consents in 2018/19 comprised 94% of all RMA applications received by councils (which also includes certificates of compliance, existing use certificates of deemed permitted activities).

[20] The PERT mean provides an estimate of the total consenting burden across all infrastructure spending at an aggregated level and accounts for the long-tail observed in the distribution chart in Figure 13 (whereas the 5.5% median figure is our best estimate of the consenting cost burden at the individual project level).

Appendix E – International benchmarking

Overseas studies on consent/approval costs:

Data/findings	Background of source	Source
Australia		
Between the commencement of the EPBC Act in 2000 and the 2019–20, the average time taken for resource projects to be assessed and approved increased from an average of 716 days to 1,009 days. The Minerals Council of Australia estimated delays can increase costs for a major greenfield mining project (worth $3bn to $4bn) in Australia by up to $46m per month.	In accordance with section 522A of the EPBC Act, an Independent Review of the Act is required at least every 10 years.	Professor Graeme Samuel AC, Independent Review of the EPBC Act – Final Report, October 2020, Chapter 5.
It is estimated that consultancy fees alone of EIS and related requirements for a new mine, rail or port in Queensland could range from $3m to $15m per development type. However, other estimates indicate the cost of preparing an average environment effects statement is around $1.2m. This relates to large-scale projects (over $200m) that can require up to 100 separate approvals from across the three levels of government. Stakeholders estimated that staff costs for other compliance (including environmental) requirements could account for 11% of the total "design and construction" cost of a project.	The overall context of this report published by the Productivity Commission was to analyse funding and financing of infrastructure projects in Australian and determine methods / improvements to make the industry more efficient (reduce costs).	Productivity Commission Inquiry Report 2014, volume 2
For an EES: • The average duration of a process was 30 months, with a range of 14-99 months. • Estimated compliance costs of $1m p.a. and delay costs of $22.6m p.a. • Average preparation cost is $1.2m p.a. and the average duration is 2 years.	This report is an inquiry into Victorian environmental regulations.	A sustainable future for Victoria: Getting environmental regulations right, 2009 VCEC Report
For works approvals: • Estimated cost of work approval applications is $1.2m p.a. per business • Businesses undertake on average 37.8 works approvals p.a. at a cost of $31,790. • Compliance costs are the cost of complying with approval conditions in excess of what the original design would cost, with an average cost of $28,211 per approval.	Analysis of costs and benefits of proposed regulations.	Regulatory Impact Statement – Proposed Environment Protection (Scheduled Premises) Regulations 2017.

Delays – processing approvals: Major delays can occur when additional permits are required from local municipal councils. These can add an additional 4-6 months delay. Major delays of one to two years in processing approvals for work plans can occur, at an average cost of $2m, where an EES is required.	This report discusses the processes for licensing and work plans, and the delays that can occur because of these processes.	Processes for licensing and work plans. (N.D. – would presume 2017/18) Rivers Economic Consulting
European Union / United Kingdom		
For road construction, compliance with environmental regulation and related third party constraints can add as much as 10-15% to the costs of the infrastructure.	This report reviews the cost of infrastructure.	Infrastructure UK: Infrastructure cost review (2010)
The cost of performing an Environmental Impact Assessment (EIA) is mostly less than 1% of the overall cost of a project but can vary from 0.1%-5% of project cost. In absolute terms the cost of an EIA could range from €5,000 to €100,000+. Delay costs: the average duration (including preparation time) for approval on an EIA was 62 weeks in the UK.	This report determines the costs and benefits of performing the EU's EIA.	European Commission: Costs and benefits of the EIA Directive (2007)
The capital cost of the EIAs studied range from €80,000 to €1.83m. Calculated as a percentage, EIA costs range from 0.01% to 2.56% of the total development costs. The average was 0.5%. An EIA usually took slightly less than 2 years to complete and gain approval.	This report discusses the findings of a research study examining the costs and benefits associated with implementation of EIA.	European Commission: EIA – A study on costs and benefits. (2019)
North America (including Canada)		
Depending on the type of energy project, the timeline for project approvals (based on the surveyed projects) ranged from a minimum of 14 months to a maximum of 104 months. The average approval duration across all five projects categories is 37 months.	This article provides a high-level analysis of the Canadian Energy Project Approval Process.	Timing of Canadian Project Approvals: A survey of major projects. (2016)
Stakeholders estimated that it took almost 3.5 years on average for a project to receive approval or for the proponent to terminate the application before a decision was reached. Some projects received approval within 7 months whilst other projects took over 10 years (124 months) to receive approval. Hydro, roads and transmission projects: average timeline of 30 months or less. Pipeline: average of 33 months. Mining and coal: 50 months, Port projects: 69 months.	This report looked at the rising concerns industry, government and legal stakeholders have regarding the federal project approval process.	The fate of projects: A review of outcomes from the federal EA approvals process. (2018) Published by Marla Orenstein.

Using the resources to determine an upper benchmark of all consenting/approval costs:

Data/findings	Background of source	Source
Australia		
With 'design and investigation' representing an estimated 7-10% of the final cost of road projects, by implication 7-10% represents an upper benchmark for consent costs.	The papers aim to provide an overview of benchmarking in the infrastructure sector.	RICS: Benchmarking in the infrastructure sector, Royal Institution of Chartered Surveyors (RICS), (2020)
With 'design and investigation' representing an estimated 5% of the final cost of road projects, by implication 5% represents an upper benchmark for consent costs.	This report summarises benchmarking findings.	Infrastructure Benchmarking Report, Transport and Infrastructure Council. (2014)
Other countries		
This paper indicates, for projects in the EU, for consent costs as a percentage of total costs, an upper benchmark of 3-5% for motorway projects, 3-5% for wastewater treatment, 5-7.5% for water networks, and 5-10% for energy infrastructure.	The purpose of this report was to provide desk officers of the European Commission with a basic understanding of the process by which project cost estimates are made.	DG XVI – Directorate of the European Commission: Understanding and monitoring the cost-determining factors of infrastructure projects. (N.D.)
Estimates presented in the report indicate that 3-5% of capital costs are spent on early-stage engineering and design (upfront planning). This provides an indication of an upper benchmark for consent costs. A megaproject is infrastructure costing more than $1billion.	The purpose of this report is to compare megaprojects in North America.	FMI: North American Megaprojects (2019)
The cost of developing and applying for regulatory approval for major projects, in Canada, now costs in the range of $0.5 billion to $1 billion. For a particular project case study highlighted in the report, the regulatory applications account for 4-11% of total pipeline development and construction costs, with an average of 7%.	This report discusses concerns about the costs and delays associated with regulatory approval. Submission to the National Energy Board Modernisation Expert Panel.	Risks and costs of regulatory permit applications in Canada's pipeline sector. (2017)

About Sapere

Sapere is one of the largest expert consulting firms in Australasia, and a leader in the provision of independent economic, forensic accounting and public policy services. We provide independent expert testimony, strategic advisory services, data analytics and other advice to Australasia's private sector corporate clients, major law firms, government agencies, and regulatory bodies.

'Sapere' comes from Latin (to be wise) and the phrase 'sapere aude' (dare to be wise). The phrase is associated with German philosopher Immanuel Kant, who promoted the use of reason as a tool of thought; an approach that underpins all Sapere's practice groups.

We build and maintain effective relationships as demonstrated by the volume of repeat work. Many of our experts have held leadership and senior management positions and are experienced in navigating complex relationships in government, industry, and academic settings.

We adopt a collaborative approach to our work and routinely partner with specialist firms in other fields, such as social research, IT design and architecture, and survey design. This enables us to deliver a comprehensive product and to ensure value for money.

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