
Full technical report

Cost benefit analysis of options to streamline RMA compliance for aerial 1080 operations

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Executive summary

We were commissioned to undertake a cost-benefit analysis of three short-listed options for streamlining Resource Management Act 1991 (RMA) compliance requirements for aerial 1080 operations. We were asked to make a recommendation as to the most beneficial option among the three options identified:

- a National Environmental Standard (NES) modelled on Regional Plans that currently have permitted activity rules for the aerial use of 1080;
- a Section 360(h) regulation under the RMA to exempt the aerial use of 1080;
- a regional approach that involves working with each regional authority to secure either “permitted activity” status or a comprehensive long-term resource consents for the aerial use of 1080.

The two regulatory options are similar enough to be treated the same way...

Our first key finding, following analysis of the likely costs and benefits of the options, is that there is no material difference in quantifiable costs between the NES and the Section 360(h) regulation. Under these options, all costs to applicants and councils of the consent process would be avoided, with the marginal costs being negligible (i.e. development costs, periodic reviews). Therefore, we treat these options in the same way within the model and present a single set of results as a “national approach” – for comparison with the regional approach.

The national approach has a higher net benefit than the regional approach...

We find that society would be better off under either the national approach or the regional approach to streamlining RMA compliance requirements for aerial 1080 operations. However, the net benefit (present value basis) of the national approach (**\$10.5 million**) is substantially higher than that of the regional approach (**\$2.6 million**).

The strength of the national approach is that the annual benefits, comprising avoided costs that would otherwise be incurred during the consent process, are fully realised upon the implementation of the national regulation change. A further strength is that the costs of development and ongoing implementation are relatively low, for example, the development of the regulatory change and five-yearly reviews of the regulation.

In contrast, the regional approach involves a region-by-region work programme over several years, supported by a team of representatives from the partner organisations. These costs are not materially different, in present value terms, from those of the national approach. Instead, the benefits of the regional approach are lower because only 6 out of the 12 relevant regional authorities are modelled as adopting a streamlined consent process. Furthermore, this uptake occurs gradually, at the rate of two councils every three years – while continuing to require resource consents in the meantime. These assumptions are based on our discussions with the Project Steering Group, which revealed a high level of uncertainty about uptake of this approach among regional authorities. As a result, the benefits increase gradually without reaching the level arising from nationwide regulatory change under national approach.

The benefit-cost ratio (i.e. present-value benefits divided by present-value costs) for the national approach is **11.0** – which means that the benefits from this approach outweigh the costs by 11 to 1 over a twenty-year period. This relatively large ratio is driven by the low costs associated with this option. Although the benefit-cost ratio for the regional approach is lower at **3.2**, the benefits to society from this approach to streamlining RMA resource consent requirements also comfortably exceed the costs.

Society would still be better off under a pessimistic view of the future benefits from a streamlined consent process

We constructed two alternate scenarios to test the sensitivity of the base case results to alternative but plausible values for the annual stream of benefits. Each scenario involves different values for the future volume and the value (i.e. costs) of the consents that would be avoided under the streamlined consent arrangements proposed under the national approach and regional approach.

- **Pessimistic scenario** – this comprises the assumption of low consent volumes (a reduction from 24 to 20 consents per year) and low consent costs (replacing the average value for each cost category with the minimum observed). It therefore explores the impact of the future volume of consents being lower than the average observed over 2003-13 *and* the costs being at the low end of the data provided for this analysis.
- **Optimistic scenario** – this comprises the assumption of high consent volumes (an increase from 24 to 30 consents per year) and high consent costs (replacing the average value for each cost category with the minimum observed). It therefore explores the impact of the future volume of consents being higher than the average observed over 2003-13 *and* the costs being at the high end of the data provided for this analysis.

The results, in terms of net benefit (present value), provide the following ranges:

- the national approach – **\$3.5 million to \$32.5 million** (base case of \$10.5 million); and
- the regional approach – **\$0.3 million to \$10.0 million** (base case of \$2.6 million).

Even under the pessimistic scenario, the benefit-cost ratios remain above 1.0 – being **4.4** for the national approach and **1.3** under the regional approach. These results suggest that both the national and regional approach are likely to return a net benefit under all plausible assumptions about the future volume and cost of the consents avoided as a result of a more streamlined approach being fully or partially adopted. **However, the national approach consistently offers a much higher return than the regional approach under all assumptions tested here** – particularly in the case where the volume and cost of future consents are lower than the base case assumptions.

Other potential benefits were identified

We also identified a number of potential efficiency gains in the form of time savings or a reduced price for aerial 1080 operations. They generally arise from reductions in time or uncertainty as a result of a more streamlined consent process and increased standardisation of operational rules. While these effects are plausible, in our judgment they are either not easily quantifiable, or else involve a level of uncertainty that is sufficiently high as to preclude inclusion in the model.

We conservatively assume the same level of outcome under the national and regional approaches – in terms of the effectiveness of the 1080 operations (e.g. due to the quality of operations or the area covered). While the partners may realise savings as a result of a streamlined consent process for 1080 operations, and it is plausible that those savings would be reinvested into more operations, we are not in a position to make judgements about how those savings would be reallocated for use among competing priorities. We acknowledge that it is plausible that savings in compliance costs could be reinvested into additional aerial 1080 operations – as called for by the Parliamentary Commissioner for the Environment (2011). However, we also note that the benefits that are included in the cost benefit analysis are sufficient in that the results show the net benefit (present value) to be positive.

1. Purpose of this report

TBfree New Zealand Limited (TBfree New Zealand) commissioned this cost-benefit analysis of three short-listed options for streamlining Resource Management Act 1991 (RMA) compliance requirements for the aerial use of 1080. We were asked to examine likely costs and benefits and to make a recommendation as to the option with the highest net benefit.

The results of this cost benefit analysis will inform a business case being developed by TBfree New Zealand, the Department of Conservation (DOC), the Ministry for Primary Industries (MPI) and a consortium of regional councils – collectively referred to as “the partners”. The business case will consider the short-listed options for change in light of the results of this cost benefit analysis as well as wider, non-quantifiable factors.

Two of the options involve a national regulatory approach, albeit via different mechanisms, namely: (i) a National Environmental Standard (NES); and (ii) a Section 360(h) regulation under the RMA. The third option is referred to as the “regional approach” as it involves a region-by region approach to securing a mix of “permitted activity” status for aerial 1080 operations via regional plan reviews and long-term resource consents, as shown in Table 1.

Table 1: Options for streamlining RMA compliance for aerial 1080 operations

Option	Description
1. National Environmental Standard	Provides for the aerial application of 1080 as a permitted activity nationally without the need to obtain resource consents, provided compliance with the Hazardous Substances and New Organisms Act 1996 is met. The NES would be modelled on Regional Plans that currently have permitted activity status for aerial 1080 operations.
2. Section 360(h) regulation under the RMA	Exempts the aerial use of 1080 from section 15 of the RMA, either absolutely or subject to prescribed conditions.
3. Regional approach	A centralised team drawn from the partner organisations to establish best practice conditions for aerial 1080 operations and to manage a rolling multi-year programme comprising: <ul style="list-style-type: none"> • submissions on the two scheduled Regional Plan reviews within the next two years, with the objective of securing permitted activity status for aerial 1080 operations; and • preparation of comprehensive resource consents in eight other regions, to secure long-term consents over all operational areas with consistent conditions.

2. Our approach to this work

Our approach is consistent with the guidance on cost benefit analysis provided by the New Zealand Treasury.¹ The approach adopted here is an economic cost benefit analysis from the perspective of society as a whole. The aim is to identify and quantify the additional economic costs and benefits associated with the three options short-listed by the partners and to determine their net benefit to society – relative to continuing with “business as usual” or the status quo. This includes the identification of benefits that accrue in the form of avoided costs that would otherwise have occurred under the status quo.

We have undertaken our research and analysis in an independent manner. The assumptions and conclusions are based on our best professional judgment, following consideration of the evidence and discussions with expert stakeholders, including operational staff from within the partner organisations as well as the Project Delivery Group.

The rest of this section outlines our research method, how the data on consents for aerial 1080 activities was sourced, the scope and mix of the sample of consent cost data, and our approach to modelling the costs and benefits of the short-listed options.

2.1 Research method

Our research has focused on obtaining, analysing and verifying information about the resource consent process and the historic volume and costs of consents for aerial 1080 activities. This has involved several elements:

- a review of key documentation, including the draft of the strategic business case, briefing notes on the short-listed options, reviews of the use of 1080 and reviews of National Environmental Standards;
- an initiation workshop with Latitude Planning Services Ltd (LPS) – the planning consultancy supporting the development of the business case – to explore the cost and benefit impacts of the short-listed options;
- sourcing and analysing a data set of consents for aerial 1080 activities between 2003 and 2013 and the associated types of costs faced by applicants and councils. This step is described in more detail in the section below;
- a research workshop attended by representatives and technical experts from among the partner organisations;
- a workshop with the Project Delivery Group to test our initial findings and obtain additional information on the resource consent process; and
- feedback from the Project Steering Group on a draft of this report .

¹ New Zealand Treasury (2005) *Cost Benefit Analysis Primer*

2.2 Sourcing consent data

2.2.1 Consent data sources

We obtained consent cost information to varying degrees, on a total of 270 resource consents for the aerial application of 1080 submitted to councils during 2003 to 2013. The data was stratified by the type of consent, i.e. non-notified, limited notified or publicly notified, and a small number of consent applications that were ultimately withdrawn. The data is grouped into two categories in accordance with where the costs were incurred.

- **Applicant cost data** – covers the costs incurred by applicants in preparing, consulting on and monitoring resource consents. Cost samples were provided by the major applicants – DOC and TBfree New Zealand. Taken together, the cost data provided represents a sample of 31 consents, which is equivalent to 11% of the 270 consent applications during the period 2003 to 2013.
- **Council cost data** – covers the costs incurred by regional authorities in processing and monitoring the consents. Data was provided by 10 authorities (i.e. Bay of Plenty, Canterbury, Greater Wellington, Hawkes Bay, Marlborough, Northland, Southland, Tasman, Waikato, and West Coast) and covers all of the 270 consents during 2003-13.

The applicant data sample focuses on DOC and TBfree New Zealand – for reasons of time and convenience – and does not include costs incurred by other applicants of consents for aerial 1080 activities, e.g. biosecurity divisions of regional councils, private pest management agencies and private landholders². We assume that the sample of costs provided by the two major applicants is sufficiently representative of the costs incurred by other applicants.

2.2.2 Process for sourcing and using consent data

LPS asked regional authorities to provide costs associated with the processing of the consent applications and with any monitoring activities over the term of the consent. The major applicants – DOC and TBfree New Zealand – were also asked by LPS to provide costs for the following line items for their consents relating to the period 2003-13.

- Consent preparation costs, including:
 - Cost of time spent managing contract with the consultant/contractor;
 - Cost of time spent providing information to the consultant/contractor to prepare the consent; and
 - Consultant/contractor cost (\$) to prepare the consent (including hearing costs for consultant/contractor/staff to attend, if applicable, but not including Council consent processing costs).
- Consultation costs (with stakeholders or the wider public, as applicable).
- Monitoring costs over the duration of the consent (not including the fees charged by regional authorities for monitoring the consents).

The cost data was provided to us by LPS, which gathered the data after liaising with DOC, TBfree New Zealand and regional councils. The data has taken into account the RMA cost component only, and has excluded costs associated with obtaining the required public health and HSNO Act permissions

² Contractor-held consents tend to be for the purpose of undertaking pest management work for TBfree New Zealand and regional authorities.

The raw sample data was accompanied by an estimation of TBfree New Zealand’s average preparation, consultation and monitoring costs per consent. These average costs were calculated by LPS on the basis of advice from TBfree New Zealand and some sensible judgments and extrapolated to all TBfree New Zealand consents, e.g.

- using TBfree New Zealand’s estimated range of consultation costs on a per hectare basis (median value of \$5) where the operation area has been specified;
- for other consents, where the operation area has not been specified, then using the average labour costs from two consents highlighted by TBfree New Zealand (i.e. Pinchback and Wangapeka/Mt Owen) as fair a proxy for consultation costs;
- dividing the consultation costs by 3 to give an approximate cost for the RMA consent component (i.e. excluding the hazardous substances and public health components)³; and
- applying an average amount for the preparation and monitoring costs, derived from the sample of cost data supplied.

In appraising the data, we have assessed these estimation steps as being sufficiently robust for inclusion in the cost benefit analysis. The consent data used is summarised in Table 2.

Table 2: Applicant cost data received and used in the modelling work

Applicant	Consents with cost data as % of consent applications 2003-13	Comments on data
Department of Conservation	21/55 consents = 38%	DOC provided cost estimates via LPS for 21 consents, comprising 16 non-notified, 1 limited notified, 3 publicly notified and 1 withdrawn consent. Costs were not submitted for all line items and so the sample is plausibly on the conservative side.
TBfree New Zealand	10/77 consents = 13% Data extrapolated to all 77 of TBfree New Zealand’s consents	TBfree New Zealand provided cost estimates via LPS for 10 consents, comprising 8 non-notified and 2 publicly notified consents. Average cost estimates were applied to other TBfree New Zealand consents by LPS on the basis of information provided by TBfree New Zealand and some sensible estimation steps: <ul style="list-style-type: none"> • consultation costs – used an average cost per hectare based on a median value (\$5) or labour costs from two highlighted cases; • separating the RMA component from other consultation activities for the consent (i.e. MOH and DOC Permissions) by dividing by 3 to give a conservative estimate; • applying an average cost for preparation and monitoring costs, derived from sampled costs.

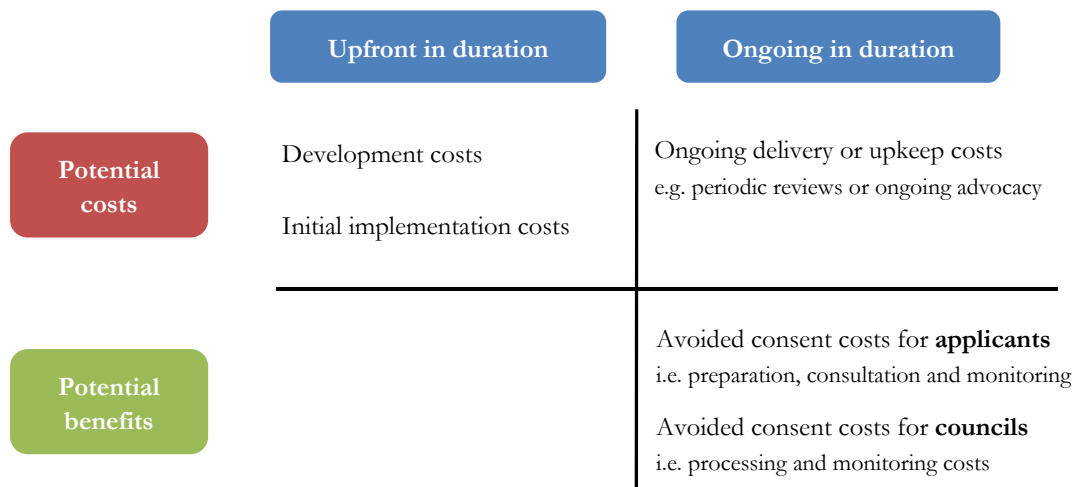
Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

³ The division of these consultation costs by three was undertaken by Latitude Planning Services on the basis of advice by the partner organisations that this would represent a conservative estimate.

2.3 Modelling approach

We developed a high-level framework to identify and categorise upfront (one-off) and ongoing operating costs and benefits under the national and regional approaches. Figure 1 outlines this framework. It shows that some of the costs are upfront in nature, such as the development work ahead of actual implementation (e.g. developing the NES) as well as the initial implementation costs (e.g. disseminating information publicly, or internal updates to staff). Costs may be ongoing too, such as costs associated with periodic reviews. The benefits take the form of a stream of avoided consents and their associated costs.

Figure 1: A high-level framework for considering costs and benefits



Source: Sapere Research Group

2.4 Underlying assumptions

Timeframe – our cost-benefit framework is modelled over a 20-year period to ensure that a sufficient time horizon is allowed to capture the long term effects of the proposed options. We assume that upfront development occurs in Year 0 and implementation occurs in Year 1.

Discount rate – to account for the ‘time value of money’ we have discounted future cost and benefits using a discount factor of 8%, consistent with guidance from the Treasury.

A national approach – following initial analysis of the likely costs and benefits of the options, we find no material difference between the NES and the s360 (h) regulation. In each case, costs to applicants and councils of the consent process would be avoided, with development and implementation cost being low. Therefore, we treat these options in the same way within the model and present a single set of results as a “national approach”.

Consent avoidance – we model consents for aerial 1080 operations as being wholly avoided under the national approach (and partially under the regional approach) under an assumption that the applicants continue to operate under their standard operating procedures, which are compliant with the Hazardous Substances and New Organisms Act 1996. Therefore the need to obtain consents will be avoided or minimised.

Outcomes held constant – we assume no change in the area covered by aerial 1080 operations, relative to current settings. Although operation savings are plausible, there is insufficient certainty to determine how freed-up resources might be reallocated by applicants.

3. Analysis of annual consent volumes

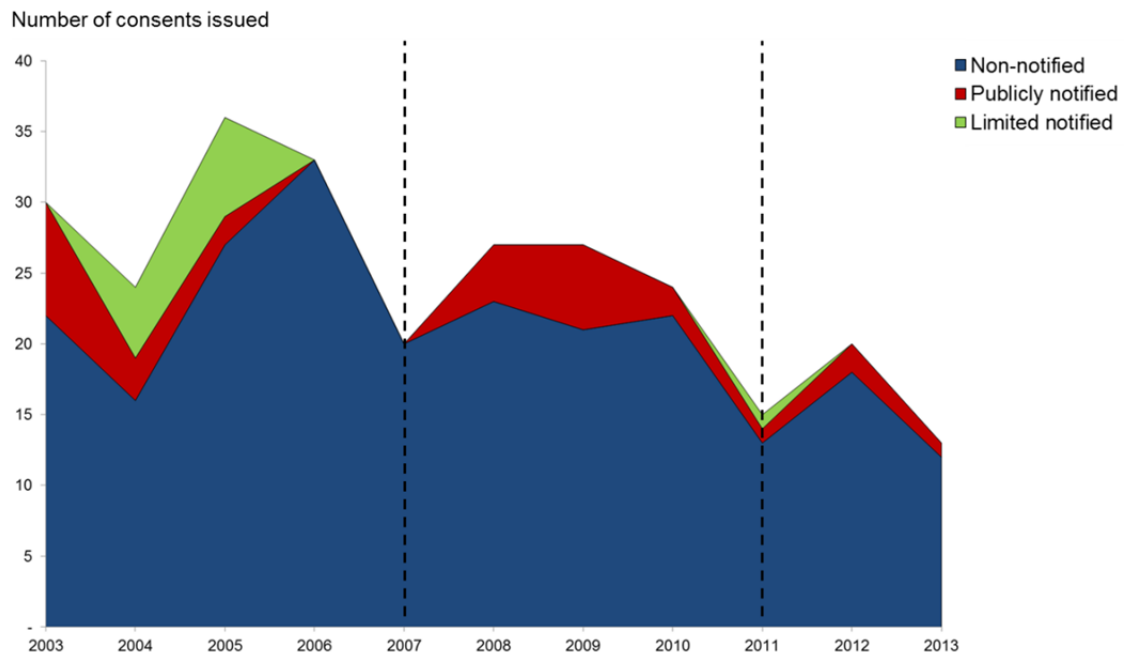
This section presents our analysis of the volume of consents for aerial 1080 operations for the period 2003-13. We also consider the area (in hectares) covered by those consents as well as the forward plans for aerial 1080 operations among major applicants, such as DOC and TBfree New Zealand. This analysis allows us to determine options for projecting the future volume of consents that would plausibly occur under business-as-usual arrangements. This future volume of consents represents the activity that might be avoided – in whole, or in part – under the proposed national and regional approaches for streamlining the consent process for aerial 1080 operations.

3.1 Examining historic consent volumes

The number of consents issued for aerial 1080 operations between 2003 and 2013 varied from year to year, as shown in Figure 2. Although a downward trend is apparent, this may be due to changes in the duration of consents being granted and/or cyclical factors. We find that there was **an average of 24 consents per year** during this period.

The mix of consents by notification status has been fairly constant over time. The majority (85%) of the consents issued over this period have been non-notified. On average, only 10% of consents issued required public notification and 4% required limited notification.

Figure 2: Number of consents issued 2003-13, by notification requirement

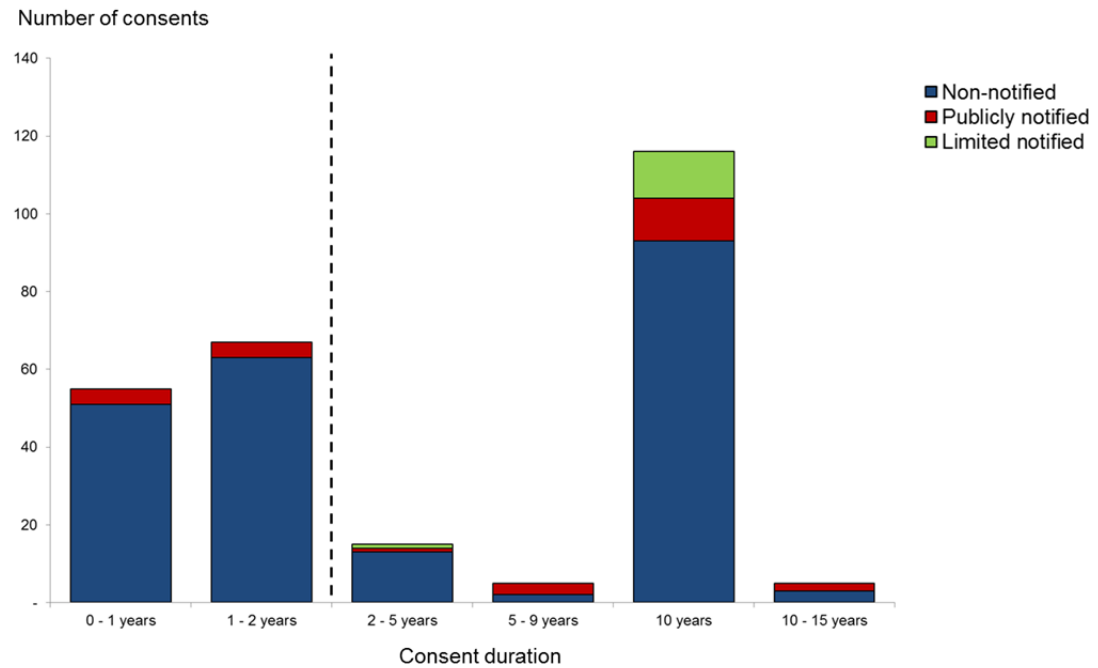


Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

Note: Excludes appealed, withdrawn, and lodged but not yet issued consents

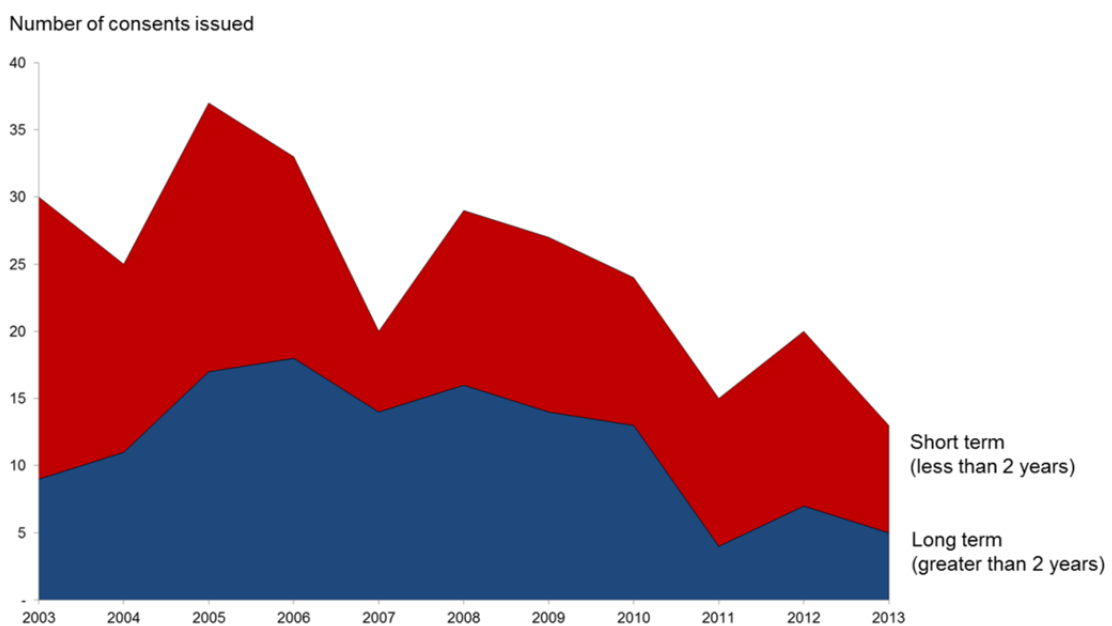
Analysis of the duration of the consents shows a distribution, as shown in Figure 3. A large number of consents issued during the sample period were for a 10 year period with similar numbers being for less than two years. Clearly, the mix of ‘short term’ (i.e. < 2 years) versus ‘long term’ (i.e. > 2 years) consents will have an effect on the overall volume of consents. Figure 4 presents the data grouped into these two broad duration categories and, notably shows peaks of long-term consents being granted in 2005-06 and 2008.

Figure 3: Number of consents by duration



Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

Figure 4: Long term and short term consent durations



Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

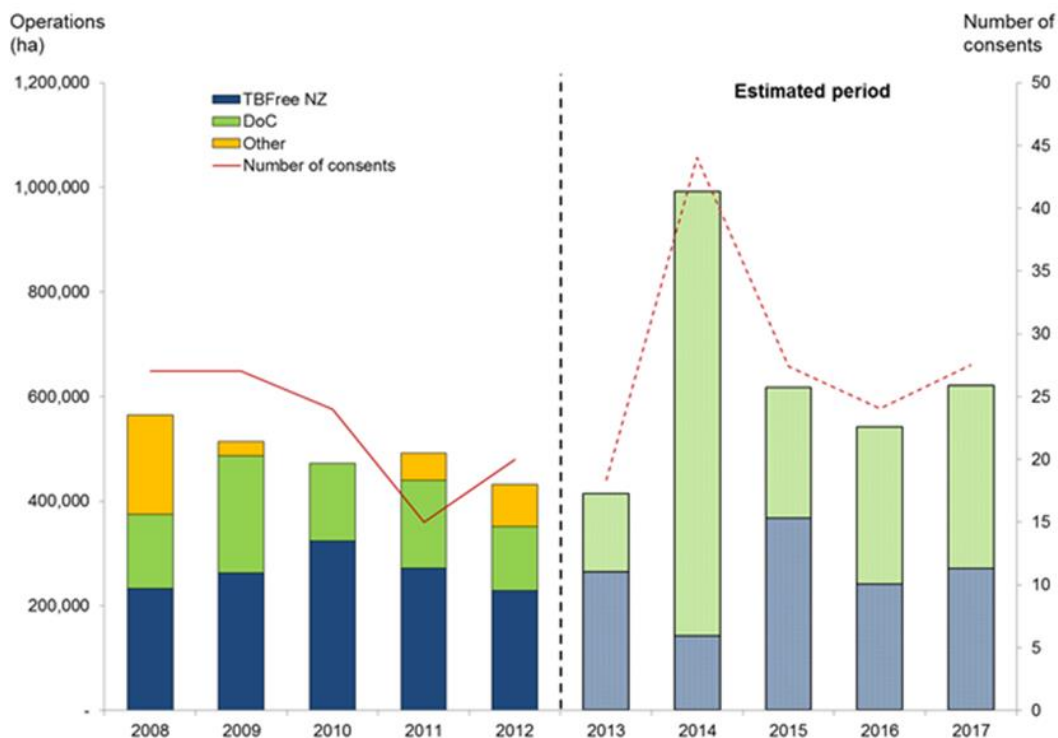
3.2 Area covered and planned operations

We also examine the area covered by the consents issued. Figure 5 illustrates the coverage area during the years 2008 to 2012 for all applicants. It also shows the coverage area (in hectares) for planned operations by TBfree New Zealand and DOC for 2013 to 2017. The peak observed in 2014 is largely driven by DOC's response to an upcoming beech mast – a heavy seed fall that occurs periodically in New Zealand beech forests, causing a rise in the population of mice and rats.

We hold constant the ratio of hectares covered to consents observed during 2003-12 to estimate the number of consents associated with the area covered by the aerial 1080 operations currently planned by TBfree New Zealand and DOC for the period 2013-17. This approach is shown in Figure 5.

This approach implies **an average of 26 consents per year** over the near term. Although this figure appears similar to the average of 24 consents per year seen in 2003-13, it does not include planned operations by other consent applicants – namely, the regional councils. Therefore, there is a case for concluding that near-term consent activity may be higher than this estimate and that an average of 30 consents per year would not be unreasonable.

Figure 5: Area covered vs. number of consents



Source: Data provided by Latitude Planning Services Ltd; Sapere Analysis

Note: Excludes scheduled operations for 'other' land managers (e.g., regional councils) after 2013

3.3 Projecting consent volumes

From our analysis of the level and mix of these consents over the period 2003-13, we draw the following conclusions – to inform our projection of the volume of consents that could reasonably be expected to occur over the next 20 years under the current arrangements.

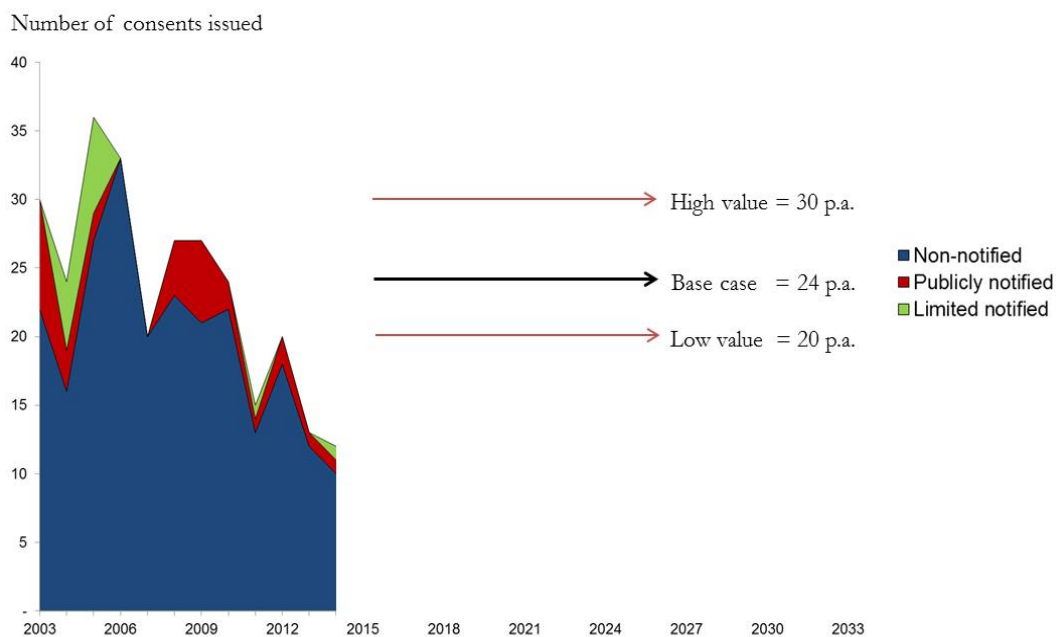
- Despite fluctuations in overall levels of consents, the mix of consent notification status has been fairly constant and there is no clear basis for assuming a radically different mix.
- Although a downward trend in consent numbers is apparent, there are arguments for assuming similar or higher volume of consents as seen over 2003-13:
 - a cyclical renewal of existing consents. The peaks of long-term consents observed in 2005-06 and 2008 suggest that a burst of renewal applications could arise under business-as-usual settings; and
 - our analysis of planned operations suggests an increase in 1080 activities. Furthermore, as noted, the Parliamentary Commissioner for the Environment has recommended that the aerial use of 1080 be increased to protect biodiversity.

Therefore, for our **base case**, we assume that future resource consent volumes will follow historical behavior and we model a **constant 24 consents per year**, as depicted in Figure 6. We also identify plausible low and high values for the future volumes of consents:

- a **low value of 20 consents per year** – based on the average annual volume of consents observed in the most recent five years of the dataset years (i.e. 2008-13); and
- a **high value of 30 consents per year** – based on the average annual volumes of consents derived from our analysis of planned operations of TBfree New Zealand and DOC (26 per year) with an upward adjustment to allow for regional council activities.

The impacts of these alternative values on key results are tested later in Section 7.2.1.

Figure 6: Annual projection of consents issued



Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

4. Determining the costs

This section outlines the costs associated with the national and regional approaches. As noted earlier, we have obtained our implementation cost estimates from authoritative publications and through various discussions with industry stakeholders.

4.1 Costs under the national approach

We first considered possible costs under the establishment of a NES and identified two broad categories of costs that could be expected to occur with reasonable certainty.

- **Development costs** – to be incurred by central government. These include the costs of developing the NES, the consultation process, and the production guidance and promotional material. After reviewing cost estimates associated with previous NES we assume a development cost of \$400,000. Based on discussion with the Project Delivery Group, we find it is not unreasonable to assume that the partner organisations would bear a similar level of development cost in support of these processes.
- **Implementation costs** – to be incurred by regional authorities, such as advising changes and educating staff and providing advice to interested parties after a NES has been established. We assume an average cost of \$2,500 per authority, following an examination of cost estimates associated with previous NES and discussions with the Project Delivery Group.

Our cost assumptions are shown in Table 3. With respect to the use of Section 360(h) of the RMA to provide for the streamlining of aerial 1080 operations, we do not find any significant differences in costs. Feedback from the Project Delivery Group is that it is not unreasonable to treat the costs under this regulatory option in the same way as the NES option.

Table 3: National approach – cost assumptions used

Stakeholder	Description	Assumption
Central government	Development costs	Year 0: \$400,000 – based on costs incurred for a low-complexity NES
	Administration, monitoring, guidance and explanatory documents	Years 1-3: \$50,000 - \$100,000 per annum
	Five-year review costs (repeating)	\$50,000 every 5-years (i.e. 6 months of work for a full-time equivalent)
Partners (i.e. consent applicants)	Development costs	Year 0: \$400,000 – based on partners bearing a cost similar to central govt.
Regional authorities	Advising changes and educating staff	Year 0: \$42,500 (i.e. \$2,500 per council)

We considered other cost items identified in reports on previous NES, as shown in Table 4. These were not included in the model because they relate to cases where a NES has led to a higher or more complex standard than the status quo (as opposed to the streamlined approach proposed here) or because the costs are considered to be unlikely and / or immaterial in nature.

Table 4: National approach – cost items considered but not included

Plausible cost item	Rationale for non-inclusion
Amending existing plans to incorporate new rules	<p>Regional authorities are not legally required to immediately incorporate the proposed NES into their Regional Plans, as the NES automatically supersedes any existing Plan. However a few councils may decide to amend their Plan immediately after the NES has been set for the following reasons:</p> <ul style="list-style-type: none"> • to facilitate greater clarity in their Plan in relation to the proposed NES to avoid any potential confusion. This would be an administrative rather than public process; • modifying their rules to ensure that their permitted activity rules – if they have such rules – are consistent with the proposed NES. <p>As the proposed NES would enable ‘permitted activity’ status on a nationwide basis, we do not expect this cost item to be material.</p>
Review of existing consents	<p>The proposed NES would not affect the stock of existing consents for aerial 1080 operations because it is not setting a higher standard for granting consent (the proposed approach is to streamline this process). Therefore we conclude that there would be no need for regional authorities to review existing consents.</p>
Administering changes to consenting processes	<p>Following implementation of the proposed NES, consents will no longer be required for aerial 1080 activities – as long as applicants continue to operate under their standard operating procedures, which are compliant with the Hazardous Substances and New Organisms Act 1996 (which we expect to be the case). Therefore the need to obtain consents will be avoided and so there is no need to make changes to existing consent processes.</p>
Monitoring and information systems	<p>In reviewing cost estimates associated with previous NES, we noted that some NES imposed material monitoring and information system requirements on regional authorities. However, in this case there would be no additional monitoring requirement following implementation of the proposed NES because the monitoring of aerial 1080 operations would be subject to the Hazardous Substances and New Organisms Act 1996.</p>

4.2 Costs under the regional approach

The costs associated with the regional approach to streamlining the consent process are assumed to largely relate to the establishment of a joint team – to be set up by the partners to advocate for change. The cost components include:

- establishment of the joint team, drawing on expertise from partner organisations, to regularly carry out advocacy and the standardisation of best practice;
- the costs of partner-led submissions on Regional Plan reviews that are to be undertaken within the short term (i.e. the next 2 years); and
- the costs of preparing and applying for comprehensive long-term region-wide consents for regions where Plan reviews are not expected to be undertaken in the short term.

The costs that would be incurred by regional authorities under this option include:

- the costs of advising changes and educating staff of changes to Regional Plans arising from partner-led submissions; and
- the costs of processing the comprehensive long-term consents.

Through our discussions with technical experts from the partner organisations, the Project Delivery Group and LPS, we have defined a set of costs that would be likely to be incurred under the implementation of this regional approach. These are summarised in Table 5.

Table 5: Regional approach – cost assumptions used

Stakeholder	Description	Assumptions
Joint team – set up by the partners	Advocacy and standardisation of best practice procedures	Ongoing costs: \$60,160 from Year 1; <ul style="list-style-type: none"> • 2 staff at 0.3 FTE • 6 persons to form working group for 1 day a month (assumes average salary of \$70k)
	Regional plan submissions	During Years 1-3: <ul style="list-style-type: none"> • \$50,000 – \$80,000 per annum for planning consultancy to prepare a single submission • \$50,000 - \$80,000 per annum for legal counsel and technical advice
	Preparation of comprehensive consents	<ul style="list-style-type: none"> • Costs of each publicly notified consent is \$100,000 • Additional pre-application notification of \$50,000 Assumes 2 consents granted on a 3-year cycle from Year 4
Regional authorities	Advising changes, educating staff	\$2,500 for each council that adopts a streamlined approach
	Processing of comprehensive long-term consents	Mid-point of range of \$22,000 – \$25,000 per consent

5. Determining the benefits

We find that the quantifiable benefits of the proposed changes are the avoided costs that would otherwise be incurred by councils and applicants. For applicants, these costs relate to the preparation of consents of aerial 1080 operations and the associated consultation and monitoring requirements. For councils, the costs relate to the processing of consents and the monitoring of performance. Table 6 and Table 7 outline these costs in more detail.

Table 6: Cost items incurred by consent applicants

Cost category	Cost item	Description
Preparation	Time spent providing information to consultant or contractor to prepare consent	The cost of applicant’s time spent to provide information for the consultant or contractor to prepare the resource consent
	Consultant or contractor cost to prepare consent	This cost item refers to the fee charged to the applicant for consulting or contractor services to prepare consent application
	Other costs	Other costs related to consent preparation
Consultation	Consultation costs	Cost of time spent obtaining approval from affected parties and general consulting with external parties about aerial 1080 operations
Monitoring	Monitoring costs	Cost of employing a specialist to monitor aerial 1080 activities on the applicant’s behalf over the duration of the consent, which excludes any charges by the council

Table 7: Cost items incurred by regional councils

Cost category	Cost item	Description
Processing	Cost of processing consent application	The costs of processing applicant’s resource consent application, which includes the costs of the application fee
Monitoring	Monitoring costs	Costs of a council compliance officer’s time to monitor activities over the duration of the consent

5.1 Rationale for inclusion of benefits

From our analysis, we find that there are several factors that can affect the magnitude of consent costs for applicants and councils. In the subsequent subsections we present our findings and summarise our consent cost estimates for our CBA model.

5.1.1 Benefits under the national approach

As noted earlier, the benefits of the national approach, either via NES or s360 (h) regulatory changes, are the avoided costs of RMA consents that would otherwise occur. As the aerial application of 1080 will essentially be a permitted activity under either of these regulatory approaches (within certain limits), the consent process is likely to be avoided. Therefore the modelled costs of future operations will be avoided for councils and applicants.

5.1.2 Benefits under the regional approach

The benefits of the regional approach are also expressed as avoided consent costs. However the realisation of these benefits is contingent on regional councils adopting a streamlined approach to consents for aerial 1080 activities – either by granting ‘permitted activity’ status (via a regional plan review) or a comprehensive long-term consent.

Among the 11 regional councils and 6 unitary authorities, 5 regional councils have granted permitted activity status for aerial 1080 operations. Among the 12 other regions, we assume that 6 councils (i.e. 50%) would streamline the consent process under this regional approach. This assumption is in response to feedback from the Project Delivery Group about the uncertainty over the number of councils that would adopt a streamlined process.

We use an “uptake pattern” where two councils adopt this streamlined process every three years – as a result of efforts from the centralised team drawn from the partner organisations. As a result, it therefore takes nine years to secure for the participation of 6 councils under the regional approach. Accordingly, the benefits of the regional approach accrue more gradually than under the national approach. Given the high uncertainty about the outcomes of the regional approach, we conduct sensitivity tests on our assumptions about the number of “uptake” councils the timeframe for securing their participation – see Section 6.1.

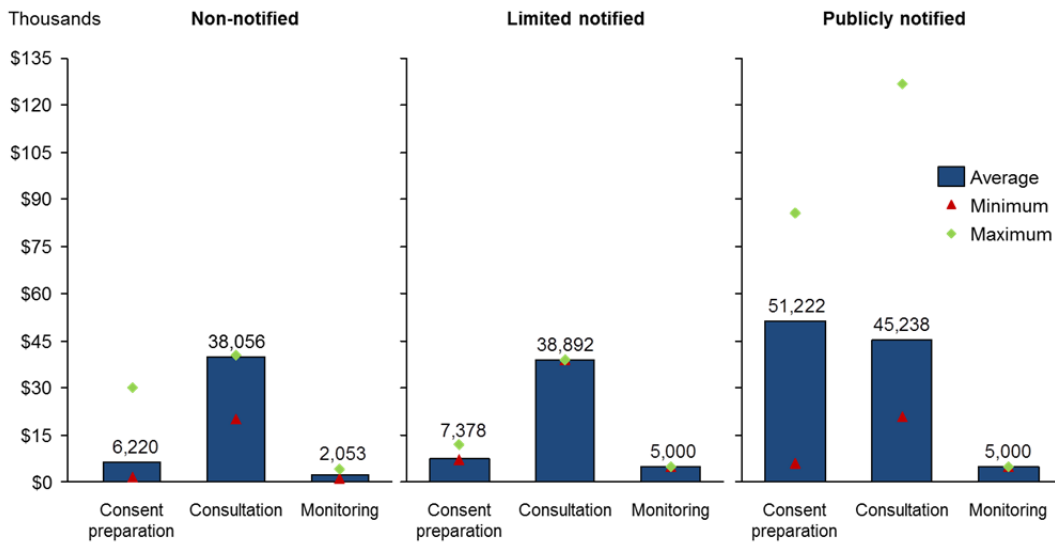
Comprehensive long-term consents are assumed to endure over the 20-year modelling period and so do not need to be renewed during this timeframe.

5.2 Quantifying the benefits

5.2.1 A focus on average costs

This section documents our analysis of reported consent costs from 2003-13. Among costs incurred by applicants, a large portion is related to consultation, regardless of the type of consent – as shown in Figure 7. Consultation costs range from an average of \$38,000 for non-notified consents to an average of \$45,000 for publicly notified consents. This increase is due to the greater amount of consultation involved. Preparation costs tend to be more affected by the type of consent, with the range of average costs being from \$6,000 for non-notified to \$51,000 for publicly notified consents. Monitoring costs only comprises of a small proportion of the costs incurred by applicants, ranging from an average of \$2,000 for non-notified consents to an average of \$5,000 for publicly notified consents.

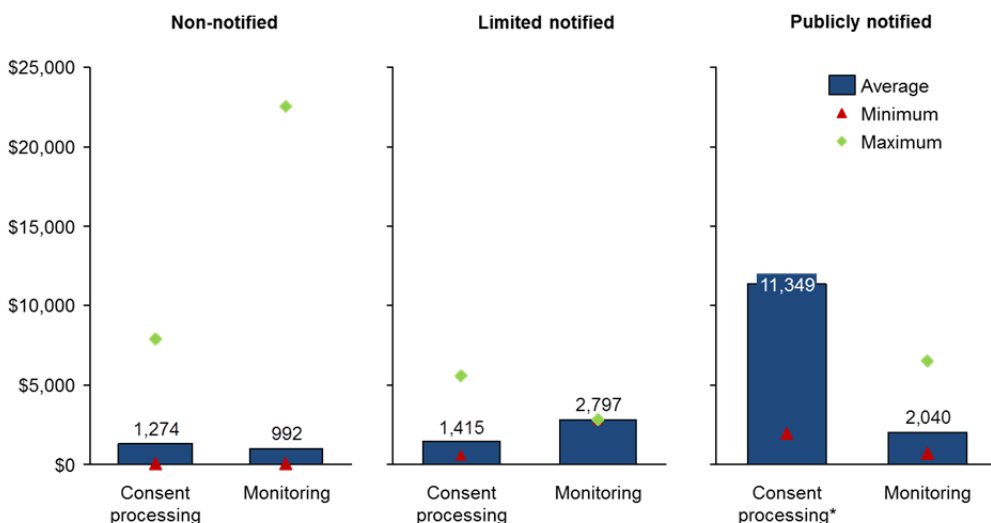
Figure 7: Average applicant costs by consent type, 2003-13



Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

Among costs incurred by councils, the average processing and monitoring costs increase with the level of consent notification. For non-notified consents, processing costs and monitoring costs are similar, being approximately \$1,300 and \$1,000, respectively. Among publicly notified consents, processing costs increase substantially to \$11,000, and monitoring costs increase to \$2,000. In deriving the processing cost values we also considered application fees charged by councils, as these tended to be lower than cost estimates provided by councils. We used this fee data as the minimum values for each consent type.

Figure 8: Average council costs by consent type, 2003-13 ⁴



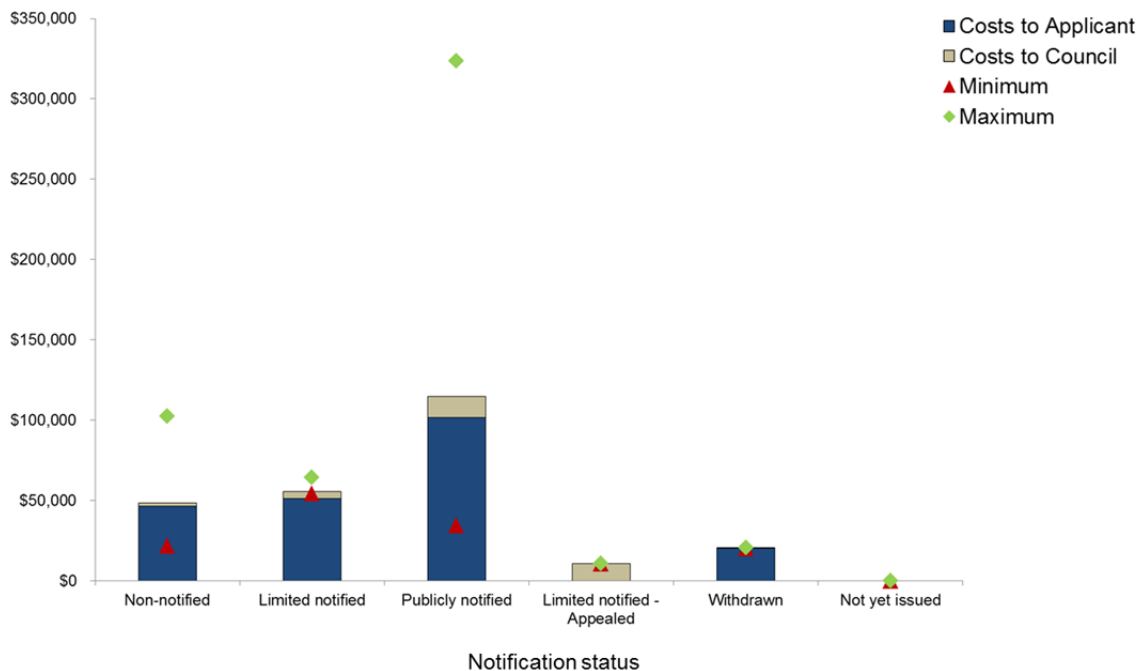
Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

Figure 9 combines the average costs calculated for applicants and councils. It is noticeable that the consent costs for applicants are much larger than the costs incurred by councils –

⁴ The maximum processing cost for publicly notified consents is \$100,000 and has been excluded from the chart for clearer presentation of the results

generally more than 90%. It is also noticeable that the average costs to both parties (i.e., councils and applicants) are much higher for publicly notified consents than for non-notified or limited notified consents.

Figure 9: Average costs for applicants and councils by consent type, 2003-13⁵



Source: Data provided by Latitude Planning Services Ltd; Sapere analysis

5.2.2 Consideration given to sampling council costs

Discussions with LPS and with technical experts from the partner organisations highlighted that some of the variation in the processing and monitoring costs reported by regional authorities may be due to differences in costing methods.

In response, we considered focusing on costs provided by 2-3 councils that were thought to have particularly robust approaches to costing these items. However, this approach did not produce a set of average costs that was greatly different. It also lacked sufficient data points across all consent types (i.e. too few publicly-notified consents).

Instead, we have chosen to address the variation in the council cost data by using the average of all values – as shown in the section 5.2.1. We deal with the uncertainty by establishing a range of results through the use of maximum and minimum values for each cost category. These values are laid out in the next section.

⁵ Calculated as the average applicant/council cost across 270 consents during the period 2003-13

5.3 Benefits – values used

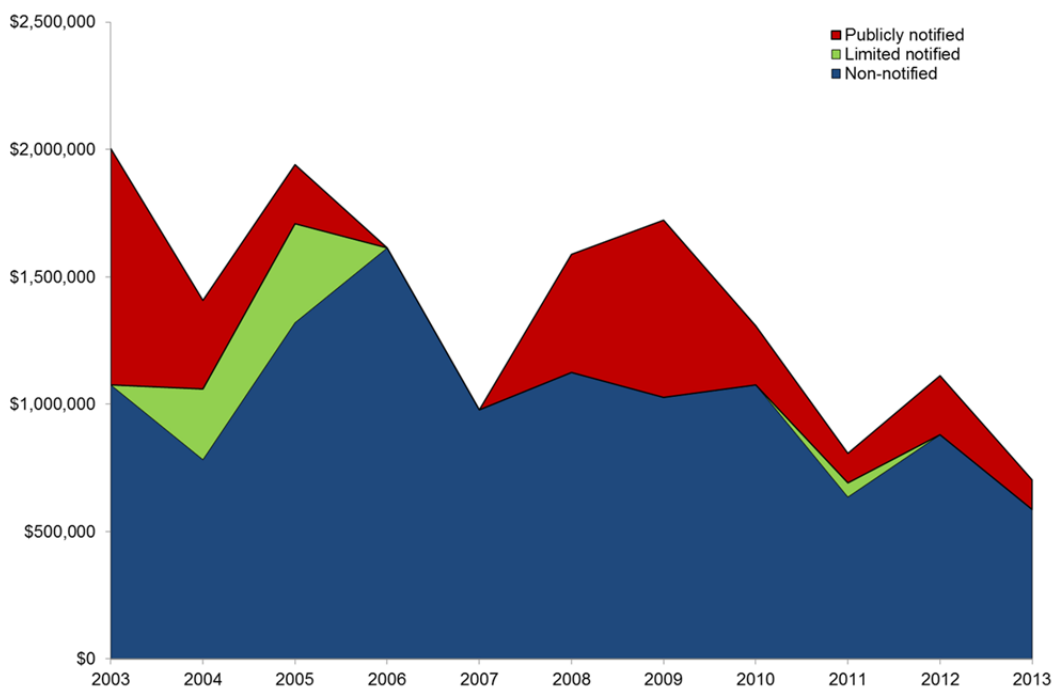
From our analysis of cost data for applicants and councils, we have determined the following average unit costs for each category of cost incurred – shown in Figure 10. These costs are differentiated by the notification requirements of the consent. In each case, the maximum and minimum cost is also shown. We use these values for modelling the benefits – in the form of avoided costs – for both the national and regional approaches.

Applying these average costs to the volume of relevant consents for 2003-13 gives a range of annual costs of approximately \$1 million to \$2 million, as is shown in Figure 11.

Figure 10: Cost-benefit modelling framework – estimated cost per consent

	Costs to applicant			Costs to council		
Non-notified:	\$29,000	\$38,892	\$4,000	\$7,882	\$22,500	Optimistic scenario
	\$6,220	\$38,056	\$2,053	\$1,582	\$1,027	Base case
	\$1,500	\$19,143	\$1,000	\$518	\$89	Pessimistic scenario
Limited notified:	\$12,000	\$38,892	\$5,000	\$5,579	\$2,797	
	\$7,378	\$38,892	\$5,000	\$1,415	\$2,797	
	\$6,993	\$38,892	\$5,000	\$557	\$2,797	
Publicly notified:	\$85,500	\$126,666	\$5,000	\$100,000	\$6,500	
	\$51,222	\$45,238	\$5,000	\$12,440	\$2,040	
	\$6,000	\$20,923	\$5,000	\$2,709	\$720	
	Consent preparation	Consultation	Monitoring	Consent processing	Monitoring	

Figure 11: Total cost of consent activity for aerial 1080 operations, 2003- 13



6. Results – base case

6.1 Base case results

We find that society would be better off under the national or the regional approach to streamlining RMA compliance requirements for aerial 1080 activities. However, the net benefit (present value) of the national approach (**\$10.5 million**) is substantially higher than that of the regional approach (**\$2.6 million**), as Table 8 shows. This difference is driven by the benefits of the national approach being higher than those of the regional approach.

The benefit-cost ratio (i.e. present-value benefits divided by present-value costs) for the national approach is **11.0** – which means that the benefits outweigh the costs by 11 to 1. The benefit-cost ratio for the regional approach is much lower at **3.2** – although the benefits still outweigh the costs under this approach. We explore the uncertainty around these results in subsequent sections of this report.

Table 8: Base case results – national and regional approaches

Measure		National approach (\$ million)	Regional approach (\$ million)
Benefits (present value)	Total	\$11.5 m	\$3.8 m
	Councils – avoided costs	\$0.8 m	\$0.3 m
	Applicants – avoided costs	\$10.7 m	\$3.6 m
Costs (present value)	Total	\$1.1 m	\$1.2 m
	Development costs	\$0.8 m	\$0.6 m
	Implementation costs	\$0.2 m	\$0.6 m
Net benefit (net present value)		\$10.5 m	\$2.6 m
Benefit-cost ratio		11.0	3.2

Note: Modelled over a 20-year period using a discount factor of 8.0%

The time profile of the modelled costs and benefits under the national approach is shown in Figure 12. The annual benefits, in the form of avoided resource consent costs, are assumed to be fully realised from Year 1 – following development of a national regulatory approach in Year 0. The ongoing costs are relatively low and relate to advising of this change in process, educating council staff, and five-yearly reviews under a ‘best practice’ approach to regulation.

In contrast, the time profile of the regional approach, in Figure 13, shows a gradual increase in benefits as the rolling work programme engages with councils on a region-by-region basis to secure permitted activity status or comprehensive long-term resource consents for aerial 1080 activities. The development costs associated with the centralised team are assumed to conclude at Year 8, by which time six additional councils are assumed to have adopted a streamlined approach. Ongoing costs relate to continued advocacy from the partners.

Figure 12: Base case results for national approach

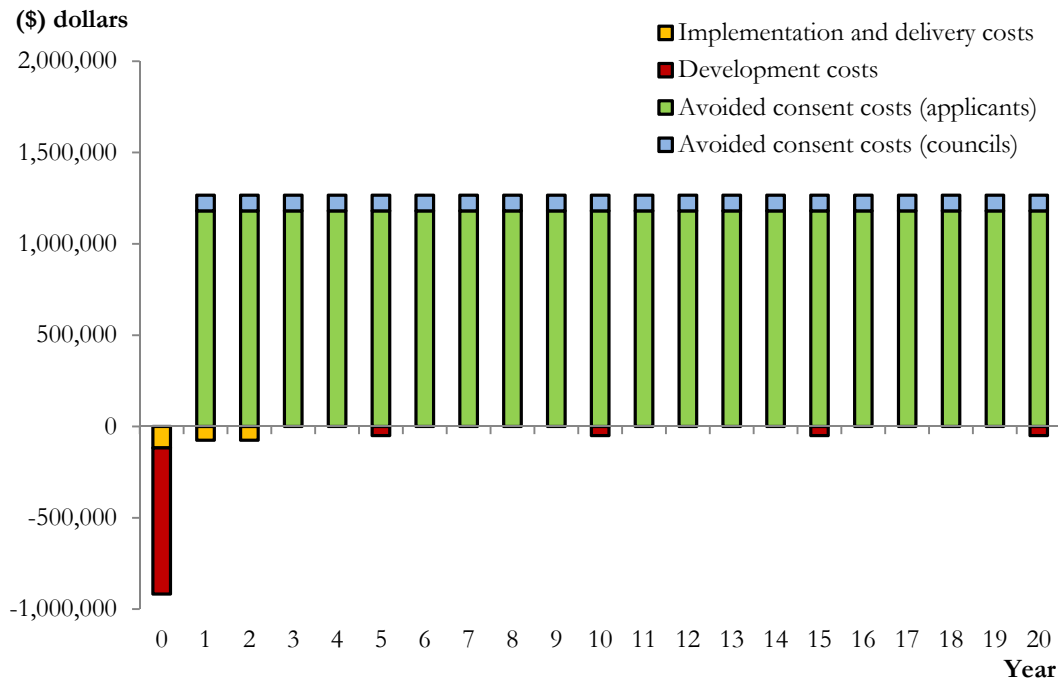
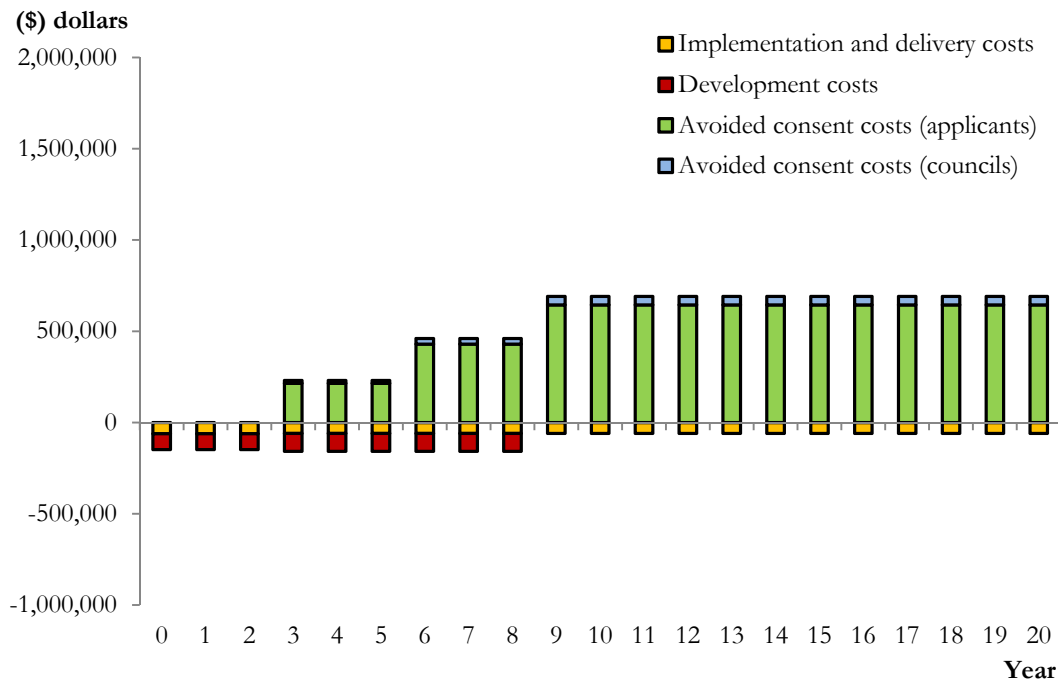


Figure 13: Base case results for regional approach



6.2 Base case – sensitivity testing

In this section we test the sensitivity of the base case results to different values being used for the discount rate and the length of the time period used for the model.

6.2.1 Varying the discount rate

The base case used a discount rate of 8%. We test the robustness of the base case results to changes to the discount rate, within the range of 4% and 12%. The results of these sensitivity tests are presented in Table 9. We find that within the net benefit (present value) remains positive for the national approach and the regional approach under all values of discount rate within the range tested. The relativity between the approaches remained fairly similar, with the net benefit (present value) for the national approach being between 3.3 and 5.0 times the result for the regional approach.

We also find that the benefit-cost ratio remains above 2.0 for both approaches under a relatively high discount factor of 12% –the results being 8.6 for the national approach and 2.6 for the regional approach.

Table 9: Base case results under different discount rates

Discount rate	Net benefit (present value, \$ million)		Benefit-cost ratio	
	National approach	Regional approach	National approach	Regional approach
4%	\$15.4 m	\$4.6 m	14.5	4.0
6%	\$12.6 m	\$3.5 m	12.6	3.6
8% (base case)	\$10.5 m	\$2.6 m	11.0	3.2
10%	\$8.8 m	\$2.0 m	9.6	2.9
12%	\$7.5 m	\$1.5 m	8.6	2.6

Note: Modelled over a 20-year time period

6.2.2 Varying the time period

The base case used a fairly standard 20-year time horizon so as to capture the long term costs and benefits of the national and regional options. We test the results against different time periods – namely 10 years and 30 years – while holding the discount rate constant at 8%.

The results are summarised in Table 10. A key finding is that the national approach produces a relatively strong result (\$6.8 million) in terms of net benefit (present value) over a 10-year timeframe whereas the regional approach barely breaks even (\$0.8 million). Over a 30-year horizon, the net benefit (present value) of each option increases at a slower rate, as might be expected given that the effect of discounting increases over time.

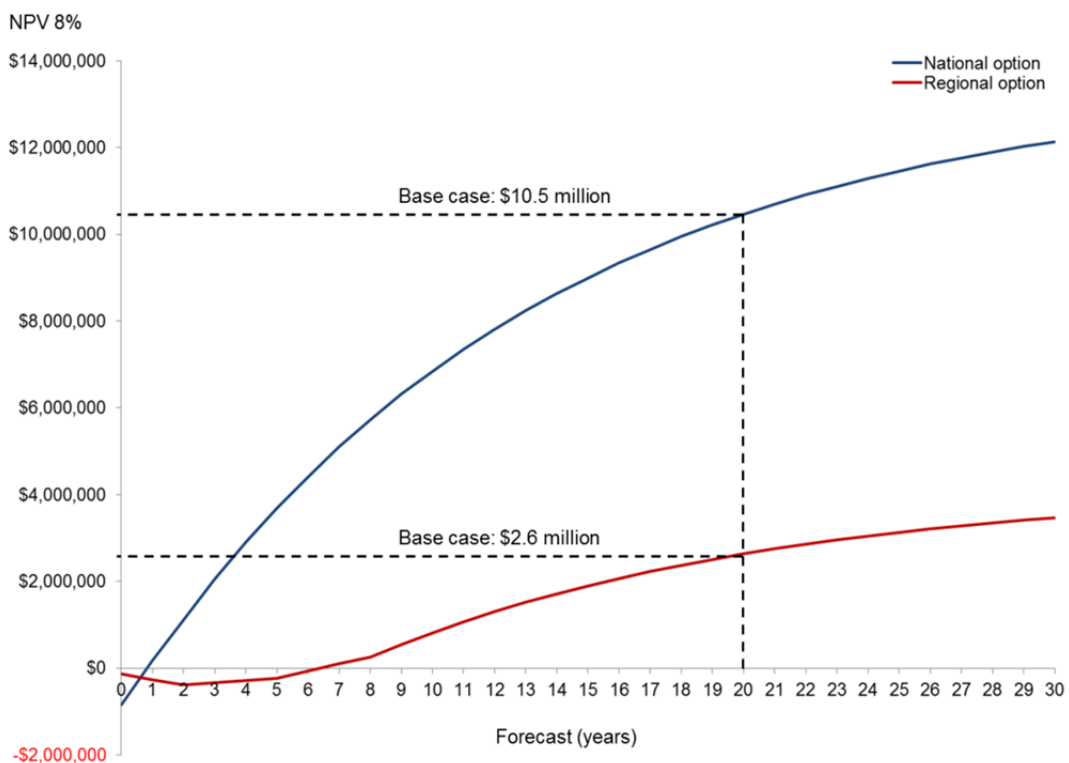
Table 10: Net benefit (present value) under 10-year and 30-year time horizons

Time period	Net benefit (present value, \$ million)	
	National approach	Regional approach
10 years	\$6.8 m	\$0.8 m
20 years (base)	\$10.5 m	\$2.6 m
30 years	\$12.1 m	\$3.5 m

Note: Modelled using a discount rate of 8%

Figure 14 plots the net benefit (present value) of the national and regional approaches over time. This figure shows that the national approach returns a net benefit at the point of implementation in Year 1. In comparison, the regional approach incurs a net cost for the first five years after following implementation (i.e. Year 1 to Year 5) before returning a net benefit in Year 6.

Figure 14: Net benefit (present value) results over time



Note: Modelled using a discount rate of 8%

6.1 Regional approach – testing uncertainty

Feedback during discussions with the Project Delivery Group focused on the high level of uncertainty around the outcomes of the regional option. The uncertainty relates to:

- the number of councils that would grant ‘permitted activity’ status or comprehensive long-term consents for aerial 1080 activities (i.e. adopt a streamlined approach); and
- the timeframes involved in preparing regional plan submissions or submissions for comprehensive long-term consents and in securing a successful outcome.

Therefore we undertook some additional testing for the regional approach by varying: (i) the number of ‘uptake’ councils – i.e. the number of regions assumed to adopt this streamlined approach; and (ii) the timeframe to secure a successful outcome from these councils.

6.1.1 Varying the number of ‘uptake’ councils

The base case assumed that, of the 12 regions where aerial 1080 operations do not currently have permitted activity status, 6 councils (or nearly half) would adopt a streamlined approach (i.e. grant ‘permitted activity’ status or comprehensive long-term consents). We tested two alternative assumptions about the number of these ‘uptake’ councils:

- a **low case** in which **3 regional councils** adopt this streamlined approach (i.e. 25% of remaining councils). This assumption follows feedback from the Project Delivery Group, which suggested that “at least some” councils would adopt this approach; and
- a **high case** in which **9 regional councils** adopt this streamlined approach (i.e. 75%) . This assumption was made on the basis of feedback from the Project Delivery Group, which suggested that “at least some” councils would be unlikely to adopt this approach.

Table 13 presents the results of the modelling under these assumptions. The key take-out is that, even under a low assumption about the number of ‘uptake’ councils, the regional approach remains positive on a net benefit (present value) basis. The benefit-cost ratio for this case (2.3) also remains above 1.0.

Overall, we find that the net benefit (present value) under these low and high assumptions ranges from **\$1.3 million to \$3.1 million**. The result is less sensitive to the addition of councils than the reduction in the number of councils. This is because the additional councils are assumed to adopt the streamlined approach sequentially, and so an earlier adoption has a higher pay-off due to more years remaining within the modelling timeframe.

Table 11: Net benefit (present value) of the regional approach – varying the ‘uptake’

Assumption about the number of ‘uptake’ regional councils	National approach (comparator)	Regional approach (scenario testing)
Low case – 3/12 regions	-	\$1.3 m
Base case – 6/12 regions	\$10.5 m	\$2.6 m
High case – 9/12 regions	-	\$3.1 m

Note: Results are shown on a net benefit (present value) basis

6.1.2 Varying the adoption timeframe

The base case for the regional approach assumed that the efforts on the partners’ centralised team would lead to two councils granting ‘permitted activity’ status or comprehensive long-term consents for aerial 1080 activities after three years. Ongoing efforts from the centralised team would lead to two further councils adopting this streamlined approach after another three years. Essentially, this is a three-year cycle, adopted for modelling simplicity.

To test the sensitivity of our results under different assumptions about the timeframe required to implement the regional option we construct 2 scenarios around our base case:

- a **long case** in which 2 regional councils grant either ‘permitted activity’ status or comprehensive long-term consents every **4 years** until all six ‘uptake’ councils (the base case assumption) have adopted this streamlined approach; and
- a **short case** in which 2 regional councils grant either ‘permitted activity’ status or comprehensive long-term consents every **2 years** – again, until all six ‘uptake’ councils of the base case assumption) have adopted this streamlined approach.

Table 12 presents the results of the modelling under these assumptions. Under a longer timeframe to secure council agreement to adopting the streamlined approach – i.e. where the average number of years is assumed to be four instead of three – the net benefit (present value) of the regional approach remains positive albeit somewhat reduced (\$2.0 million). The benefit-cost ratio for this case (2.0) also remains above 1.0.

We find that the net benefit (present value) under these assumptions ranges from **\$2.0 million** to **\$3.4 million** under the regional approach.

Table 12: Net benefit (present value) of the regional approach – varying timeframes

Assumption about the adoption timeframe	National approach (comparator)	Regional approach (scenario testing)
Long case – 4 years per council	-	\$2.0 m
Base case – 3 years per council	\$10.5 m	\$2.6 m
Short case – 2 years per council	-	\$3.4 m

Note: Results are shown on a net benefit (present value) basis

6.1.3 Combined effect of the two tests

As a further test for the regional approach, we take a combined approach by varying the number of ‘uptake’ councils while also varying the expected adoption timeframe per council.

In the case where the number of ‘uptake’ councils is reduced from 6 to 3 and the adoption timeframe is increased 3 to 4 years, the net benefit (present value) is reduced from the base case result of \$2.6 million to \$1.0 million (a benefit cost ratio of 2.0).

Conversely, increasing the uptake councils to 9 and reducing the expected adoption timeframe per council to 2 years has the effect of increasing the net benefit (present value) to \$4.9 million (a benefit cost ratio of 4.1)

7. Results – pessimistic and optimistic scenarios

We construct two alternative scenarios to test the sensitivity of the base case to different assumptions about the future stream of benefits. This involves three distinct steps:

1. testing the impact of using lower/higher values for the cost of the avoided consents;
2. testing the impact of using lower/higher values for the annual volume of consents; and
3. combining the results of these two sensitivity tests to form the two alternate scenarios.

The **‘pessimistic’ scenario** involves a stream of benefits that is lower in value, relative to the base case. It involves a lower value for the cost of the avoided consents along with a lower assumption about the future volume of consents that might be avoided.

Conversely, the **‘optimistic’ scenario** involves a stream of benefits that is higher in value, relative to the base case. It uses a higher value for the cost of the avoided consents and a higher assumption about the future volume of consents that might be avoided.

7.1 Testing consent cost assumptions

We test the impact of using different values for the cost of consents. The base case used average values for each of the categories of cost incurred by applicants (i.e. consent preparation, consultation and monitoring costs) and by councils (i.e. consent processing and monitoring costs). Instead, we use a set of ‘low’ assumption for each of these cost categories by taking the minimum or lowest value returned in each case. We also use ‘high’ assumptions for these costs by taking the maximum value contained within the data set for each category.

Table 13 presents the results of the modelling conducted under these assumptions. The key take-out is that, even under the pessimistic assumptions about the costs of avoided consents, the national approach and the regional approach are positive on a net benefit (present value) basis. We find that the following ranges of net benefit (present value):

- the national approach – **\$4.1 million to \$24.0 million**; and
- the regional approach – **\$0.5 million to \$7.1 million**.

The benefit-cost ratios also remain above 1.0 under the pessimistic scenario, being **4.9** for the national approach and **1.4** under the regional approach.

Table 13: Net benefit (present value) under low and high consent cost assumptions

Cost assumption	National approach	Regional approach
Low cost (minimum observed)	\$4.1 m	\$0.5 m
Base case (average)	\$10.5 m	\$2.6 m
High cost (maximum observed)	\$24.0 m	\$7.1 m

Note: Modelled over a 20-year period using a discount factor of 8.0%

7.2 Testing consent volume assumptions

7.2.1 Consent volumes

We test the impact of using different values for the annual volume of consents. The base case used a constant figure of 24 consents per annum throughout our forecast period – based on the average observed during the period 2003-2013. We test for alternative volume assumptions while holding all other assumptions constant: a **low volume** assumption – of 20 consents per annum; and a **high volume** assumption – of 30 consents per annum.

These values were derived from the analysis in Sections 3. Table 14 presents the results of the modelling conducted under these assumptions. We find that even under a low assumption about future consent volumes, the national approach and the regional approach are positive on a net benefit (present value) basis, with the following ranges:

- the national approach – **\$9.1 million to \$14.2 million**; and
- the regional approach – **\$2.2 million to \$3.9 million**.

Of note, the relativity between the approaches remains similar, with the net benefit (present value) for the national approach being 3.6 to 4.1 times the result for the regional approach.

The benefit-cost ratios remain above 1.0 under the low scenario, being 9.7 for the national approach and 2.8 under the regional approach.

Table 14: Net benefit (present value) under low and high consent volume assumptions

Volume assumption	National approach	Regional approach
Low volume (20 consents per year)	\$9.1 m	\$2.2 m
Base case (24 consents per year)	\$10.5 m	\$2.6 m
High volume (30 consents per year)	\$14.2 m	\$3.9 m

Note: Modelled over a 20-year period using a discount factor of 8.0%

7.2.2 Consent mix

We also tested the sensitivity of our results for changes in the mix of consent volumes – i.e. non-notified, limited notified and publicly-notified consents. The base case used the historic mix observed over the period 2003-12, of 85.3% of consents being non-notified, 4.3% being limited notified, and 10.4% being publicly notified.

We tested for plausible alternative values, a low-cost assumption of 100% of consents being non-notified – implying much lower preparation costs for applicants. We also tested for a higher cost mix, where only 66.7% of consents are non-notified, with the balance being limited notified (6.7%) and publicly notified (26.7%). The key take-out is that the results are relatively insensitive to this variation in the mix of consent types, with the following ranges:

- the national approach – **\$9.6 million to \$13.4 million**; and
- the regional approach – **\$2.4 million to \$3.6 million**.

The benefit-cost ratios also remain above 1.0 under the low-cost assumption, being 10.2 for the national approach and 3.0 under the regional approach.

7.3 Constructing pessimistic and optimistic scenarios

We combine the results of the sensitivity tests on using lower and higher values for the cost and the volume of consents that would be avoided under the streamlined consent arrangements proposed under the national approach and regional approach.

- The **pessimistic scenario** – comprises the assumption of low consent volumes and low consent costs. This scenario explores the impact if the future volume of consents is lower than seen historically and if the costs of the consents are at the low end of the data obtained for this analysis.
- The **optimistic scenario** – comprises the assumption of high consent volumes and high consent costs. It explores the impact if the future volume of consents is higher than seen historically and if the costs of the consents are at the high end of those reported.

Table 15 presents the results of the modelling conducted for these scenarios in terms of net benefit (present value). The wide range around the base case for results for the national and regional approaches is notable:

- the national approach – **\$3.5 million to \$32.5 million**; and
- the regional approach – **\$0.3 million to \$10.0 million**.

Even under the pessimistic scenario, the benefit-cost ratios remain above 1.0 – being **4.4** for the national approach and **1.3** under the regional approach.

These results suggest that both the national and regional approach are likely to return a net benefit under all plausible assumptions about the future volume and cost of the consents avoided as a result of a more streamlined approach being fully or partially adopted. However, the national approach offers a much higher return than the regional approach under all plausible assumptions – particularly in the case where the volume and cost of future consents are lower than the base case assumptions.

Table 15: Net benefit (present value) under different consent costs and volumes

Net benefit	National approach	Regional approach
Low assumption	\$3.5 m	\$0.3 m
Base case	\$10.5 m	\$2.6 m
High assumption	\$32.5 m	\$10.0 m

Note: Modelled over a 20-year period using a discount factor of 8.0%

8. Discussion

8.1 Key findings

Our analysis shows that the net benefit (present value) from the national approach to streamlining the RMA consent process for aerial 1080 operations would be substantially higher than the regional approach. This remains the case under plausibly lower and higher assumptions about the future volumes of consents that would be avoided; similarly, this finding holds for plausibly lower and higher values for the value of those avoided consents. Furthermore, this finding is unaffected by the use of different values for the discount rate and the time horizon used in the cost benefit model.

The strength of the national approach is that modelled annual benefits, comprising avoided costs that would otherwise be incurred during the consent process, are fully realised upon implementation of the national regulation change. A further strength is that the costs of development and ongoing implementation are relatively low, for example, development of the regulatory change and five-yearly reviews.

The regional approach involves a rolling region-by-region work programme over several years, supported by a joint team of representatives from the partner organisations. These costs are not materially different, in present value terms, from those incurred under the national approach. Instead, the benefits of the regional approach are lower because of two factors. The first is the assumption that only 6 out of the 12 relevant regional authorities will adopt a streamlined approach to the consent process – this is based on discussions with the Project Steering Group, which revealed a high level of uncertainty about uptake among these authorities. The second factor is that these six regional authorities would gradually adopt a streamlined approach – at the rate of two councils every three years – while continuing to require resource consents in the meantime.

8.2 Qualitative benefits and costs

Discussions with the Project Delivery Group and technical experts from the partner organisations identified a number of other benefits that could arise from greater streamlining of the consent process for aerial 1080 activities. While these effects are plausible, in our judgment they are either not easily quantifiable, or else involve a level of uncertainty that is sufficiently high as to preclude inclusion in the model. Instead, we document these potential benefits in Table 16 and group them into efficiency gains and effectiveness gains.

The efficiency gains take the form of time savings or a reduced price for aerial 1080 operations. They generally arise from reductions in time and uncertainty as a result of a more streamlined consent process and increased standardisation of operational consents/rules.

In terms of gains in effectiveness, the most significant potential gain relates to an expansion in the area covered by aerial 1080 operations, relative to what would otherwise occur. This would be as a result of operational savings being reinvested. However, as noted in our list of assumptions in Section 2.4, we assume no change in the area covered by aerial 1080 operations relative to current plans, because it remains uncertain as to how any freed-up resources might be reallocated. However, we acknowledge that it is plausible that savings in compliance costs could be reinvested into additional aerial 1080 operations – as called for by the Parliamentary Commissioner for the Environment (2011).

Table 16: Qualitative benefits – potential gains in efficiency and effectiveness

Category	Potential benefit
Efficiency gains	<p>Applicants standardise internal processes</p> <p>DOC manages aerial 1080 operations from multiple offices, given the differences regional plan requirements and procedures. A nationally consistent approach may allow for more specialised planning and operational functions that enable more efficient use of staff time.</p>
	<p>Reduced uncertainty leading to a lower contract price</p> <p>A national approach to the consent process may provide contractors with greater certainty about what to expect for aerial 1080 operations. To the extent that contractors factor in price premia for consenting risk, there may be scope for national standardisation to allow these premia to be waived and the price of operations to be lower than otherwise would be the case.</p>
	<p>Reduced risk of operational non-compliance</p> <p>Standardisation and a single set of rules may reduce cases of consent non-compliance from contractors conducting aerial 1080 operations. This is because in the current consent conditions differ across regions, which requires contractors and operational staff to comply with multiple sets of conditions. A reduction in lost time from non-compliance may increase operational efficiency. This gain may be possible under the regional option, albeit to a lesser extent, as some differences between regions would remain.</p>
	<p>Improved timeliness of operations</p> <p>The national standardisation of rules for aerial 1080 operations is expected to significantly reduce the level of criteria required to be fulfilled in order to conduct these activities. This could mean that operations could be planned and implemented more quickly than under current conditions, thereby being more responsive to on-the-ground changes.</p>
Effectiveness gains	<p>Increases in area covered by aerial 1080 operations</p> <p>If the major applicant organisations can realise operational savings from a streamlined consent process, it is plausible that these freed-up resources could be reallocated into additional pest management operations. This could lead to an expansion in the area covered by aerial 1080 operations, relative to what would otherwise occur. This increased coverage could mean gains in the protection of New Zealand’s biodiversity as well as gains in the management of bovine tuberculosis among stock.</p>
	<p>Reduction in suboptimal consents</p> <p>The complexity of rules under the current consenting environment means that consents that would otherwise be optimal by applicants may be changed to meet consenting conditions (therefore being suboptimal from the point of view of the applicant). As an example, the area of coverage may be less than optimal for the desired pest management outcome. Under a more standardised approach, it is plausible that these suboptimal consents will be less likely and that the coverage area may be greater than otherwise.</p>
	<p>Improved public confidence</p> <p>The introduction of a national standard and single set of rules may improve overall public confidence in the conduct of aerial 1080 activities.</p>

Source: Discussions with the Project Delivery Group and operational experts at partner organisations

Discussions with the Project Delivery Group and technical experts from the partner organisations also covered the potential for other kinds of costs to be incurred. Under either a national or a regional approach, there is likely to be a volume of public submissions on the proposal to streamline the consenting process. However, it was agreed that the number of submissions is likely to be highly uncertain, as is the amount of time spent by those involved in preparing the submissions. Therefore, although there are legitimate costs involved, the uncertainty means that this component has not been included in the model.

It was also noted that under the regional approach, in particular, there is the potential for submissions and then appeals against any Plan change or comprehensive long-term consents. To some extent this uncertainty of outcomes is captured in the sensitivity testing around the regional option, however, there is also the potential for this path to not only lead to a low number of councils adopting a streamlined approach, but could also trigger long and costly processes involving legal advice and consultant fees.

8.3 Some caveats around this work

We also note some caveats and limitations that should be borne in mind when considering this work. These generally relate to uncertainty around the scale of the benefits. We have tried to address this uncertainty by testing different values, constructing pessimistic and optimistic scenarios and by presenting the key results as lying within a range.

- The reliability of the consent cost data – the applicant cost sample is limited to the two major applicants, DOC and Tbfree New Zealand. It is plausible that other applicants could have a different story about costs incurred in applying for consent for aerial 1080 operations. Nevertheless, in our view, the sample of consent cost data is sufficient to determine how the national and regional approaches compare, in terms of the likely range of net benefit associated with each approach.
- The future volume and mix of consents – we use the annual average number observed over the past decade, but it is plausible that the future number of consents could be larger or smaller than in the past. However, such a change is likely to affect the results for the national and the regional approaches to a similar extent and so would not affect the conclusion that the national approach offers a much higher return.
- The regional approach – there is high uncertainty around the additional costs that may be incurred under the regional approach and around the benefits that may be realised. This is because the response of regional authorities is unknown at this point and it is plausible that progress could be slower than modelled for our sensitivity analysis. Furthermore, there is a risk that favourable Plan changes could be removed within the modelling period through private plan changes, ten-year plan reviews, or through a change in elected councillors. This could mean that the efforts of the partners and the associated costs incurred could end up realising limited benefits..

It should also be noted that this report is designed to identify and quantify the costs and benefits of streamlining the consent process. The decision as to whether a national approach (i.e. NES or s360 under the RMA) or the regional approach is the preferred option will ultimately be determined by a wider range of factors to be addressed in the business case being prepared by the partner organisations. Unless those wider factors are significant enough to direct the partners to opt for the regional approach, the results of this cost benefit analysis point to the national approach as being the preferred option.

9. Conclusions

1. We find there is no material difference in quantifiable costs between the NES and the Section 360(h) regulation. Under these options, the costs to applicants and councils of the consent process would be avoided, with the marginal costs being negligible. This leads us to conclude that treating these two regulatory options as a single national approach within the model is more useful for comparisons with the regional approach.
2. Society would be better off under either the national approach or the regional approach to streamlining RMA compliance requirements for aerial 1080 activities. However, the net benefit (present value basis) of the national approach (**\$10.5 million**) is substantially higher than that of the regional approach (**\$2.6 million**).
3. Given the high uncertainty about the effectiveness of the regional approach, we tested the sensitivity of the result to different assumptions about the number of councils adopting this streamlined approach and the adoption timeframe. We established a plausible range of net benefit (present value) being **\$1.0 million** to **\$4.9 million**.
4. We also constructed two alternate scenarios – a pessimistic and an optimistic scenario – to test different values for the future volume and costs of consents that would be avoided under the streamlined consent. This approach gives a range of **\$3.5 million** to **\$32.5 million** (base case of \$10.5 million) for the national approach and **\$0.3 million** to **\$10.0 million** (base case of 2.6 million) for the regional approach. We conclude that the national and regional approach are likely to return a net benefit under all plausible assumptions about the future volume and cost of the consents avoided as a result of a more streamlined consent process. **However, the national approach consistently offers a much higher return than the regional approach under all assumptions tested here.**
5. We also identified a number of other benefits that could arise from greater streamlining of the consent process for aerial 1080 activities. Many of these are potential efficiency gains in the form of time savings or a reduced price for aerial 1080 operations. They generally arise from reductions in time or uncertainty as a result of a more streamlined consent process and increased standardisation of operational rules. While these effects are plausible, in our judgment they are either not easily quantifiable, or else involve a level of uncertainty that is sufficiently high as to preclude inclusion in the model.
6. We conservatively assume the same level of outcome under the national and regional approaches – in terms of the effectiveness of the 1080 operations (e.g. due to the quality of operations or the area covered). While the partners may realise savings as a result of a streamlined consent process for 1080 operations, and it is plausible that those savings would be reinvested into more operations, we are not in a position to make judgements about how those savings would be reallocated for use among competing priorities.
7. We also noted that under the regional approach, in particular, there is the potential for submissions and then appeals against any Plan change or comprehensive long-term consents. To some extent this uncertainty of outcomes is captured in the sensitivity testing around the regional option, however, there is also the potential for this path to not only lead to a low number of councils adopting a streamlined approach, but could also trigger long and costly processes involving legal advice and consultant fees.

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Appendix 1: Regional approach

This table outlines which regional authorities have permitted activity status for aerial 1080 operations. It also outlines the regional approach and its proposed mix of submissions to regional plan reviews and pursuit of comprehensive long-term consents for 1080 use.

	Plan review likely within next 2 years	Proposed work programme	Current status
Northland	No	Comprehensive consent	No current project
Auckland	Yes	Submission on Auckland Unitary Plan Review	Department of Conservation team currently active on Auckland Unitary Plan.
Waikato	No	Comprehensive consent	No current project. Current consent held by contractors – expires in 2016 – will need to secure before expiry.
Bay of Plenty	No	Comprehensive consent	No current project
Taranaki	No	Has permitted activity status for aerial 1080 use	No further action required
Hawkes Bay	No	Comprehensive consent	No current project
Manawatu – Wanganui	No	Has permitted activity status for aerial 1080 use	No further action required
Greater Wellington	Yes	Submission on Regional Plan Review	No current project
Nelson	No	Has permitted activity status for aerial 1080 use	No further action required
Tasman	No	Comprehensive consent	No current project
Marlborough	Yes	Submission on Regional Plan Review	No current project
West Coast	No	Comprehensive consent	No current project
Canterbury	No	Likely to have permitted activity status for aerial 1080 use	No further action required
Chatham Islands	No	Has permitted activity status for aerial 1080 use	No further action required
Otago	No	Comprehensive consent.	Region wide consent lodged by TBfree New Zealand May 2014
Southland	No	Comprehensive consent	No current project

Source: Latitude Planning Services Ltd