



Sentiment

INFRASTRUCTURE AND BUILDINGS
CONSTRUCTION SURVEY
NEW ZEALAND
1ST HALF 2016

IN THIS ISSUE

The effect of the urban century on New Zealand cities.

Auckland's growth and enhancing regional optimism.

Converging views across investment and delivery.

How organisations are coping with the technology disruption.

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THE REVIEW

The outlook is continuing to strengthen in New Zealand's buildings and infrastructure industry. Our May survey saw a rise in industry confidence across the market in all regions. The exception is the buildings market in Christchurch, where sentiment continues to soften from the highs seen after the earthquakes.

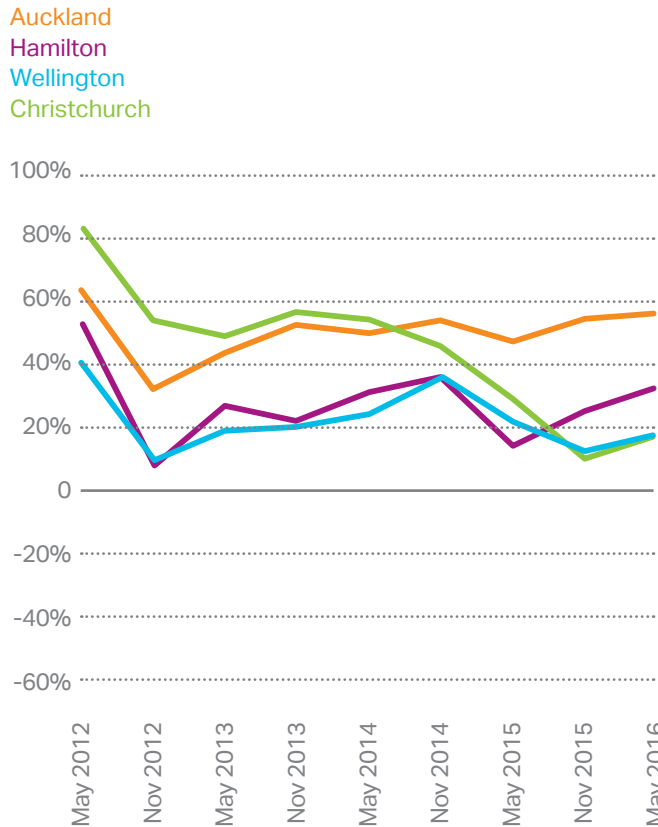
Overall sentiment for the infrastructure market is positive with more than 80 percent of respondents expecting investment levels to remain steady or rise over the next three years. Expectations in Auckland remain strong as the city faces significant infrastructure challenges associated with high population growth. The strength of the Auckland market could be contributing to a growing sense of regional optimism. The flow on effect is particularly evident in nearby Hamilton and Tauranga where more respondents predict an increase in workload; up 7 percentage points since our last survey. Wellington is also improving after a period of only moderate optimism.

Land development is showing the strongest signs of growth, predominantly in Auckland and Hamilton. Expectations for further investment in roading remain strong despite a slight drop in confidence since our survey six months ago.

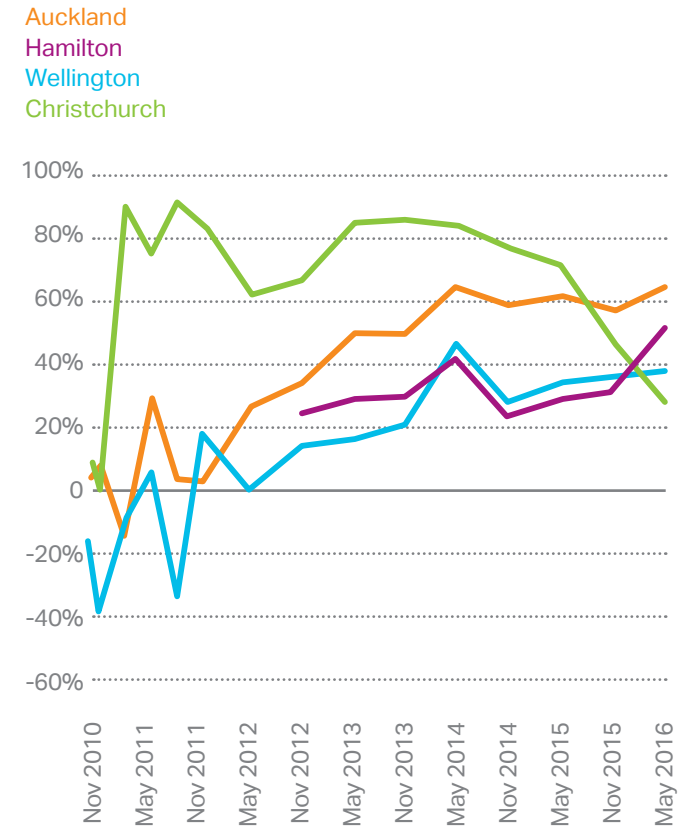
With the exception of Christchurch, there continues to be an increase in optimism among respondents in the buildings market. As in the infrastructure market, the pronounced positive trend in the regions could be attributed to the buoyancy in Auckland. Hamilton particularly shows strong growth, up 19 percent since our survey six months ago.

Workload expectations trend

INFRASTRUCTURE MARKET
9th industry survey



BUILDINGS MARKET
15th industry survey

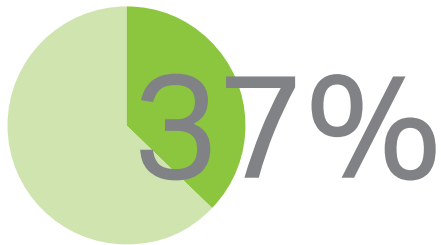


Note: Industry sentiment in the buildings market has been surveyed since 2010, while the infrastructure market and the Hamilton region have been tracked since 2012. This chart shows the trend in net workload expectations.

KEY INDICATORS

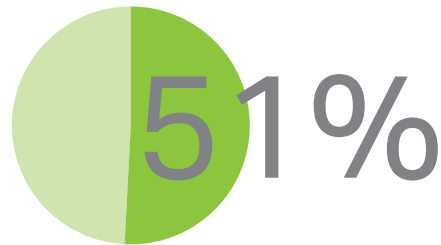
WORKLOAD AND INVESTMENT EXPECTATIONS

Infrastructure optimism stable



37 percent expect more infrastructure work across the country, in line with results six months ago.

Waikato and Bay of Plenty buildings on upwards trend



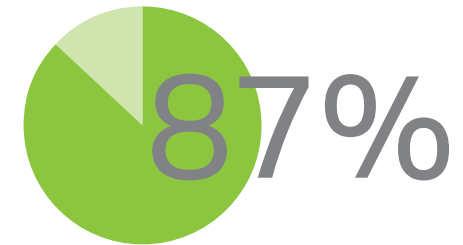
51 percent expect growth in Waikato and Bay of Plenty infrastructure projects over the next 12 months, up from 32 percent in our previous survey.

Christchurch buildings markets continues to moderate



29 percent expect increased workload in the Christchurch buildings market over the next 12 months, down 43 percentage points in the last 12 months.

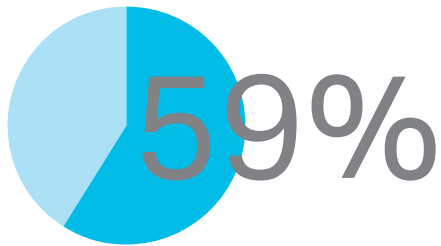
Land Development in Auckland remains high



87 percent expect increased workload in the next three years, down one percentage point in the last six months.

INDUSTRY SPOTLIGHT

Steep rise in concern around skills and materials shortages



59 percent identified skills and materials shortages as a significant industry challenge, up 19 percentage points from the results obtained six months ago.

Overwhelming majority see a city's vision as a key success factor



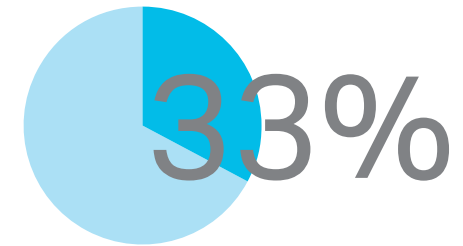
88 percent consider it 'very important' for a city to have a well-defined, well-articulated and cohesive vision.

Majority consider whole-of-life costs in capital investment decisions



Majority consider whole-of-life costs in capital investment decisions to either a moderate extent, some extent, or a great extent.

Drop in high level of understanding around Big Data and Smart Technology



One third of respondents report a high or very high level of understanding within their organisation around Big Data and Smart Technology and its utilisation for business efficiencies, down from 49 percent six months ago.

INFRASTRUCTURE MARKET

EXPENDITURE AND WORKLOAD EXPECTATIONS

Expectations for investment in the infrastructure market are strengthening after a relatively flat 18 months, while views on the delivery side continue to moderate.

After a period of stability, there's been a definitive shift in optimism. Since our last survey we've seen a jump of 10 percentage points, with more than half of all respondents now expecting a strengthening investment market. This could reflect a sense of certainty with many strategic horizontal infrastructure projects either committed to or underway in the Auckland market. Chief among the large infrastructure investments are Watercare's 13 kilometre Central Interceptor wastewater tunnel, the City Rail Link (a 3.5 kilometre electrified, double-track rail tunnel beneath the city centre), developments of a light rail network and the NZ Transport Agency's Additional Waitematā Harbour Crossing project.

Optimism continues to moderate on the delivery arm. After a peak 18 months ago, where 81 percent of contractors and consultants in the delivery market anticipated growth, we have seen a steady decline in positivity. While optimism is still relatively high, with 58 percent of respondents expecting growth, it does reflect a trend towards a softer outlook. At the same time, there's a higher level of pessimism reported. The result could be a reaction to downside risk, given the delivery market is traditionally more sensitive to stability as well as certainty issues both at a local and global level.

The improving optimism in the investment arm, alongside the moderating views on the delivery side, is contributing to better alignment in the market. Further convergence in the views of those on both sides will limit potential and unwelcome knock-on effects; instead promoting productivity gains, time frame consistency, higher degrees of innovation and outcome certainty.

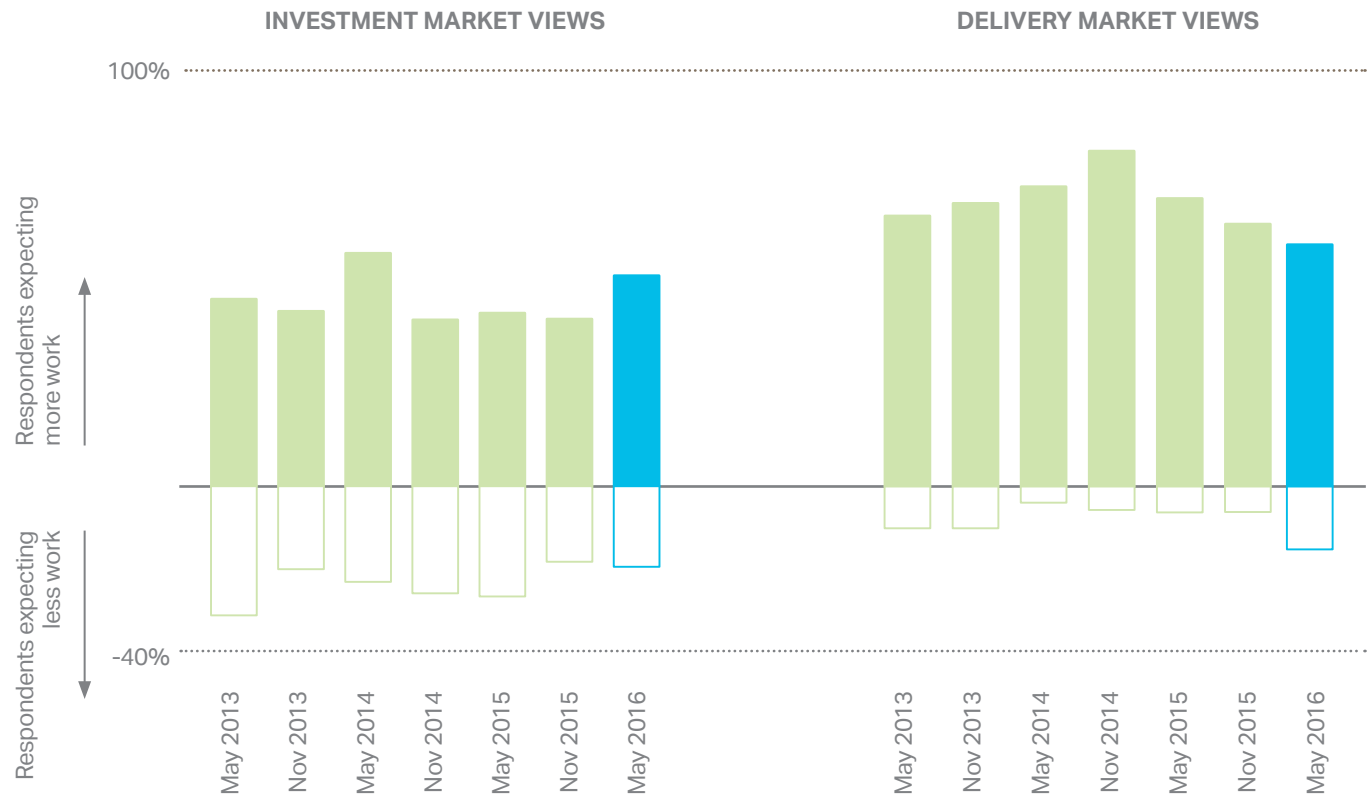
“There's a level of uncertainty in the Energy sector as it awaits key decisions and undertakes significant asset retirements that will reduce the overall power output. At the same time the landscape for distribution is going through a transition, with shifts in demand patterns as a consequence of battery storage and electric vehicles. Despite the significant change and challenges facing the sector, the industry must maintain a steadfast focus on its key drivers – reliability, agility and safety – in order to respond to the core and evolving needs of customers.”



Anant Prakash
Group Director – Energy
AECOM

“The Government is balancing the demands of an increasingly dominant Auckland and the need to improve economic growth in the regions. A high-level approach is providing strong direction around investment priority; major roading projects in Auckland are clearly planned and funded and at the same time the business case for the next generation of ‘Roads of National Significance’ is being created. Of equal value is the strategic thinking being prioritised in the ‘Auckland Transport Alignment’ and ‘Transport for Urban Growth’ projects. The multi-agency approach recognises the need to enable the city’s economic growth and international credibility.”

Infrastructure outlook



Note: These measures of improving or declining expectations represent the proportion of respondent views on market direction – not the actual anticipated change in workloads.



Mike O'Halloran
Group Director – Civil Infrastructure
AECOM

WORKLOAD BY REGION AND SECTOR

Infrastructure work expectations remain strong and steady in Auckland as the region continues its strong economic growth trajectory. Optimism is also on the rise across the rest of the North Island and in Canterbury, while the outlook for the rest of the South Island has softened.

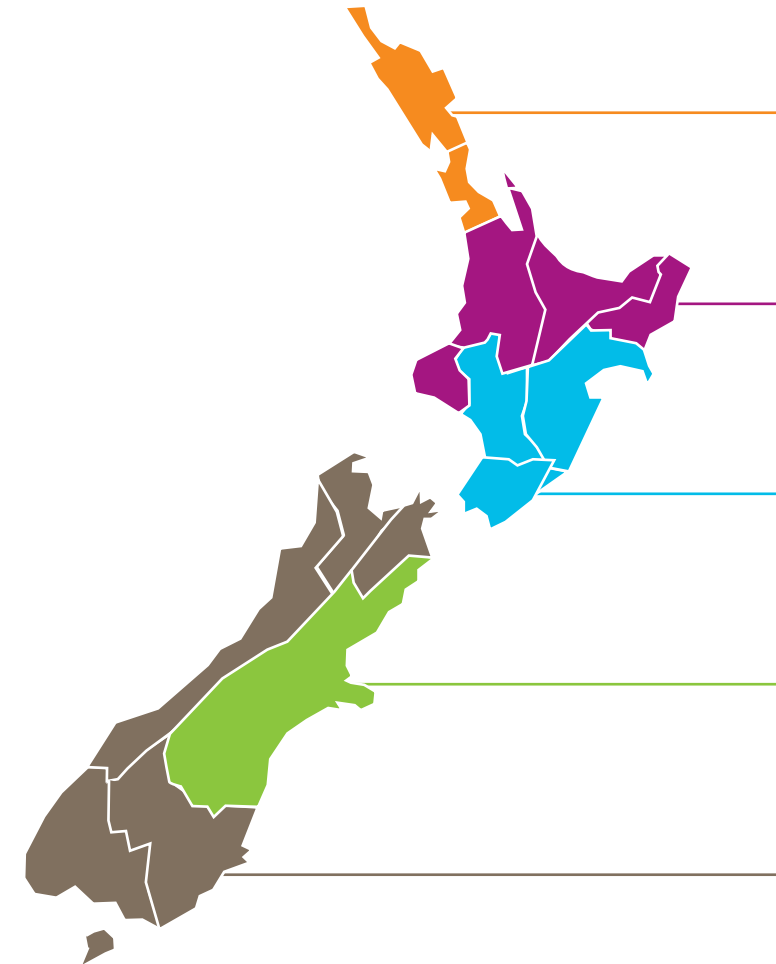
Significantly, Wellington is showing signs of growth after a sustained period of constrained development. Recently released figures show a 3.8 percent growth in the city's economy over the past year. There are a number of large roading infrastructure projects underway in the region, designed to enhance the Capital's transport network.

At a national level, Land Development is the sector where respondents expect the highest workload. Sentiment remains particularly strong in Auckland, largely on the back of high net migration and foreign direct investment; 87 percent of respondents anticipate an increase in workload. Among the expansion projects underway, or on the table, are developments in Hobsonville (20ha), the final tranche of the Auckland Council's Special Housing Areas and the nearly 12ha of recently-sold University of Auckland land in Tamaki. In the budget just released, an additional \$100 million will be spent over four years to free up Crown land for housing in Auckland.

The outlook for Roothing has seen the largest decline in optimism across the country. This is mainly due to moderating sentiment in central and upper North Island; perhaps a result of progress on the Roads of National Significance programme, which began in 2009. The work is either committed or construction underway for all of the seven roads that were targeted for investment, with two – Auckland's Victoria Park Tunnel and the Tauranga Eastern Link – already complete.

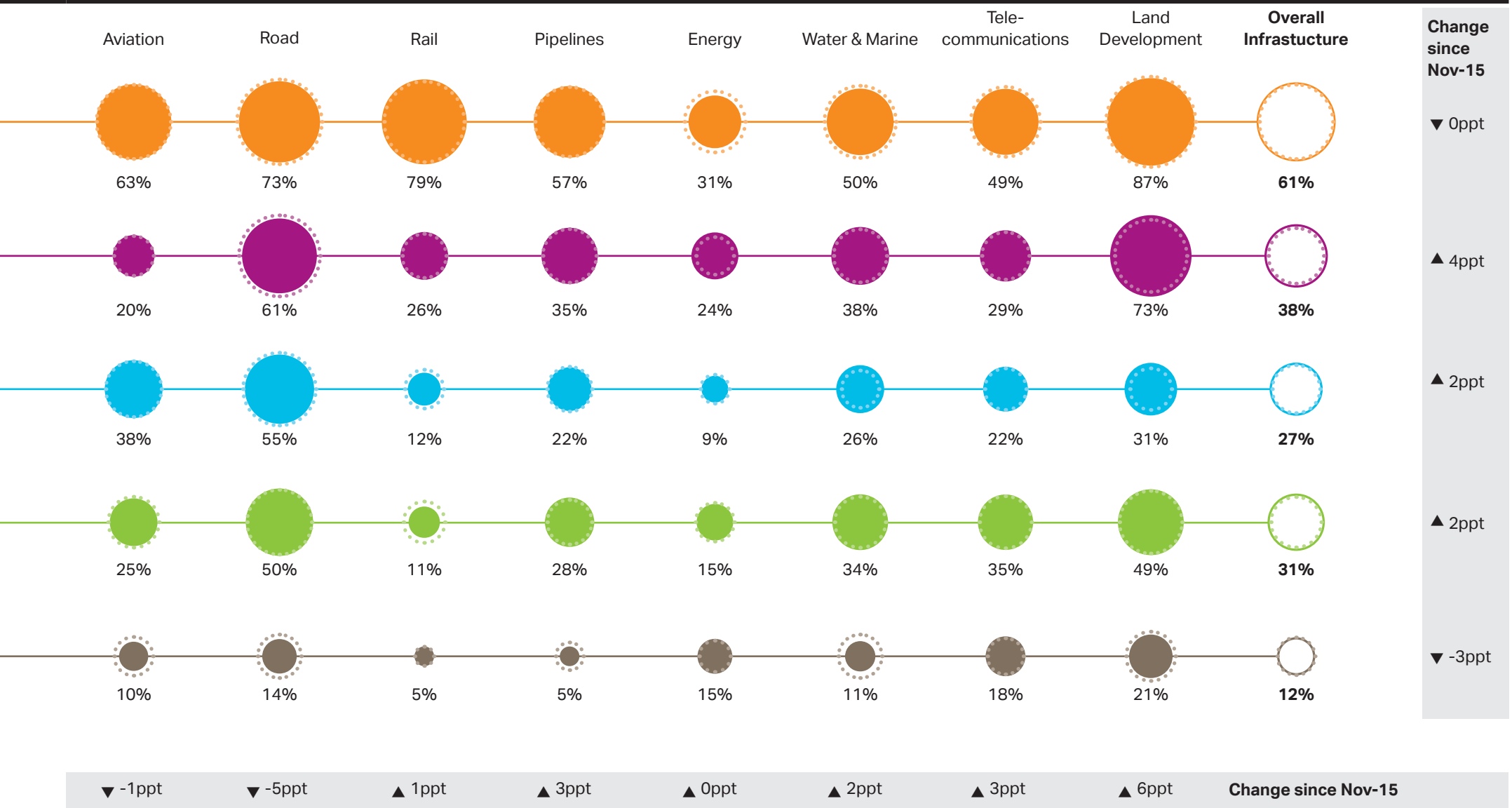
There has been a decline in workload expectations in the South Island, outside of Canterbury. This is particularly evident in Water and Marine, which has dropped 10 percentage points since our survey six months ago, and Roothing, which has seen an 8 percentage point decline. Given the growth in tourism and the importance of that growing sector to the region, it is important infrastructure investment continues to respond in a timely way to the demands to ensure ongoing positivity in the sector.

The Energy sector has remained static overall after a boost in optimism in our survey six months ago. Of note, optimism for the sector in Auckland has moderated.



Note: Bubbles on page 6 indicate the market optimism for growth over the next year. Dotted lines indicate the November 2015 results.

Proportion of respondents expecting increased investment by region



▼ -1ppt

▼ -5ppt

▲ 1ppt

▲ 3ppt

▲ 0ppt

▲ 2ppt

▲ 3ppt

▲ 6ppt

Change since Nov-15

BUILDINGS MARKET

EXPENDITURE AND WORKLOAD EXPECTATIONS

The buildings market shows a clear upturn in positive sentiment in both the investment and delivery space.

68 percent of all respondents have an optimistic investment outlook, up three percentage points from our last survey and consistent with the positive trend seen over the last two years. Of note, no respondents have reported any pessimism.

Pessimism remains relatively stable for those on the delivery side, while optimism is returning to levels consistent with those seen 12-18 months ago. This could be a reflection of the growing number of projects that have come to market nationwide and a constrained resource pool. Positively, many of the country's biggest contractors report strong and committed order books for the next 12 months.

The biggest growth in optimism is evident in the middle and upper North Island. With the shortage of housing in Auckland reaching a tipping point, the Waikato and Bay of Plenty regions are benefiting from the migration of Aucklanders away from the city; high housing costs and congestion issues are key drivers for moving.

Confidence in the Christchurch market continues to moderate. This trend is likely to continue as most of the post-earthquake rebuild projects, particularly the private sector work in the housing and commercial market, are complete or near completion.

As in the infrastructure market, there is alignment between the views of those on the investment side and those on the delivery side. This convergence will be welcome by the market, enhancing its ability to accommodate growth and avoid supply chain pressures.

“New Zealand’s economic and population growth is increasingly concentrated in certain regions, creating infrastructure pressures in housing, urban infrastructure, the three waters and roads. As an industry we need to be agile to deal with these pinch-points, avoiding supply chain pressures and the cost of time delays. Consideration should also be given to incentivising broader growth in the regions to mitigate these infrastructure demands.”



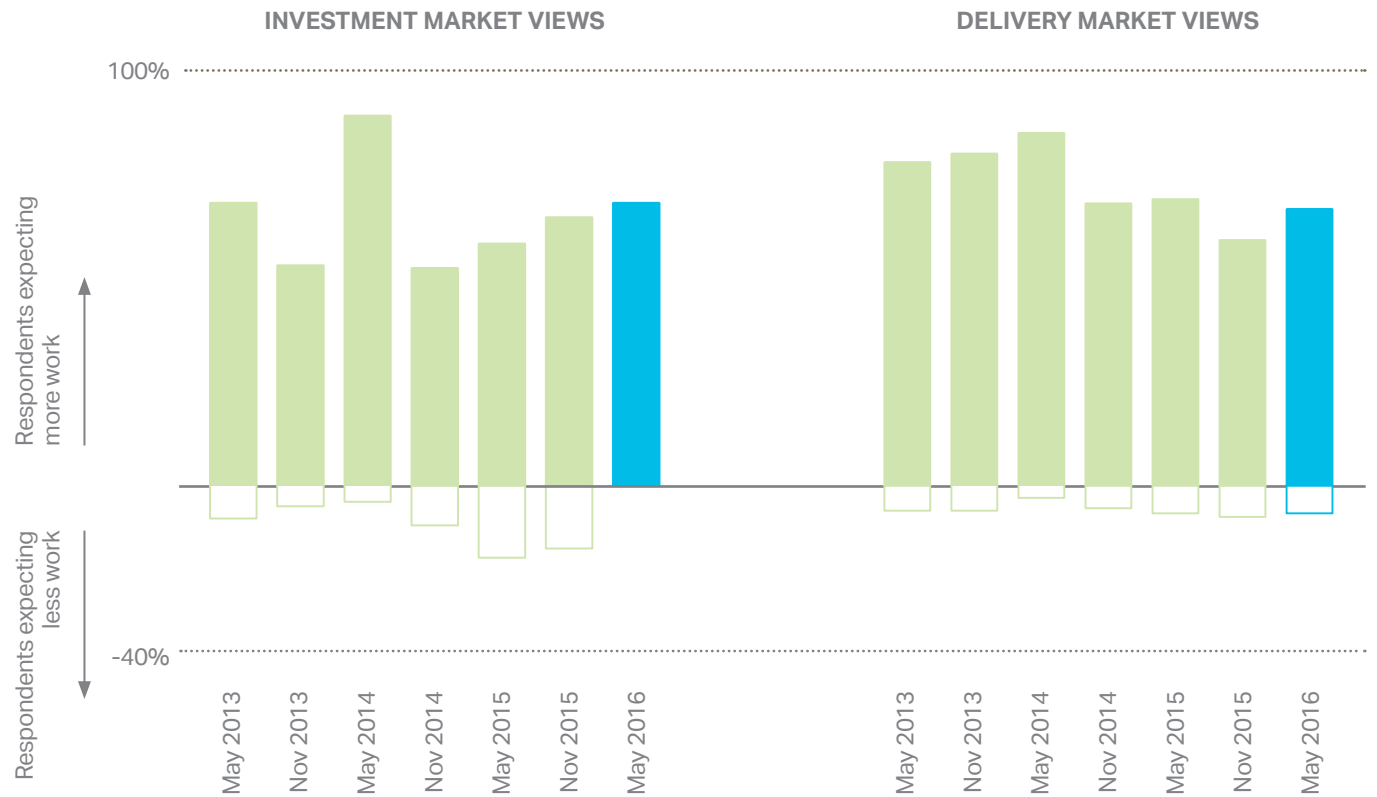
Craig Davidson
Group Director – Buildings + Places
AECOM

“In combating the effects of Auckland’s heated market, we need to consider different routes to approaching major projects. Supply and demand pressures are resulting in time delays throughout the whole development process, a lack of commitment from the supply chain and sub-contractors being stretched to capacity; this ultimately escalates costs and impacts delivery. Trusted partnerships, where collaboration is prioritised, could be the solution to these potentially paralysing problems, thereby allowing a buoyant market to capitalise on the high demand.”



Trevor Hipkins
Programme Cost Consultancy Lead
AECOM

Buildings outlook



Note: These measures of improving or declining expectations represent the proportion of respondent views on market direction – not the actual anticipated change in workloads.

WORKLOAD BY REGION AND SECTOR

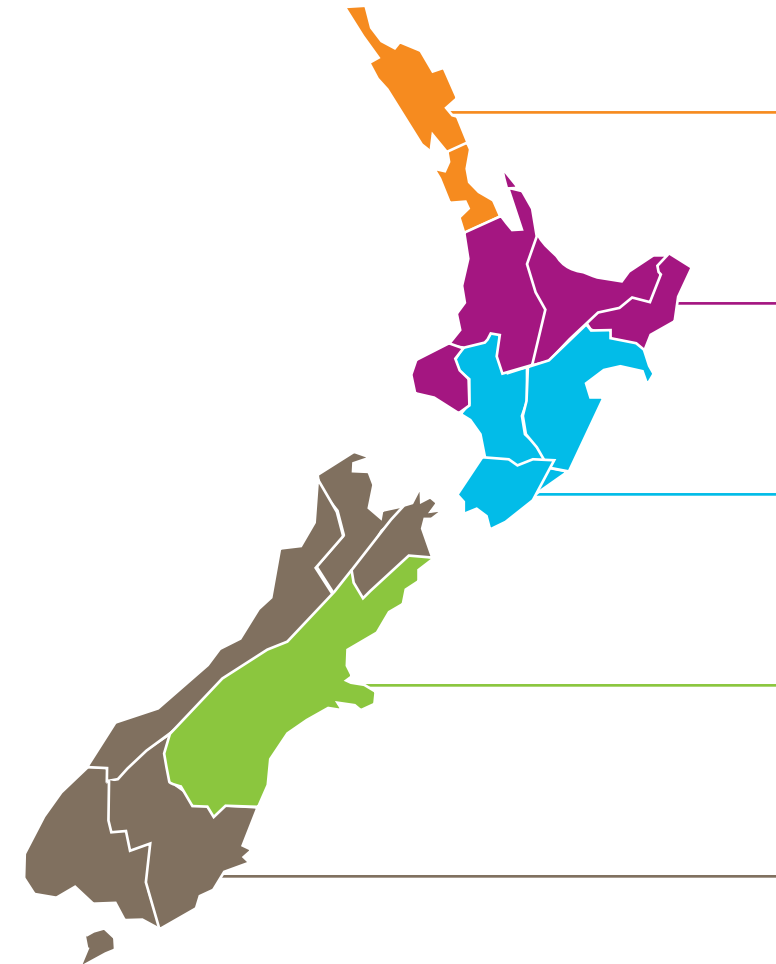
Sentiment is on the rise across all regions, apart from Canterbury, which has seen a decline of 12 percentage points. The moderating sentiment in Christchurch is expected given the volume of work completed over the past five years.

Meanwhile, optimism in the North Island is strong; 68 percent of respondents in the upper North Island expect growth, while there has been a jump of 17 percentage points in the central North Island.

The outlook for the Tourism & Leisure sector has improved with 76 percent of all respondents expecting to see continued growth. This is an increase of 23 percent in the past six months, a reflection of the overall growth in the tourism industry and visitor numbers to the country. The Auckland region hosted over 824,000 international arrivals between December 2015 and February 2016, a nearly 11 percent rise on the previous summer. Positivity in the survey results within the Auckland market is particularly strong, with 91 percent of respondents reporting optimism, up from 55 percent. This could be attributed to the hotel development in downtown Auckland and at the airport, alongside the convention centre which is underway in the central business district.

The industrial sector is showing signs of growth across the North Island, predominantly in Auckland and Wellington. Optimism has increased 12 percentage points in Auckland to 67 percent, while in Wellington there has been an increase of 14 percentage points to 32 percent. This positivity is not reflected in the South Island, where expectations have moderated.

Demand for the Residential sector remains high for Auckland, where the overwhelming majority of respondents are anticipating continued growth. The sector is also experiencing positivity in Waikato and Bay of Plenty, where the outlook remains stable at 68 percent, while in Wellington the outlook has improved by 14 percentage points to 58 percent. Equally, positivity is evident in the South Island (excluding Canterbury) where optimism has jumped nearly 30 percentage points. Queenstown, in particular, is struggling to meet the need for affordable housing, with entry-level prices for a stand-alone house now above \$700,000 and median house prices in January reported at \$724,200. Canterbury is the only region where optimism has declined.



Note: Bubbles on page 10 indicate the market optimism for growth over the next year. Dotted lines indicate the November 2015 results.

Proportion of respondents expecting increased investment by region



INDUSTRY SPOTLIGHT

NATIONWIDE INDUSTRY CHALLENGES

Respondents cited a shortage of appropriately skilled people to cater for the expected increase in workload across the infrastructure and buildings sector as by far the biggest challenge facing the industry in the medium term.

59 Percent of respondents highlighted Skills and Materials Shortages as the most significant industry barrier; up 19 percentage points from our survey six months ago. Gaps have been identified in the numbers of qualified, competent personnel available at every level of the construction sector, including professional engineers, surveyors and engineering technicians, procurement and construction managers, tradespeople and apprentices.

A number of respondents indicated Cost Escalation as a consequence of the industry's issues with the labour force and the supply chain. Given the highly interrelated nature of the two industry issues, the perception of Cost Escalation as a stand-alone challenge continues to moderate, down 11 percentage points over the past 12 months. This may also indicate a growing level of acceptance of cost escalation given the scale of demand.

Business Confidence emerged as a key challenge when we last reported six months ago. However, in our latest survey concern in this area has moderated by 9 percentage points. This could be a reflection of the certainty and security felt as a consequence of the nation's strengthening regional economies.

“Project delivery issues arising from a constrained supply chain and a shortage of skilled workers are hampering the industry. This inevitably leads to commercial and quality risk, and will ultimately impact on investor confidence, productivity and value for money. This ‘skills gap’ is not corporate fiction and, as employers, educators, investors and suppliers, we need to drive collaborative, industry-wide, and long term solutions to this perennial problem. Let’s recognise we need to take hold of this problem and invest in the future of our industry.”

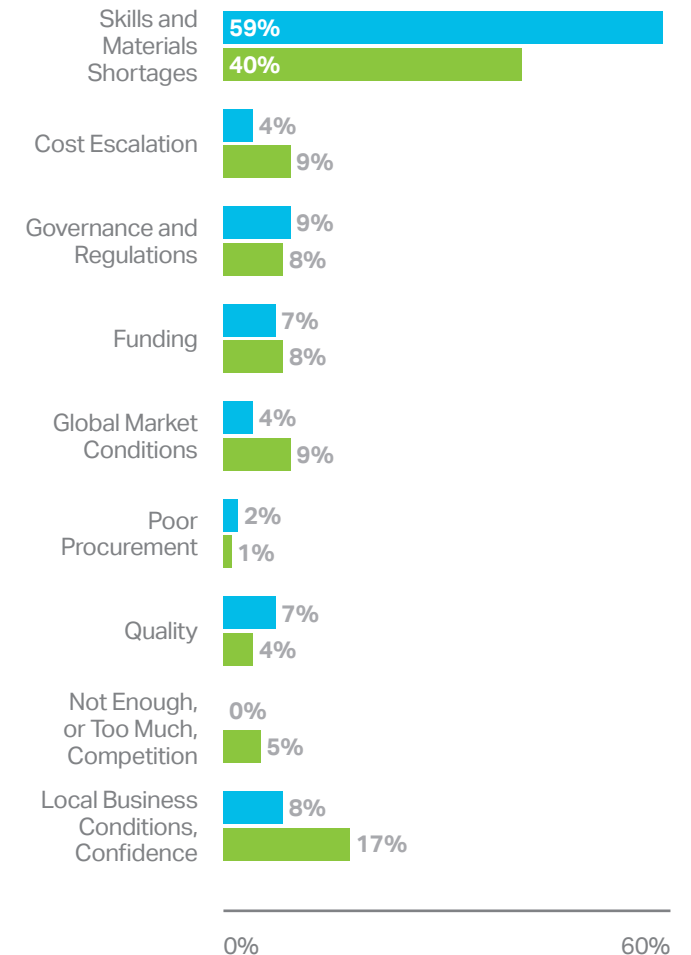


Matthew Heal
Director – Construction Services
AECOM

Top industry challenges

May 2016

November 2015



BIG DATA AND SMART TECHNOLOGY

Civil infrastructure is in a process of transition as it becomes increasingly digitised. The embedding of technology into previously hard and passive assets enables them to participate in the 'Internet of Things' and, in turn, opening a world of opportunities. While there are significant opportunities to take advantage of the increasing capability and vast amounts of data now captured, there are also inherent challenges.

Findings from our latest survey indicate the majority of the industry considers their organisation has a good level of understanding around big data and smart technology for potential business efficiencies; over 80 percent of respondents indicated their company felt a moderate to high level of understanding. However, since our survey six months ago, fewer respondents felt they had a 'high' or 'very high' level of understanding, a possible reaction to an increased awareness of the fast changing digital landscape alongside the potential application and impacts of big data and smart technology.

Of note, many respondents commented that the 'smart use' of smart technology is most important; that the true value of technology lies in how the data is interpreted and the insights that can be gained. For one respondent, "big data does not translate into information and thus better decision making. Data collection is the easy bit."

Over 80 percent of respondents see big data and smart technologies as a major disruptive force in the infrastructure and construction industry. Less than 3 percent of respondents do not see technology as a driver for change. One respondent predicts there will be a point where technology creates a divide in the industry; "as we start to understand what the data can be used for in real time, then adopters (with adopter clients) will pull away from the pack".

Respondents gave examples of instances where they are seeing value in advancements in technology. One reported that using technology has enabled better understanding of the condition of their organisational assets and is helping them to develop more accurate asset management plans; another said their organisation's successful linking of business information and geographical information systems is attracting interest.

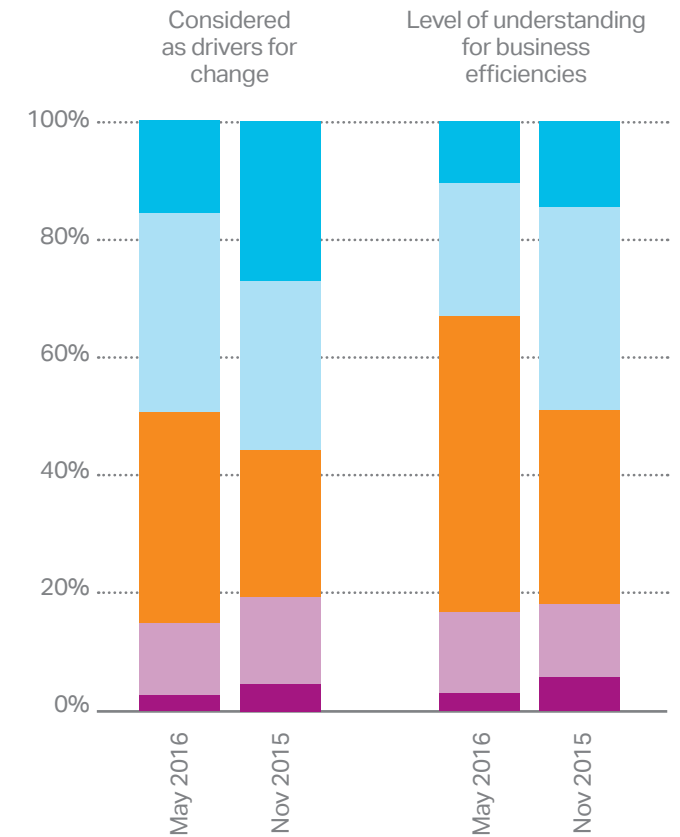
"Digitisation of historically passive assets will drive the realisation of tomorrow's 'intelligent cities'. To cope with our ever-urbanising world, we need to consider sustainable, resilient solutions that optimise resources, reduce risks and promote well-being. Success in this rapidly changing environment requires a two-speed approach; planning and resourcing for the future, while maintaining a firm handle on the issues of today."



Chris Ballantyne
Director – Infrastructure Advisory
AECOM

Big data and smart technology

Very High
High
Moderate
Low
Very Low



PROCUREMENT

The industry continues to aspire to optimised project delivery and outcomes, with a key element of that being a tailored approach to procurement.

Our latest survey sees continued growth in the 'perceived value for money' provided by negotiated contracts and closed tendering. In contrast open tendering is viewed as providing the lowest value for money.

Many respondents note the need to be cognisant of the bigger picture of procurement; while open tendering generally results in the lowest initial price, the overall construction cost and, more importantly, the whole-of-life cost for the project could well be higher.

A number of respondents warn against having too much focus on minimising capital costs, rather than maximising the potential value outcomes: *"Current processes favour a piecemeal approach to procuring new buildings which is unlikely to deliver the best long-term value."* Another respondent warns of the risks of continuing with price driven procurement processes, especially as the local

market grows: *"Lowest price confirming tenders are delivering just that – award to the lowest price and then get plagued with variations and contract tension so the contract achieves targeted margins. [This] will be more prevalent with the influx of international contractors joining the local market."*

There is a clear desire amongst respondents to align, where possible, with organisations who use procurement practices that place weight on both value and whole-of-life costs. One view highlighted the benefit of reframing the perception of suppliers, to see them as partners in procurement for a project: *"[The] best results come from genuine collaboration with a 'best for project' philosophy. Many current procurement processes are not deeply imbued with this philosophy so collaboration is a 'lick of paint' rather than built in. There is a general lack of maturity on both contractor and client side in genuinely sharing risk, which undermines the collaborative process."*

Other concerns expressed by respondents include the high cost of tendering, poor tendering documentation, inexperience and ill-defined project scope. One respondent's comments summarised several issues:

"Designs are being rushed, [resulting in] information being issued for procurement that is incorrect and incomplete. [Also], inexperienced personnel are involved in developing [procurement] strategies."

Whole-of-life costs, particularly with buildings, are high relative to the cost to construct. In our latest survey, there has been an increase in the number of respondents reporting consideration of whole-of-life costs when making investment decisions. More than 90 percent report considering whole-of-life costs to at least a moderate degree.

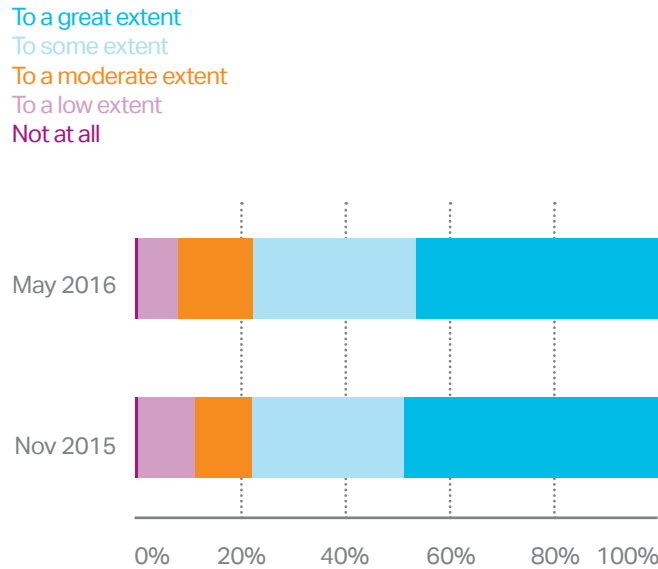
In contrast, a number of respondents pointed out whole-of-life costs will rarely get considered in an environment that supports the lowest initial capital expenditure. According to one respondent, our current approach is short sighted: *"[Including whole-of-life costs] needs to become a key part of the cost planning for design and procurement. It is important that this is reported on [alongside] the capital costs – five years, 10 years, 20 years and 50 years as a minimum. We can't transfer these hidden costs to future users and owners of the buildings."*

“Sub-optimal procurement impacts on all delivery partners. Projects are weakened by uncertainty and the prioritisation of low-cost outcomes. As an industry, we need to focus on the opportunities for adding value and continue to maintain perspective across the multiple stages of the procurement process.”

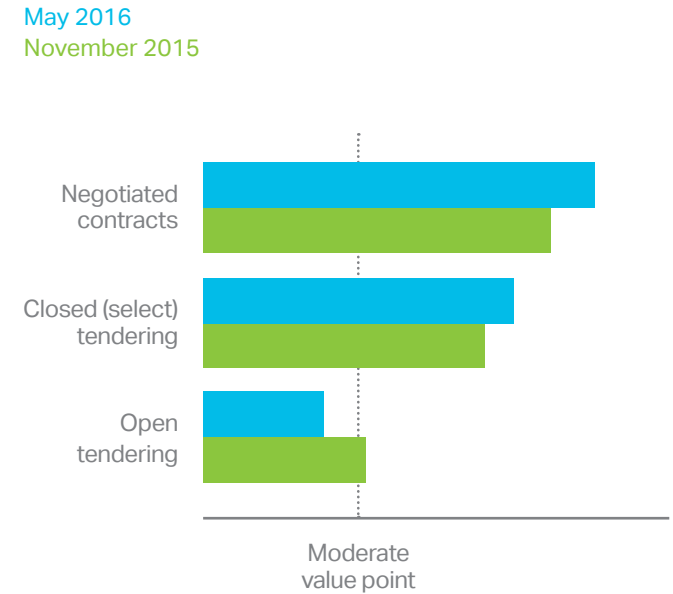


Jon Varndell
Director – Civil Infrastructure
AECOM

Consideration of whole-of-life costs in capital investment decisions



Procurement methods by value for money rating



CITIES SPOTLIGHT

FUTURE GAZING

With the world in the midst of a demographic shift towards urbanisation, cities are in the spotlight more than ever. Today 54 percent of the world lives in an urban environment, with that proportion expected to rise to 70 percent by the year 2040.

The pace of change highlights the need to think well ahead of current problems - to 'future gaze' - as the growth of cities will undoubtedly stress the existing built environment.

Unanimously, respondents felt it is important to have a clearly defined city vision. However, a disconnect between aspiration and reality is apparent. Despite the overwhelming desire for a vision, across the country respondents indicated they would struggle to articulate what their city's vision actually is.

It is widely recognised that a clear city vision enables city and business leaders, influencers and citizens, to work cohesively together to deliver a bright future for their communities. For one respondent the vision must be a well-defined plan for growth that encompasses the commercial, industrial and residential elements of a city, underpinned by sufficient supporting infrastructure. The respondent went further to explain the value of having a sustainable city plan in keeping New Zealand competitive

in the global race for talent and investment: *"Strong leadership is required to deliver the plan, influence and manage the various stakeholders and make the tough decisions including funding availability and priorities."* Another respondent highlighted the need for a city's vision to not only be simple and clear, but also have clear areas of focus that are integrated at a high level: *"All too often we see actions that are at odds with each other. [For example] encouraging the use of the private car by building more roads, while at the same time trying to create safer communities, or reduce emissions by, say 30%."*

Without doubt, the role of leadership is crucial to a city's vision, however, as one respondent noted, the best outcomes don't necessarily come from top-down delivery: *"The role of leadership [must] find the difficult balance between formative involvement and space for inhabitants to be creative and self-developing as this is what defines the unique character and value of the place. Governance is important in so far as it engenders confidence that there is a rule of law, a level playing field and the interests of all the citizenry are represented. [But] cultural identity and community engagement are emergent properties of good governance, good planning and smart long term investment – such as in public transport."*

Respondents were clear about Auckland's vision as it stands today; to be the world's most liveable city. However,

there was consensus that an opportunity remains for the vision to be more than a strapline and for the city to better connect and communicate its vision with the actions of its funding and delivery arms. From a more general perspective, collaboration and communication were highlighted as key to ensuring the community is clear about Auckland's direction: *"A close relationship with different stakeholders within the city is very important in informing the development of city vision and master planning. Too often city planning is carried out in isolation. A good example of liaison is the Learning Quarter Forum in Auckland – this is not perfect but it is a start."*

Many respondents also perceived Auckland to be in catch up mode after a period of time without a clearly stated goal. For a number of respondents, this apparent lack of direction has resulted in a degree of piecemeal planning, particularly within the realm of infrastructure and public transport.

Further south, Christchurch has aspired to a clear vision, but for some survey respondents there has been a lack of progress. With the genesis of Regenerate Christchurch and Ōtākaro there will be a review of the city's blueprint, which was originally published in 2012. This review will undoubtedly create an opportunity for the city to bring a clearly defined vision to life. As one respondent noted: *"A coherent and affordable master plan that addresses the*

issues facing a city must be put in place. This must then be followed by leading from the top with clear and transparent governance so everybody concerned is aware of the reasons for investment and the future benefits.”

The majority of respondents highlighted the importance of consistency of message when aspiring to a city vision: “[A] vision needs to be simple and understood by all”. Wellington is recognised widely as having been successful in its high level vision, and hence identity. It is themed around a creative, entrepreneurial hub, that is distinctly ‘un-Auckland’ – a vision with many iterations including being coined ‘Creative Capital’, ‘Absolutely Positively Wellington’, and ‘Wellywood’.

Today, as the city seeks to capitalise on a sustained period of creative and cultural branding, that vision is evolving to become a ‘smart capital’. This shift is a result of the city’s desire for an economic step change as it looks to enhance its identity from a commercial perspective, for example in Information Communication Technology and the film industry.

Wellington’s aspirations are supported by key strategic documents, which one respondent notes as critical to the aspirational process; “The key aspect is to have a cohesive and integrated vision for the city and then to implement it through a long term strategy that includes good design and the ability to ensure this seen through.”

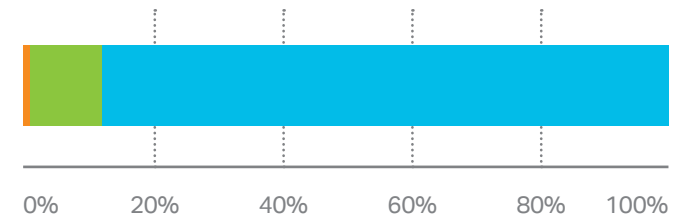
“We must embrace the disruption facing major urban markets across the globe. With a clear vision for a resilient and livable city, that demonstrates action, impact and opportunity, it is possible to transform any urban centre. The decisions we make today will be a determining factor on the livability of our cities and the health of their citizens for decades to come.”



James Rosenwax
 Cities Sector Leader, Australia New Zealand
 AECOM

Importance for cities to have a well defined, well articulated and cohesive vision

Very important
 Moderately important
 Slightly important



URBAN LANDSCAPE

The urban century has shifted expectations from simply having access to the complex web of people, institutions, infrastructure and information that constitutes a city to also having a better quality of life. As a result, cities must focus on integrated and optimised solutions to manage the burden on infrastructure, housing, mobility and the public purse.

As already mentioned, the rate of transformation in the urban environment is high and those delivering the change are seeking more efficiency, more functionality, and ultimately more connectedness. Done well, these are the hallmarks of well-designed cities – places which augment the lives of their citizens. This includes everything from efficient public transport, safe cycle routes, ease of access to amenities, a useable public realm and response time of emergency services.

In seeking to create connected cities, where the nexus of transport and real estate combine effectively, respondents rate user-friendly public transport as the most important factor. Also very strongly rated are both a high quality public realm and congestion management.

A focus on giving people a choice of transport options was an overwhelming priority for respondents considering a city's development frameworks and future place making opportunities:

- *Interconnected, multimodal transportation that allows you to safely and efficiently get from A to B.*
- *Dedicated public transport corridors, dedicated cycle corridors.*
- *Integrated developments allowing ease of public access/walkways/cycleways.*
- *Cycleways are fabulous from everyone's perspective, not least making cycling safer.*

Overwhelmingly, respondents want less emphasis on cars: *"None of these [opportunities] will matter if we can't get people out of their private motor vehicles."* One respondent went so far as suggesting removal of traffic entirely from Auckland's CBD.

Prioritising 'green', open spaces and moving towards the shared utopia were also of high importance to respondents as cities intensify and develop:

- *Combined green spaces in high density housing areas that are focused on providing a community space for activities including retail food services.*
- *Anything that is a garden, trees, etc. so vertical gardens, community gardens, rain gardens. For livability, playgrounds and local coffee shops are also important. Pop-up art installations also add character and life to a city, as do festivals.*

There will always be a balance between the needs and the wants of a city. Several respondents commented on the need to focus on planning for and providing the infrastructure necessary for future growth projections, then assessing the means to develop place-making features. One respondent saw a focus on place making, amongst existing challenges, as a poor use of constrained resources: *"We have become far too focused on providing upper middle-class amenities for well-off established residents to the detriment of core services. Urban beautification and other place making fluff must be relegated below basic transport, water, parks and community services to meet growth."*

As in the comments around a city vision, one respondent acknowledged the possibilities arising from a constructive relationship between governance and organic growth: *"I believe communities will naturally initiate many of these activities if the right spaces and infrastructure are provided. Affordable and accessible space is key for fostering citizen-initiated activities."*

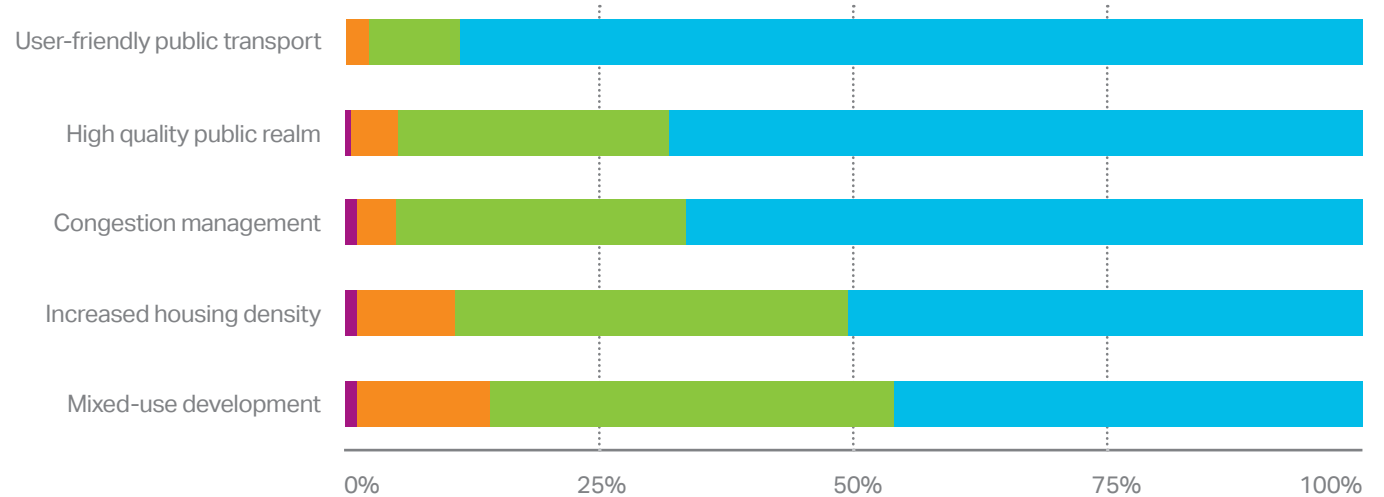
“The way we design and construct our cities affects every aspect of people’s lives; the way we commute, work, exchange ideas, play, socialise and interact with each other. As we create the urban environments for future generations, it’s vital we keep New Zealand’s demographic shifts, technological changes and need for resilient infrastructure at the forefront of our thinking.”



Shaun Jones
Urban Development Lead
AECOM

Priorities for creating connected cities

Very important
Moderately important
Slightly important
Not important



RESILIENCE AND SUSTAINABLE CITIES

In New Zealand, in common with many countries, there is increasing awareness of the need to consider sustainability and resilience to be able to cope with the physical, social and economic challenges that are a growing part of the 21st century landscape. Ultimately cities that master resilience and sustainability improve the quality of life of their citizens.

In our latest survey, the industry has maintained its positive shift towards more consideration on issues of sustainability and resilience in project investments. This is most evident in consideration of Climate Change which has seen an increase in levels of consideration since our survey six months ago. But while we are seeing improvement in this area, it still lags behind the industry focus on Natural Disasters and Technical Failure. The long timeframes and inherent challenges are difficult to solve, but critical for the country's future.

One respondent indicated that incentivising was necessary to effect change: *"Some design standards are including climate change projections in their parameters, however the market appears to be resistant to change without a direct and immediate reward for any perceived added cost."*

Many respondents noted the need for greater redundancy in our infrastructure networks, particularly power, water, communications, road, rail and essential service access and egress networks. For others, a better understanding of potential risks to critical infrastructure was needed. One respondent said there must be *"an improved understanding of the risks associated with the current infrastructure and how resilience can be improved without complete replacement. This can help with prioritisation."*

Wellington and Christchurch are now both a part of the Rockefeller Foundation-funded "100 Resilient Cities" (100RC) network, through which they are provided with the resources necessary to develop a roadmap to resilience. This includes; financial and logistical guidance for establishing the Chief Resilience Officer's city council position, expert support for developing a robust resilience strategy, access to solutions, service providers and partners from the private, public and non-government organisation sector who can help them develop their resilience strategies and membership of a global network of member cities who can learn from and help each other. Both the New Zealand cities in the 100RC network have Chief Resilience Officers in place and are working with key stakeholders, researchers and local communities to develop their City Resilience Strategy.

"With increasing pressure on our urban environments, we cannot afford to repeat the mistakes of the past. The real challenge to the successful growth of sustainable and resilient cities is to create a common understanding of what can be achieved within existing and emerging constraints. Improving the quality of life for communities requires an understanding of the sometimes competing environmental, social and economic factors, and their long-term implications."



Kerry Griffiths
Technical Director – Sustainability
AECOM

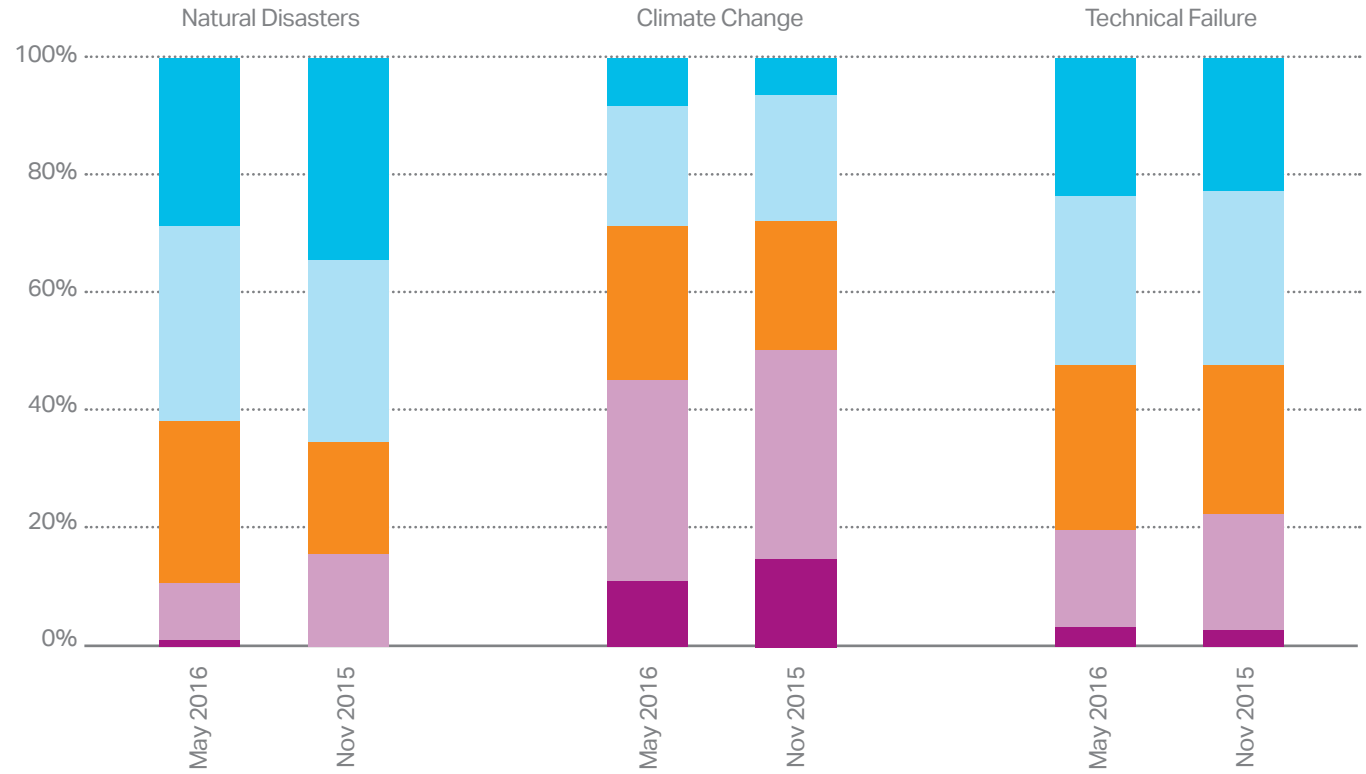
“Resilient cities need strong leadership, a common purpose, clear communication and a good risk management platform. By focusing on resiliency, we have the ideal platform to enter a future of rapid growth and climate uncertainty.”



James Hughes
Associate Director – Environment
AECOM

Consideration of resilience in buildings and infrastructure investment planning

To a great extent
To some extent
To a moderate extent
To a low extent
Not at all



REGIONAL SPOTLIGHT

FOCUS ON AUCKLAND

The Super City's scorecard

With the seven borough councils now a distant memory in Auckland, the majority of respondents have rated the Super City's performance as 'average' or above. This marks an improvement in the perception of Auckland Council from our survey six months ago.

Many respondents indicated they were favourable of the Councils performance given the large scale and complex challenges it faces. For one respondent: *"Much of the progress made would not have been possible had the Super City not come along."* Another commented that: *"The Super City is light years better than the former structure."*

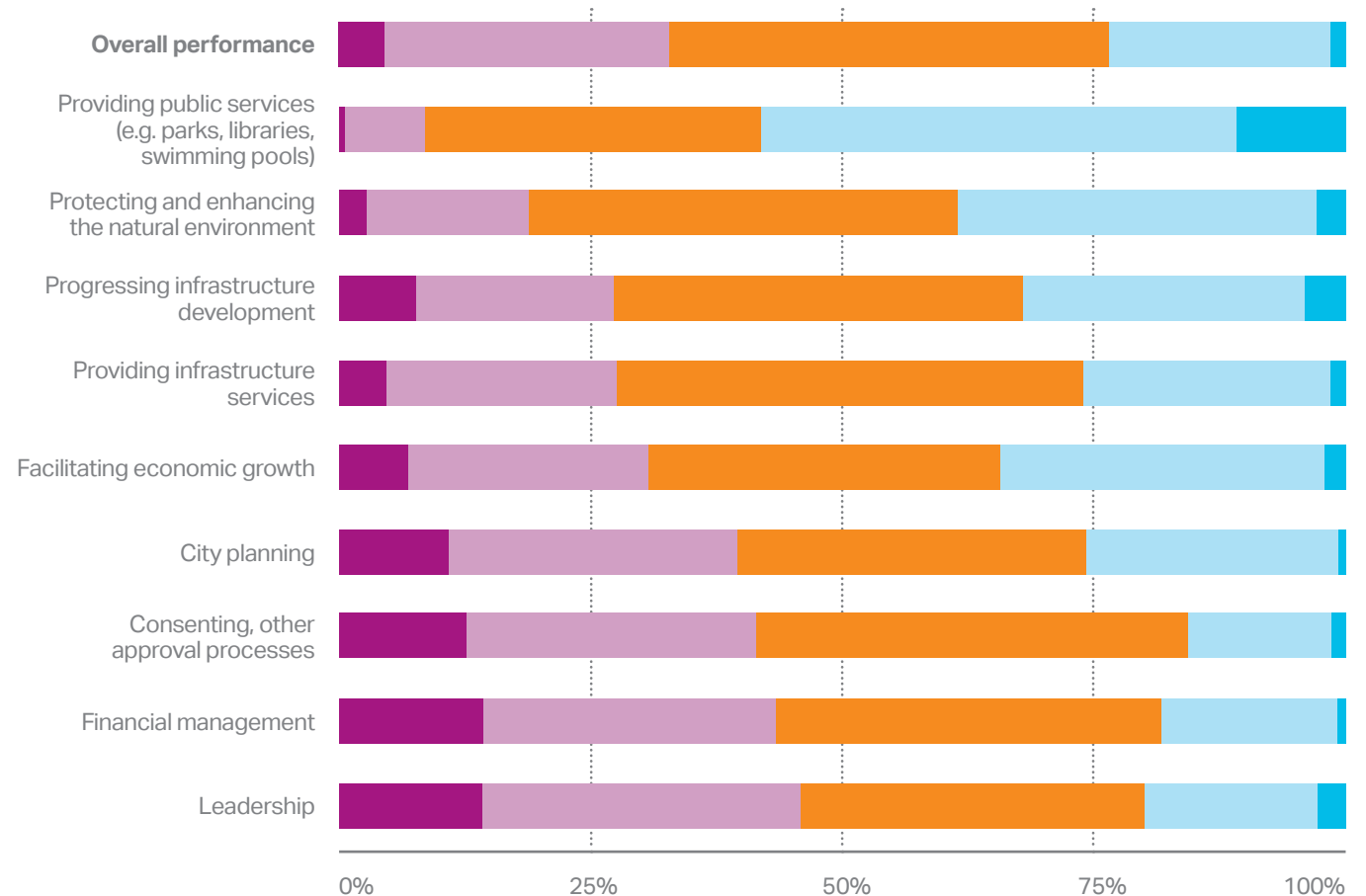
Overwhelmingly, respondents feel positive about the Council's provision of public services, with 91 percent rating it as 'average', 'well' or 'excellent'. This strong result reflects well on the Super City given it's a measure of its performance on core responsibilities which have a significant benefit on its communities.

At the other end of the scale, consenting and financial management continues to be seen as the Achilles heel for Auckland Council representatives. Over 80 percent of all respondents rated the Council's performance as 'average' or below in both of these functions.

Leadership is seen as the Council's worst performing area; 46 percent of respondents rated the Council 'poorly' or 'below average', an increase of 5 percentage points from our survey six months ago. The result could be a consequence of the high profile challenges the city faces, particularly around the housing shortage, public transport and congestion, as we near the election period in the local body political cycle.

Auckland Super City scorecard

Excellent
Well
Average
Below average
Poorly



Auckland housing

Auckland’s housing market remains hot with pressure on local and government leaders to spur action on the out-of-balance supply-demand equation. In the last four years Auckland’s house prices have increased by more than 50 percent, compared to 11 percent across the rest of the country. Auckland is now one of the world’s most expensive cities in which to buy a house, with prices nine times the average household income.

In an attempt to address what is now widely referred to as a crisis, the Council will release its decisions on the long awaited unitary plan. There is growing political consensus to increase density for the country’s largest city. The shift is a result of recognition of the scale of the problem and its potential solutions; urban intensification enables Auckland to greater invest in public transport, roading, rail, and other public amenities.

Urban intensification, diversity in housing size, and increasing the availability of land continue to be the key factors identified by respondents in addressing the housing challenges the city faces. The public debate has moved away from talk of a slowing market, towards solutions that acknowledge Auckland is playing in a global housing market.

For a number of respondents, making progress requires a shift in mentality: *“Unwillingness of first time buyers to live in apartments. Resistance to intensification in suburbs which will allow [construction of] smaller houses and apartments which could be more affordable.”* In the same vein, another respondent highlighted the cultural barriers to density: *“Auckland needs to move to smaller living spaces and grow vertically. Resistance to this [shift] remains the main problem.”*

The location of housing and consequent access to transport is crucial to livability. Delivering an improved

transport infrastructure to cope with the inevitable increase in housing is a big concern for respondents both within the city and surrounding suburbs as well as around the city limits. One respondent said it was the Council’s apparent inability to increase density in the city’s suburbs that was resulting in sprawl: *“[Further sprawl] is way less efficient and requires much more infrastructure.”*

Recent policy moves to disrupt the pressure on the market get a mixed response from respondents. Several respondents noted that Special Housing Areas (SHAs) have helped the consenting process, but that has not translated into the delivery of finished housing. One respondent suggested: *“There needed to be a ‘use it or lose it’ provision for SHAs. Unfortunately the horse has bolted and the land bankers seem to have prevailed.”* Another respondent pointed out that Auckland may reap the benefits of these disruptive measures over time: *“In the next three years, if the [current] market value of housing remains or increases, many of the SHAs consents will turn into constructed houses.”*

While investors are constrained by the higher Loan-to-Value ratio (LVR) on mortgage lending, effective as of November 2015, some respondents felt that the measure shut first home buyers out of the market but did little in discouraging investors speculating on further price rises. One commented: *“More needs to be done to make investing less of a one-way bet.”*

One respondent issued a warning; the high potential for long-term societal-level problems that could accompany any quick fixes by the city: *“The biggest mistake now is to make “cheaper” houses and infrastructure as it is [in effect] permanent and will be a part of our community forever. Poor design, poor materials and poor infrastructure has a direct impact on health, social cohesion, education, economics, tourism and [the country’s ability to] attract bright people.”*

Key factors to help meet Auckland’s housing challenge



Note: Bubbles indicate a rating scale out of 10.

Funding Auckland's infrastructure

Given Auckland's dominance in population and riches, it's under pressure to plan and deliver the necessary infrastructure to address high growth. Many of the biggest projects to ever come to market are now in the pipeline, including City Rail Link, the Additional Waitematā Harbour Crossing and Central Interceptor, but they all come at a cost.

Respondents were asked to consider how industry, Government and the community can collaborate in finding ways to fund infrastructure. Private Sector Investment, User Pays and Special Purpose Infrastructure Fund Tax remain the preferred methods of funding. However, since our survey six months ago there has been an increase in the number of respondents who see less value in funding Auckland's infrastructure through income tax.

When considering how infrastructure should be funded in the long term, once again the targeted taxation of Value Capture featured prominently in respondent's comments. Value capture could be considered a 'sharpening' of the infrastructure funding tools as increasingly innovative funding methods are being sought, particularly around transport infrastructure.

"We must consider the project lifecycle as we deliver Auckland's significant infrastructure projects. With long-term partners and strong project teams, we can prioritise strategic decisions, ensuring timeliness and delivery efficiencies. Take safety-in-design for example, when considered at a project's inception, this key design process has the potential to actually reduce a project's whole lifecycle costs, along with achieving the necessary health and safety outcomes."



Alice Chaplin
Director – Project Delivery
AECOM

Funding Auckland's infrastructure

Respondents wanting more of this funding
Respondents wanting less of this funding



FOCUS ON THE WAIKATO AND BAY OF PLENTY

Hamilton and Tauranga are among New Zealand's fastest growing cities; experiencing rapid growth in the past decade and geographically in a prime position to benefit from Auckland's boom and the country's largest freight gateway in Tauranga.

Respondents see inward regional migration as having the largest influence on the region's growth. This result supports the general trend of a knock-on effect of Auckland's growth and its significant effect on housing, infrastructure and traffic congestion. Although, as one respondent noted: "Ultimately the availability of jobs in the regions will put a limit on this trend." It's no surprise global dairy prices are seen as having the second highest level of influence, given the industry is a key economic driver for the area.

Overwhelmingly, respondents want local authorities to prioritise investment in infrastructure and planning. A number of respondents noted that the region needs to respond quickly, developing links between Auckland, Hamilton and Tauranga: "[The] increasing population has to live somewhere decent and reasonably affordable. Improved road transport and rail links both north and south of Auckland are desperately needed. Hamilton will [eventually] become a commuter feed to Auckland."

Despite the recent price rises, affordable housing stands out as lower on the priority chain. This could be because the region is enjoying the benefits of regional migration today, while awareness of negative impacts takes longer. Those potential future issues were noted by one respondent who urged a rethink around investment choice: "New Zealand needs to make business the preferred place to invest, this is where we gain real bottom line national

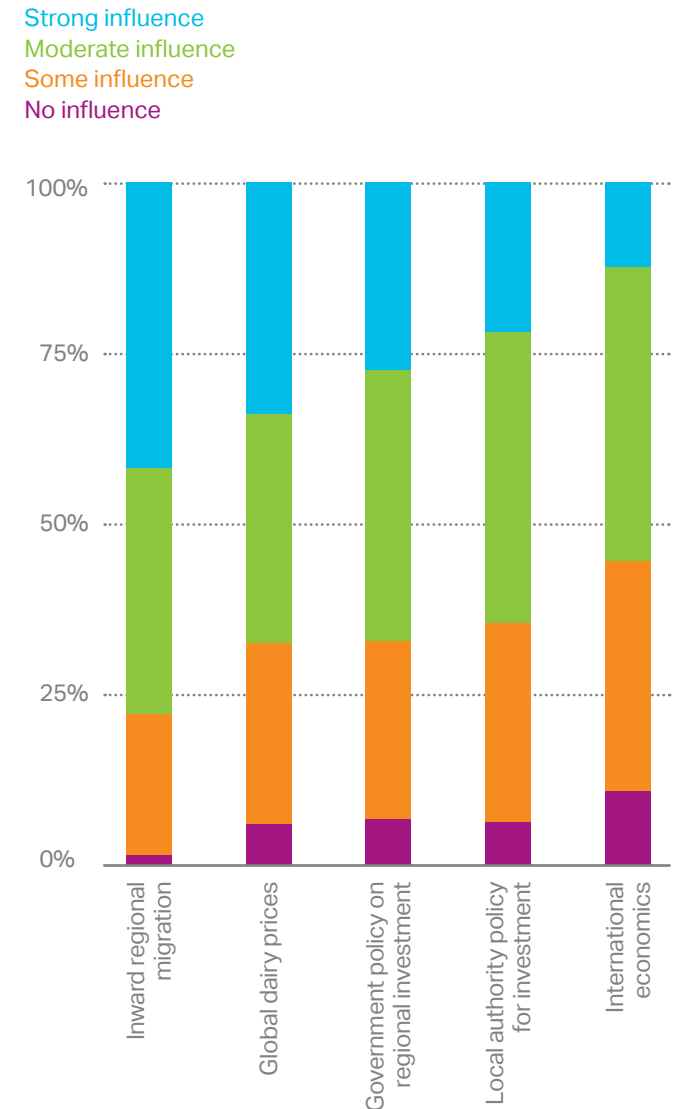
productivity. The property investment market is hurting the community which is the foundation within which business operates."

"High growth comes with both opportunities and challenges. As an industry we benefit from an influx of skills into the area while having to adjust to rapidly changing infrastructure needs and increased competition for real estate. As a region we need to make brave decisions that allow our communities to grow in a sustainable and well thought-out manner."



Natasha Ryan
Area Manager, Waikato and Bay of Plenty
AECOM

Influential growth factors for Waikato and Bay of Plenty



FOCUS ON WELLINGTON

After a period of constrained growth, Wellington is showing signs of renewed optimism. Respondents were asked to consider what the major influences to the region’s growth and development were.

The Cost of Development is seen as a significant barrier, with three quarters of all respondents indicating it to be either a ‘moderate’ influence or a ‘strong’ influence. Seismic Resilience was also a chief concern.

While an ongoing challenge in the Christchurch rebuild, procurement processes are viewed more positively in the Wellington market. The city has successfully utilised different models, including Public Private Partnership for Transmission Gully.

Given the known risk of a large earthquake in Wellington, we asked respondents how prepared they felt the city was. The results were evenly split three ways between those people feeling prepared ‘to a low extent’, ‘to a moderate extent’ and ‘to a high extent’. One respondent said while: *“[While] work is underway to improve Wellington’s resilience and readiness, [the city is] five years away from saying Wellington is prepared to a ‘moderate extent’.”*

Work being done across the city, includes participation in the 100 Resilient Cities Programme, as well as the Cross Harbour Pipeline Study and Geospatial modelling for a resilient water supply. For one respondent there needs to be a *“balance between affordability and probability of occurrence together with priorities for other development and services. Wellington is generally well prepared to ensure minimum loss of life.”*

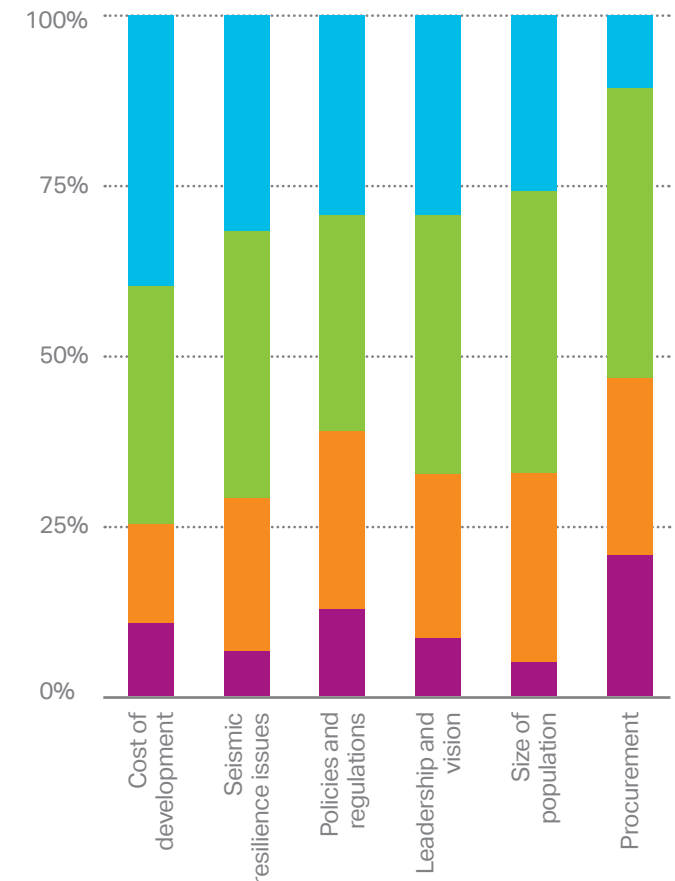
“Earthquake preparation is back in the spotlight and much work is being done to improve readiness. The inconsistent understanding of how prepared Wellington is for a catastrophic earthquake is not surprising. There is an opportunity for the region’s leaders to continue to communicate the work underway and the region’s preparedness, to ensure we’re all on the same page.”



Ian Martin
Area Manager, Wellington
AECOM

Wellington economic growth and development influences

Strong influence
Moderate influence
Some influence
No influence



FOCUS ON CANTERBURY

A focus on delivery

It is estimated \$100 million is being spent each week in Christchurch as the rebuild makes significant progress.

Supporting this figure, three quarters of respondents believe the rebuild will go through its most capital intensive phases this year, next year and in 2018, tapering off after that. One respondent noted: *“The peak is really a series of peaks in the different sectors with a resulting plateau of activity which will stay at a static level from 2016 – 2020 or so.”*

Respondents were asked to identify factors that could be considered an overall barrier to progress. Skills shortages and consenting issues, which appear to have largely been resolved, are of lesser concern for respondents than previously. For all other areas respondents felt the effect of these factors had increased since our last survey; a perception of barriers increasing has been a long term trend.

The areas of concern are dominated by a theme of funding; ‘increasing costs’, ‘private funding’ and ‘public funding’. This may reflect public perception of a sense of spending

conservatism at the Council, given the decision to increase rates at the lower level of five percent. Of note, new entity Development Christchurch Limited, has been set up to look at funding and future investment in the city. It’s likely that there’ll be more conversations developing over the next 12 months as the organisation kicks into action.

One respondent pointed out the strong link between the actions of Government and its impact on the private sector: *“Momentum is needed [around] Government anchor projects to create the environment and stronger demand for further private development.”*

Quality and momentum of the rebuild are both essential to the region’s economic, social and cultural prosperity. However, they are also competing priorities. We asked respondents what degree of ambition Christchurch should harbour in the trade off between quality and time. More than 45 percent of respondents indicated that despite the many challenges, the city should remain focused on an ambitious rebuild.

One respondent gave some perspective to the notion of ‘time’: *“It’s a once in a lifetime opportunity to rebuild a city and the focus should not just be on budgets, because what may seem expensive now will not seem that way in twenty years when we are enjoying the fruits of the hard work.”*

“As the rebuild moves towards regeneration, the dominance of Auckland is starting to become evident in the Christchurch market. Project constraints, including funding, materials and skills shortages, will be eased if those on the delivery side have confidence in consistent workloads. It’s therefore important that the industry works together to avoid the boom and bust cycles of the past.”



Mark Drury
Executive General Manager –
Strategy & Growth
AECOM

Rebuild competition and cost

The pressure on costs continues to be one of the main concerns for the rebuild. Overall, we have seen a significant easing of the perception of cost pressures.

In what is a positive sentiment for the region, there has been a drop in the number of respondents expecting costs to increase in both Labour and Plant & Materials. Labour has dropped from a total of 69 percent of respondents expecting increases, to 63, while Plant & Materials has also decreased from 72 percent to 66 percent.

Of note, there's been a large jump in the number of respondents who predict the margins on projects will decrease affecting the bottom line.

Significantly in our latest survey a number of respondents pointed out Auckland is now a fierce competitor for investment in the region: *"There is a high level of uncertainty affecting the construction industry's ability to sustain capability in Canterbury while there are strong opportunities in the north. Withdrawal of these resources is slowing the need for further residential development. We do not expect growth in our organisation in the next three years."*

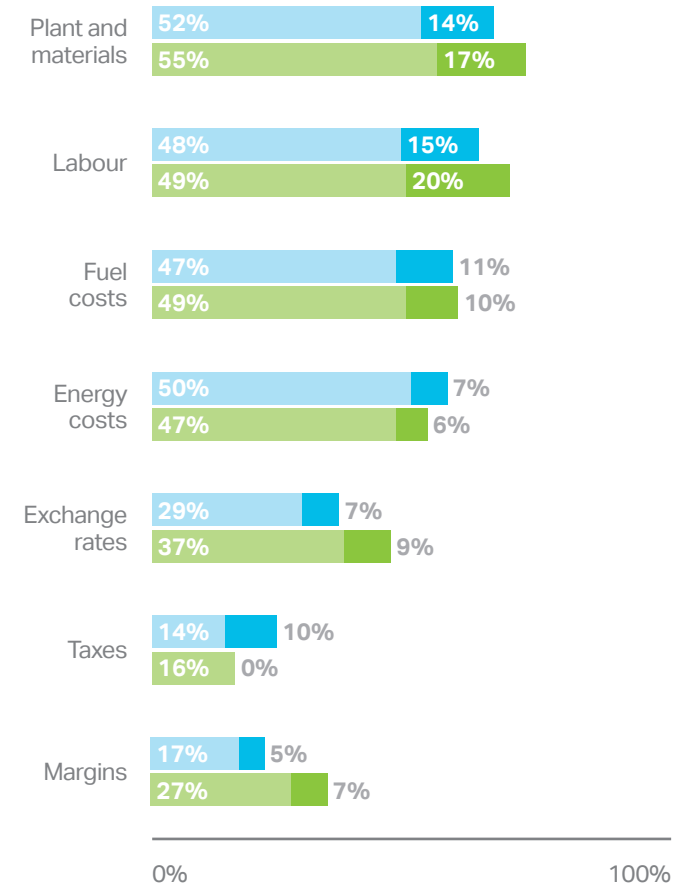
"The high workloads facing many rebuild partners, stretches resourcing to capacity and beyond. When the supply chain is under pressure, the risk is that quality will be affected. The challenge for the city is to continue to effectively prioritise competing interests, always ensuring quality remains top of mind, and process. It is quality of the rebuild that will be our lasting legacy."



Shaun Hubbard
Area Manager, South Island
AECOM

Canterbury rebuild cost pressures outlook over the next three years

May 2016: Increase by up to 5%
 May 2016: Increase > 5%
 November 2015: Increase by up to 5%
 November 2015: Increase > 5%



Rebuild lessons

Reflecting on lessons learnt six years into the rebuild; respondents shared several ideas on areas of opportunity for improvement. The quality of delivery continues to be a key aim in the delivery phase.

The rebuild requires agility to balance the many competing priorities, including a desire for progress, quality, and expediency, all alongside a concern for the escalating costs. For one respondent, market forces shouldn't dictate quality: *"That lowest price does not represent best value and that the procurement process is skewed in favour of a small group of consultants and contractors stifling innovation and preventing the best outcomes for the city from being achieved."* Another respondent noted the value of reviewing the decision making process to date at this six year juncture: *"Early decisions needed to be made to restore confidence and allow progress, but now is the time to reflect and have the courage to change if this provides better options."*

Many projects are underway, including the Metro Sports Facility, the new Central Library and the Justice Precinct. However, none of the anchor projects are yet complete. A number of respondents noted the need for strong leadership and a decisive plan going forward: *"Governance of the rebuild needs greater consideration. [There] should have been stronger alignment between central and local government, and there needed to be a far superior level of leadership and capability in place for the delivery of Government projects."* Another respondent highlighted the value of making progress, rather than seeking perfection: *"Seeking further and further information during the planning stage fills bookcases but does not make a lot of*

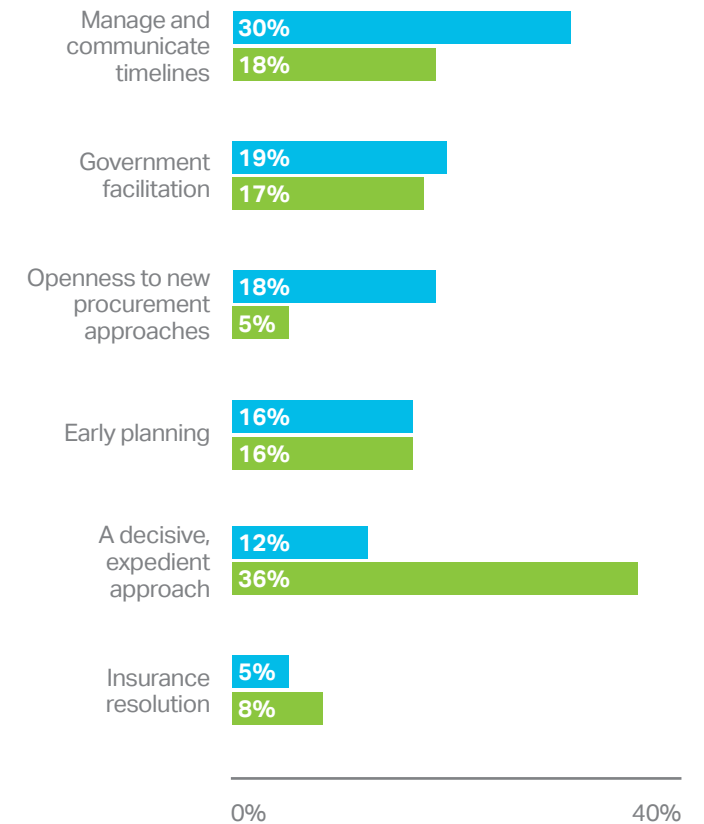
progress on the ground. SCIRT adopted a stance of get on with the physical work to help citizens get back on their feet that has been much more successful. They may not have got everything 100% correct but over five years they have completed far more than any anchor project and the quality of life in Christchurch has improved immensely as a result."

In our latest survey, there has been a drop in the number of respondents considering a decisive approach to be of most importance from 36 percent six months ago, to 12 percent in our latest survey. One respondent suggested that accelerated development could result in long-term problems. Several respondents commented on the need for a more 'realistic' approach to the scope of the overall programme and the estimated timeframes: *"The scale of the rebuild is greater than expected and the rate of the rebuild will be slower than hoped for."* In contrast, there is definite concern around the pace of progress for the anchor projects: *"The delays to the anchor projects were avoidable and have cost the central city in terms of momentum and confidence."*

Managing and communicating timelines continues to be a major concern. Uncertainty still surrounds the Convention Centre for example; it could be that the complexity of projects of this scale may not be fully understood. For one respondent a lack of clarity is a consequence of the complex rebuild environment: *"Government has a perpetual challenge to learn when to step in and when to step away – it has been counterproductive in many aspects, yet crucial in others. Leading from behind would be the best model. Expectations as to speed and recovery are unrealistic. The recovery and rebuild was always going to take much longer than people want or feel they are entitled to see, especially in a small city at the bottom end of the country."*

Towards a successful rebuild

May 2016
November 2015



SURVEY SAMPLE – A BROAD VIEW

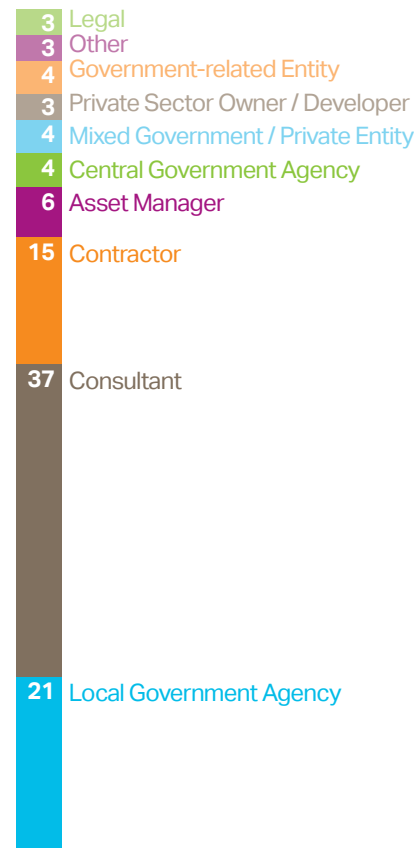
Survey respondents are invited to participate based on their role in the industry. Leading thinkers and decision makers are selected from the buildings and infrastructure markets.

Profile of respondents

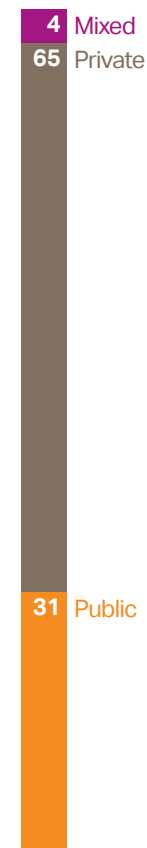
Respondents by location %



Respondents by industry role %

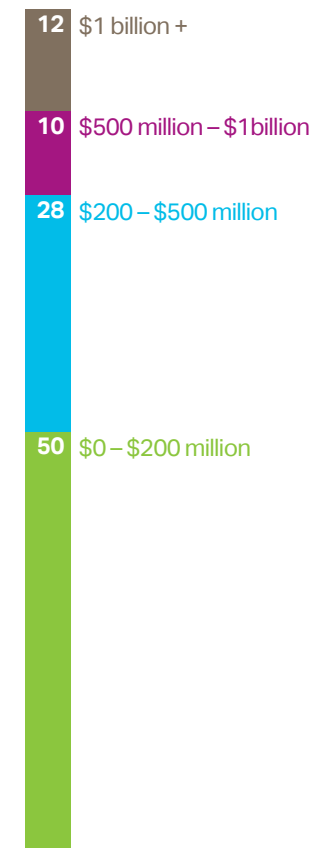


Public vs private respondents %

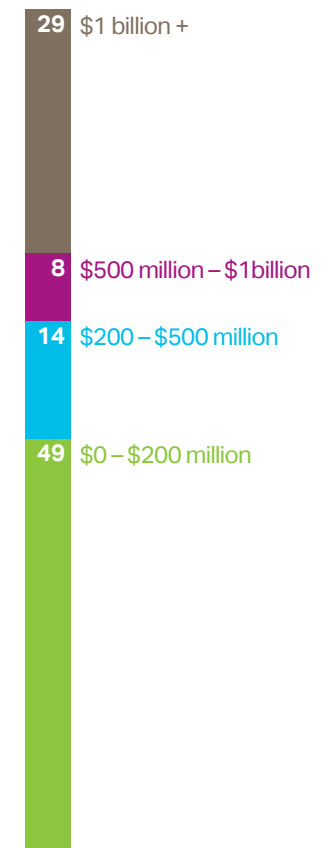


Market values

Investment market respondents by turnover %



Delivery market respondents by revenue %



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