

2 June 2023

s 9(2)(a)

Dear s 9(2)(a)

Thank you for your request under the Official Information Act 1982 (the Act) to Kāinga Ora – Homes and Communities, dated 6 April 2023, for the following information:

*“The most recent progress update for Kāinga Ora's Project Velocity  
The total cost of Kāinga Ora's Project Velocity so far  
A breakdown of these costs including:  
The money spent on each MBU (Mini Business Unit)  
The staff numbers of each MBU  
The money spent on consultants at each MBU vs in-house government staff  
How much each MBU costs per day to run?  
How long has each MBU been operating?  
What consultancy firms/Build partners is Project Velocity recruiting from?  
How many consents has each MBU produced so far?  
On this website  
( <https://www.gets.govt.nz/HNZC/ExternalTenderDetails.htm?id=26729279>) you state your lean principles will be tracking each hour of work associated with public housing delivery. Could I please have a breakdown of the productivity of departments involved with each MBU?  
How many houses have been built through the project velocity programme so far?  
What was the total price of each of these houses, both pre and post-construction?”*

On 4 May 2023, Kāinga Ora extended the due date for response by 20 working days due to substantial collation associated with the preparation of the response.

Kāinga Ora's responsibilities include the provision of public homes for New Zealand households eligible for Income Related Rent Subsidy support. The Government directed Kāinga Ora through its 2018 and 2020 budgets to increase the number of homes it owns by a net 11,512 homes by 30 June 2024, while also renewing its aged stock of public homes. Kāinga Ora's asset renewal programme has identified 51,000 homes that should be replaced or renovated by 2035.

As the lead agency responsible for providing public housing for those in need, Kāinga Ora will also deliver a significant portion of the net additional 3,000 public homes by June 2025 that have been funded through Budget 2023.

The construction programme is substantial, and has required the organisation to quickly grow its annual construction volumes. In the 2016/17 financial year 466 public and supported homes were completed while in 2023/24 more than 4,500 public and supported homes are expected to be completed, and over 700 renovated (retrofitted). That volume reflects the additional homes Kāinga Ora has been asked to add to its portfolio, replacing any houses demolished to allow them to be built, and the renewal of old homes. Kāinga

Ora's processes for most of its construction programme has typically seen the organisation identifying land, completing planning, financial and approval processes, and then procuring professional services and head contractors for projects.

The provision of professional service expertise has normally been co-ordinated through architectural firms, while the physical on-site construction of these homes is project managed by private construction firms, which sub-contract in some or all trade services. As its level of construction activity increased, Kāinga Ora introduced new ways of working that reduced costs relative to inflation and helped the industry deal with some systemic issues. Those changes included standard designs, longer term multi-project high volume contracts, weekly payments to support cash flow, alliance contracts, standardised contracts and new construction methodologies (for example Off-Site Manufacturing).

Despite these changes construction speed has remained slow, project delivery has been unreliable, there is evident waste, and construction cost inflation has consistently outpaced the consumers price index (CPI). The time it takes to complete a project from design, through consenting and on-site construction, was typically taking more than two years, while construction CPI over the 2021/22 financial year was 31 percent.

### **Developing system transformation (Project Velocity)**

Scaling up traditional build methods would not, on its own, enable us to produce housing quickly or cost effectively enough to meet the significant and ongoing demand for public housing in New Zealand.

Noting the above results and its growing construction programme, Kāinga Ora established Project Velocity in mid-2020 to review in detail the processes and dynamics within the New Zealand residential construction sector – including professional services, project management, consenting authorities, trades and material suppliers.

Rather than small or high level changes, the Project was tasked with developing a detailed system for construction that would improve the speed, predictability, reliability, quality and productivity of the sector.

The Project confirmed some fundamental issues were holding the sector back, including particularly the fragmentation of labour and materials, siloed technical knowledge, tacit acceptance of poor quality work, commercial arrangements that were adversarial with an unbalanced focus on risk allocation, and an acceptance of poor behaviours.

We then worked with our people, construction industry partners and local government authorities on developing a new system that would help us all be more productive, delivering more quality public housing, faster and at a lower cost.

Kāinga Ora's project team supported those people who do the work - the trades, head contractors and professional service consultancies, with continuous improvement and lean principles and methods that enabled them to develop and test new processes, behaviours and working arrangements that would address these issues and enable quality performance.

The result of that work is a new system that Kāinga Ora expects will be the best way to deliver most of its housing projects in future – the Housing Delivery System (HDS).

### **HDS pilot and testing phase**

Project Velocity developed the HDS through COVID-19 lockdowns and isolation phases, beginning with a current state assessment that identified the fundamental issues described above. It then worked with the people doing the work to develop new processes and an operating model. They were tested through a pilot programme which included creating the

first integrated pre-construction team in Christchurch in March 2022. These were subsequently described as mini business units (MBU), with a second MBU established in Auckland in July 2022.

The pilot of the HDS moved to a testing phase in October 2022, when two additional MBUs were established in Auckland, and another in February 2023 which focuses on Off-Site Manufacturing projects. Kāinga Ora also intends to establish further MBUs in Hamilton and Wellington.

The current phase of work centres on testing, evaluating, recalibrating and improving the end-to-end process – moving closer towards ‘steady state’ (a stable system). This testing programme is crucial to ensure a robust system that endures and can meet the ongoing need for public housing.

The MBUs are testing the system for different housing typologies, regional differences and scale. Testing at scale is also critical to an informed understanding of the potential impacts on other parts of Kāinga Ora.

### *How the Housing Delivery System works*

The fundamental elements of the system are:

- transparency of process
- shared process and technical knowledge
- a process that gives all people in the work flow the information, time and work tools to be perfect first time
- an acceptance of variance as an opportunity to learn
- detailed (to the minute) project planning
- supportive and present project co-ordinators
- a focus on training.

The process begins with the organisation delivering a work order to the construction team, they then work through three construction phases:

1. **Pre-construction**, where the professional services team (and trades as appropriate) develop a fully designed, engineered and planned set of documents for Building and Resource Consent approval.
2. **Consenting**, where a Building Consenting Authority (normally Consentium, which is an accredited and registered non-Territorial Authority Building Consent Authority within Kāinga Ora) approves the Building Consent and a local government authority (with infrastructure providers as required) approves the Resource Consent.
3. **Construction**, where the head contractor and trades construct a home on site.

This integrated approach with build partners, trades and other external providers of professional services, such as architects, planners and others involved in pre-construction, is already delivering benefits (as described further below).

## **Benefits of the HDS**

### *Time and reliability*

Through the use of lean principles and the integrated approach, the HDS is significantly reducing the time to complete pre-consenting, consenting and construction for a project (between one and 20 homes). The system approach means the process steps and levels of performance are consistent and can be relied on.

The following shows the time reductions HDS has been achieving so far:

<b>Pre-construction</b>		
	<b>Days</b>	<b>Hours</b>
Traditional Delivery (standard design)	523	1120
HDS standard design (from Design Library)	24 - 29	372 - 561
HDS minor modified design (from Design Library)	29 - 33	476 - 659

<b>Consenting</b>	
	<b>Days</b>
Traditional Delivery	221
Housing Delivery System	6 - 30*

\*Council dependent

<b>Construction</b>		
	<b>Days</b>	<b>Hours</b>
Traditional Delivery	241	
Current through Housing Delivery System	92 - 140*	3891 - 4417
Target through Housing Delivery System (standard build, up to 7 homes)	65	
Target through Housing Delivery System (panellised OSM)	47	
Target through Housing Delivery System (OSM**)	25	

\*First address tested through Housing Delivery System.

\*\*OSM = Off-Site Manufacturing

The majority of work undertaken by MBUs to date has focussed on pre-construction consenting - the planning stages, including design and engineering, and preparing resource and building consents for approval, before construction begins.

The consenting process speed primarily relates to resource consenting, and is dependent on the time taken by the local government authority to approve the submission. Those that work with us to ensure they get a “perfect” application are processing them very quickly, but we are subject to their resourcing levels, willingness to work with us and proficiency.

The construction process is steadily improving as more projects enter construction and more head contractors work through the detailed planning of trade activity. The target for completing this phase of a project is now at 65 days for a standard build (from 3 – 7 homes).

### *Cost savings from the HDS*

The work to date identifies initial cost savings averaging 13 percent per home, which we expect to increase in time to 30 percent through joint work with our labour and materials suppliers. We have reflected the initial savings projections in our four year construction budgets from 2024 for those homes built through the HDS. The budgeted expected savings for those financial years is approximately \$820 million.

These savings will be derived from eliminating waste (time and materials), labour productivity gains in both the pre-construction and construction phases, material savings and reduced overheads. At the current time the focus is on reducing time and process waste.

### *Benefits to construction sector*

In keeping with our mandate to build thousands of public homes, we are supporting building capability in the wider urban development and construction sectors through our cross functional MBU model.

Survey results of professionals in these teams note the faster and more effective in-person collaboration, the unique opportunity to learn regularly from other disciplines, the stronger sense of teamwork and overall efficiency and speed of project delivery.

The specific questions you have asked are addressed below in an asked and answered format.

### ***The most recent progress update for Kāinga Ora's Project Velocity***

#### **Project investment**

Kāinga Ora is committed to creating improved value for the New Zealand public, the Government and our customers. Our focus is on developing enduring system change, which means an upfront investment and long-term view to explore, test and enable an improved way of delivering public housing. We must invest now to save later, both in social and financial outcomes.

The investment to date in developing the system transformation (via Project Velocity) is \$11.2 million. This represents a comparatively small upfront investment when considered against the \$820 million dollars in savings expected over the next four years through the \$6.5 billion HDS build programme.

The MBU's established to complete the pre-construction and consenting phases of the HDS have been refining processes through delivering projects, which has meant planned capital expenditure has been spent on houses developed under this method rather than traditional procurement methods. The MBU's have completed the pre-construction phase on nearly 600 homes, and have paid local government authorities \$1,438,548 for consents and development contributions for consented homes.

#### **Next steps**

It is expected 9,500 total public and supported homes will be delivered in the next four years through the HDS.

We are motivated to deliver on targets that have never been reached before, by addressing inefficiencies in the residential construction sector and tackling the housing shortage.

We are already sharing our learnings and the system itself with other organisations to benefit the wider housing sector. There has been interest from iwi groups, commercial businesses and Australian housing organisations.

By reducing design, planning, and construction timeframes, Kāinga Ora can deliver more homes every year for whānau and provide a reliable pipeline of work for the construction industry. This approach has the potential to have positive lasting intergenerational impact on whānau needing stable housing, and a more reliable and steady workflow for the construction industry.

Please note that as Project Velocity and HDS are separate, one being a transformation programme and the other an operational delivery system derived from it, costs are split out from each other. HDS costs are associated with the planning and building of public housing. Data provided is to 31 March 2023 unless otherwise stated.

***The total cost of Kāinga Ora's Project Velocity so far***

The total cost for Project Velocity is \$11.2 million.

Transformation – Consultant costs (DAUM&CO)	\$7.7m
Transformation – Kāinga Ora personnel costs	\$2.2m
Transformation - Office accommodation, travel and office costs	\$1.3m
<b>TOTAL</b>	<b>\$11.2m</b>

***The money spent on each MBU (Mini Business Unit)  
How many consents has each MBU produced to 31st March 2023?  
How many consents has each MBU produced so far?***

The answers to the above are contained within the following table:

	Units					
MBUs	Pre-con in progress	Consent in progress	Consent complete	Construction in progress	Construction complete	Grand Total
MBU1	35	21		6		62
MBU2	80	12				92
MBU3	29	44				73
MBU4	12					12
MBU5	84	140	76	34	6	340
<b>Total</b>	<b>240</b>	<b>217</b>	<b>76</b>	<b>40</b>	<b>6</b>	<b>579</b>
	Spend (\$m)					
MBUs	Pre-con in progress	Consent in progress	Consent complete	Construction in progress	Construction complete	Grand Total
MBU1	4,090	3,748	-	2,234	-	<b>10,072</b>
MBU2	5,929	1,725	-	-	-	<b>7,654</b>
MBU3	2,158	5,511	-	-	-	<b>7,669</b>
MBU4	2,496	-	-	-	-	<b>2,496</b>
MBU5	2,059	6,968	3,772	8,658	2,843	<b>24,300</b>
<b>Total</b>	<b>16,733</b>	<b>17,952</b>	<b>3,772</b>	<b>10,891</b>	<b>2,843</b>	<b>52,192</b>

*\*The spend table above includes all professional fees for delivery projects, Kāinga Ora personnel costs, consents, construction and other direct costs attributable to building new assets (houses).*

*\*Consented homes are those in the consent complete phase, construction in progress phase and construction completed phase. The remaining are consents either being considered, or soon to be submitted for consent.*

***The staff numbers of each MBU***

As at 31 March 2023, the MBUs had a head count of 62, with 61 fulltime equivalent employees working across the MBUs as per the below:

MBU	FTEs	Headcounts
MBU1 - Auckland 1	17	17
MBU2 - Auckland 2	9.5	10

MBU3 - Auckland 3	9.5	10
MBU4 - Auckland 4	8	8
MBU5 – Christchurch	17	17
<b>Total</b>	<b>61</b>	<b>62</b>

***The money spent on consultants at each MBU vs in-house government staff***

There are no consultant costs incurred by MBUs. The below is the cost to 31 March 2023 (of Kāinga Ora staff) to run MBUs.

<b>MBU</b>	<b>Total Cost (\$m)</b>
MBU1 - Auckland 1	\$0.7
MBU2 - Auckland 2	\$0.7
MBU3 - Auckland 3	\$0.5
MBU4 - Auckland 4	\$0.3
MBU5 - Christchurch	\$1.6
<b>Total</b>	<b>\$3.8</b>

***How much each MBU costs per day to run?  
How long has each MBU been operating?***

The MBUs are not fully resourced at this stage. Each MBU's personnel cost will be \$13,600 to run per day once fully resourced (based on the current projected levels).

<b>MBU</b>	<b>Start date</b>	<b>Daily Personnel costs (full capacity) \$'000</b>
MBU1 - Auckland 1	October 2022	\$ 13.6
MBU2 - Auckland 2	July 2022	\$ 13.6
MBU3 - Auckland 3	October 2022	\$ 13.6
MBU4 - Auckland 4	February 2023	\$ 13.6
MBU5 - Christchurch	March 2022	\$ 13.6
<b>Total</b>		<b>\$ 68.2</b>

***What consultancy firms/Build partners is Project Velocity recruiting from?***

Professionals contracted in the MBUs are the same roles that Kāinga Ora contracts in our traditional home building activities, including our Construction and Innovation delivery teams e.g. geotechnical engineers – we do not have this expertise in-house.

Since 2018, the then Housing New Zealand and subsequently Kāinga Ora have invested \$7 billion in our build programme. Significant work has been undertaken to ensure Kāinga Ora has the capacity and capability to deliver on its mandate from Government and to deliver the largest programme of state housing construction in decades.

Spending on professionals has increased over time reflecting the growing delivery expectations of Kāinga Ora and the need to upgrade organisational systems to better support this work.

Professionals firms we have recruited from for the HDS MBU's to-date:

- Hierarchy Group
- Kamo March Landscape Architecture Ltd
- Inovo Projects Limited
- Nous Production
- Tectonix Structural Engineering Ltd
- Graham Surveying Ltd
- Civix Limited
- Kirk Roberts
- Beca Limited
- Maven Associates Limited
- Tonkin & Taylor Limited
- Context
- Barker & Associates
- Fraser Thomas Limited
- Hall Surveying Ltd
- Young and Richards
- Babbage Consultants Limited.

Build partners worked with to-date, these partners have responded to tenders put out publicly by Kāinga Ora:

- Miles Construction
- Home Construction
- Penny Homes Auckland
- Penny Homes Limited
- Consortium Construction
- Constructa Ltd
- Isles Construction
- Jennian Homes Canterbury Ltd
- Signature Homes Ltd
- Holloway Builders
- Rouse
- REM Building Limited
- Precision Construction
- Hawkes Bay Construction

***On this website***

***<https://www.gets.govt.nz/HNZC/ExternalTenderDetails.htm?id=26729279>) you state your lean principles will be tracking each hour of work associated with public housing delivery. Could I please have a breakdown of the productivity of departments involved with each MBU?***

Tasks are tracked across each MBU and not across other business units as the activity is based on an integrated team. How we manage and track time is key to the HDS, by identifying and improving each of the thousands of tasks and workflow involved in housing delivery – we are saving time, which will save money.

We are committed to creating improved value for the New Zealand public, the Government and our customers. The system focuses on ensuring a steady flow of activity and ensuring a highly planned environment. We plan our projects and working days based on reasonable times provided by people at the coal face (including architects, geotechnical engineers, urban planners). By tracking the actual time taken to complete the tasks needed to plan and design a house, this planning and monitoring minimises waste and duplication of work.



We are seeing the productivity benefits of this planning – our pre-construction process originally took 7,000 hours and now takes 5,000 hours through better task planning and management.

***How any houses have been built through the project velocity programme so far?***

As at 31 March 2023, we had completed six homes. Nineteen homes were completed as of 24 May 2023). Construction on the first batch of projects started in July 2022, with some gaps as we reviewed, tested and improved the system. These first few projects are the testing grounds for the system.

By its very nature, transformation of this scale requires pushing the boundaries to achieve change, it cannot be accurately compared like-for-like with previous industry measures in the initial stages – because it is radically different. The HDS testing programme process is as the name suggests; testing, stopping, recalibrating and improving – this phase is crucial to ensure a robust system operating at scale.

As noted earlier in the response, close to 600 homes are in progress to consent lodgement, awaiting consent, in construction or completed.

***What was the total price of each of these houses, both pre and post-construction?***

The rates used in the first phase of the HDS are similar to those incurred across Kāinga Ora. This similarity was expected, as the first phase of the HDS has been focused on planning and time improvement. The upcoming second phase is designed to capture the benefit of these time savings on cost. We have set a target to drive cost savings through increased productivity, material savings and reduced overheads of at least 30 percent per home once the Housing Delivery System is operating at full capacity in the next four years.

Project Velocity had two key objectives:

- To reduce waste, duplication and time
- To harness the reduction in waste, duplication and time along with amended buying and partnering methods to reduce cost. We are moving into this phase now.

The construction cost of the first three homes was \$1,139,813.10 excluding GST (\$380,000 per house) and the second lot of three homes cost \$953,463.45 excl. GST (about \$320,000 per house).

The pre-construction costs for the first three homes was \$195,961.26 excluding GST (about \$65,000 per dwelling). The second lot of three homes cost \$34,591.24 (excluding GST) (about \$11,530 per house).

The construction rates used are based on the Capacity Partnering Arrangement (CPA) contracts which are used across in Kāinga Ora's Construction and Innovation business unit. The next phase being entered now will focus on leveraging the waste reduction and resulting time savings to reduce costs.

In terms of typology, the first three units were: a single two storey four-bedroom standalone house and two two-bedroom units in a two storey duplex. The remaining three homes were three one-bedroom single storey units (two of which are Full Universal Design).

Kāinga Ora proactively releases responses to official information requests where possible. Our response to your request may be published at [kaingaora.govt.nz/publications/official-information-requests/](https://kaingaora.govt.nz/publications/official-information-requests/) with your personal information removed.

Yours sincerely

A handwritten signature in black ink, appearing to read 'A. McKenzie', with a long, sweeping horizontal stroke extending to the right.

Andrew McKenzie,  
**Chief Executive, Kāinga Ora – Homes and Communities**