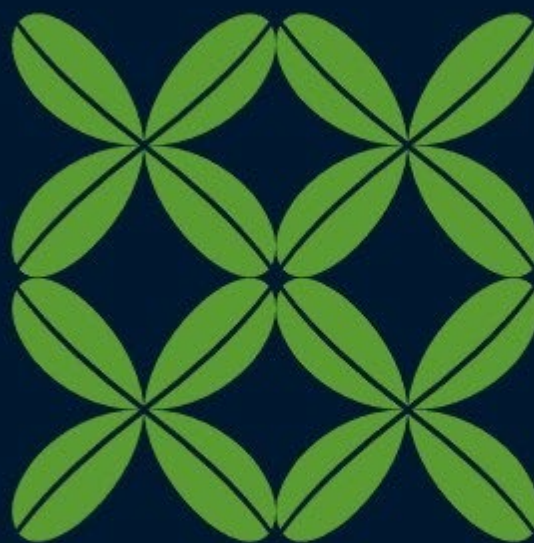
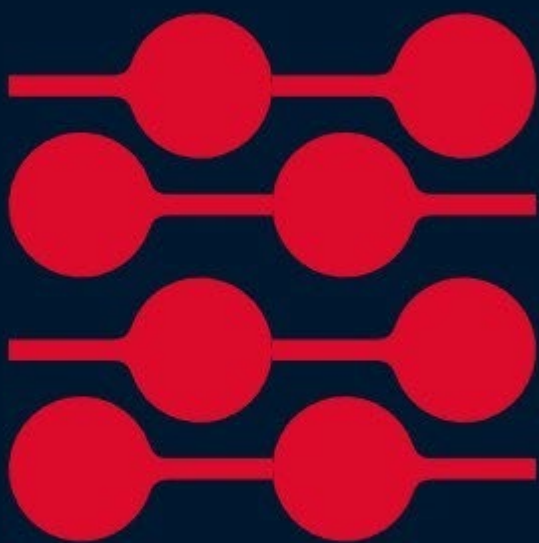




Development Contributions advice for Transport Projects

June 2022, Version 1.0

Property cost estimation – for the Drury area

This paper summarises the process for estimating property costs for identified future transport projects in the Drury area. This process supports the Auckland Council (Council) Development Contributions (DC) Policy.

Proposed future transport projects may need to purchase land for roads/infrastructure. Property costs are often a significant component of the total project cost. Where projects are to be delivered by Auckland Transport (AT), Council usually includes these future projects in the Council DC policy, to collect contributions from developers to the estimated costs for future transport projects.

The inputs used for property cost estimation and the basis for the estimation process are understood to be similar and broadly consistent with the approach used by Council Parks and other Council funded projects.

Transport projects (new roads, widening roads, etc) typically require contiguous land through multiple properties with limited flexibility on the road alignment relating to the land required for that road. Thus property acquisitions for transport projects are often more complex than for other land acquisition requirements for Council (such as parks, libraries, etc) requiring partial acquisitions of land for road widening purposes.

The requirements to purchase land for every transport project are unique to that project and may include purchasing either full properties or partial land areas. Projects also usually require land to be leased for temporary occupation to support project construction works.

Estimating these costs can be complex, and for transport projects generally comply with the Waka Kotahi Cost Estimation Manual (SM014).

The following sections outline the steps AT follows in the property cost estimation process applied for Drury to estimate components of costs that contribute to the total property cost. AT utilises the Public Works Act (PWA) as the legislative framework in advancing land acquisitions.

Land Requirement Plans

Each project identifies the land required and the size of this land (square meters, sqm) and produces a Land Requirement Plan (LRP). The LRP is a prerequisite for AT for advancing all land acquisitions and identifies whether full properties or partial land areas (and temporary occupations) are required.

During development of LRPs, decisions may consider a wide range of factors, generally based on assessment from design engineers, based on engineering requirements and experience with similar projects.

Land cost estimates (at current year)

The analysis of land cost estimates varies depending on the stage of planning. At an early stage of planning, indicative property estimates are often sufficient. When projects progress to a Detailed Business Case (DBC) stage, the following process is applied with desktop valuations. Drive-by valuations may also be included to provide a more robust land cost (base value) estimate.

The cost of land in the current year (year of estimation) is required as the starting point for calculating the total cost of property acquisition for a project that may purchase or rent the land at a future date. There are often multiple land parcels (full properties, partial land areas and temporary occupation sites) that are required for a project.

Where a formal independent property valuation is available for a full property or partial land area, this would be used.

When a valuation is not available, for a full property acquisition the Council CV can be used as the basis for cost estimation (adjusted to current year), or the CV can be used to check costs calculated by other methods. There are also a number of web-based sites (eg Property Guru) available to research similar properties on the market or recent sales.

A full property cost estimate is relatively straightforward in that there is sufficient data available to provide a cost estimate.

For partial land acquisitions, the preferred (and more consistent) approach for early cost estimates when an individual valuation has not been done, is to use the following method based on Council rates per sqm.

A Council defined cost per sqm for each 'area' provides a simple method to ensure consistent estimation of land costs across projects (transport and other assets covered by DCs). This table summarises the choice of methods:

Land cost methods	Land purchase cost	Rent rate	
Full acquisition	Valuation or Council cost per sqm	0	
Partial acquisition	Valuation or Council cost per sqm	0	
Temporary use	0	\$100/sqm pa	Rate based on experience.
Source:	Rent rate: assumption from AT Property team, July 2020, based on experience from many projects.		

The Council cost rates for land are determined by the current urbanisation stage of the area. There are 5 urbanisation stages in the Council framework. For each land parcel, the cost rate for the urbanisation stage that applies to that land in the current year (year of estimation) is used as the basis for estimating the cost of the land area required.

The table below outlines the land cost rates from Council (\$ per sqm) that apply the Drury area as at early 2022: (the current year project costs for the Drury area in 2022 are generally based on the rate for Future Urban Zone)

Urbanisation stages	1 Future urban zone	2 Urban zone	3 Infra installed	4a Super-lots ready	4b Compact lots ready
cost/sqm	\$175	\$250	\$375	\$1450	\$1700
Source:	Cost rates by stage: from Auckland Council (Finance) based on advice from an independent valuer and Council observations of valuation movements (Feb 2022).				

Where these rates are used and there are improvements on the land to be acquired (for partial land areas), an additional consideration may be added for the property value, usually based on a valuation report (see Injurious Affection below). This adjustment is based on professional judgement for individual properties leveraging experience from previous projects.

Property acquisition date

The nominal year when each property (land lot) is expected to be purchased or rented. This requires judgement specific to each property or partial land area and the requirements of each project. Land needs to be purchased before physical works for projects can commence.

Before any formal land acquisition programme commences, it is preferred to have commenced a Notice of Requirement (NoR) or designation process that supports the proposed project construction and aligns with the Land Requirement Plan.

For the Drury area cost estimates, it is assumed that land is acquired during the 3 years before project construction (the project delivery year). Every project has an estimated date of delivery/completion to support the Council DC policy.

Some land may be purchased earlier for various reasons (eg following the NoR confirmation due to hardship grounds or whether a land owner is selling). AT manages a provision for this risk, which will incur early acquisition costs. The various risks for early acquisition do not impact on project cost estimates for DCs, early acquisition costs are assumed to be similar to costs for scheduled acquisition.

If there is specific knowledge for individual land areas at the time of estimation, the acquisition date for that land should be set based on that knowledge. Otherwise, no allowance is made for the probability of earlier acquisition of land when estimating the property acquisition date.

For temporary occupation for construction purposes, the period of the lease (years) for the required land must also be estimated.

The assessment of the land required for each project should consider project staging (some roads may be upgraded in interim stages). Assumptions are applied on whether or when it is preferable to agree to an acquisition of a property required for future stages of an interim project. This may lead to larger land acquisitions and possibly more full property acquisitions for interim projects.

For Drury cost estimates it is assumed land is only acquired for projects as projects require it.

Note: When designations are approved, under the RMA, owners may choose to sell their property sooner than a project has planned to purchase the land, especially for projects planned many years in the future. This introduces an increased risk element to manage available funding – this is managed at a portfolio level. There is no allowance made in property cost estimates for the probability of early acquisition.

Property cost escalation

Costs are escalated for each property to be purchased over the period from the current year (year of estimation) to the estimated property acquisition year.

Council has determined there are two parts to cost escalation that are both applied, and provided guidance to AT on use of these factors:

- A factor driven by increasing urbanisation of the area (stages of urbanisation), and
- A factor for inflation.

These cost escalations apply in the same way to all property cost estimates as-at the current year – whether based on individual valuations or the Council cost rates. For simplicity the total property cost estimate is inflated regardless of any amounts included for improvements on the land.

Escalation for urbanisation is driven by the change in urbanisation stages for an area. The Council residential land cost rates are used as the basis to calculate escalation adjustment factors (regardless of the basis for the current year cost estimate). The adjustment factors for land cost are calculated by the ratio of the land cost rate at the land acquisition date and the land cost rate at the current year.

This is shown for the Drury area as at early 2022:

Urbanisation stages	1 Future urban zone	2 Urban zone	3 Infra. installed	4 Lots ready = (4a+4b) / 2	
cost/sqm	\$175	\$250	\$375	\$1575	
Adjustment factor from stage 1	1	1.4	2.1	9.0	
Adjustment factor from stage 2	n/a	1	1.5	6.3	
Adjustment factor from stage 3	n/a	n/a	1	4.2	
Source:	Cost rates by stage: from Auckland Council (Finance) based on advice from an independent valuer and Council observations of valuation movements. Note: 'Lots ready' is the average cost for Super-lots and Compact lots				

The urbanisation escalation (UE) factors above (based on Council's land cost rates by urbanisation stage) are applied to each land area, then Council's land inflation rates are applied to each land area. The resulting product provides the estimated land cost at the year of acquisition for each land lot as follows:

$$\text{Land cost (acquisition year)} = \text{Land cost (current year)} * \text{UE factor} * \text{inflation factor}$$

Escalation rates	Land costs	Project costs	
Urbanisation factor	UE factor*	0	*UE factor = 'urbanisation escalation' factor to scale the current year land cost to the acquisition year land cost.
Inflation factor	7.2% pa	2.5% pa	Compounding annually – this factor is applied to the land cost at the property acquisition year. Details outlined in the following table.
Source:	Inflation rates: from Memo on Cost escalation factors and interest rates, Chief Economist, Auckland Council May 2022 and updates in 2022.		

Non-land project costs are inflated to the project delivery year using the general project cost escalation rate including the PWA costs and other project/administration costs related to land acquisition. The rent rate (per sqm) for temporary use land is inflated at the land cost inflation rate. The Project cost inflation rate is generally applied to all project costs other than land costs.

The detailed inflation rates to be applied for short-term years and the long-term average are as follows:

Inflation rates (percent)	2022/23	2023/24	2024/25	2025/26 onwards *
Land cost escalation	-7.0	-1.2	3.5	7.2
Project cost escalation	5.2	4.0	3.2	2.5
Source:	Inflation rates by year: from Memo on Cost escalation factors and interest rates, Chief Economist, Auckland Council May 2022 and updates in 2022. * long-run projection			

Injurious affection

When land areas are identified (primarily for partial acquisitions) these are categorised by risk level (high, med, low, none) for compensation for various issues that may arise based on judgement for each property. This categorisation is a judgement from the AT Property Team based on PWA experience and any available data that can be assessed about each land area.

The risk level equates to a provision factor that is calculated based on a percentage of the escalated property value per property or land area. This is shown for the Drury area as at July 2020:

Injurious Affection Risk level	High	Med	Low	None
Full acquisition	30%	20%	10%	0
Partial acquisition	30%	20%	10%	0
Temporary use	0	0	0	0
Source:	AT Property team, July 2020, based on experience from many projects.			

Where a group of projects are assessed at an early stage for an area such as Drury, and risk assessment for individual land areas may not be practical, the medium risk rating is applied to all land areas.

Injurious Affection (IA) needs to be considered for all partial land acquisitions. This is often subjective and often agreement is not reached with the landowner, resulting in matters being determined by the Land Valuation Tribunal (LVT). Project cost estimates for Drury are based on the risk assessment, and do not include any additional factors/costs for LVT hearings.

Public Works Act costs for projects

There are various costs to be estimated for acquiring land under the PWA. It is assumed all properties will be acquired through the PWA process, with appropriate costs added for each land area to be purchased.

Under section 66 of the PWA (s66 costs), the acquiring authority reimburses owners for their reasonable costs, mainly legal and valuation but other costs which are relevant for determining the compensation payable for a property.

There is also statutory section 72 of the PWA (s72 costs) payments made to owners depending whether a land acquisition is a full or partial acquisition.

The cost assumptions are listed in the following table per property or land area, with these estimates prepared for the Drury area as at July 2020:

PWA costs (per property)	Legal costs (s66)	Residence (s72)	Ancillary costs	Total
Full acquisition	\$50k	\$45k	\$30k	\$125k
Partial acquisition	\$50k	10% * to max \$25k	\$60k	[\$110k – 135k]
Temporary use	\$15k	0	\$7k	\$22k
Source:	AT Property team, July 2020, based on experience from many projects. *10% of the escalated property cost			

These costs are inflated at the annual project inflation rate (above). Where the project information does not include a split by land acquisition, PWA, and injurious affection we have assumed that the costs would be split 64 per cent, 23.2 per cent, and 12.8 per cent respectively. These costs have been inflated at the land escalation rate (including development stage adjustment), land escalation rate (excluding development stage adjustment), and land escalation rate (including development stage adjustment) respectively.

Where a group of projects are assessed at an early stage for an area such as Drury, it may not be well defined how many full or partial land acquisitions are required. The number of properties (land areas) to acquire may be estimated for each project based on experience. This number of properties is then multiplied by the average PWA cost from the table above (\$125k) to get a PWA cost for each project.

Total property cost

A total property cost for each land acquisition required is calculated using the factors described above.

A property risk contingency is applied to the total cost for each full property or partial land area to be acquired. This acknowledges the risks of additional costs related to the need to acquire specific land from multiple owners in contiguous strips to support roading projects (Council Parks can mitigate risk by selecting an alternative property).

The property cost contingency reflects cost variations and issues that may arise during acquisition. Additional project risk contingency may be added on top to provide for risks at a project level.

The total property cost for each land lot is the sum of the elements described above:

	Total property cost – per land lot	Rate/value
Estimate	Land cost in the current year	
Scale to	Escalated land cost in the purchase year	
Add	Injurious affection costs	
Add	Public Works Act costs (inflated)	
Add	Property risk contingency	15% of the sub-total
=	Total property cost estimate	
Source:	Contingency rate: AT Property team, July 2020, based on experience	

The total property cost estimate for the land requirement for each project are then added to produce a total property cost estimate for each proposed project. These costs should be reviewed at regular intervals (see below).

Additional project risk contingencies may be applied across the total property cost estimate to recognise risks appropriately for each project.

To simplify early-stage analysis for smaller projects or projects with many small land acquisitions

around a similar date, an average property cost to acquire land in the local area (escalated to an averaged property acquisition date) can be calculated based on all factors above. For efficiency, this average rate per sqm may then be applied to estimate property costs for multiple small land lots for multiple projects with a similar project delivery year and in the local area.

Assurance for property cost

Each input into a property cost estimate that requires assessment and/or professional judgement is subject to a peer review. This is a review (internal) by another experienced PWA property professional.

An 'internal' peer review (at least a second PWA property professional within the Council Group/AT/SGA) is required for all property cost estimates that contribute to projects to be included in the Council DC policy.

In additional Council rates and other factors listed in this paper are subject to review and update to maintain appropriate rates for the current year estimates and escalation to future years.

Approval of project costs

The total property cost is added to other estimated project costs (design, consenting, construction works, contingencies, escalations) to produce a total project cost in the future. This total project cost is used as the basis for calculating DCs.

Future project costs are approved by Council for inclusion in DCs based on evidence of assurance and advice from AT. Council acknowledges that project cost estimates are based on assessment at the time and most likely will not accurately reflect the final cost of projects in the future.

Review of project cost estimates

All project cost estimates for transport project DCs are completed at a point in time (current date) and escalated to a future date. As time progresses many changes can occur in the environment, including plan changes, technical/design assumptions and project cost assumption changes.

Project cost estimates will be reviewed at intervals (and generally 3 yearly as input to the LTP/RLTP cycle), including projects planned beyond 10 years, then more frequently as project planning and business case activity advances in preparation for project delivery.

Appendix: Response to methodology reviews – cost estimation

	Recommendation from review	Response to recommendation
Default property cost rates	Deloitte: AT's draft methodology notes that standard rates and accepted industry assumptions are to be used when estimating costs. However, we understand that AT does not maintain a reference class database on project costs from its portfolio.	Documented that the standard rates depend on Council provided data for areas by urbanization stage. AT has updated ProAction fields to record all valuation information (AT and owners) and the zoning so this is captured going forward to inform cost estimates.
Default property cost rates	Deloitte: There was an overall lack of clarity for some key supporting assumptions used and supporting rationale behind some assumptions. For example, justification for the \$1,000 per square metre used as a generic property acquisition rate by AT.	The \$1000 rate was previously used by SGA as an overall rough average cost rate per sqm including PWA costs, but excluding cost escalation. This is superseded by the documented method based on Council provided default rates. The rationale for assumptions and the method for cost estimation is documented where practical, however for cost estimation some aspects are simple judgements from project design engineers and property professionals (eg amount of land required, etc)
Default project escalation rates	Deloitte: We were unclear if the transport property acquisition cost estimates for Drury included adjustment for anticipated changes in zoning over the investment horizon.	Documented that Council provides land cost and project cost escalation rates to be applied to project cost estimates as-at the current date and current zoning. Future cost estimate reviews will take into account the potential of anticipated zoning changes.
Project cost estimation timeframes	Deloitte: Cost escalation calculations need supporting timeframes, which were not fully apparent in the AT and community facilities estimates for Drury.	Documented that SGA are to provide proposed land purchase dates for each land area and project build/completion dates for each project to support cost escalation calculations.
Project cost estimation timeframes	Deloitte: Property acquisition cost inputs appeared to date from 2020 and may, therefore, be out of date.	Property cost estimates are provided for each stage of the Business case thus any cost movement is captured as the project advances through BC stages. The documented method (above) is to estimate costs for the current year. Council may consider requesting SGA to update project cost estimates if necessary.

	Recommendation from review	Response to recommendation
Assurance for project cost estimates	Deloitte: Documentation of review and assurance expectations for each stage of the cost estimation process could be further improved.	SGA has advised that peer review of cost estimates for Drury was internal to SGA. The requirements for peer reviews is documented as a required step for assessments that input to property cost estimation. The internal review is undertaken by reviewing available data supported by spot desktop estimates from a local valuer.
Accountability for project estimates	Deloitte: Accountabilities for estimate preparation were not fully apparent from the material reviewed.	Note: AT estimates are assessed by internal staff experienced with PWA acquisitions, full and partials, and are reviewed at a senior level as to the appropriateness of rates determined. If unsure, valuers' inputs to \$/m2 are obtained to support property estimates. It is noted that for these early projects, a large effort on property costs estimates are undertaken.
Frequency of project cost reviews	Deloitte: There was limited information on the frequency with which key data is reviewed and updated.	Documented that the frequency of review is no more frequent than for each LTP cycle.