InfrastructureSA

Infrastructure and land development cost comparison technical note

Greater Adelaide Regional Plan Discussion Paper

August 2023

Purpose

The purpose of this note is to provide additional information in support of the infrastructure and land development cost comparison commentary in the Greater Adelaide Regional Plan Discussion Paper (Discussion Paper).

Case Studies

The six case studies chosen by Infrastructure SA (ISA) and Planning and Land Use Services for comparison were considered to represent the most common types of development occurring in Greater Adelaide.

1. **CBD High Density** Large scale, high-dwelling density apartment buildings in Adelaide CBD. Buildings may also be mixed use. Dwellings will typically have 1-3 bedrooms.

2. **Inner Area Master Planned Medium - High Density** Large scale, low to high rise, medium to high-dwelling density master planned and developed housing developments in inner-middle ring suburbs that are within close proximity to existing infrastructure and services. Dwellings will typically have 1-3 bedrooms.

3. **Inner Area Corridor Medium Density**: Small scale, medium dwelling density housing developments on transit corridors in inner-middle ring suburbs. Dwellings will typically have 2-3 bedrooms.

4. **Inner Area Minor Infill Medium Density:** Small scale, medium dwelling density '1 into 2' developments in the inner-middle ring suburbs. Dwellings will typically have 3-4 bedrooms.

5. **Urban Area Extension (Greenfield) Master Planned Low Density:** Medium to large scale master planned greenfield developments on the urban fringes and within commuting distance of Adelaide CBD. Dwellings will typically have 3-4 bedrooms.

6. **Township Extension (Greenfield) Master Planned Low Density:** Medium to large scale master planned greenfield developments at the edge of townships and within reasonable commuting distance of Adelaide CBD. Dwellings will typically have 3-4 bedrooms.

Land development infrastructure costs

Land development infrastructure costs are borne by public, not for profit or private developers (developer) to enable a piece of land to be ready to be transferred to another entity and/or constructed on.

As identified in Infrastructure Victoria's report Infrastructure Provision in Different Development Settings (p.6), there are a range of factors that can influence the cost and delivery of land development infrastructure, such as:

- timing and staging of development and the ability to develop and share infrastructure
- land development contiguity
- degree of master planning and control over infrastructure provision
- degree of control over land
- degree of existing capacity in the network
- degree of existing demand, and in particular peak demand, in the network
- payment systems to infrastructure providers

The potential impact of these factors can be considered to fall within the presented cost range for each case study area.

Land development infrastructure cost comparison inclusions

The following capital cost inputs were considered in scope and included in the cost comparison analysis.

Civil works (including stormwater and local roads)

Includes all roads and stormwater within, and intersecting with, the development area, as well as earthworks, lot benching and retaining walls for lots. These works can represent one of the largest costs for developers.

Costs for civil works can be higher in urban area and township extension projects when compared to infill projects. This difference is primarily attributable to the need for developers to construct new roads and stormwater infrastructure in and around urban extension areas, whereas this infrastructure usually exists in established residential areas and can be accessed with reduced works and costs. Inner areas where a land use change has occurred, particularly from industrial to residential, may incur a different set of civil works and costs.

Water and wastewater

Infrastructure outside of a site boundary that includes the site water meter and the network within the development area. It may also trigger augmentation and/or upgrades to the broader distribution network. Water and wastewater infrastructure can also represent a proportionately significant cost for some urban area extension and infill developments.

Electrical

Infrastructure outside of a site boundary that includes the meter and conduits and cabling within the development area. It may also trigger upgrades to the broader distribution and transmission networks. Electrical infrastructure can also represent a proportionately significant cost for some urban area extension and infill developments.

Communications

Infrastructure to a lot that includes trenching, laying pits and conduits for running fibre or cabling.

Open space and public realm improvements

Local open space and public realm improvements, either directly provided by the developer, most likely the case for larger developments, or made as a payment to the Planning and Development Fund.

Open space can represent a proportionately significant cost for some developments.

Other - Recycled water

Infrastructure for recycled water for non-potable use – sometimes called 'purple pipe' water. This type of water is only provided in some developments and Local Government areas and can represent an additional capital cost for the developer.

Other – Consultants

Civil engineering, survey, planning, cost consultants for land development.

Land development infrastructure cost comparison exclusions

A range of costs were excluded from the land development cost comparison and would need to be added to costs to understand the total costs for developers. Operational costs were also excluded from the comparison.

Demolition and site clearance

Demolition and/or site clearance costs were excluded in the comparison because they are not applicable to all projects. Demolition works and costs are likely to be more prevalent in inner area locations and projects. Costs would need to be considered on a case-by-case basis and added to project costs.

Site variables, including environmental conditions

Site-specific variables, including environmental conditions, were excluded in the comparison because they are not applicable to all projects.

Environmental issues, in particular contamination, can represent proportionately significant costs for some developments. Contamination is more likely to be found in inner area locations and projects, particularly where there is a change in land use to residential. Costs would need to be considered on a case-by-case basis and added to projects costs.

Gas

Infrastructure outside of a site's boundary that includes the site gas meter and the pipe network within the development area. Gas is not included in all projects.

Developer costs

Financing, overheads, project management and profit/return on investment were not included in the comparison due to the wide range of variables and unknowns and would need to be considered on a case-by-case basis.

Land acquisition and disposal

Land acquisition and disposal costs were not included in the comparison due to the wide range of variables and unknowns and would need to be considered on a case-by-case basis.

Wider infrastructure cost comparison challenges

Wider costs incurred by State and Local Governments, households and other service providers were not able to be compared at this point in time due to the wide range of complexities, variables and lack of established methodologies to calculate all impacts. Capital and operational costs would need to be supported with further analysis to understand the total cost of development for all entities. Exclusions include;

- State Government transport costs, including capacity increases to road and rail infrastructure and services, such as road extensions and duplications, intersection widening, interchanges, tunnels and public transport services, to and within, urban extension and established areas.
- other State Government costs, such as new or upgraded health, education and emergency services infrastructure and services and environmental management.
- Local community infrastructure costs, such as new or upgraded sporting and recreation services, libraries and civic buildings and local road capacity increases within urban extension and infill areas.

- Household transport costs, such as number of cars owned by households, distances travelled in cars, public transport costs, monetization of travel time to places of work, etc.

- Land and housing/building construction costs, such as land, housing/building construction, finance, conveyancing, taxes, etc.

Comparison methodology and additional notes

Capital costs from comparable current or recent development projects were utilised for the land development cost comparison analysis. **Commercially sensitive information was generously, and confidentiality, provided to ISA by public and non-public entities.** Further information will not be shared in accordance with the agreements established with these entities.

Where information was not available or could not be obtained, ISA utilised the most appropriate capital costs from comparable projects or case studies to build up the cost profile of the six case studies.

Using information provided to ISA, high and low costs were developed for the case studies. These costs are represented in the cost range in the Discussion Paper. The development of high and low costs is relatively consistent with guidance in Infrastructure SA's Impact Analysis Guide (p.18).

Strategic justification level cost ranges presented in the Discussion Paper seek to represent a very high percentage of costs for projects that align with the case studies. Selecting very wide, strategic level cost ranges that also represented every single potential scenario would present cost ranges that are significantly greater, which could diminish the value of the comparison for discussion purposes.

It is acknowledged that every project is unique, and some land development costs may be higher or lower than those represented by the ranges. For example, some developments in the Adelaide CBD might incur land development costs more than the presented range or some urban extension developments might incur land development costs lower than the presented range.

It is also important to note that minor infill developments and corridor type developments could also occur in outer suburbs and townships. In those cases, costs would likely be similar to the cost ranges presented for inner area minor infill medium density development case studies.

Costs are presented in real terms (2023).

Costs were obtained during a period where Covid-19 supply chain issues continued to influence the cost of some inputs. Costs were not adjusted to account for this.

This analysis focuses on costs. Benefits could also be considered in a future analysis.

Further engagement and comments

Please engage with the engagement platforms established for the Greater Adelaide Regional Plan Discussion Paper.

Further Reading

The work of Infrastructure Victoria was referred to during the development of this work and provides additional information that might be of interest.

Infrastructure Provision in Different Development Settings - Infrastructure Victoria