PIP practice note 1 – planning assumptions

How to use this practice note

This practice note has been prepared to support in the preparation or amending of *planning assumptions* within a *priority infrastructure plan* (PIP). It supports *Statutory guideline 01/11 Priority infrastructure plans* (guideline 01/11) and should be read in conjunction with guideline 01/11, other PIP practice notes and the *Sustainable Planning Act 2009* (SPA).

As well as developing the mandatory components of a PIP, as stipulated in guideline 01/11*,* local government is responsible for determining which components of this practice note are to be included in either the PIP or as extrinsic/supporting material.

Words used in this practice note that are defined in SPA or by Part B of guideline 01/11 are italicised.

Planning assumptions

What are planning assumptions?

The *planning assumptions* are critical elements underpinning the PIP. Their purpose is to provide a logical and consistent basis for the detailed infrastructure planning within network catchments.

Planning assumptions are assumptions about the **type**, **scale**, **location** and **timing** of population and employment growth and the resulting development within a *local government area*.

Type

The type of growth refers to specific land uses such as residential or non-residential (e.g. commercial, retail, rural residential or industrial).

There is a direct relationship between the type of development and demand for infrastructure. The demand for infrastructure will vary between different land use types, based on scale and location.

Scale

The assumed scale of future development refers to the density and/or extent of development anticipated to occur throughout the *local government area*.

The land use designations and associated codes in the *planning scheme* provide the basis to determine the scale of different types of development expected in different locations.

Timing and location

An estimate of growth over time for different locations provides the basis to determine when and where infrastructure needs to be constructed to service increasing demand.

Developing planning assumptions

Assumptions about the type, scale, location and timing of future development within a *local government area* are informed by:

- population and employment growth projections

- state and local government planning documents

- local government knowledge of constraints, development trends and/or growth stimulus.

Population and employment projections

There is a direct relationship between the increase or decrease in population and employment and the type, scale, location and timing of development. As such, an analysis of existing and projected population and employment statistics is a fundamental component of determining *planning assumptions*.

The Office of Economic and Statistical Research (OESR) in Queensland Treasury provides information to assist in developing growth projections, such as existing resident populations, existing dwellings by type, occupancy rates and inter-census growth projections. Local governments should consult with OESR when preparing population and employment projections. Australian Bureau of Statistics (ABS) census data forms the basis for these projections.

Planning assumptions and land use planning

The preferred settlement pattern, represented in a *planning scheme,* establishes growth priorities for *local government areas*. The focus may be on urban consolidation, expansion of existing urban areas or new broadhectare communities. The preferred settlement pattern is informed by a number of sources including state policies, community input and local government priorities and strategies.

This preferred settlement pattern is a key consideration in the type, scale, location and timing of development and is to be accounted for during the development of *planning assumptions*.

Local knowledge of constraints and growth stimulus

The realistic development potential of a locality within the PIP is determined by local governments based on local knowledge of the real potential of *planning scheme* designations and census data. Matters which local government may consider include constraints such as physical constrains (e.g. significant vegetation, flooding etc), local development trends and/or growth stimulus.

Timeframes for planning assumptions

The priority infrastructure area designates the area which is the focus for 10 to 15 years of *trunk infrastructure* provision. However the PIP is not limited to a 15 year *trunk infrastructure* planning horizon.

Local government is encouraged to undertake long term infrastructure planning within a PIP and ideally will align PIP timeframes with other long term *planning scheme* components i.e. strategic framework.

One approach to long term infrastructure planning is to base the capacity and design of *trunk infrastructure* networks on the estimated demand when a lot or area is fully developed (*ultimate development[1]*).

However the longer the planning horizon the more uncertain assumptions and future plans become. Ensuring that *ultimate development* reflects a

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[1] Refer to definitions in *Statutory guideline 01/11 – Priority infrastructure plan*

realistic or likely development rather than theoretical potential will mean that there is less likelihood of an oversupply of *trunk infrastructure* and excessive costs associated with infrastructure provision.

Also note that growth projections are based on ABS census data and the PIP planning time periods should align with census data collection years.

How to determine planning assumptions

Determining the following information provides local government with the fundamental data to develop assumptions about the type, scale, location and timing of growth and development:

- *projection area/s*[2]—Using census data and local knowledge, identify *projection area/s* (suburb, locality, *service catchments*[1], statistical area) for the local government urban areas.

Residential development

Residential development includes residential population, both existing and projected, and information on the type and number of dwellings, impacts on the demand for infrastructure. The following data is relevant for infrastructure planning in the PIP:

- existing and projected population for each *projection area* (Table 4.2.10.1)—estimated resident population figures from OESR and ABS may be used with adjustments to account for:

    - significant holiday population

    - population growth since census data was last updated

- differences in the boundaries for the ABS collection district and the PIP *projection area/s*.

- occupancy rates—average number of persons per dwelling is required to enable estimates of the total number of new dwellings required (projected population divided by occupancy rate). Occupancy rates are specified according to dwelling type. This data can be included in Table 4.2.7.1.

- existing and projected dwelling units for each residential use type (Table 4.2.10.2)—existing dwelling units are the number of dwellings of different types (i.e. detached or attached) in the area. Projected dwelling units are the number of units required to accommodate the area's projected population at the assumed occupancy rates.

Non-residential development

The quantity and type of non-residential development impacts on demand for infrastructure. The following data is relevant for infrastructure planning in the PIP:

- use (Table 4.2.9.2)—a categorisation to convey the type and scale of employment generating activities in the *projection area/s*.

- existing and projected employment (Table 4.2.10.3)—the number of persons currently employed can be obtained from special census tables, local knowledge, research and surveys. Projections of future employment may not be precise, but should broadly indicate for each use category the employment growth likely to occur.

- conversion rate—the average number of employees per floor area for a use, the rate at which land and floorspace for each category is provided, usually expressed as square metres

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[2] Refer to definitions in *Statutory guideline 01/11 – Priority infrastructure plan*

of floorspace and/or per net developable hectare[3]. Again, this may not be precise, but indicates the area of *service catchment* and extent of *trunk infrastructure* required to service non-residential development.

- assumed growth for each type of employment related use (Table 4.2.10.4)—the employment projections and conversion rates are used to estimate the additional floor space and land (expressed in square metres and hectares) required to service the *projection area*. This estimate should align with residential projection periods. Floor space assists in determining traffic generation and other 'demands' on infrastructure. The ratio of floor area to land area varies for different use categories. It is therefore appropriate that land area associated with the projected floor space requirements should be accounted for.

Converting growth projections into demand

For medium and high growth local governments, residential and non-residential population projections alone are not detailed enough to support council decisions regarding infrastructure provision. Converting projections into demand generation provides local government with a mechanism to assess likely impacts of development on infrastructure networks and supports local government decisions.

Demand units

The demand for infrastructure is usually expressed as *demand units*[2] for specific *trunk infrastructure* networks. *Demand units* provide a standard unit of measurement to express demand on a *trunk infrastructure* network.

The following are examples of *demand units* for each infrastructure network:

- water and sewerage—demand generated per equivalent person (EP) or equivalent tenement (ET) per day

- transport—number of trips generated per day

- stormwater—impervious area per hectare

- parks and land for community facilities— number of people.

Local governments are responsible for determining *demand units* and can use records on *trunk infrastructure* use to inform their development.

Demand rates

Infrastructure demand rates (measured in *demand units*) are the rate at which a use type is expected to generate demand on a *trunk infrastructure* network.

For residential development, demand rates are usually expressed as per net developable hectare. Household size (e.g. average occupants per dwelling) is important in determining the demand rates for a residential use type. Using the average demand rate per household and the average and the assumed scale of development (e.g. Table 4.2.6.1) local government can determine the demand rate per hectare.

For example, an area of low density residential use type is expected to accommodate an average of 10 dwellings per net developable hectare (net dev ha). Where the average occupancy rate is 2.8 persons, the demand rate per dwelling can be assumed as 2.8 EPs (equivalent persons) per dwelling. To extrapolate the demand per dwelling into demand per net dev ha, the number of EPs per dwelling is multiplied by the average number of dwellings per net dev ha (2.8 x 10 = 28). The assumed demand rate is 28 EPs per net dev ha.

Each EP represents an average water use per day. This is calculated by dividing the average household

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[3] Refer to definition in *Statutory guideline 01/11 – Priority infrastructure plan* for a definition of net developable area

water use per day (e.g. 390 litres a day) by the average number of EPs per dwelling which in this example is 2.8 (390 / 2.8 = 139).

On this basis, one EP represents a consumption of 139 litres and the demand rate is 28 EPs per dev ha. Therefore the anticipated demand generated on water infrastructure by a low density residential use type is 3892 litres per day (139 litres X 28 EP) per net dev ha.

Non-residential development demand rates are usually expressed per floor area or per hectare. The number of job opportunities and the type of existing or anticipated use helps determine the demand rate for non-residential development. Using the average demand rate per use type and assumed scale of development (e.g. Table 4.2.6.2) local government can determine the demand rate for non-residential development.

Demand rates are also reflective of how communities use infrastructure. Changes in infrastructure use behaviours should be accounted for (e.g. rising cost of fuel may influence the number of trips per day) in the demand rates.

Demand rates are used as a point of reference when assessing development applications for inconsistency with the **type** and **scale** of growth. Table 4.2.11.1 outlines assumed infrastructure demand rates represented as *demand units* for each *trunk infrastructure* network.

Generation rates table

Where demand is expressed as a rate (i.e 28 EP per dev ha), it is necessary to include a second table in the PIP, a demand generation table (refer to Table 4.2.11.2). The generation rates table is a tool used to calculate the demand which a proposed development will impose on *trunk infrastructure*.

The generation rates table can include generation rates for each use type (such as commercial, industrial or residential uses) and for each type of development (such as material change of use, reconfiguration of lot or building works).

The rate calculated in accordance with the generation rate table is compared to the demand rate in the PIP to determine if a development is consistent or inconsistent.

Total demand on network or service catchment

By converting growth projections (Tables 4.2.10.1, 4.2.10.2, 4.2.10.3 and 4.2.10.3) into demand rates, local government can determine the total existing and projected demand which will be placed on a network or *service catchment*.

Understanding the total existing and future demand on *trunk infrastructure* enables local governments to plan for the provision of infrastructure to support that demand. Table 4.2.11.3.X can be manipulated to summarise the total existing and projected demand on each *trunk infrastructure* network.

Assumptions and inconsistent development

Development applications may be assessed for consistency against the PIP assumptions about the type, scale, location or timing of development. If a development application is inconsistent, local government and state infrastructure providers may impose certain additional infrastructure cost conditions of approval under SPA.

The PIP needs to express the assumptions in such a way that assessment can be conducted in a logical manner and inconsistent development can be easily identified.

For high and medium growth local governments the **type** and **scale** of development is assessed by determining anticipated demand on a network using generation rates (Table 4.2.11.2) and comparing the result with the demand rates table (Table 4.2.11.1).

For low growth local governments, projections about population, employment, land use and floor area (Table 4.2.10.1 to 4.2.10.4) can be used as an alternative unit of measure.

For **location** of development the demarcation of the *priority infrastructure area* (PIA) determines whether the proposed development is consistent or inconsistent. Those development applications outside the PIA which require *trunk infrastructure* provision are considered inconsistent with the PIP.

For **timing** of development the schedules of work supporting the *plans for trunk infrastructure* (PFTI) identify when future infrastructure will be constructed. PFTI are used to assess if development applications are consistent with the assumptions about timing.

Reviewing and amending planning assumptions

Section 628 of SPA stipulates that local governments prescribed in the *Sustainable Planning Regulation 2009* are to undertake a PIP review at least once every five years. This review process provides medium and high growth local governments and state infrastructure providers an opportunity to reassess and adjust *planning assumptions* where necessary.

Other local governments will review the PIP when required or when a new *planning scheme* is drafted.

Indicative methodology

This practice note includes an indicative methodology below to support local government in the development of *planning assumptions*. Local government have the flexibility to use all, part or an alternative to this methodology. Where an alternative methodology is used, it must clearly demonstrate how growth projections were reached and how those assumptions were converted into demand.

All text in the indicative methodology is for guidance and can be edited or deleted. Text in grey is generic and should be edited to suit the specific

requirements of each local government. Text in brackets is for guidance only and must be deleted.

In relation to formatting and numbering the indicative methodology is Queensland Planning Provision version 3 compliant. Local government can edit the formatting and numbering to align with the relevant local government planning scheme.