Shire of Serpentine Jarrahdale



20 Year Facilities Plan for the Shire's Six Bush Fire Brigades, Emergency Support Brigade and SES Unit

2022 - 2042



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1. Introduction

The Shire of Serpentine Jarrahdale is a local government district comprising a range of natural and built landscapes, varying landscape interfaces and a high risk associated with bushfire. Being outside the gazetted fire district of Perth, the Shire manages its risk of bushfire through establishing and maintaining six volunteer bushfire brigades and one volunteer emergency support brigade. It also maintains a Department of Fire and Emergency Services (DFES) established volunteer State Emergency Services unit.

The Shire builds a strong community partnership based on shared responsibility, so that the combination of highly skilled bushfire volunteers, brigades themselves, community groups and private land management by owners, provides the strategic risk management of bushfire. These capabilities are also called upon in other high-risk natural disasters, for example major storm or flood damage.

The Shire's population is rapidly growing, with its 2022 population of 36,403 growing to a predicted 68,335 by 2036 - an 87.72% increase over this 15-year period, or annual growth rate of 5.85%. To help understand this growth, the increase represents on average 600 to 700 new dwellings each year, and between 1200 to 1500 new residents each year. The planned growth for the Shire reflects the intended creation of urban villages contained by surrounding ribbons of rural residential, rural and natural landscapes. This aims to protect the unique character and feel of the Shire's settlement area - the growing urban nodes of Byford and Mundijong, the rural hamlets of Serpentine and Jarrahdale, the tamed open rural land and beyond this, the untamed natural environment and State Forest.

Over the life of this 20 Year Facilities Plan for the Shire's Six Bush Fire Brigades, Emergency Support Brigade and SES Unit (hereafter referred to as the Facilities Plan), there will be greater degrees of rural and urban interface, and thus a continuing need to ensure the bushfire brigades, emergency support brigade and SES units remain contemporary with particular emergency service infrastructure that will meet future need. Also, in the first 5 years of the Facilities Plan, there will be the establishment by DFES of the Shire's first full time Fire and Emergency Services Brigade, which will extend the gazetted fire district of Perth over the portion of the Shire's district covered by the 12 minute response time of that new brigade. That additional infrastructure has also informed the Facilities Plan.

1.1 Local Government Grants Scheme

Local Government has a primary role for the provision and maintenance of infrastructure, namely roads, footpaths, community buildings, public open spaces, sporting facilities and the full remit of recreational and leisure areas. In respect of the provision of infrastructure specific to the establishment and maintenance of emergency services, the Shire is heavily reliant on the State Government's Local Government Grants Scheme (LGGS) process. The LGGS process is one where local governments apply for operating and capital grants for each service they maintain, with the funding obtained through the Emergency Services Levy of the State Government.

These LGGS process includes grants for:

- a. Capital grants (including acquiring new emergency service appliances, vehicles and buildings);
- b. Operating grants (to fund essential costs such as running vehicles and buildings, protective equipment, volunteer insurance and operational consumables).

Thus, the LGGS is the mechanism in which to be able secure the necessary capital and operating grants specific to brigades. The LGGS process is extremely competitive, and there is no certainty from year to year especially in the capital side of the equation, which is relied upon for appliances, vehicles and buildings.

In order to ensure that the Shire can be in the optimal position to plan and justify its facility infrastructure capital grant requests, the Shire has prepared this Facilities Plan. This Facilities Plan provides an evidence-based framework to assist Council, firstly, and secondly the LGGS Panel, to be able to consider the short, medium and long term infrastructure timing and priorities for the Shire.

The Facilities Plan takes a 20-year perspective of station infrastructure, and seeks to define future infrastructure timing, need and capacity to deliver. It addresses emerging trends, the results of collaboration with the Shire's brigades, SES and DFES, and has awareness as to the changing nature of risk on the landscape.

2. Strategic Alignment

This Facilities Plan will inform the Shire's Corporate Business Plan and Long-Term Financial Plan, both of which are reviewed annually by Council. While the Facilities Plan will help inform Council's consideration of related infrastructure budgetary matters, it is at the point of setting the annual budget and Corporate Business Plan that decisions regarding the timing of projects and the allocation of funding are made. Part of the challenge associated with capital grants under the LGGS, as mentioned under Section 1, is that the LGGS process is very competitive, and there is no certainty from year to year especially on the capital side of the equation, which is relied upon for appliances, vehicles and buildings for all emergency services across the vast State of Western Australia.

The Shire's Strategic Community Plan sets a shared community vision and identifies long term objectives and priorities designed to strengthen and build on the Shire's unique identity, values and experiences. Infrastructure is a key part of this, and the associated objectives and priorities guide the Shire's policies and actions which are then linked directly to operational functions to meet the needs of the current and future population.

The Facilities Plan aligns with the Strategic Community Corporate Business Plan in the following ways:

Objective: People - A connected, thriving, active and safe community					
Outcome	Strategy				
1.1 A healthy, active, connected and inclusive community	d 1.1.1 Provide a well-planned and maintained public open space and community infrastructure				
1.3 A safe place to live	1.3.2 Support local emergency services 1.3.3 Enhance community safety				

Obje	Objective: Place -A protected and enhanced natural, rural and built environment					
Outo	come	•				Strategy
2.1 envir	A	diverse, ent	well	planned	built	2.1.1 Actively engage in the development and promotion of an effective planning framework

Objective: Progressive - A resilient organ	nisation demonstrating unified leadership
and governance	

Outcome	Strategy
4.1 A resilient, efficient and effective organisation	4.1.1 Provide efficient, effective, innovative, professional management of Shire operations to deliver the best outcome for the community within allocated resources
4.2 A strategically focused Council	4.2.2 Ensure appropriate long term strategic and operational planning is undertaken and considered when making decisions

3. Guiding Principles

The following principles guide the formulation of the Facilities Plan:

a. Infrastructure timing that meets current and future need

It is important that infrastructure timing is informed by current and future needs. This takes account of:

- Provision of safe and fit for purpose facilities across the Shire;
- Ensuring facility provision reflects the risk to resource profile;
- Maintaining facilities which are flexible and capable to adapt to changing community needs and brigade needs;
- Providing opportunities for multipurpose facilities, such as brigade, training and incident control;
- Ensuring the organisation has capacity to maintain all facility infrastructure, through contemporary asset management and capital investment;
- Ensuring the organisation does not attempt to deliver infrastructure projects which cannot be funded by the LGGS;
- Ensuring land assets are considered for their options in meeting the Facilities Plan recommended timelines;
- Ensuring a focus to provide a central combined Mundijong Bushfire Brigade / SES / Level 3 incident control centre / recovery centre within Mundijong, with this multi million dollar facility to form the basis of advocacy for the next State and Federal Election cycles;
- Ensuring station facilities reflect the Work Health and Safety audit findings undertaken.

b. Infrastructure provision that enhances response capability and which is integrated, safe and fit for purpose

Facilities need to be able to maintain the capability to respond to potential threats, especially if the threat profile changes. Facilities need to also be able to work seamlessly with other emergency agencies, that may need to respond to the same (or a different threat) at the same time. Some of the requirements include:

- Safe washdown facilities;
- Consideration given to future fleet sizes, specifically relating to roller door heights, bay spacings etc;
- Consideration for accommodating high season appliances;
- Up-to-date IT connectivity and smart infrastructure;
- Incident Control Centre capability. For example, the Shire has identified Oakford Station for a Level 2 Incident Control Centre, with capacity to evolve to Level 3;
- Decontamination areas to allow for cleaning of PPE;
- Exhaust extractors to remove diesel fumes;
- Hardstand area and lighting for training;
- All facilities being a safe and accessible environment for the diverse range of people who will be using them;
- Aerial support locations;
- Secure facilities.

c. Infrastructure which exhibits environmentally sustainable design and energy efficiency

Facilities should consider energy efficient and environmentally sustainable design principles. There is opportunity to especially utilise natural light to help flood internal areas of the large appliance bays, to aid in light and safety around the appliance areas. Other opportunities to focus on include:

- Effective building orientation, such as communal and meeting areas placed with a northern aspect;
- North facing appliance bay openings;
- Solar PV collectors;
- Screening of west facing openings, using external shading or shutters to provide filtered light from the hot western sun;
- Adjustable internal window coverings, and operable windows, to help moderate internal temperatures;
- Effective cross ventilation;
- Light external colours;
- Energy efficient lighting, including the use of occupancy sensors and lux level sensors;
- LED lighting technology.
- Mechanical heating, cooling and ventilation (HVAC) equipment, settings and sizing integrated with overall passive design strategy;
- Solar PV/battery storage options to be considered.

d. Safety

Providing and maintaining safe operating facilities is of primary importance. In preparing for the 2022 Work Health and Safety Regulatory changes, the Shire proactively engaged an audit of all brigade facilities, with this undertaken by LGIS. As reported to the 28 February 2022 Audit Risk and Governance Committee, and subsequently Council at its 21 March 2022 Meeting, this audit identified a range of actions to be addressed at the Shire's bushfire brigade facilities.

There is a large amount of improvements identified, with a range of priorities associated. Officers undertook an assessment of actions, in order to come up with a ranking given not everything may be funded or be possible from the resources the Shire has to implement the range of capital works. Several the items also pertain to fundamental facility management issues, like the limited size of facilities which prevent dedicated changing areas, storage areas, etc. The highest risk items included the following:

Byford

- Flammable goods, including aerosols, 9 kg LPG cylinder and flammable liquids were not stored in appropriate storage areas. Flammable aerosols should be stored in a well-ventilated cage, LPG cylinders in a well-ventilated outdoor enclosure and flammable liquids in a dedicated flammable liquid storage cabinet.
- There was a "Pilot K25" air receiver present. The air receiver is a pressure vessel categorized as Hazard Level 'C'. Pressure vessels of categorised hazard level A, B or C are required to be registered with WorkSafe WA. The plant registration certificate must be displayed adjacent to the plant item and the plant registration number marked upon it. The plant item must be subject to regular inspections by a competent person and a service logbook should be maintained.

- The mezzanine floor is an area of concern. It displays a sign indicating it is load rated as 1.8T, but it was unclear who determined this load rating, how it was determined and how weight limit compliance is monitored. The means of access and egress appeared unclear, but may be via ladder access. Although not accessed, the mezzanine floor appeared cluttered, including with items that do not appear VBFB related (such as footballs, pool noodles and various other sporting gear). (This has been prevented from use until rectified).
- There was an adjacent "Kingchrome" hoist which appeared intended for use in raising and lowering objects to the mezzanine floor. No working load limit (WLL) was readily observable on this item of plant and it is unclear if it all components were designed and installed by a competent person, such as an engineer. It should be verified that all manufacturer installation instructions have been complied with, including that spring washers have been fitted, and that the attachment to the structural support is appropriate.
- If slinging techniques are utilised in conjunction with this plant item, then a high-risk work licence (Dogging) would be required to be held. (This has been prevented from use until rectified).
- A ladder was observed to be present with markings present indicating it is intended for domestic' use (i.e. at a private dwelling for non-commercial purposes). Ladders used in workplace settings must be compliant with the relevant Australian Standard, in this instance AS/NZS 1892.1, which includes the use of ladders with an 'industrial', rather than 'domestic' rating.
- The facility does not have ladder access points fitted to allow access to the external roof area. The roof area does not appear to have falls restraint anchor points fitted. Safe access and egress to roof areas may be required in order to service and maintain equipment such as air conditioning or antennas.

Oakford

- A second, larger, generator was observed to be present in a caged area outside of the facility. The adjacent electrical installation appeared to be missing ingress protection components and had deteriorating black tape present over a power point. It is recommended that the reason for the presence of the tape be determined and any required remedial actions be undertaken by a qualified electrical contractor.
- The facility had a "Airmac T17" 70 Litre air receiver present. The compliance plate does not display the hazard level assigned to the air receiver. As pressure vessels with an assigned hazard level of A, B or C are required to be registered with WorkSafe WA, the manufacturer/ supplier should be consulted, and the hazard level determined.
- A sack trolley was observed onsite. Caution should be taken should the tyres on the trolley require inflating. These pneumatic tyres are mounted on split rims, which may separate and cause serious injury should they be overinflated such as may rapidly occur if the large air compressor is used to inflate the tyres.
- The facility has a 'collar tank' hoist present. This hoist does not display a WLL, appears to be homemade and constructed with non-load rated components. The main hoist wire appears rusted and deteriorating where it connects to the top of the lifting frame. It is recommended that any lifting equipment be designed and

manufactured by a competent engineer using suitably load rated components throughout and the WLL clearly marked on the equipment. The lifting equipment should be subject to ongoing serviceability inspections at such intervals as are recommended by the manufacturer. (This has been prevented from use until rectified).

- An emergency generator (ABLE BGE6500) was observed to be present within the facility and was located within impact protection bollards, indicating that it is likely used in situ. The generator displays a "Caution" label which states "Do not use indoors due to danger of carbon monoxide poisoning". It should be ensured that the generator is only used strictly in accordance with manufacturer instructions. (This has already had an external exhaust installed).
- The facility did not appear to have roof access points or falls restraint anchorages fitted. Some gutters were observed to have debris present.

Mundijong

- An engine lifting type crane was observed to be present. This item of lifting equipment did not display a WLL.
- Several fire extinguishers were observed to be mounted at excessive height, which would increase the difficulty of deployment, especially for persons of smaller stature. AS 2444 states that portable fire extinguishers shall be mounted with a maximum height to top of handle of 1200mm. (Variance is allowed only where there is a possibility of dislodgement and then only where ready accessibility is maintained).
- There is a mezzanine floor area present which appears to be used to at least some extent for storage of various items. It is not apparent that the mezzanine area is suitably load rated or intended for use as a storage area. The mezzanine floor has no evident means of safe access or egress and is also lacking in edge protection including toe board.
- Electrical wiring is visible and would be accessible from within the mezzanine area. (This has been prevented from use until rectified).
- There is an AKKO AT35 100 litre air receiver present. The air receiver is a pressure vessel categorized as Hazard Level 'C'. Pressure vessels of categorised hazard level A, B or C are required to be registered with WorkSafe WA. The plant registration certificate must be displayed adjacent to the plant item and the plant registration number marked upon it.
- The plant item must be subject to regular inspections by a competent person and a service logbook should be maintained.
- There were several 9kg LPG cylinders observed to be stored inside and in the immediate vicinity of a potential ignition source (air compressor motor). Gas cylinders should be stored in a well-ventilated area away from potential ignition sources.
- The facility has a 'collar tank' hoist present. This hoist does not display a WLL, appears to be homemade and constructed with non-load rated components. It is recommended that any lifting equipment be designed and manufactured by a competent engineer using suitably load rated components throughout and the WLL clearly marked on the equipment. The lifting equipment should be subject to ongoing

serviceability inspections at such intervals as are recommended by the manufacturer. (This has been prevented from use until rectified).

• The facility does not appear to have any roof access point or falls restraint anchorages installed.

Serpentine

- A windmill frame located adjacent to the front of the facility has been modified to be a lifting device. The modification appears to be homemade and appears to be intended to suspend hoses. It does not appear that load rated components have been used in the modification of the windmill frame construction. It is unsure if any engineering assessment has been undertaken to determine the impact of the modification upon the structure as it does not display a WLL rating. (This has been prevented from use until rectified).
- There were two 9kg LPG cylinders observed to be stored inside and in the immediate vicinity of a potential ignition source (air compressor motor). Another 9kg LPG cylinder was stored on adjacent shelving. Gas cylinders should be stored in a well-ventilated area away from potential ignition sources.
- A WestAir WE12 air receiver was observed to be present. As the compliance plate was not readily visible, the manufacturer should be contacted in order to determine the assigned hazard level. Pressure vessels with a hazard level of A, B or C are required to be registered with WorkSafe WA.

Keysbrook

- A "FastAir 200" air receiver was observed to be present. As the compliance plate was not readily visible, the manufacturer should be contacted in order to determine the assigned hazard level. Pressure vessels with a hazard level of A, B or C are required to be registered with WorkSafe WA.
- The air receiver was fitted with a tyre inflation fitting and a split rim light vehicle wheel assembly was observed in the vicinity. While it is uncertain if tyre changing activities are undertaken at the site, it is recommended that tyre changing activities are only undertaken by approved service providers. This is especially important when the inherent hazards associated with split rim assemblies are considered.

Jarrahdale

- A designated emergency exit door was observed to have manually operated bolts fitted to top and bottom. Emergency exit doors should be able to be opened by a single downwards motion of a handle. This could be achieved through the fitting of a 'push bar' to the door which would disengage the bolts when activated.
- A "Pilot Air" K25L18 air receiver was observed to be present. The air receiver is a pressure vessel categorized as Hazard Level 'C'. Pressure vessels of categorised hazard level A, B or C are required to be registered with WorkSafe WA. The plant registration certificate must be displayed adjacent to the plant item and the plant registration number marked upon it. The plant item must be subject to regular inspections by a competent person and a service logbook should be maintained.
- There is a mezzanine floor area present which appears to be used to at least some extent for storage of various items. It is not apparent that the mezzanine area is

suitably load rated or intended for use as a storage area. The mezzanine floor has no evident means of safe access or egress and is also lacking in edge protection including toe board. (This has been prevented from use until rectified)

• No designated roof access points or falls restraint anchorages were observed to be present.

Officers focussed the 2022/23 capital works LGGS request to address these highest priority actions.

e. Infrastructure which is responsive over time

One of the most important aspects of any facility is the ability to adapt to the changing requirements of the different brigades as they grow to meet the challenges of an increasing urban population. This will need to focus on:

- Size of premises;
- Buildings being built and/or renewed with a view to accommodating future appliance needs, or being built to enable easy alteration as appliance characteristics change;
- Buildings that can adapt internally to accommodate the increased number and variety of people and functions that will be required;

f. Infrastructure that addresses asset management principles that ensure an appropriate balance between infrastructure full lifecycle cost and benefit

All facilities provided through the Facilities Plan should consider the asset lifecycle of the facility, as well as initial capital build cost. All infrastructure provided should be assessed and recorded in the relevant Asset Management Plan prepared by the Shire.

Planning and scheduling of any capital upgrade and new projects must be undertaken to deliver the defined level of service in the most efficient manner. This includes considerations for:

- Accurate project scoping to identify:
 - The service delivery 'deficiency', present risk and required timeline for delivery of the upgrade/new asset;
 - The project objectives to rectify the deficiency including value management for major projects;
 - The range of options, estimated capital and life cycle costs for each of the options that could address the service deficiency;
 - Management of risks associated with alternative options;
 - Evaluation of options against criteria adopted;
 - The best option to be included in capital upgrade/new programs.
- Effective project management activities obtaining best value for resources used;
- Alternative and clever ideas to solve existing issues being considered;
- Facilities management strategies needing to be considered as part of the initial scoping of the design:
- Decisions regarding facilities based on a balance between ultimate vs immediate need.

g. Infrastructure that is timed and scoped using opportunities for collaboration and involvement of volunteers

The facilities will be manned by a diverse range of people, including the full range of volunteers. The needs of this diversity is needing to be considered, especially in attracting new volunteers to brigades. Engaging early with brigade volunteers enables input to be considered, and should include the following steps:

- Working groups to be in place for station builds;
- Enough secure parking should be provided to allow volunteer to get to stations in their own vehicles;
- Facilities should be provided that will allow volunteers to safely store equipment that they need on-site;
- Training rooms should allow presenters to provide on-site training and for them to have sufficient equipment to provide material on-site;
- All brigade facilities should be accessible to the Shire's Emergency Services, to allow coordination of activities.

h. Infrastructure that meets changing risk profile

The growth rate of the Shire exceeds 5%, with more than 600 dwellings per year being completed with the Shire. This rate of new dwelling development, coupled with the rate of industrial, commercial and civic buildings being developed, creates a risk profile that drives the need to consider emergency service response capabilities. As part of this, an advocacy effort has been underway by the Shire to secure a commitment to establish a career fire station facility, that can particularly address the risk associated with structural fire capability response in Byford and Mundijong, serious crash response capability and industrial/commercial response capability.

The Shire is becoming increasingly connected to the metropolitan region, and has seen commitments to undertake development of major new infrastructure and projects including:

- Industrial parks at West Mundijong and Cardup, including designated intermodal facility at West Mundijong;
- Tonkin Highway extension to South Western Highway (Mundijong);
- Byford Metronet Project;
- New commercial developments shaping the Byford Activity Centre;
- New Byford Health Hub;
- Future Anketell and Thomas Road Freight Highway link between Tonkin Highway and Westport.

As a result of this advocacy, a career fire station facility has been committed to for the Shire, to be located within Byford. This will change the gazetted fire district over parts of the Shire which will be accessed within a 12-minute window from the final chosen station location.

This will also influence the future operations of a number of bushfire brigade stations, such that they become very focussed on managing the rural urban interface areas as both Byford and Mundijong's growth continues to emerge. This is shown in the following image of the Shire, using the case study areas of Darling Downs, Byford and Mundijong:



i. Infrastructure that keeps pace of growth and change within the Shire

It is important to recognise that Serpentine Jarrahdale is, and will remain for the foreseeable future, one of the fastest growing local governments in Australia. Adapting and expanding to meet this change in population growth, will be complicated by the changing requirements to how population growth takes place across the landscape. Whereas most of the growth will take place within the Byford and Mundijong areas, these areas comprise large rural urban interface and thus are not immune from the risk of bushfire, merely due to their urban nature.

The Shire's now adopted Local Planning Strategy depicts the intended growing urban and peri-urban forms of Byford, Mundijong and Serpentine. What is also revealed is the intended interface of rural and natural landscape that envelops these areas, and which provide a growing threat as the interface comes to be developed over time. Of course, the historic timber town of Jarrahdale also remains under high threat as a settlement, however further development potential in that townsite is low.



4. Current Situation

There are six bushfire brigades with their own facilities currently operating within the Shire. Also located within Mundijong is the SES Service, and the Incident Support Group Brigade. These are provided following:

a. Byford Bushfire Brigade

- 16 Clara Street, Byford WA 6122
- Byford Bushfire Brigade Captain: Jess Gibson



- b. Jarrahdale Bushfire Brigade
- Munro Street, Jarrahdale WA 6124
- Jarrahdale Bushfire Brigade Captain: Sarah Davis



- c. Keysbrook Bushfire Brigade
- Elliot Road, Keysbrook 6126 WA
- Keysbrook Bushfire Brigade Captain: Chris Burgess



d. Mundijong Bushfire Brigade, Emergency Support Brigade and State Emergency Services

- Cockram Street, Mundijong WA 6123
- Mundijong Bushfire Brigade Captain: Jason White
- Emergency Support Brigade Captain: David Richer
- State Emergency Services Unit Manager: Martin Seward



e. Oakford Bushfire Brigade

- 1099 Nicholson Road, Oakford WA 6121
- Oakford Bushfire Brigade Captain: Mike Ross



- Serpentine Bushfire Brigade f.
- •
- 1504 Karnup Road, Serpentine Serpentine Bushfire Brigade Captain: Scott Jones



The location of the bushfire brigades is indicated on the following map:



These provide a spatial response capability to the threat of bushfire, within the Shire. In terms of location, and as evidenced through the various aerial photos, the stations range from relatively remote locations, to those within built up urban locations. This context informs operational and layout considerations of the facilities, together with the compact nature of most of the sites allocated to the station facilities.

The land tenure of the Facilities Plan recognises that, in a number of cases, there is limited opportunity to physically expand/enlarge buildings. There are also future changes that need to be considered, both in respect of security of tenure of each facility (for example Oakford) and the broader planning framework and its strategic intent (for example the Byford activity centre and station precinct which covers the current location of Byford). From a land tenure viewpoint, the Facilities Plan recommends an approach to future development as follows:

Station	Recommendation
Byford	No capacity to enlarge land tenure. Need to approach facility improvement via functional improvement and layout on existing site. This will provide for an immediate short-term improvement to the facility, providing acceptable utility until 2030. Beyond 2030, there is a need to plan for site
	 relocation, cognisant of: the continuing urban development of the new Byford activity centre and station precinct (which the current site is located within) and;

Station	Recommendation		
	- the changing nature of the rural urban interface of Byford.		
	2030 will also coincide with the first five years of the Byford Career Fire Station operating. Reviewing in the lead up to 2030 will inform how coexistence can be planned for and optimised, given the rural urban interface and bushfire risk remaining on the landscape of Byford.		
Jarrahdale	Limited capacity exists to enlarge the site, due to the presence of important remnant vegetation and nearby located community facilities.		
	Need to approach facility improvement via functional improvement and layout on existing site.		
Keysbrook	New facility co-located with community facility.		
	Limited immediate need for expansion, therefore approach facility improvement via functional improvement and layout on existing site. However, by 2030 risk assessment will be needed to determine whether Keysbrook evolves from its current single appliance brigade function (potentially to a dual appliance facility). This may impact facility design but not land tenure given the available space on the current site.		
Mundijong	Facility demands forecast to exceed both facility and site capacity. Centrepoint of Shire, and combined with SES and current Incident Support Brigade.		
	Need to approach facility improvement via new site.		
Oakford	Insecurity of tenure for facility, creating high priority to address.		
	Need to approach facility improvement via new site.		
Serpentine	No capacity to enlarge land tenure.		
	Need to approach facility improvement via functional improvement and layout on existing site.		

5. Emerging Trends

5.1 Population Trends

The table below shows the projected population growth of the various areas in the Shire. It also shows percentage increases in population expected in these areas, using five yearly increments to help position this growth trend versus the 20-year timeframe of the Facilities Plan. These sub areas are considered in greater detail in the tables following.

Shire of Serpentine Jarrahdale	Forecast year Change betwee 2016 and 20					e between 6 and 2036	
Area	2016≑	2021\$	2026≑	2031\$	2036\$	Total change≑	Avg. annual change≑
Shire of Serpentine-Jarrahdale	27,654	36,403	46,995	57,785	68,335	+40,681	+4.63
Byford area	15,375	21,519	29,055	33,574	35,399	+20,024	+4.26
Cardup area	1,849	2,038	2,006	1,988	1,979	+130	+0.34
Darling Downs area	2,859	3,356	3,618	3,770	3,722	+863	+1.33
Hopeland - Keysbrook area	516	546	578	608	636	+120	+1.05
Jarrahdale area	2,440	2,474	2,462	2,483	2,524	+84	+0.17
Mundijong area	1,979	3,680	6,398	12,380	20,961	+18,982	+12.52
Oakford - Oldbury area	703	722	757	792	830	+127	+0.83
Serpentine area	1,933	2,068	2,122	2,190	2,284	+351	+0.84

a. Byford population growth

Locality	2020	2036	2050	Population
	Population	Population	Population	Change
	(Forecast ID)	(Forecast ID)	(Calculated)	(2020 to 2050)
Byford	20,107	35,399	48,780	142.60%

b. Mundijong population growth

Locality	2020	2036	2050	Population
	Population	Population	Population	Change
	(Forecast ID)	(Forecast ID)	(Calculated)	(2020 to 2050)
Mundijong	3,331	20,961	36,387	992.38%

c. Serpentine population growth

Locality	2020	2036	2050	Population
	Population	Population	Population	Change
	(Forecast ID)	(Forecast ID)	(Calculated)	(2020 to 2050)
Serpentine	2,054	2,284	2,485	21.00%

d. Oakford population growth

Locality	2020 Population	2036 Population	2050 Population	Population Change
	(Forecast ID)	(Forecast ID)	(Calculated)	(2020 to 2050)
Oakford - Oldbury	707	830	938	32.93%

e. Jarrahdale population growth

Locality	2020	2036	2050	Population
	Population	Population	Population	Change
	(Forecast ID)	(Forecast ID)	(Calculated)	(2020 to 2050)
Jarrahdale	2,474	2,524	2,568	3.79%

f. Hopeland / Keysbrook population growth

Locality	2020 Population	2036 Population	2050 Population	Population Change
	(Forecast ID)	(Forecast ID)	(Calculated)	(2020 to 2050)
Hopeland - Keysbrook	541	636	719	32.93%

5.2 Callout Trends

The rural landscape has generally endured a relatively stable feature, comprising bushfire incidents of varying sizes. Analysis conducted since 2000 showed most brigades having consistent trends in respect of large and small bushfires, with the exception however being Byford given the significant change it endured (and continues to endure) over this time.

What these reveal is that, as a response area changes in its context (for example from rural to urban), or does not change (for example remains rural), this impacts the nature of call out trends. These trends have also informed the previously mentioned advocacy for a career fire

station, giving the data that revealed the rising risk profile associated with structure fire and other complex fire incidents in Byford.

These are illustrated following:





The commitment of the career fire station, will address the number of incidents for first response specific to structure fire. However, local brigades will still play an important support role, for example in the combating perimeter, bulk water supply provision, and the like.

5.3 Brigade Input and Officer Analysis

As part of developing the Facilities Plan an initial workshop took place with Brigades Captains and SES Manager. The purpose of this was to invite input to inform the trends that brigades see as important to facility capability in the future.

Based on this initial workshop, Officer analysis and research formed the Facilities Plan with consideration as to both land tenure and operational considerations for the future. The Draft Facilities Plan was presented to the Bushfire Advisory Committee (BFAC) Meeting held on 21 April 2022. BFAC discussed the Facilities Plan, and requested briefing of each brigade / unit to enable further consideration. These briefings took place during April and May 2022.

Key brigade input and officer analysis is represented following, and has helped shape the recommended Facilities Plan considerations:

- a. Oakford The Oakford Facility does not have secure tenure, which has impacted capital improvements to the facility and the ability to attract and retain volunteer members. The brigade and Shire have worked collaboratively with State Government agencies to secure a new, permanent location for the brigade, being a 2ha portion of land on Pony Place, Oakford. The key priority for this brigade, and also recognised by this Facilities Plan, is to now secure delivery of the new brigade facility, being a four-appliance bay level 2 incident control centre facility. Consistent with the current infrastructure at the leasehold site, the new facility will also include a training area (hardstand area under lights), and capacity to accommodate the high season appliance for the Shire. The facility is also considered for co-location with the Emergency Support Brigade and its Incident Control Vehicle. The current brigade includes a 9.2 bulk water carrier, and which is the second such carrier for the Shire (the other being a 12.2 for Mundijong Bushfire Brigade). The Facilities Plan recommends to DFES that the Oakford 9.2 be supported for retention and appropriate appliance renewal (when due) for the following reasons:
 - The Tonkin Highway extension will see this controlled access highway create a new north south infrastructure border within the Shire. This will have only planned east west access at four main points; Thomas Road, Orton Road, Bishop Road and Mundijong Road. This reduction in east west permeability across the bushfire prone landscape of Oakford means greater risk to resource planning is needed, with this equating to both high season appliance and bulk water carrier fleet being located at the new Oakford Station;
 - The future Anketell Road and Thomas Road freight freeway will increase this east west infrastructure border within the Shire, which impacts the degree to which response occurs to incidents either side of this infrastructure within Oakford and Darling Downs. Similar to the affect that Tonkin Highway will have, reduced north south permeability for Oakford means greater risk to resource planning, equating to both high season appliance and bulk water carrier fleet within Oakford.

The relocation of the Emergency Support Brigade and Incident Control Vehicle from the current Mundijong brigade facility, will also provide some short-term capacity relief for the Mundijong facility.

- b. Mundijong The Mundijong Facility is shared between Mundijong Bushfire Brigade, the Mundijong SES and the Shire's Emergency Support Brigade. It has reached maximum capacity, and needs to be considered for medium term renewal. A new facility is inspired to become an Emergency Services styled HQ for the Shire, comprising Mundijong Bushfire Brigade; Mundijong SES and Level 3 Incident Control Centre. This is a building of significance, with case studies including the Cockburn Volunteer Emergency Services Facility, located on Buckley Street, Cockburn Central. This will require significant external funding sources, in order to realise the potential for Emergency Services HQ. Shire owned land has been identified for the project, with the land being next door to the new Mundijong Police Station on Mundijong Road. The Facilities Plan recognises this medium-term potential, but also that it will need to form the focus of a strong advocacy campaign in coming election cycles in order to realise on the vision. This would be modelled upon a central command and control space, with two separate three bay wings forming a cross axial plan form.
- c. Byford The Byford Facility has faced an interesting period of transition. As evidenced by the incident analysis, there has been some reduction in large and small traditional bushfire incidents, with increases in structure fires. The latter is not something that bushfire brigades are equipped to manage, insofar that structure fires pose a range of hazardous risks and require extensive additional training and capability equipment in respect of breathing apparatus. With the commitment to deliver the career fire station for the Shire by 2025, Byford Brigade's future will see it take a support (rather than lead) role in respect of structure fire incidents, thus pivoting to address the rural urban interface, especially east but in the longer term south of the town.

The 2022/23 Budget Papers for the State Government show the planned development of the \$12.5m career fire station as follows:

				Fire a	nd Emergen	cy Services	- continued
	Estimated Total Cost	Estimated Expenditure	2021-22 Estimated	2022-23 Budget	2023-24 Outyear	2024-25 Outyear	2025-26 Outyear
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
WORKS IN PROGRESS							
COVID-19 Response							
Land and Building Works - Volunteer Fire and Rescue							
Service (VERS)/volunteer Fire and Emergency	7 000	2 257	1 950	2 742	1 000		
Other Works in Progress	7,000	2,207	1,000	3,743	1,000	-	-
Intensible Asset Development	24 137	2 /01	1 454	2 611	5 008	0 133	4 804
Land and Building Works	24,107	2,451	1,404	2,011	3,030	3,155	4,004
Bushfire Centre of Excellence	13 815	13 513	478	302	-	-	
Career Fire Rescue Service (CERS) Cockburn Fire	10,010	10,010	410	002			
Station	10 858	10 718	223	140	-		
CERS Kensington Fire Station	7,752	7.441	69	311	-	-	
Facility Modifications	55,612	33,063	8.225	10.418	3,162	4,485	4,484
Koolinup Emergency Service Centre in Collie	12.881	12,107	3,580	774	-	-	-
VFRS/VFES Upgrade and Replacement Program	22,185	4,277	1,500	6,519	2,665	1,362	1,362
Plant and Equipment Works - Equipment Replacement		-					
Program	29,082	17,682	2,635	2,400	2,000	2,000	2,000
Vehicle Programs							
Primary Fire and Emergency Fleet	122,588	38,633	14,209	13,184	14,628	23,878	32,265
Secondary Fire and Emergency Fleet	7,277	1,221	935	1,025	1,027	1,918	2,086
NEW WORKS							
Land and Building Works							
CFRS North Coastal Metropolitan Fire Station	2,500	-	-	2,500	-	-	-
CFRS South East Metropolitan Fire Station.	12,500	-	-	2,000	1,600	8,900	-
Plant and Equipment Works - Fixed Repeater Tower							
(Esperance)	355	-	-	355	-	-	-
Total Cost of Asset Investment Program	328,542	143,403	35,158	46,282	31,180	51,676	47,001

(pg 467 - <u>https://www.ourstatebudget.wa.gov.au/2022-23/budget-papers/bp2/2022-</u>23-wa-state-budget-bp2-vol2.pdf)

With a commencement date of 2025 for the career fire station, it is likely that in the short-term, the current Byford Bushfire Brigade Facility remains suitable particularly considering the <u>current</u> rural urban interface and accessibility by members. In the longer term however, the rural urban interface will shift further southward, as well as the Byford station precinct and activity centre will start to intensify the density and variety of land uses surrounding the current location of the Byford bushfire brigade.



Thus, for Byford, there are essentially two important actions - one dealing with the short term, the other planning for the medium and long term.

In respect of the short term, there is a need to approach facility improvement via functional improvement and layout on the existing site. This will provide for an immediate short-term improvement to the facility, providing acceptable utility until 2030. Beyond 2030, there is a need to plan for site relocation, cognisant of:

- the continuing urban development of the new Byford activity centre and station precinct (which the current site is located within) and;
- the changing nature of the rural urban interface of Byford.

2030 will also coincide with the first five years of the Byford Career Fire Station operating. Reviewing in the lead up to 2030 will inform how coexistence can be planned for and optimised, given the rural urban interface and bushfire risk remaining on the landscape of Byford.

The short term works address the following:

- The lack of changeroom facilities;
- Levelling of floors;
- Roller door improvement;
- Improved lighting especially for brigade members parking on the verge surrounding the station, to improve security;
- The lack of lockers, resulting in PPC being stored in limited space adjacent to the fire response vehicles;
- The light tanker parking arrangement, which encroached into the training room;
- The proximity of fire response vehicles to roller doors, restricting movement around the vehicles;
- The lack of storage areas.

The longer-term consideration will be specific to:

- The most appropriate location for the Byford brigade;
- The most appropriate design and infrastructure to support the risk profile.
- d. **Serpentine** Serpentine, like Byford, provides challenges in respect of managing space, providing for storage and safe washdown practices. The location of the facility on Karnup Road provides excellent east west and north south access, but based on the current facility size needs enlargement if it is to cater for continued growth of the brigade, and growth in local incidents. The brigade has an excellent membership across both men and women; however this is not reflected in a facility that provides the necessary changerooms and rest rooms for the brigade. As supported by the recent facility audit, both space for storage and space for change room facilities

requires optimisation of the facility on the current site, and exploring opportunities to reorganise and renew to achieve these outcomes. This includes addressing the following:

- The lack of changerooms;
- Inadequate shower facilities;
- No separation between dirty and clean operational areas;
- No Laundry or PPC cleaning or maintenance area.
- e. **Keysbrook** Keysbrook Bushfire Brigade specified a desire for a change in appliance, from a light tanker to a 2.4 rural tanker. This will require modifications to the existing facility in order to accommodate the larger vehicle. This is considered to be minor works and capable of delivery. By 2030 risk assessment will be needed to determine whether Keysbrook evolves from its current single appliance brigade function (potentially to a dual appliance facility). This may impact facility design but not land tenure given the available space on the current site.
- f. **Jarrahdale** Optimisation of the current brigade facility will enable a continued and effective facility to support the brigade.

6. The 20 Year Plan

As with any 20-year plan, the key decision points about staging and priority need to be rigorous. These decisions will inform a variety future actions and considerations, and the process of arriving at priorities is ultimately informed by the preceding analysis that has occurred, stakeholder input and alignment against the strategic framework. The strategic framework particularly considers the Shire's Long Term Financial Plan, Workforce Plan and Strategic Community Plan.

The population growth statistics and emerging trends were analysed, in order to understand these forecast factors and what impact this would have on prioritisation. Officers then also analysed the current state of the facility, informed by the recent facility audit, to then help define what short, medium and long-term facility improvement would be needed and how best to plan for this.

The Facilities Plan has thus, arrived at the following strategic priority list and recommended approaches:

Priority 1: Oakford Bushfire Brigade Facility including the Emergency Support Group Brigade NEW

Location	Lot 800 (DP 419749) Pony Place, Oakford
Project Delivery Target	2022 to 2024
Project prerequisites	Land creation (due end of 2021/22 FY)
	LGGS funding
	Shire funding
Estimated cost	\$2.445m (LGGS \$2.095m and Shire \$0.35)
Status of LGGS funding	\$1.05m self-supporting loan offer
	Needs to be increased to \$2.095m - not yet awarded
Status of Shire funding	Full amount held in reserve
Project brief	To build a 4-bay bushfire station, not

	exceeding a total cost of \$3.1m, with this cost providing:
	- 900sqm gross floor area;
	 Access, carparking and external training area with suitable illumination for training;
	- Site works and site services;
	- Design and construction contingency;
	- Headworks and statutory charges;
	- Building Act compliance;
	- Professional fees;
	- Escalation allowance.
Benefits realisation	Secure tenure Oakford Bushfire Brigade
	Co-located with the Emergency Support Group Brigade
	Accommodation of high season appliance
	Permanent bulk water tanker

Priority 2: Byford Bushfire Brigade Facility RENEW

Location	16 Clara Street, Byford
	CENT D0 TREET 16 CLARA\STREET BYFORD
Project Delivery Target	2022 to 2024 (short term)
	2030 to 2032 (long term)
Project prerequisites	LGGS funding

	2030 review
	Shire funding
Estimated cost	Short term - \$0.326m (LGGS \$0.326m)
	Long term - Subject to review to determine location and infrastructure solution needs
Status of LGGS funding	Short term - Applied for 2022/23 but not yet awarded
	Long term - Subject to review to determine location and infrastructure solution needs
Status of Shire funding	Short term - Not required
	Long term - Subject to review to determine location and infrastructure solution needs
Project brief	Short term - To undertake asset renewal of the Byford Brigade Facility, not exceeding a total cost of \$0.326m, to address the facility audit recommendations as follows:
	 Relocation of the Shire Bus to the northern side of the building;
	 Extension of the existing building out to the edge of the building envelope to create a new Engine Bay for the 3.4 Urban Tanker and storage area;
	 Removal of the external wall between the old and new Engine Bays;
	 Construction of a new changeroom and toilet/shower room on the northern side of the building;
	- Levelling of floors;
	- Roller door improvement;
	- Improved lighting especially for brigade members parking on the verge surrounding the station, to improve security.
	Long term - before 2030, undertake review to determine:
	- Ultimate rural urban interface for Byford (taking account of planning investigation, urban investigation and urban expansion

	areas); - Operational changes associated with the career fire station;
	 The continued threat of bushfire on the surrounding landscape;
	 In light of this, recommended location and facility typology for the Byford Bushfire Brigade.
Benefits realisation	Short term - Renewal of facility which addresses facility audit;
	Long term - Facility strategically located to match risk profile in light of likely influence of the career fire station, and also to facilitate planning outcomes for the Byford activity centre.

Priority 3: Serpentine Bushfire Brigade Facility RENEW

Location	Karnup Road, Serpentine
	Nord Control C
Project Delivery Target	2022 to 2024
Project prerequisites	LGGS funding
Estimated cost	\$0.382m (LGGS \$0.382m)
Status of LGGS funding	Applied for 2022/23 - not yet awarded
Status of Shire funding	Not required
Project brief	 To undertake asset renewal of the Serpentine Brigade Facility, not exceeding a total cost of \$0.382m, to address the facility audit recommendations as follows: A new purpose built changeroom; Laundry and bathroom facility on

	southern side of station.
Benefits realisation	Renewal of facility which addresses facility audit.

Priority 4: Mundijong Emergency Services HQ including Mundijong Bushfire Brigade, Mundijong SES and Level 3 Incident Control Centre NEW

Location	Lot 88 and Lot 228 Mundijong Road, Mundijong
Project Delivery Target	2030 to 2032
Project prerequisites	Federal Government Funding
	LGGS funding
	Shire funding
Estimated cost	\$10m to \$12m
Status of Federal Government Funding	Not awarded. Will need to form basis of advocacy project for subsequent elections.
Status of LGGS funding	Not applied for. Will be required in association with the above.
Status of Shire funding	\$0.5m will need to be reserved
Project brief	To build a 3-bay bushfire station, 3-bay SES facility and Level 3 Incident Control Centre. This would be modelled upon a central command and control space, with two

axial pla	e three bay wings forming a cross an form.
Benefits realisation Regional which d Governing Governing Communication A combinable to associal Mundijo	al level emergency service facility elivers upon Local, State and Federal ment priorities pertaining to nity preparedness. ined bushfire and SES facility, that is o meet the risk profile especially ted with the further development of ong and the rural urban interface.

Priority 5: Keysbrook Bushfire Brigade Facility RENEW

Location	Elliot Road, Keysbrook		
Project Delivery Target	2030 (short term)		
	Long term (2032 to 2034)		
Project prerequisites	LGGS funding		
	Shire funding		
Estimated cost	Short term - Nil		
	Long term - Not yet known		
Status of LGGS funding	Not applied for		
Status of Shire funding	Not required		
Project brief	Short term - To undertake risk assessment to inform ultimate appliance need for Keysbrook brigade. Long term - asset renewal of the Keysbrook Brigade Facility to address the findings of the		
	improvement that addresses lighting, pedestrian access and security.		
Benefits realisation	Strategic risk assessment which informs future facility needs.		
	Facility upgrades which address this.		

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Location	Munro Street, Jarrahdale		
Project Delivery Target	2032 to 2034		
Project prerequisites	LGGS funding		
	Shire funding		
Estimated cost	\$0.3m (LGGS \$0.3m)		
Status of LGGS funding	Not applied for		
Status of Shire funding	Not required		
Project brief	 To undertake asset renewal of the Jarrahdale Brigade Facility, not exceeding a total cost of \$0.2m, to address the following: Amenity improvement that addresses lighting, pedestrian access and security. 		
Benefits realisation	Minor renewal of the existing facility to improve amenity at the facility.		

6.1 Future Infrastructure Timing

The Table following provides a high-level summary of the Facilities Plan recommendation.

Priority	Proposed Year	Shire Funding (m)	External Funding (m)
1: Oakford Bushfire Brigade Facility including the Emergency Support Group Brigade (new)	2022	0.35	2.095
2: Byford Bushfire Brigade (renewal)	2023		0.326
3: Serpentine Bushfire Brigade (renewal)	2024		0.382
4: Mundijong Emergency Services HQ including Mundijong Bushfire Brigade, Mundijong SES and Level 3 Incident Control Centre (new)	2030	0.5	10m to 12m
5: Byford Bushfire Brigade strategic risk assessment	2030	Strategic assessment only	
6: Keysbrook Bushfire Brigade strategic risk assessment	2030	Strategic assessment only	
7: Byford Bushfire Brigade (TBA)	2032	TBA	TBA
8: Keysbrook Bushfire Brigade (TBA)	2032	TBA	TBA
9: Jarrahdale Bushfire Brigade (renewal)	2032		0.3

6.2 Monitoring and Review

As a strategic plan, it will be subject to a five-yearly review in order to test:

- a. whether the assumptions which underpin the recommendations of the Facilities Plan remain accurate;
- b. whether the growth rate assumptions remain accurate; and
- c. whether the nature of incidents and threat levels remain consistent or not.

Attachment 1: Photographs of the Current Facilities

Keysbrook Station



Serpentine Station



Jarrahdale Station



Byford Station



Oakford Station



Mundijong / SES Station



Attachment 2: Building Plans of Current Facilities

Keysbrook Station



Serpentine Station



Mundijong Station



Byford Station



Oakford Station



Jarrahdale Station

