

ABBOT POINT LAUNCH SITE INVESTIGATION

As part of an action under the *Queensland Space Industry Strategy 2020-2025*, the Queensland Government undertook a technical and environmental investigation of the potential for Abbot Point to host a space launch facility.

The investigation found the site within the Abbot Point State Development Area (SDA) may be suitable for small-scale launch activities. Gilmour Space Technologies (Gilmour) has expressed interest in the site for a rocket it is developing, and is progressing discussions to lease the site.

The Queensland Government will support Gilmour in the development of this facility and will continue to investigate whether there is another site in Queensland that could support the government's longer-term vision for a large-scale facility servicing multiple sizes of rockets.

The potential to develop such a facility over time is important in supporting Queensland's space industry, including providing access to sovereign capability, and delivering ongoing benefits for the local community.

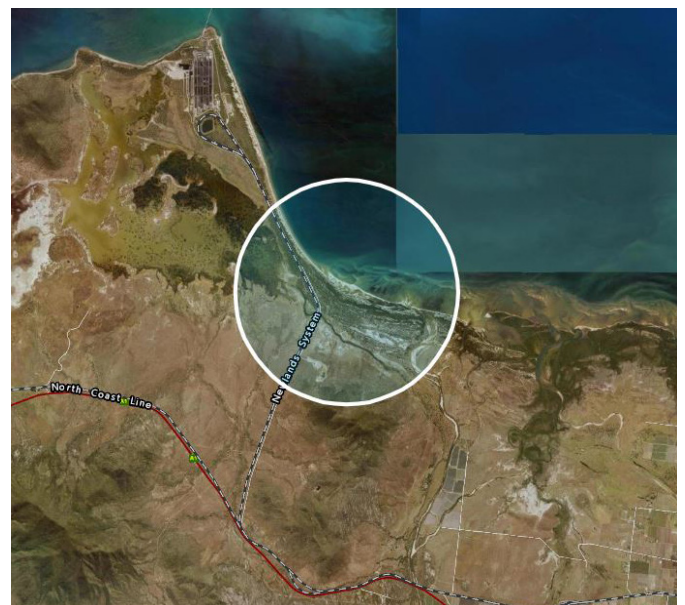
Background

Queensland's clear skies, open coastline and proximity to the equator, means the state's location is well-suited to support launch into a comparatively wide variety of orbits.

- › Rockets are generally required to launch on a coastline to avoid flying over populations.
- › Launching eastward is preferable as it allows rockets to accelerate with the Earth's rotation to leave the atmosphere.

- › Proximity to the equator means that launch vehicles can gain up to an additional 460 metres per second of speed from the Earth's spin, which further reduces costs.

Queensland is home to Australia's leading launch and propulsion companies that are developing low-cost access to space. Companies such as Black Sky Aerospace, Gilmour, Hypersonix and Valiant Space are well-placed to service the global small satellite launch market that is forecast to grow to US\$42.8 billion by 2028.



The due diligence process investigation area, which is largely within the Abbot Point SDA



To fully understand Queensland's potential opportunity, a key action under the Queensland Space Industry Strategy 2020-2025 is to conduct a business case for an orbital launch facility.

The Queensland Government has been working with an advisory team comprising PwC Australia and Aurecon to identify locations in Queensland that could potentially support launch activities.

The advisory team examined the high-level operational capability for launch as well as several other criteria including the environmental characteristics of locations across Queensland.

Out of this assessment, an area that is largely within the Abbot Point SDA was selected as potentially meeting a balance of criteria for a space launch facility including technical, environmental, accessibility, proximity to industry and local economic outcomes. The area was assessed as having potential to reduce a range of access, infrastructure, environmental and land use impacts for the development and operation of a launch site.

A subsequent investigation, focusing on technical and environmental considerations, was undertaken in late 2020 with technical consultants, Nova Systems, joining the advisory team.

Investigation findings

The investigation focused on the site's capacity to support the launch of different rocket types and sizes into multiple trajectories and orbits. The investigation also considered potential environmental impacts, range safety and local land uses.

Launch considerations

The investigation modelled current operational rockets of different sizes that utilise solid or liquid fuel. The modelling included analyses of:

- ▶ launch trajectories to understand the most viable trajectories – where rockets could deliver sizeable payloads (cargo) to desired orbits and not directly fly over or jettison rocket stages onto populated areas (including adjacent countries)
- ▶ rocket failure on the launch pad and during flight to understand ground and airspace clearance requirements in regard to personnel, infrastructure and populated areas (including members of the public wishing to view launches).

The investigation also considered the likelihood of achieving federal regulatory approvals for a launch facility and associated rocket launches.

The site was found to be potentially more suitable for smaller launch vehicles due to the proximity of critical infrastructure within the Abbot Point SDA, which could make it difficult to secure launch permits for large rockets.

The investigation also found the site supported launch into geostationary orbit (fixed point over the equator) as well as inclined orbits (between north and the equator) depending on the size of rocket. Achieving other orbits from the site is possible but may not be economical compared to other sites nationally and globally.

Environmental considerations

The investigation found potential environmental impacts to the local area of developing and operating a launch facility at the site would likely be manageable. In particular, the drop zones for jettison for the rockets assessed are outside the Great Barrier Reef World Heritage Area.



NEXT STEPS

Gilmour has expressed interest in developing the site for the rocket it is developing and is progressing discussions to lease the site. Development of the site will be subject to Gilmour achieving the necessary state and federal regulatory approvals. The Queensland Government is committed to supporting Gilmour in the development of this facility.

In the meantime, the Queensland Government will investigate whether there are other coastal sites which could meet longer-term, broader industry requirements.

Find out more at qld.gov.au/space

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