

An aerial photograph of a large industrial site, likely a waste and resource recovery hub. The site is divided into several areas. In the upper right, there is a large grid of dark-colored metal bins or containers. To the left of this grid, a white truck is parked next to a long, narrow, dark-colored container. Further left, another white truck is parked next to a long, narrow, light-colored container. In the lower half of the image, there are several large piles of material. On the left, there is a pile of dark, organic-looking material, possibly compost or mulch, with some yellow and green objects scattered around it. To the right of this pile, there are two large piles of light-colored, granular material, possibly sand or gravel. The ground is mostly dirt and gravel, with some areas appearing wet or muddy. The overall scene suggests a large-scale industrial or construction project.

Hallam Road Waste & Resource Recovery Hub Plan



METROPOLITAN
WASTE AND
RESOURCE RECOVERY
GROUP





Acknowledgement of Country

Metropolitan Waste and Resource Recovery Group acknowledges the traditional owners and custodians of the land upon which we live and work, the peoples of the Kulin Nation.

We pay our respects to their elders past, present and emerging. We draw inspiration from their traditional care for the land, water and air and join them in protecting these for all Victorians, now and in the future.



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Executive summary

The Hallam Road Waste and Resource Recovery Hub (the hub) is located in Hampton Park, City of Casey, approximately 35 km south east of Melbourne. The hub has proximity to the South Gippsland Highway and Hallam Road as key transport links.

The *Statewide Waste and Resource Recovery Infrastructure Plan* (SWRRIP) outlines the concept of the 'hub and spoke' network for the waste industry, including the identification of the Hallam Road site as a location of state importance that provides an essential hub for waste and resource recovery services and infrastructure in Victoria.

The Hallam Road Waste and Resource Recovery Hub is a valuable, well placed site for waste and resource recovery infrastructure to service the City of Casey, the region and the state. As the Hallam Road landfill closes, the hub will transition away from waste disposal activities and focus on waste transfer activities and the resource recovery of inert materials, while also providing valuable public open space to the City of Casey.

This hub plan provides a range of recommendations to facilitate this transition and plan for the continuation of waste processing activities at the site.

The hub plan has the following established objectives:

- support the long term waste and resource recovery activities on the site
- encourage complementary land uses in the hub and buffer areas
- provide support for industry investment and development of infrastructure at the site
- improve management of amenity and reverse amenity in the hub and surrounding areas
- integrate planning for the hub with other neighbouring hubs of state importance.

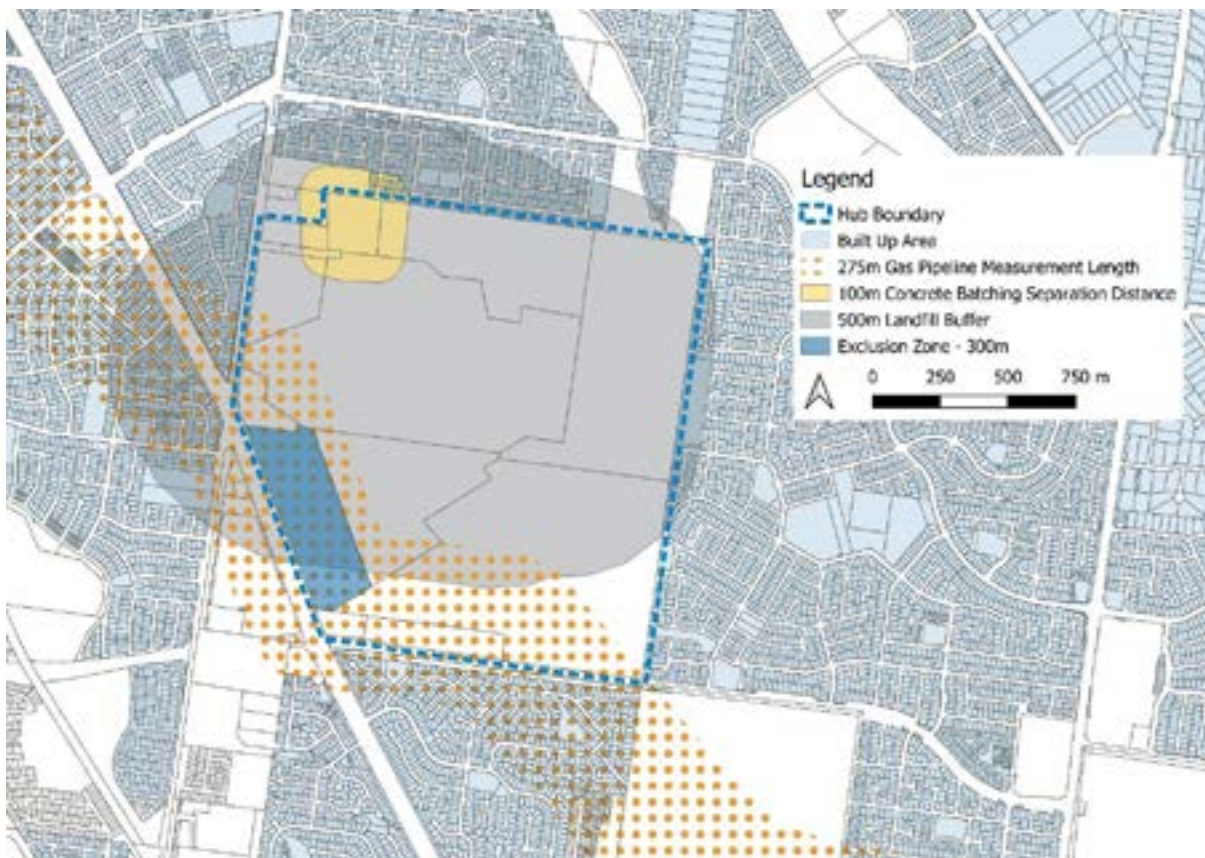
Waste and resource recovery activities commenced on the site in 1997, as the former quarry was turned into a landfill, and it has been an important hub since that time.



The northern portion of the site is dominated by the SUEZ Hallam Road landfill and the associated stockpile area and drying of “slimes” from landfill water treatment. Other onsite uses include the Holcim concrete batching plant, Outlook Environmental transfer station and two garden supplies and nursery businesses.

The southern portion of the site is host to ResourceCo’s construction and demolition (C&D) materials recycling site, as well as the associated remediation of a former sand quarry.

The hub has challenges including the encroachment of residential development around the landfill’s 500 metre buffer. Other key activities on site have similar challenges, with residential development with 100 metres of the concrete batching plant and a 300 metre exclusion zone for C&D materials reprocessing. The imminent closure of landfilling activity provides an opportunity to review the suitable uses at the site and to establish appropriate planning controls to enable the hub to meet the needs of the waste and resource recovery industry and adjoining communities in the future.



The hub plan includes the following recommendations across a range of themes to ensure that the hub operates effectively into the future:

Theme	Recommendations
Assessments	12. Casey City Council to assess the availability of land within the hub for open space through masterplanning (for example, using the <i>Hampton Park Development Plan</i>). This masterplan should include consideration of the impacts of aftercare activities for the landfill on public access to future open space. 25. MWRRG, Casey City Council and industry should work together to prepare for additional processing capacity of new waste streams by: - identifying appropriate areas of the site for these activities to occur in site masterplanning - ensuring that current activities are appropriately located and operate in line with Environment Protection Authority Victoria environmental requirements.
Future infrastructure and land use	9. Interim post closure waste and resource recovery activities should be assessed to utilise the landfill area if public access is excluded during the aftercare period. 10. Given there are established transport routes to the site, population and waste growth, and the planned closure of landfilling operations on the site strong consideration should be given to supporting the development of a commercial scale waste transfer facility. 13. Casey City Council and the landowner ensure that the agreement for the return of land post closure is suitable for the intended open space utilisation. 14. Casey City Council, the EPA and industry work together to ensure future development considers the existing and future constraints of the hub. 22. Casey City Council consult with the operators and landowners to plan the development of an internal road network that best supports the retention of the existing tree reserve adjoining the northern boundary of the hub, community access to future open space areas, site access to adjoining lots and safe access to waste and resource recovery activities. 23. MWRRG, Casey City Council and hub operators work together to consider increasing the capacity for C&D processing to account for closures in nearby facilities in line with the goals of the <i>Recycling Victoria: a new economy</i> policy to recycle more resources and increase the use of recycled materials. 24. Casey City Council investigate improved internal roadways to ensure access occurs at the most appropriate and safest locations on the road network.

Theme	Recommendations
Buffer preservation	- Casey City Council to include design requirements for development adjacent to the hub which mitigates adverse amenity impacts from resource recovery activities. - Casey City Council to explore the use of buffer and reverse amenity planning tools proposed by the Department of Environment, Land, Water and Planning (DELWP) to deter inappropriate development adjacent to the hub, following their incorporation into the Victorian Planning Provisions. - Casey City Council to consider including visual screening requirements as a planning permit condition for development applications on parcels of land within the hub. - Casey City Council, in considering any proposed use and developments within 500 metres of the landfill gas and amenity buffers, must require applicants to show consideration that their operations will not be adversely impacted by waste and resource recovery activities particularly during upset and adverse weather conditions in line with EPA guidance documents. - Casey City Council to require that proposed developments within buffer areas show design and operational considerations to mitigate any potential adverse impacts from waste and resource recovery activities (e.g. dust, odour, noise) in line with EPA guidance documents. - Casey City Council consider the buffer requirements as outlined in Landfill buffer and C&D buffer when masterplanning future activities on the site, to ensure that waste and resource recovery activities can continue to operate successfully and in line with EPA guidance documents. - Casey City Council ensure that future use and developments in and adjoining the hub consider impacts of the existing gas pipeline, powerlines and associated buffers, and that these buffers be built into any site masterplan in line with EPA guidance documents.
Planning	- Casey City Council and MWRRG work with the EPA to review the appropriateness of existing site buffers in light of current site activities and the revision of buffers related to Planning Policy Framework and Clause 53.10 of the Victorian Planning Provisions. - Casey City Council to review and apply the appropriate planning tools used for buffer areas which will incorporate the concept of reverse amenity. - Casey City Council review and update the planning framework for the hub including a review of the Development Plan and overlay to ensure it meets future needs of the City of Casey and the south east region. New planning provisions must acknowledge and strengthen the existing waste and resource recovery operations on the site. - Casey City Council clarify the future public open space and identify mechanisms to acquire the open space when landfilling activities allow for open space use. - Casey City Council to consider applying appropriate planning tools to the hub plan area which will action the hub plan recommendations (e.g. Development Plan Overlay, Buffer Area Overlay, Design and Development Overlay, zoning).
Social integration with hubs and community	- Casey City Council engage with the community in the review of the planning framework on the role and value of the hub to the state, the region and the local community, as well as how the site and its services meet disposal and resource recovery needs. - MWRRG support Casey City Council in the ongoing engagement of the community on the hub's waste and resource recovery role and function. - Casey City Council to work with hub operators to identify and implement local services and solutions to enable the community to participate in a circular economy. - MWRRG ensure future hub plans consider the surrounding hub network to ensure integration.

Introduction

The Metropolitan Waste and Resource Recovery Group (MWRRG) and Casey City Council engaged Ricardo Energy Environment and Planning Pty Ltd (Ricardo) to develop a shared vision and plan for the current and future use of the Hallam Road Waste and Resource Recovery Hub (the hub), also referred to as the SUEZ Hallam Hub.

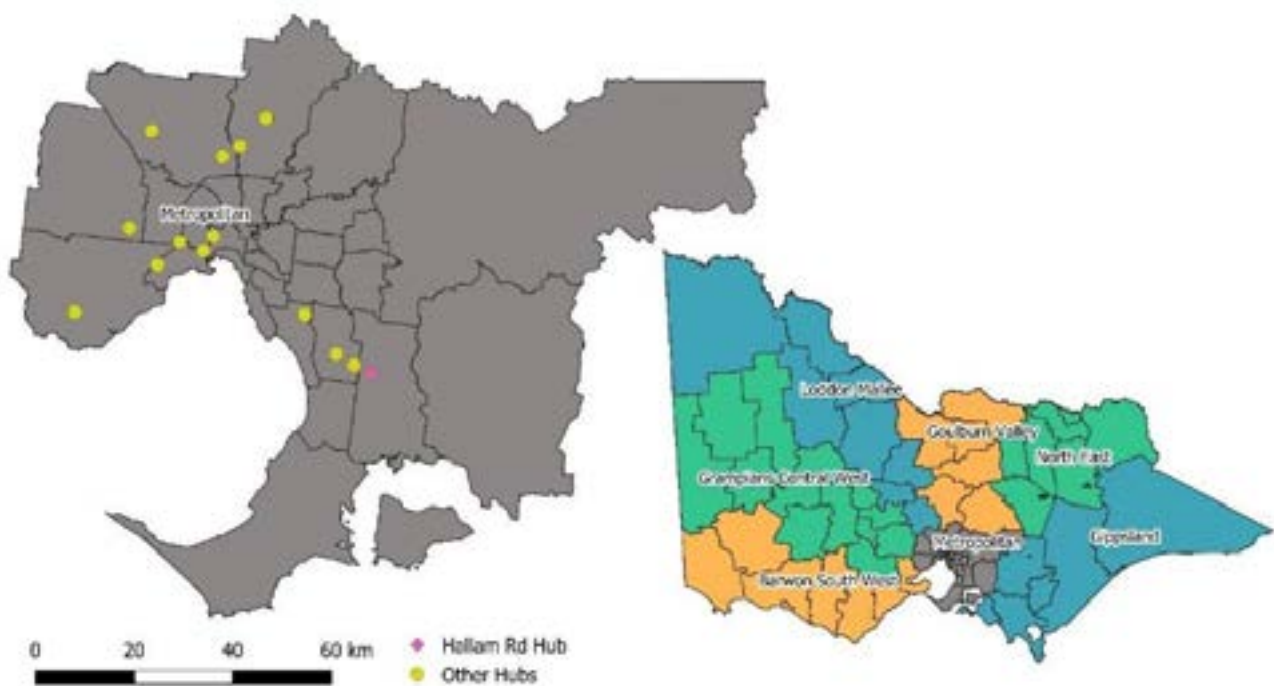
Waste and resource recovery in Victoria is guided by an overarching framework of legislation, policies and strategic plans.

- *Recycling Victoria: A new economy (Recycling Victoria)* was released in February 2020 and represents the Victorian Government's action plan to reform the waste and recycling system over the next decade. The policy aims to help Victorians reduce, reuse, repair and recycle and strengthen the economy—setting up a more sustainable future for Victoria.
- The *Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)* is one of the key strategies for infrastructure and land use planning applicable to this hub plan. The SWRRIP outlines the seven regional waste groups and the concept of the 'hub and spoke' network for the waste industry. The *Metropolitan Waste and Resource Recovery Implementation Plan (Metropolitan Implementation Plan)* also mirrors the 'hub and spoke network' provision. *Recycling Victoria* includes a commitment to updating the SWRRIP under the title *Victorian Recycling Infrastructure Plan (VRIP)*.

Hubs are defined in the SWRRIP as a facility or group of facilities that recover or manage material streams or waste. These hubs can be of local, regional or state importance.

The SWRRIP identifies 22 hubs of state importance across Victoria that provide significant waste and resource recovery activities, of which 14 are within the metropolitan region, see Figure 1.

Figure 1: Metropolitan hubs of state importance



MWRRG has committed to developing strategic plans for each of the 14 hubs in the metropolitan area. The Hallam Road Waste and Resource Recovery Hub is identified in the SWRRIP and the Metropolitan Implementation Plan as a hub of state importance for reprocessing materials from construction and demolition (C&D) activities and for the significant putrescible and solid inert landfill that serves the south eastern region of Melbourne. The location of the hub in the context of surrounding areas is shown in Figure 2.

Figure 2: Hallam Road Waste and Resource Recovery Hub location



Objective of hub planning

The main objective of any hub plan is to create the shared vision for the site. The shared vision involves understanding the varying aspirations and perspectives of the stakeholders and confirming the future directions for the site. Hub plans should make recommendations for land use planning protections to ensure the hub and its buffers are defined, protected and maintained. Finally, hub plans should also consider the integration of waste, land use and transport planning.

The SWRRIP defines specific characteristics of a successful hub and the hub planning process should maintain or improve these characteristics. A well located and well functioning hub will:

- facilitate aggregation and consolidation of individual material streams to achieve the tonnages needed to maximise resource recovery
- attract investment in resource recovery infrastructure, particularly those relying on specific material streams
- maintain appropriate buffers to support the waste and resource activities (which may be shared with other activities requiring buffers)
- ensure good access to transport networks
- be co-located with, or close to, complementary activities that provide feedstocks or markets for the products and services made from the activities
- minimise community, amenity, environment and public health impacts
- support employment and industrial activities to create additional job opportunities
- be integrated with a broader precinct with complementary activities in terms of land use planning
- operate over time to underpin investment in infrastructure.

Specific objectives for the Hallam Road Waste and Resource Recovery Hub plan include:

- provision of planning advice to support an update to the *Hampton Park Development Plan*
- improve MWRRG's and local governments' understanding of the best ways to enhance and protect waste and resource recovery hubs of state importance
- develop a greater understanding of the existing buffers and the implications of development within those buffers
- identify future land use and development opportunities for the site
- develop and document an agreed methodology and approach to preparing a hub plan.

Hallam Road Waste and Resource Recovery Hub

The hub is located in Hampton Park, City of Casey, approximately 35 km south east of Melbourne and has proximity to the South Gippsland Highway and Hallam Road as key transport links.

The hub is important to Victoria's waste and resource recovery industry for the following reasons:

- it is a major hub for reprocessing materials from C&D activities and is a significant putrescible and solid inert landfill serving the south east area of Melbourne
- the site has access to major transport links
- there are established waste and resource recovery activities operating on the site
- the location of the site is a valuable link between metropolitan Melbourne and the south eastern suburbs
- the site has capacity for increased resource recovery opportunities.

Waste and resource recovery activities commenced on the site in 1997, as the former quarry was turned into a landfill, and it has been an important hub since that time. The current activity on the site is shown in Figure 3.

The northern portion of the site is dominated by the SUEZ Hallam Road landfill and the associated stockpile area and drying of “slimes” from landfill water treatment. Other onsite uses include the Holcim concrete batching plant, Outlook Environmental transfer station and two garden supplies and nursery businesses.

The southern portion of the site is host to ResourceCo’s C&D materials recycling site, as well as the associated remediation of a former sand quarry.

The electricity transmission line that bisects the site is also highlighted.

The site will soon be undergoing a period of transition as the landfilling activities come to an end, which provides an opportunity to explore new and varied resource recovery activities.

While the site presents many opportunities, the hub does have a number of challenges:

- The site has been heavily encroached by residential development, particularly to the north, east and west which creates challenges for waste and resource recovery operations due to potential impacts from odour, dust, noise and the need to manage landfill gas appropriately.
- The site has a history of odour management issues, including enforceable undertakings issued by the EPA.
- Community engagement is needed to gain acceptance for the ongoing functionality of the hub.

An assessment of the strengths, weaknesses, opportunities and threats related to the hub has been conducted and is summarised in Table 1.

Figure 3: Current site overview



Aerial imagery source: Nearmap

This strengths, weaknesses, opportunities and threats (SWOT) analysis suggests that the key task for this hub plan is to leverage the opportunity provided by the upcoming landfill closure to ensure that the land in the hub is effectively utilised and that the significant C&D reprocessing capability is protected in the future. The hub's integration with adjacent land uses also needs to be considered to ensure its long term viability.

Table 1: Hub SWOT Assessment

Strengths	Opportunities
• Significant landfill activity onsite • Significant existing C&D reprocessing activity • Good transport links	• Landfill closure enables reconsideration of core functions of the hub • Rehabilitation and redevelopment of land parcels can create productive use of some underdeveloped land parcels • Land that is not usable for other purposes could be returned to the community as open space
Weaknesses	Threats
• Poor protection of landfill buffers and significant encroachment of residential development • Previous EPA enforcement action due to landfill gas odour • Significant areas of encumbered land (landfill gas generation, service corridors across site, flood prone areas)	• Continuing encroachment of sensitive receptors • Ongoing landfill gas generation with sensitive receptors nearby

Scope

The scope of the Hallam Road Waste and Resource Recovery Hub plan (the hub plan) was primarily to undertake a land capability assessment followed by a series of engagement and consultation activities to refine this critical analysis and develop a shared vision for the site with key hub landowners, operators and Casey City Council. Community consultation is out of the scope of this hub plan. Community consultation will be included in Casey City Council's future projects such as the review of the Hampton Park Development Plan.

The scope of works included the following actions:

- desktop analysis of the site, including existing activities and buffers
- investigation of future options for the site
- preparation of a draft report and inclusion of feedback into a final document
- presentation of a final hub plan and draft planning scheme tools and protections.

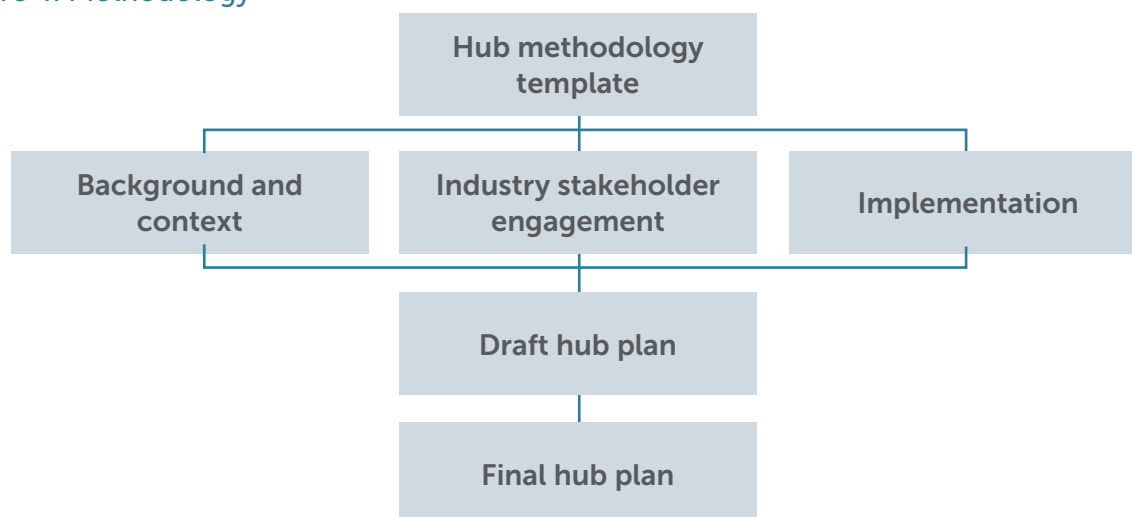
This hub plan also includes additional planning advice to inform an update of the *Hampton Park Development Plan*.

Hub plan preparation

The process for preparing the hub plan follows the *Guide to Preparing Waste and Resource Recovery Hub Plans* developed by MWRRG and available on the MWRRG website. Casey City Council were consulted about the process.

Figure 4 outlines the steps in the process.

Figure 4: Methodology



Hub methodology template

This template outlines the expected contents and structure of a hub plan and provides a consistent methodology for the development of the plans. The basic structure has been developed in the knowledge that every hub is different and MWRRG may include additional tasks in some hub plans, such as the development of planning amendments. The template will be reviewed following completion of this plan.

This template outlines the expected contents and structure of a hub plan and provides a consistent methodology for the development of the plans.

The template provides guidance on:

- general process for preparing a hub plan
- the applicable legislative framework
- standard map sets to be included
- key stakeholder engagement and developing a shared vision
- the appropriate revision timeline for the template.

Background and context

A review of relevant and available data was conducted to develop a detailed understanding of the waste and resource recovery activities and other services provided to the wider community on the site. The following data was reviewed:

- summary of current planning conditions, Victorian Civil and Administrative Tribunal (VCAT) cases, planning history of the site
- desktop site condition reports including slope, drainage, depth to seasonal water table, depth to hard rock, flood risk
- EPA complaints registers.

Further to this data review, investigation of the site context included discussions with staff from Casey City Council and MWRRG, and identification any known major risk items to future activities or development.

Stakeholder engagement

Targeted engagement with key planning, waste and infrastructure Victorian Government agencies was essential to develop a shared vision for the Hallam Road Waste and Resource Recovery Hub. Landowners and leaseholders in the hub area were also engaged, while broader community consultation is to be carried out separately by Casey City Council following the completion of this plan.

The Stakeholder Engagement Plan identified all appropriate stakeholders requiring engagement during the preparation of the hub plan. Each stakeholder was engaged according to International Association for Public Participation (IAP2) effective engagement guidance. Key stakeholders are listed in Table 2.

Implementation

Following the development of a shared vision, Ricardo has recommended an update to the local planning policy framework, including recommended changes to the schedule to the Development Plan Overlay and Development Plan, and application of other appropriate planning tools. The outputs from this stage can be implemented by a Planning Scheme Amendment that Casey City Council lead in future.

Draft and final hub plans

A draft hub plan has been prepared for MWRRG and Casey City Council. MWRRG and Casey City Council will prepare a public version of this report that will be made available on MWRRG's website alongside other hub plans.

Table 2: Key stakeholders

Stakeholder	Engagement Level (IAP2)
MWRRG	Involve
Casey City Council	Involve
SUEZ	Involve
Resource Co	Involve
Holcim	Involve
Lyndpark Garden Supplies	Involve
Diaco's Discount Nursery and Garden Rock Supplies	Involve
Owner of 280 Hallam Road Hampton Park 3976	Involve
Owner of 825 and 829 South Gippsland Highway Hampton Park 3976	Involve
Victorian Planning Authority	Involve
EPA	Consult
APA (gas pipeline)	Consult
AusNet Electricity	Consult
South East Water	Inform
Melbourne Water	Inform
Telstra VICTAS	Inform
VicRoads	Inform

Regulatory and policy context

Waste and resource recovery in Victoria is supported and guided by a range of legislation, policies and strategic documents. While MWRRG has a statutory role to plan for waste and resource recovery infrastructure needs, it must also align with the framework described in Table 3.

Victorian Government

Table 3: Hub legislative framework

Act	Description
<i>Environment Protection Act 1970</i>	The <i>Environment Protection Act</i> (EP Act) is the overarching legislation guiding waste management in Victoria. The EP Act establishes the Environment Protection Authority Victoria (EPA) whose role is to prevent and reduce waste and pollution impacts on the environment and human health. The EP Act also establishes the regional waste management groups and the principle of the waste management hierarchy. At the time of completing this hub plan, the EP Act was undergoing legislative reform. The <i>Environment Protection Act 2017</i> has been introduced and replaces the 1970 Act. Both acts are administered by the EPA during the transition period. To complete the reform, the <i>Environment Protection (Amendment) Act 2018</i> was passed and the new, amended EP Act (2017) will come into effect on 1 July 2020.
<i>Planning and Environment Act 1987</i>	The <i>Planning and Environment Act</i> establishes the legal framework for planning in Victoria. Main functions of this act include providing broad objectives and setting rules to ensure appropriate use, development and protection of land.
<i>Sustainability Victoria Act 2005</i>	The <i>Sustainability Victoria Act</i> establishes Sustainability Victoria (SV) whose objective is to “facilitate and promote environmental sustainability in the use of resources.”¹
<i>Local Government Act 1989</i>	The <i>Local Government Act</i> is the main piece of legislation for the establishment and operation of Victoria’s 79 councils.
<i>Transport Integration Act 2010</i>	The <i>Transport Integration Act</i> has a broad objective to ensure that transport and land use agencies work together in an integrated approach.
<i>Climate Change Act 2017</i>	The <i>Climate Change Act</i> seeks to manage the risks of climate change and transition the economy to be climate resilient. The act provides a net zero emissions reduction target by 2050 and guiding principles to consider climate change in decision making.

Table 4: Hub policy context

Policy	Description
<i>Recycling Victoria: a new economy</i>	<i>Recycling Victoria</i> is the Victoria Government's 10-year policy and action plan for waste and recycling and was released in February 2020. It outlines a sweeping plan of reform to establish a recycling system over the next decade. The policy aims to help Victorians reduce, reuse, repair and recycle and strengthen the economy—setting up a more sustainable future that Victorians can rely on. It transforms how our economy uses materials and how our state reuses, repairs and recycles. A circular economy continually seeks to reduce the environmental impacts of production and consumption, while enabling economic growth through more productive use of natural resources. It allows us to avoid waste with good design and effective recovery of materials that can be reused.
State Environment Protection Policies/ Environmental Reference Standards	The State Environment Protection Policies (SEPPs) provide the framework for the protection of water, air, land and noise in Victoria. The SEPPs will be replaced by Environmental Reference Standards (ERS) under the new EP Act (2017) on 1 July 2020.
Victorian Government e-waste ban	Electronic waste (e-waste) is typically defined as any item that requires a battery or electrical plug. This type of waste can contain hazardous materials and is growing three times faster than general municipal waste in Australia. ² From 1 July 2019 e-waste was banned from landfill by the Victorian Government. New regulatory measures have been introduced to specify how e-waste must be managed and an e-waste education campaign has been implemented by SV.



Policy	Description
<i>Plan Melbourne 2017-2050</i>	<i>Plan Melbourne 2017-2050</i> is the metropolitan planning strategy to manage Melbourne's growth and change over the next three decades. Integrating long term land use, infrastructure and transport planning, <i>Plan Melbourne 2017-2050</i> sets out the strategy for supporting jobs and growth, while building on Melbourne's legacy of distinctiveness, liveability and sustainability. Plan Melbourne contains a section at Direction 6.7 on reducing waste and improving waste management and resource recovery. It highlights that waste management and resource recovery is an essential community service that protects the environment and public health and recovers valuable resources, and that waste and resource recovery infrastructure planning must be effectively integrated with land use planning to provide long term certainty and to manage potential conflicts with incompatible nearby land uses. This relies on a number of factors, such as securing and maintaining land separation distances. Policy 6.7.3 is to protect waste management and resource recovery facilities from urban encroachment and assess opportunities for new waste facilities. It states that: • Waste and resource recovery facilities need to remain fully operational and productive over the life of the investment. This relies, in part, on land and separation distances being secured, and on appropriate zoning of land within designated separation distances surrounding landfill sites and resource recovery sites. • Co-locating new waste related infrastructure with complementary activities provides an opportunity to share existing separation distances and facilitate the integration of waste, water and energy management. • Waste to energy technologies are an example of advanced resource recovery infrastructure that can be co-located with complementary infrastructure. • Melbourne will create direct links between waste and resource recovery infrastructure planning and land use planning. This will be achieved by applying clearer policy guidance to identify and protect waste and resource recovery sites and maintaining recommended separation distances with appropriate statutory measures to manage their off site impacts.

Table 5: Hub strategic context

Document/ publication	Description
<i>Statewide Waste and Resource Recovery Infrastructure Plan 2018</i>	The <i>Statewide Waste and Resource Recovery Infrastructure Plan</i> (SWRRIP) aims to guide planning and investment in Victoria's waste and resource recovery infrastructure. The stated purpose of the SWRRIP is: "To provide strategic direction for the management of waste and resource recovery infrastructure to achieve an integrated system that effectively manages the expected mix and volumes of waste, reflects the principles of environmental justice to ensure that impacts on the community, environment and public health are not disproportionately felt, supports a viable resource recovery industry and reduces the amount of valuable materials going to landfill."
<i>Rethink Your Waste! Waste Management Strategy (2016)</i>	The <i>Rethink Your Waste! Waste Management Strategy</i> is a key strategic document developed by Casey City Council to guide the way waste is managed within the municipality.
<i>Metropolitan Waste and Resource Recovery Implementation Plan (2016)</i>	The <i>Metropolitan Waste and Resource Recovery Implementation Plan</i> (Metropolitan Implementation Plan) sets out how waste and resource recovery infrastructure needs will be met over a 10-year period. The Metropolitan Implementation Plan describes how the strategic actions outlined in the SWRRIP will be implemented in MWRRG's jurisdiction. The Metropolitan Implementation Plan has four strategic objectives: 1. Reduce waste sent to landfill. 2. Increase organic waste recovered. 3. Deliver community, environmental and economic benefits. 4. Plan for Melbourne's growing population.³
<i>Recycling Industry Strategic Plan (2018)</i>	The <i>Recycling Industry Strategic Plan</i> (RISP) was developed by the Department of Environment, Land, Water and Planning largely in response to the disruption of the global recycling system in early 2018 by trade restrictions implemented by China. The impact of the restrictions revealed fragilities in our recycling sector. The RISP is targeted towards supporting and improving local government kerbside recycling collections with a vision that 'the Victorian recycling sector is resilient.'⁴ The four goals of the plan are: 1. Stabilise the recycling sector. 2. Increase the quality of recycled material. 3. Improve the diversity and productivity of the recycling sector. 4. Develop markets for recycled materials.
<i>Victorian Organics Resource Recovery Strategy (2015)</i>	The <i>Victorian Organics Resource Recovery Strategy</i> aims to increase the amount of organic material recovered in the state. The strategy has four goals: 1. Reduce the impact of climate change. 2. Protection of the environment, human and animal health and amenity. 3. Risk based and proportionate approach. 4. Strong and sustainable markets.

Document/ publication	Description
<i>Victorian Market Development Strategy for Recovered Resources (2016)</i>	This strategy identifies that Victoria has experienced challenges in the demand for recovered resources, whereby the market is driven by a push from the supply side, rather than a pull for the demand of these materials. The strategy aims to create and expand upon our resource recovery market with a focus on research and development, product specifications, product procurement and product stewardship.
<i>Victorian Waste Education Strategy (2016)</i>	The <i>Victorian Waste Education Strategy</i> is a 10-year plan to increase awareness of the impacts of waste management through a statewide and coordinated approach.
<i>Recovering and Reprocessing Resources from Waste (2019)</i>	An audit into Victoria's waste and resource recovery industry was conducted by the Victorian Auditor General's Office. The report states that 'it has become clear that Victoria needs more local reprocessing facilities to convert materials into products that can be used again, or to energy.'



Land use planning framework

The Hallam Road Waste and Resource Recovery Hub is located within the City of Casey. The City of Casey Planning Scheme incorporates the Victoria Planning Provisions, applies the state and local planning provisions that are relevant to the hub, and identifies policies to guide future use and development within the City of Casey.

Planning policy framework

The following state land use planning policies are considered relevant to the hub plan:

Clause 13.04-1S – Contaminated and potentially contaminated land. The objective is to ensure that potentially contaminated land is suitable for its intended future use and development, and that contaminated land is used safely. Implementation of the clause includes requiring applicants to provide adequate information on the potential for contamination to have adverse effects on future land use if the subject land is known to have been used for industry, mining or the storage of chemicals, gas, wastes or liquid fuel.

Clause 13.05-1S – Noise abatement. The objective is to assist the control of noise effects on sensitive land uses to ensure that development is not prejudiced, and community amenity is not reduced by noise emissions, using a range of building design, urban design and land use separation techniques as appropriate to the land use functions and character of the area.

Clause 13.06S – Air quality management. The objective is to assist the protection and improvement of air quality. Strategies in the clause include:

- Ensure that land use planning and transport infrastructure provision contribute to improved air quality by integrating transport and land use planning to improve transport accessibility and connections.
- Ensure, wherever possible, that there is suitable separation between land uses that reduce air amenity and sensitive land uses.

Clause 13.07-1S – Land use compatibility. The objective is to safeguard community amenity while facilitating appropriate commercial, industrial or other uses with potential off site effects. This will ensure the compatibility of a use or development as appropriate to the land use functions and character of the area by directing land uses to appropriate locations and using a range of building design, urban design, operational and land use separation measures.

Clause 17 – Economic Development. This clause outlines that planning is to provide for a strong and innovative economy, where all sectors are critical to economic prosperity. Planning is to contribute to the economic wellbeing of the state and foster economic growth by providing land, facilitating decisions and resolving land use conflicts, so that each region may build on its strengths and achieve its economic potential.

Clause 17.03-2S – Industrial development siting.

The objective is to facilitate the sustainable development and operation of industry. Strategies in the clause include:

- Ensure that industrial activities requiring substantial threshold distances are located in the core of industrial areas.
- Encourage activities with minimal threshold requirements to locate towards the perimeter of the industrial area.
- Minimise inter-industry conflict and encourage like industries to locate within the same area.
- Protect industrial activity in industrial zones from the encroachment of commercial, residential and other sensitive uses that would adversely affect industry viability.
- Encourage industrial uses that meet appropriate standards of safety and amenity to locate within activity centres.
- Provide adequate separation and buffer areas between sensitive uses and offensive or dangerous industries and quarries to ensure that residents are not affected by adverse environmental effects, nuisance or exposure to hazards.

Clause 17.03-3S – State significant industrial land. The objective is to protect industrial land of state significance. Strategies in the clause include:

- Protect state significant industrial precincts from incompatible land uses to allow for future growth.
- Ensure sufficient availability of strategically located land for major industrial development, particularly for industries and storage facilities that require significant threshold distances from sensitive or incompatible uses.
- Protect heavy industrial areas from inappropriate development and maintain adequate buffer distances from sensitive or incompatible uses.

Clause 19.03-5S – Waste and resource recovery.

The objective is to reduce waste and maximise resource recovery so as to reduce reliance on landfills and minimise environmental, community amenity and public health impacts. Strategies to achieve this are to:

- Ensure future waste and resource recovery infrastructure needs are identified and planned for to safely and sustainably manage all waste and maximise opportunities for resource recovery.
- Protect waste and resource recovery infrastructure against encroachment from incompatible land uses by ensuring buffer areas are defined, protected and maintained.
- Ensure waste and resource recovery facilities are sited, designed, built and operated so as to minimise impacts on surrounding communities and the environment.
- Encourage technologies that increase recovery and treatment of resources to produce energy and other marketable end products.
- Enable waste and resource recovery facilities to locate close together in order to share separation distances, reduce the impacts of waste transportation and improve the economic viability of resource recovery.
- Site, design, manage and rehabilitate waste disposal facilities in accordance with the *Waste Management Policy (Siting, Design and Management of Landfills)* (Environment Protection Authority, 2004).
- Integrate waste and resource recovery infrastructure planning with land use and transport planning.
- Encourage development that facilitates sustainable waste and resource recovery.
- Consider as relevant any applicable Regional Waste and Resource Recovery Implementation Plan.

Managing amenity, health and safety buffers

Managing the interface between industries and sensitive uses is a complex issue. Noise, dust, odour and other off-site impacts present amenity, health and safety risks to communities. Encroachment of sensitive uses, such as residential development, can impede existing industrial businesses. Planning approaches to these issues can be complex, leading to uncertainty and inconsistent decision making.

The Department of Environment, Land, Water and Planning (DELWP) has recently made updates to Planning Policy Framework and Clause 53.10 of the Victorian Planning Provisions. The updates aim to improve the way the planning system addresses buffers for amenity, human health and safety impacts.

Reverse amenity is the concept of protecting the ability of activities that have impacts beyond their property boundaries (such as noise and odour) to continue to operate. Discussions around amenity typically refer to the lack of these impacts. Reverse amenity protection is considered critical by most respondents to the consultation to help prevent inappropriate encroachment of industrial activity by sensitive land uses.

DELWP have exhibited a new Victorian Planning Provision which aims to protect inappropriate land use and development from encroaching on land uses with adverse amenity potential, called the Buffer Area Overlay. The new overlay would benefit reverse amenity protection by making buffers more visible in planning and to the public.

Recommendation:

1. Casey City Council and MWRRG work with the EPA to review the appropriateness of existing site buffers in light of current site activities and the revision of buffers related to Planning Policy Framework and Clause 53.10 of the Victorian Planning Provisions.
2. Casey City Council to review and apply the appropriate planning tools used for buffer areas which will incorporate the concept of reverse amenity.

Local government policy

Rethink your Waste! City of Casey Waste Management Strategy 2016-2022

The Hallam Road Waste and Resource Recovery Hub is located within the City of Casey, one of Melbourne's south eastern municipalities. The City of Casey's *Rethink Your Waste! Waste Management Strategy* was released in 2016 and recognises the hub as an important area for the continuation of waste activities beyond the landfill lifespan.

One of the future directions for the strategy includes ensuring that hubs support industry, while protecting communities and the environment. Similarly, the strategy highlights the need to balance land use planning and community expectations for the site. This will be delivered by continuing to engage with the community and stakeholders and develop planning policies and tools to facilitate resource recovery.

City of Casey Vision – Creating Australia's most liveable city (2017)

The City of Casey's Council Vision is 'Creating Australia's most liveable city'. The Council Plan (2017-2021), as updated in 2019, outlines the following strategic objectives:

Objective 1: People driven

- An inclusive, safe and connected community.
- A Council whose services and facilities are driven by community needs.
- A city with an accessible and well-connected transport network.

Objective 2: A place to prosper

- The destination for arts, culture, sport and leisure that attract visitors and bring communities together.
- A thriving economy with local jobs, investment, and new industries.
- A city that sustainably plans and manages growth while protecting its diverse landscape.

Objective 3: A high performing organisation

- A leader in applying technology and innovation.
- An efficient and effective, customer focussed Council with sufficient resources to meet priorities.

Preparation of the hub plan can assist the Casey City Council in delivering many of these strategic objectives as well as providing a useful planning tool for the future.

Local planning policy framework

The Municipal Strategic Statement is based on the *Casey C21 Strategy*, Casey City Council's long term strategic planning document which decision making will have regard to. Section 5.2 'Making Casey Sustainable' in the document identifies objectives and actions of relevance to the hub plan:

- Objective 2: Resource Management – Reduce City of Casey's ecological footprint by working with agencies to increase efficiencies in water use and energy use and to reduce production of waste.
- Objective 3: Waste Management – Maximise the recycling and reduction of waste and minimise the amount of waste going to landfill.

The document currently identifies the hub plan area as future open space.

The following local policies are considered relevant to the hub plan:

Clause 21.04 Environment – The objective is to progressively improve the health of City of Casey's built and natural environments through ecologically sustainable land use and development practices. This involves strategy 2.11 to provide for effective and coordinated waste management that accords with the *Metropolitan Waste and Resource Recovery Implementation Plan* and encouraging waste re-use/recycling initiatives and improved waste disposal methods.

Clause 21.22 Hampton Park – The objective is to recognise amenity constraints associated with existing industrial land uses and to establish 'Hampton Park Hill' as a large, passive parkland. One of the strategies to achieve this is to 'Discourage the establishment of sensitive uses within 500 metres of the Hallam Road landfill and within 100 metres of the adjoining

concrete batching plant'. The strategy to 'Create a suburban bushland and open space area under the major electricity transmission lines between the eastern branch of River Gum Creek and the Hallam Valley Floodplain to act as an inter-suburban break between Hampton Park and Narre Warren South' applies to the land on the western edge of the hub area. Further, it is proposed to undertake a strategic review of future land use and redevelopment of the Hallam Road landfill site, with a view to its redevelopment in the longer term as major parkland.

Zones

The majority of land within the hub is zoned Schedule 1 to the Special Use Zone (SUZ1) for earth and energy resources industry. The purpose of the zone is:

- to recognise or provide for the use and development of land for earth and energy resources industry
- to encourage interim use of the land compatible with the use and development of nearby land
- to encourage land management practice and rehabilitation that minimises adverse impact on the use and development of nearby land.

Land in the north eastern corner of the hub is zoned General Residential Zone, though no residential development has occurred.

In between these two zones, a segment of land is zoned Urban Floodway Zone (UFZ). The UFZ applies to urban areas where the potential flood risk is high and strict controls over land use are required. The UFZ restricts the use of the land as the risk associated with flooding renders its unsuitable for any further intensification of use or development. A permit is not required for use of the UFZ land as informal outdoor recreation.

Overlays

The site is covered by Schedule 1 to the Development Plan Overlay (DPO1). This is a flexible tool that can be used to implement a plan to guide the future use and development of the land. The overlay has two purposes:

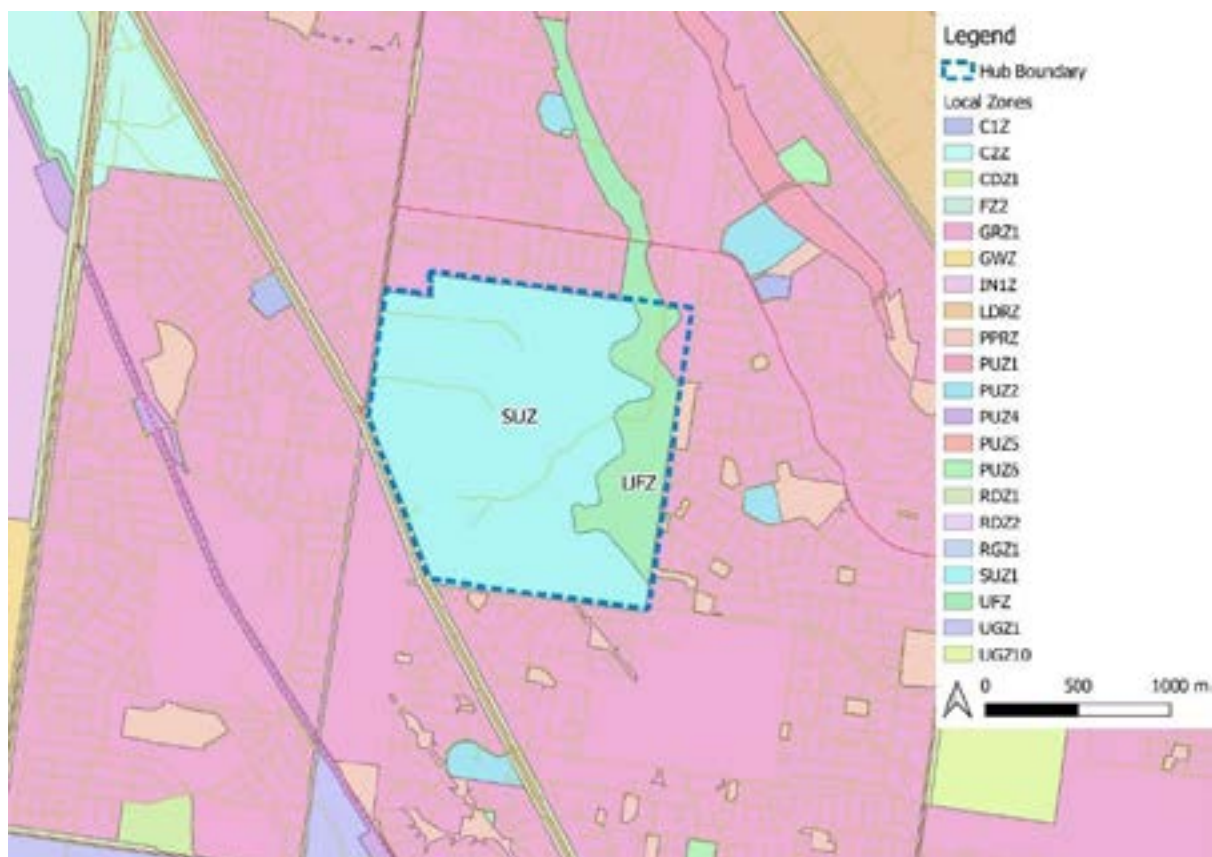
- to identify areas that require the planning of future use or development to be shown on a plan before a permit can be granted
- to exempt a planning permit application from notice and review if it is generally in accordance with an approved plan.

The DPO prevents the granting of a permit under the zone before a plan has been approved. Once a plan is approved, the overlay requires that all planning permits granted by the responsible authority must be 'generally in accordance' with the plan.

The segment of land subject to the UFZ is also subject to the Land Subject to Inundation Overlay (LSIO). The LSIO applies to mainstream flooding in both rural and urban areas and generally identifies a lower flood risk than the UFZ or Flooding Overlay areas. The LSIO is often used where it is intended to control development (buildings, works and subdivision) and not land use, however multiple tools can be applied to cover a particular flooding situation.

The western edge of the site is covered by the Public Acquisition Overlay Schedule 1 (PAO1). The PAO sets aside land for road purposes, to be acquired by the Roads Corporation.

Figure 5: Local zones



Hampton Park Development Plan

The *Hampton Park Development Plan* (the Development Plan) has been prepared as a development plan to Schedule 1 to Clause 43.04 of the Casey Planning Scheme. The Development Plan has been approved by Casey City Council and currently governs activity on the site and in surrounding areas.

The Development Plan provides guidelines to coordinate development, infrastructure, public authorities and council activities in the area. The council must take the Development Plan into consideration when assessing planning applications for the subdivision, use or development of land in the area to which it applies. A permit can only be granted for the subdivision, use or development of land where the proposal is generally in accordance with the Development Plan.

The Development Plan was established in 1995, prior to the commencement of landfill activities on the site. It has had regular updates since that time, but it does not reflect the changes to state policy and strategy which identify the hub area as an important site in the context of state and regional waste and resource recovery. This hub plan aims to guide a future review of the Development Plan.

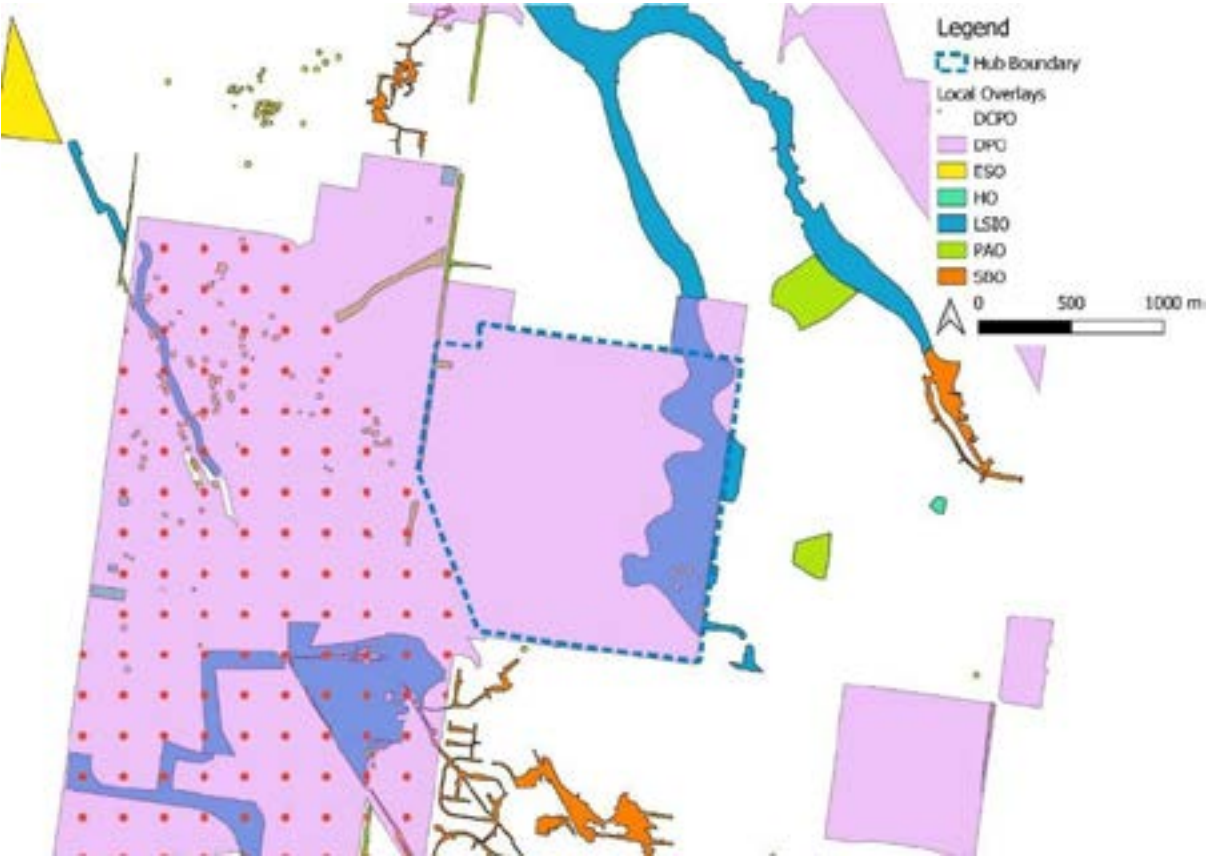
The current Development Plan (May 2019) does not identify the area as important for waste and resource recovery activities and lacks specific guidance on timelines for the landfill's ongoing operations. The Physical Framework Plan currently in the Development Plan identifies the hub site as 'Future public open space', with commercial and low density residential areas proximate to the existing landfill. This is not consistent with the future needs of the hub as outlined in the SWRRIP, the Metropolitan Implementation Plan and this hub plan. It is inconsistent with typical buffer zone requirements for the essential waste and resource recovery activities occurring on the site. The Development Plan requires updating to ensure there is a shared vision for the site between state and local government authorities.

The current Schedule 1 to the Development Plan Overlay (DPO1) applies to many residential areas in the City of Casey. The hub area is not appropriate for residential development and therefore should not be included in DPO1. In order to prepare a Development Plan with guidance that is specific to this hub it is considered appropriate to apply a new schedule to the development plan overlay which applies to the hub site and surrounding area. A new schedule could incorporate guidance specifically related to the amenity impacts of waste and resource recovery activities, including reverse amenity considerations.

Recommendation:

3. Casey City Council review and update the planning framework for the hub including a review of the Development Plan and overlay to ensure it meets future needs of the City of Casey and the south east region. New planning provisions must acknowledge and strengthen the existing waste and resource recovery operations on the site.
4. Casey City Council clarify the future public open space and identify mechanisms to acquire the open space when landfilling activities allow for open space use.
5. Casey City Council to consider applying appropriate planning tools to the hub plan area which will action the hub plan recommendations (e.g. Development Plan Overlay, Buffer Area Overlay, Design and Development Overlay, zoning).

Figure 6: Casey Planning Scheme Overlays



Site and land use context

Site context

Contextual site details are described in Table 6.

Table 6: Site context

Context	Description
Surrounding land use	The land uses surrounding the hub are predominantly residential. The site is bounded in all four directions by residential zones. There is a golf course (Cranbourne Golf Club) adjoining the south east corner of the land and the South Gippsland Highway cuts across the south west border of the site. Easements for major gas and electricity infrastructure traverse the site from south west to north east, with some associated open space extending north and south from the site.
Previous land use	Much of the site was previously quarried from the late 1950s. Historic site aerials in Appendix A show the change in land use over time both on the site and surrounds. Quarrying progressed from the northern portion of the hub area in a southerly direction with landfilling beginning in the late 1990s.
Physical geography	The hub and surrounding area are situated on Tertiary Age Baxter Sandstone Formation (Fyansford formation – Brighton Group aquifer). Historic quarrying and landfilling have altered the site topography which is also expected to change as the landfill is progressed.
Drainage	The site is relatively flat, except for the changes caused by quarrying and landfilling. It drains to the north east, feeding into the River Gum Creek and Hallam Main Drain. The land to the east of the landfill is subject to inundation and drains northwards.
Open space	Increased development in the City of Casey, particularly around the hub area has led to a lack of open space in the developed communities that surround the hub. Following post closure management of the landfill and appropriate rehabilitation, part of the site will return to the City of Casey for public open space.
Transport infrastructure	The hub has good access to transport links through proximity to the South Gippsland Highway. Road upgrades are planned to extend Glasscocks Road at the southern border of the hub and create the intersection of South Gippsland Highway and Glasscocks Road. Internal road infrastructure is changeable, having need to adapt to the changing nature of landfill construction, rehabilitation and closure, however there are three key access points, two off Hallam Road for the northern section of the site and one off of South Gippsland Highway for the southern portion. Once the public open space development has occurred, other transport modes such as walking and cycling will become important. There are existing cycle paths nearby including on South Gippsland Highway and through adjacent reserves such as River Gum Creek Reserve.
Geology and hydrogeology	The hub overlies the Red Bluff Sandstone, which is the upper unit of the Brighton Group, most recently referred to as the Sandringham Sandstone.⁵ Depth to water table is estimated to be mostly less than 5 m across the hub, with some areas between 5 and 10 m.⁶

Surrounding land use

Surrounding land use for the hub is summarised in Table 7.

Table 7: Surrounding land use

Direction from hub	Land use
North	North of the site is a residential area which was developed in the early 2000s. These residential dwellings are within the landfill's 500 metre buffer (as outlined in Site constraints). Established trees exist along the border between the landfill and residential land which provides some screening.
South	South of the site is Glasscocks Road which is currently in the process of being extended out to the South Gippsland Highway on the Western boundary of the hub. Beyond Glasscocks Road is residential development, most of which was built between 1990 and 2000.
East	In 1991, the area to the east of the site was farmland. By 2005, the residential development that exists along the eastern border of the site had been completed.
West	Development beyond the western border of the hub has progressed in a southerly direction from 2000 to the present.

Community

The suburb of Hampton Park has been host to a landfill since 1997. Residential development has progressed from a small area adjacent to the northern boundary in 2000, through to the current situation where residential uses effectively surround the hub. The currently published *Hampton Park Development Plan* suggests that the landfill area will be returned to the community as open space following completion of landfilling activity, however this may not be practical in the short term. It will be critical for the ongoing functionality of the hub that the community are continually informed of changes to the hub and to future plans.

The Hampton Park area has a small but very active community group that has been interested in the waste and resource recovery activities on the site for over 15 years. SUEZ also run a community reference group for the Hallam Road landfill to maintain community engagement regarding their activities in the hub.

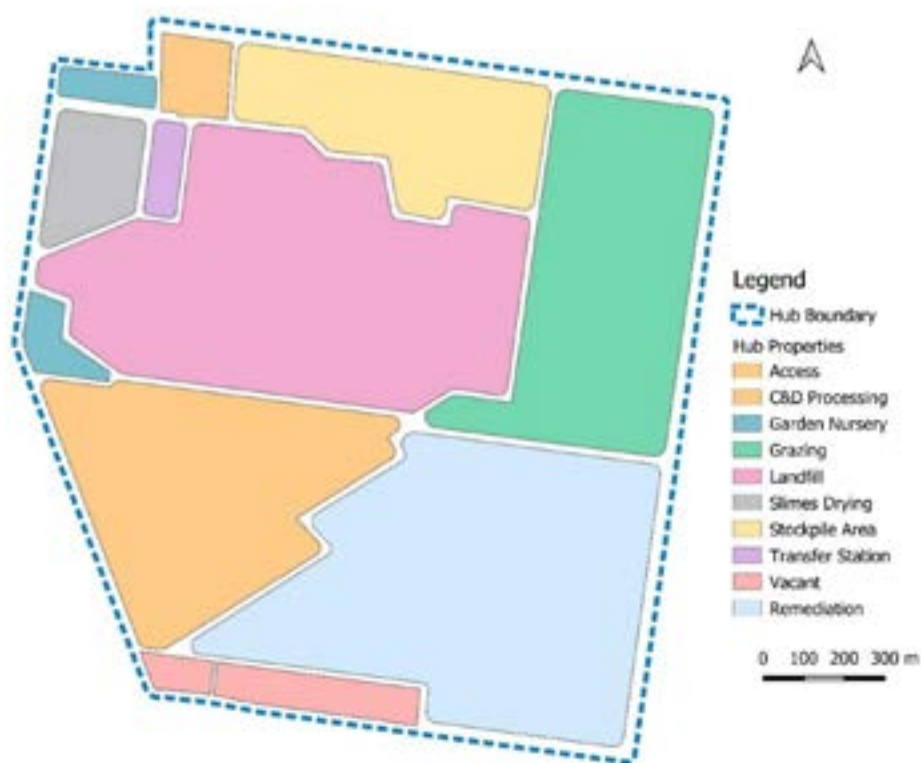
Recommendation:

6. Casey City Council engage with the community in the review of the planning framework on the role and value of the hub to the state, the region and the local community, as well as how the site and its services meet disposal and resource recovery needs.
7. MWRRG support Casey City Council in the ongoing engagement of the community on the hub's waste and resource recovery role and function.
8. Casey City Council work with hub operators to identify and implement local services and solutions to enable the community to participate in a circular economy.

Current activities

A range of activities are currently undertaken on the site for waste and resource recovery as well as other activities which are complementary uses or suitable for a buffer activity, see Figure 7.

Figure 7: Current hub activities



Landfilling

One of the key features of the Hallam Road Waste and Resource Recovery Hub is the operating landfill at 274 Hallam Road. The Hampton Park Resource Recovery Precinct (the landfill), is currently operated by SUEZ Recycling and Recovery Australia (SUEZ) and occupies a former sand quarry.

SUEZ operate five sites licenced by the EPA under amalgamated licence number 74673. The landfill is licenced to accept putrescible waste, solid inert waste and shredded tyres and first began receiving waste in 1997. Rehabilitation of the closed cells is completed progressively. The landfill cells have had varying liners and cap designs such as compacted clay or geomembranes. Leachate is extracted from all cells to the leachate ponds, where it is aerated prior to discharge to sewer under a trade waste agreement. Landfill gas is extracted from the cells and converted to energy which is fed into the electricity network.

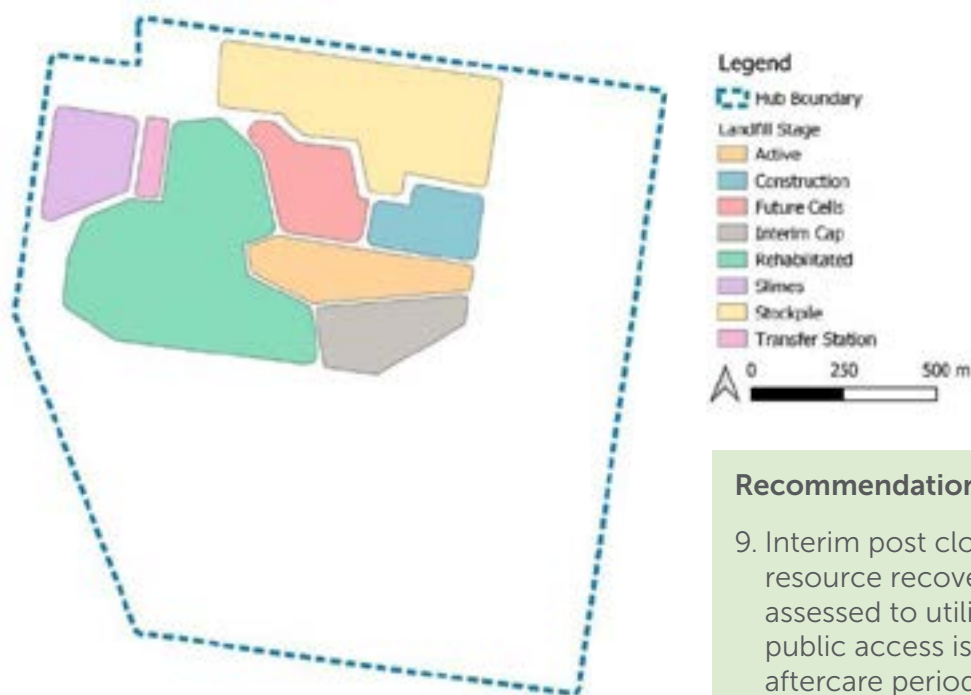
The landfill is one of the major facilities receiving putrescible kerbside material from Melbourne's councils. Local government customers of the Hallam Road landfill include:

- Cardinia Shire Council
- Casey City Council
- City Greater Dandenong
- Frankston City Council
- Glen Eira City Council
- City of Kingston
- Knox City Council
- Manningham City Council
- Whitehorse City Council
- Yarra Ranges Council

Whilst the landfill is a key piece of infrastructure for Melbourne's waste management, the site is nearing the end of its life. Airspace at the site is anticipated to be fully utilised around 2025. Approximately 500,000 tonnes per annum of material crosses the weighbridge at the landfill which will need to be diverted following the facility's closure. Given the established waste transport routes of the site, and availability of land, there is merit in investigating sites adjacent to the landfill for development of a major transfer facility for Melbourne's south east.

Following capping and rehabilitation of the landfill, a portion of the land will be returned to the City of Casey for use as public open space. It is important to note that the EPA's default aftercare period for a landfill following closure is 30 years. The aftercare period may be longer depending on any ongoing environmental monitoring such as landfill gas and leachate generation. Given that some of the earlier landfill cells were not constructed to today's standards, there is potential for the aftercare period to be greater than 30 years post closure. Should the aftercare period preclude public access for a period of time, the site may be assessed for other waste and resource recovery activities.

Figure 8: Landfill activities



Recommendation:

- Interim post closure waste and resource recovery activities should be assessed to utilise the landfill area if public access is excluded during the aftercare period.

Transfer station

A transfer station is located near the landfill gates and is utilised by the local community and small businesses. The facility, which includes both a public waste transfer station and a recycled goods store, is operated by Outlook Environmental (on land owned by SUEZ). Outlook Environmental is a not for profit organisation offering employment for disadvantaged people.

The transfer station is a valuable piece of waste and resource recovery infrastructure for the community. The transfer station receives a wide range of different waste materials for reuse, recycling or disposal. It also provides for the separation, sorting and consolidation of the waste and materials that they receive. This includes the aggregation and collection of priority materials such as organics and e-waste to divert these waste streams from landfill in line with Victorian Government recycling policies.

The transfer station provides opportunities for residents and businesses to drop off waste and other unwanted materials that cannot be managed through kerbside waste and recycling collection schemes. There are limited community waste facilities in the City of Casey where residents and other community members can dispose of a range of recyclable and waste materials. The Casey City Council closed its own transfer station in the knowledge that this transfer station would continue to provide waste disposal, recycling and recovery services to the community.

The planned closure of the Hallam Road landfill operations, recent landfill closures in the south east of Melbourne and population growth are likely to have a significant impact on the ongoing need for the transfer station. This provides the impetus to review the transfer station operations needs on the site and the role of the site in meeting local and regional waste and recycling needs, including managing kerbside collected residual waste that is currently being transported directly to the landfill.

The future capacity of the transfer station is still to be determined. Its capacity will be explored through the current planning permit application and more broadly in the development of the *Victorian Recycling Infrastructure Plan* (VRIP). The VRIP is an important element of the *Recycling Victoria* policy that seeks to plan and promote greater recycling and reuse of materials within a circular economy.

Recommendation:

10. Given there are established transport routes to the site, population and waste growth, and the planned closure of landfilling operations on the site strong consideration should be given to supporting the development of a commercial scale waste transfer facility.

C&D activities

There are two sites within the hub that conduct C&D activities: 282 Hallam Road and 795 South Gippsland Highway.

292 Hallam Road operates as a concrete batching facility. General site considerations for concrete batching include dust emissions, noise and turbid or alkaline wastewater.

795 Hallam Road is part of the Hampton Park Resource Recovery Precinct but is located outside of the EPA licensed boundary. Established in 2008, the facility services the south eastern suburbs of Melbourne. The facility accepts waste from renovations, redevelopments, industrial land developments. Materials managed on site include reinforced concrete, clean concrete, asphalt, bricks and mixed loads containing clean fill with small amounts of timber and plastic.

Undeveloped land and open space

280 Hallam Road has historically been used as agricultural grazing land. Given the significant level of encroachment at the site by residential development, the grazing land use is no longer viable. The land is owned by a family of farmers with a desire to keep the land as a productive piece of infrastructure.

Restrictions on the site include a floodway, powerline easement and landfill buffer. Given these constraints, residential development is largely precluded from the site. The key criterion for suitable land uses in buffers is a tolerance to noise, dust, odour and landfill gas migration. Uses that have the potential to complement existing hub activities and advance circular economy principles would be preferred.

825 and 829 South Gippsland Highway are undeveloped land and are owned by one landowner. The landowner is investigating the site's potential future uses and applying to the Casey City Council for a change to the zone applied over the site. It will be critical for council to consider any zoning changes within the hub context.

Current plans for the future of 825 and 829 South Gippsland Highway are not formalised but may include development of industrial buildings and structures. Design of any industrial buildings within or near the hub, such as warehouses or sheds, should consider how the space interacts with the waste and resource recovery activities occurring nearby. Specific industrial design guidelines would provide support to both council and landowners in developing the land.

The current vacant land is either not accessible or not suitable for use as public open space, however the hub has significant opportunities for the development of a community public open space asset. Following capping and rehabilitation of the landfill, this area of the hub will be returned to the City of Casey for use as public open space. This was a requirement of the 1997 planning permit and a Section 173 Agreement between the Casey City Council and the landfill owners.

A masterplan approach is required to ensure that the open space opportunities presented by the landfill closure and the future development of the undeveloped land are captured.

Recommendation:

11. Casey City Council to include design requirements for development adjacent to the hub which mitigates adverse amenity impacts from resource recovery activities.
12. Casey City Council to assess the availability of land within the hub for open space through masterplanning (for example, using the *Hampton Park Development Plan*). This masterplan should include consideration of the impacts of aftercare activities for the landfill on public access to future open space.
13. Casey City Council and the landowner ensure that the agreement for the return of land post closure is suitable for the intended open space utilisation.
14. Casey City Council, the EPA and industry work together to ensure future development considers the existing and future constraints of the hub.

Landscaping and garden supply

Two parcels of the hub are occupied by landscaping/garden supply facilities. These activities are typically resilient to the potential dust, noise, odour and landfill gas migration risk from waste and resource recovery activities and are good examples of complementary uses that could exist within the buffers that apply to the hub.

Some of the material sold by these facilities is recycled material sourced from construction and demolition waste reprocessing, demonstrating the circular economy in action.

An integrated hub network

Part of the purpose of the SWRRIP, the overarching infrastructure plan for waste management in Victoria, is to ensure that impacts of waste management on the environment, community and public health are not disproportionately felt. To reflect this, it is important to consider the Hallam Road Waste and Resource Recovery Hub in relation to other hubs nearby. These nearby hubs include the Lyndhurst Waste and Resource Recovery Hub (Lyndhurst hub) and the Ordish Road Waste and Resource Recovery Hub (Ordish Road hub), as shown in Figure 9.

Both the Ordish Road and Lyndhurst hubs are within the City of Greater Dandenong and within about 8 km of the Hallam Road hub. The Ordish Road hub is a major hub for co-mingled recyclable sorting, organics processing and reprocessing of aggregates and soil. It is also one of only three areas with an "Industrial 2" zoning in Victoria, meaning its 1,500 metre buffer is well recognised. The Ordish Road hub hosts warehouse style industrial reprocessing facilities on smaller lots rather than activities requiring large open spaces.

The Lyndhurst hub is the only landfill in Victoria licensed to receive Category B prescribed industrial waste. It is also licensed to receive Category C and putrescible wastes, however protecting its capacity to receive Category B waste means that this waste is the primary focus of activities at Lyndhurst.

Recommendation:

15. MWRRG ensure future hub plans consider the surrounding hub network to ensure integration.

Planned future development

The area bounded by the South Gippsland Highway, Evans Road and the Glasscocks Road extension is the only remaining area surrounding the hub that has not been developed. Currently, most of this area is undeveloped land with an aged care facility and one residential subdivision. A childcare facility has recently been approved for development too. Areas to the north, east and west of the hub contain residential land within the buffer area.

The *Lynbrook & Lyndhurst Development Plan* provides a framework to represent key activities and infrastructure for the suburbs of Lyndhurst and Lynbrook and includes this area as future residential development.

The proposed updates by DELWP to include reverse amenity considerations in the planning scheme could assist with preventing the encroachment of sensitive uses. This could involve the application of a new overlay or reverse amenity buffer, or a combination of tools depending on the updates that are made.

Planned future development of hub parcels also presents an opportunity to improve the visual amenity of the hub. Increased vegetation or screening along property boundaries will act as a visual buffer for the hub and can be implemented through planning permits. This could also be achieved by the appropriate design of commercial buildings and activities on these land parcels.

Recommendation:

16. Casey City Council to explore the use of the reverse amenity planning tools proposed by DELWP following their incorporation into the Victorian Planning Provisions.
17. Casey City Council to consider including visual screening requirements as a planning permit condition for development applications on parcels of land within the hub.

Figure 9: Nearby hubs



Site constraints

Landfill buffer

Several buffers and recommended separation distances exist for the current activities on the site. For the purposes of this plan, the terms 'buffer', 'separation distance' and 'threshold distance' are considered interchangeable. The largest buffer distance applies to the landfill. EPA publication *Siting, Design, Operation and Rehabilitation of Landfills* (788.3) identifies a buffer of '500 metres from buildings or structures' for a municipal putrescible landfill (Type 2).

Development near the landfill over time has resulted in encroachment of 'buildings and structures', particularly residential dwellings, within the 500 metre buffer. Appendix A shows historical imagery of the site and the encroachment over time. The development of buildings and structures can pose a safety risk due to landfill gas migration under the surface and into structures. The risks include asphyxiation and explosion and can continue after the landfill has closed.

The EPA may allow lesser buffer distances than the default 500 metres following an evaluation that demonstrates that the environment is protected, and amenity of sensitive areas will not be adversely affected. A risk assessment must be completed that considers design and operational measures.

The EPA state that 'Building and structure buffer distances apply to closed landfill sites until the site has stabilised to the point where the potential for subsurface gas migration has largely ceased. Typically, this will be a period of about 30 years.'⁷ Given that some of the earlier landfill cells were not built to the current environmental standards, the 30 year period may be longer.

Recommendation:

18. Casey City Council, in considering any proposed use and developments within 500 metres of the landfill gas and amenity buffers, must require applicants to show consideration that their operations will not be adversely impacted by waste and resource recovery activities particularly during upset and adverse weather conditions in line with EPA guidance documents.
19. Casey City Council to require that proposed developments within buffer areas show design and operational considerations to mitigate any potential adverse impacts from waste and resource recovery activities (e.g. dust, odour, noise) in line with EPA guidance documents.

C&D buffer

Concrete batching, currently occurring at 282 Hallam Rd, requires a separation distance of 100 metres according to EPA guidelines 1518: *Recommended Separation Distances for Industrial Residual Air Emissions*.

While there is no specific separation distance in EPA guidelines 1518 for C&D processing (as is occurring on the southern portion of the site), the definition for a materials recovery and recycling facility includes 'collecting, dismantling, treating, processing, storing recycling, or selling used or surplus materials. The separation distance is determined on a 'case by case' basis. Further, Planning Provision 53.10 for commercial and industrial materials recycling states 'The threshold distance is variable, dependent on the processes to be used and the materials to be processed or stored'. The planning approval for Lot 4 in the south western portion of the site included a condition that C&D processing machinery be placed a minimum of 300 metres from residential areas.

The sensitive receptors at this site are residents around the perimeter of the hub. Figure 10 shows the buffers required by the current site activities, and their overlap with sensitive receptors. Future activities on the site may have different requirements for separation from sensitive receptors.

The site currently has significant limitations on where new waste and resource recovery activities can be located. These typically cannot be developed on top of the landfilled area due to the risk of subsidence and landfill gas leakage. In addition, waste and resource recovery activities are likely to have buffer zone requirements of between 100 metres (in the case of some inert waste reprocessing with low amenity impacts such as concrete batching plants) or 250 metres (in the case of activity that generates significantly more noise or dust). These are shown in Figure 11 as reverse buffers.

While each proposed activity will be assessed for its individual requirements, Figure 11 provides some guidance as to the available land that may be suitable for future waste and resource recovery activities. Activities with low amenity impacts should preferably not be located in areas that have a larger buffer, in order to preserve these areas for essential activities that require the larger separation distance.

Land within 100 metres of residential areas will typically not be suitable for new waste and resource recovery activity.

Recommendation:

20. Casey City Council consider the buffer requirements as outlined in [Landfill buffer](#) and [C&D buffer](#) when masterplanning future activities on the site, to ensure that waste and resource recovery activities can continue to operate successfully and in line with EPA guidance documents.

Figure 10: Encroachment into buffers

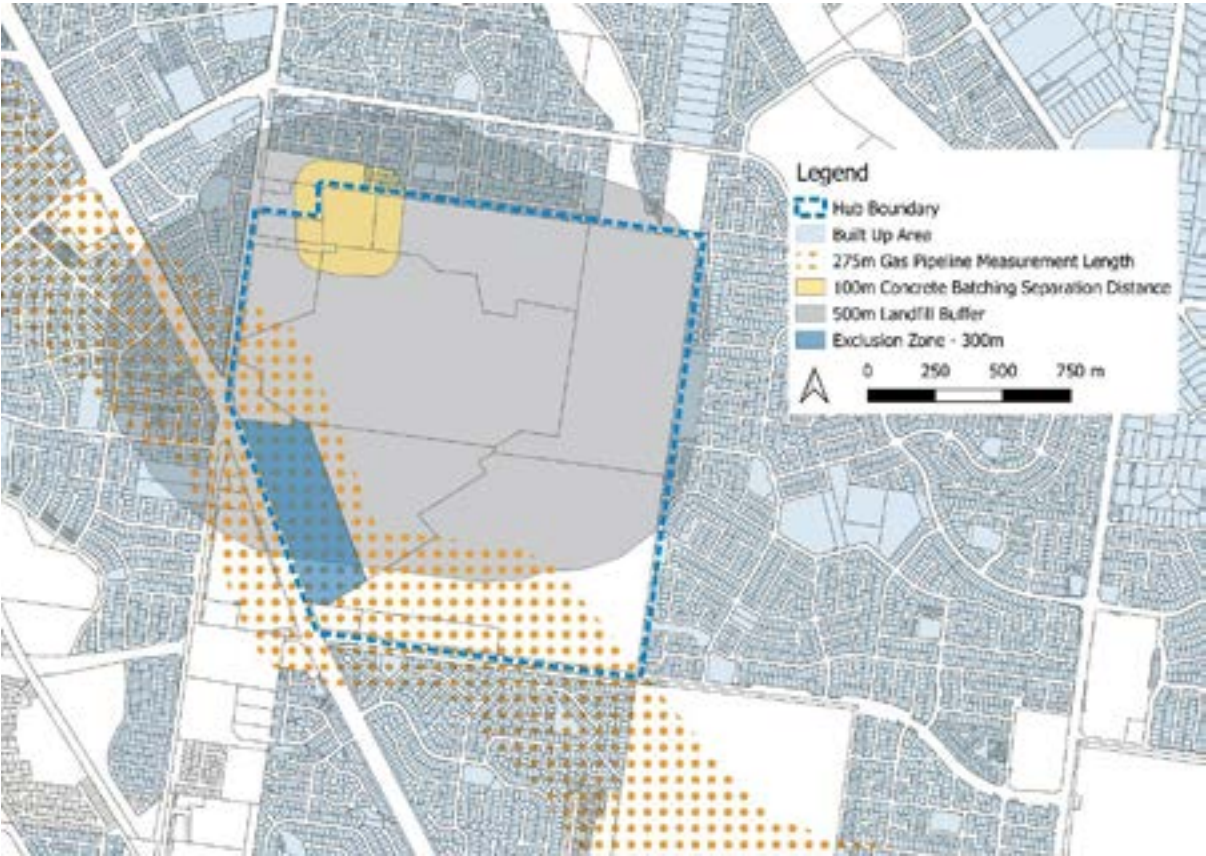
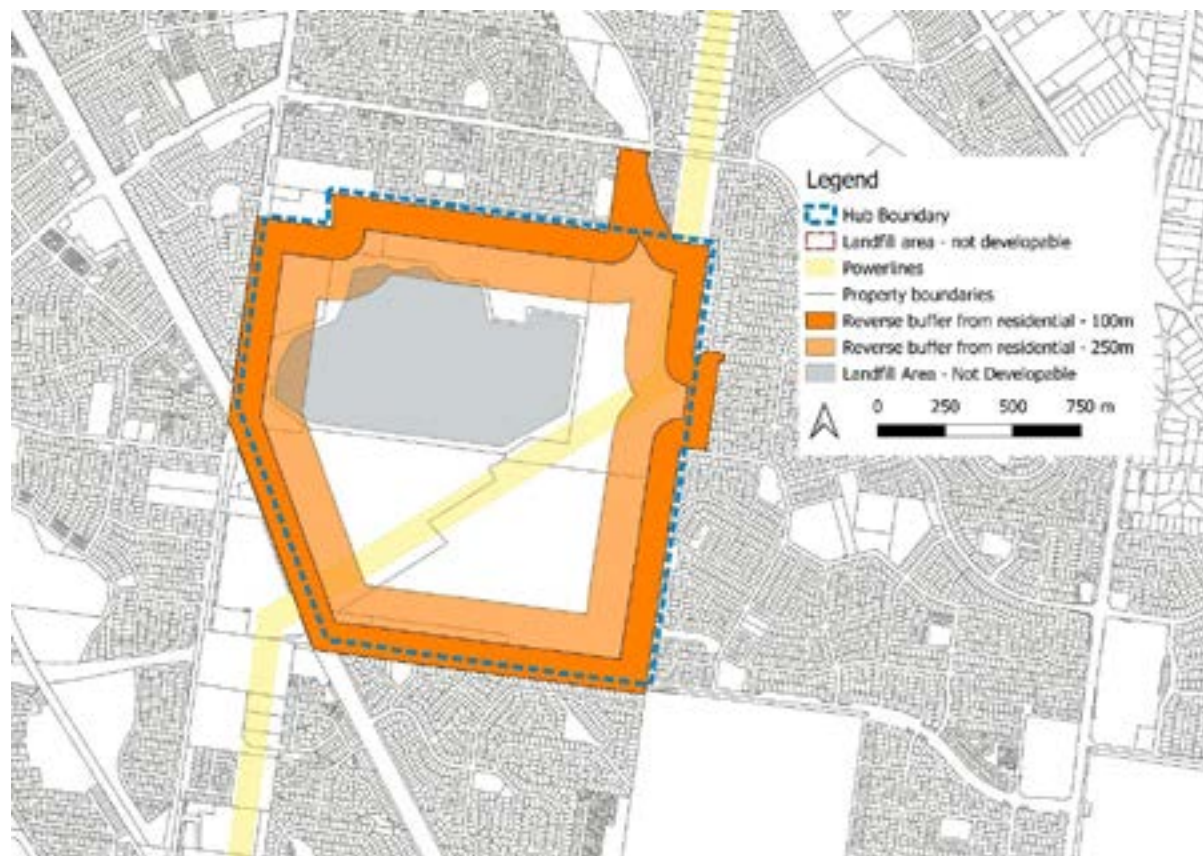


Figure 11: Land area suitable for new waste and resource recovery activity



Landfilling

Landfilling activities have occurred in the hub since 1997. Since then, residential encroachment has occurred close to the site, eroding the recommended buffer areas. While the landfill operates to EPA standards to manage its impacts on receptors, this can sometimes be difficult in times of adverse weather conditions. The landfill has consequently been subject to community scrutiny and VCAT hearings and has had an Enforceable Undertaking issued by EPA to manage amenity.

Given the proximity of residents to the landfilling operations and the general poor perception of landfilling within the community, establishing and maintaining a good relationship between the landfill and community is key to ongoing waste and resource recovery activities on site.

Current landfill owners and the Casey City Council have an arrangement (through a Section 173 agreement) that the landfill site will be returned to the council for use as public open space post closure. It will be critical for the ongoing functionality of the hub that the community are continually informed of the planned changes to hub areas.

Recommendation:

6. Casey City Council engage with the community in the review of the planning framework on the role and value of the hub to the state, the region and the local community, as well as how the site and its services meet disposal and resource recovery needs.
7. MWRRG support Casey City Council in the ongoing engagement of the community on the hub's waste and resource recovery role and function.

Services and easements

Waste and resource recovery activities and potential development at the Hallam Road Waste and Resource Recovery Hub are also constrained by services that pass through the site. The two main services are electricity and gas.

A powerline easement runs along a south west/north east diagonal through the site (Figure 11). AusNet Services manage the Victorian electricity transmission network and advise on the restrictions for land use and development within the easements. Permitted work within a transmission easement, as listed by AusNet Services, includes:

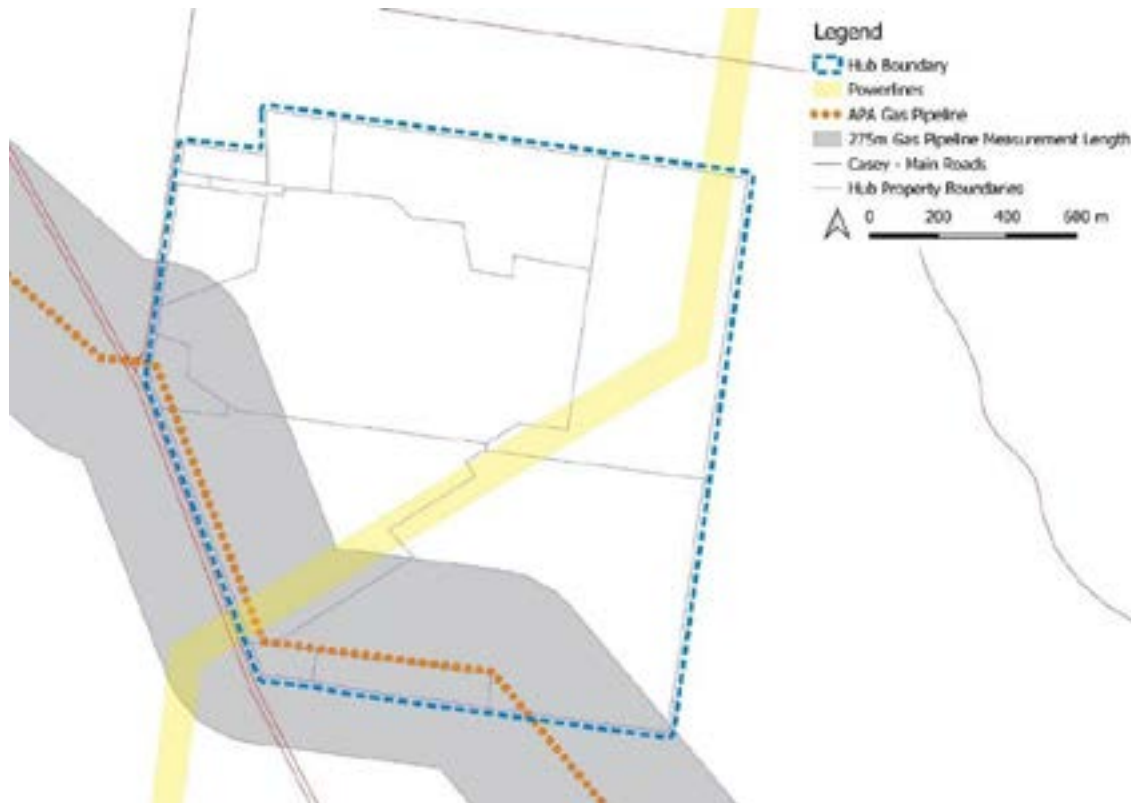
- farming – agricultural and grazing
- operating market gardens, orchards and horticultural nurseries – excluding buildings
- parking of sedan and utility vehicles – barriers of an approved design may be required to protect towers from damage by vehicles
- operating car, boat and trailer sale yards – for 220 kV easements only
- operating ground level sports facilities – such as football or cricket ovals, golf courses, basketball or netball courts (subject to special requirements for the design of fences, goals and lighting).⁸

An APA high pressure gas transmission pipeline intersects part of the hub. The pipeline, also shown in Figure 11, runs along the south west and southern portion of the hub area and is part of the Morwell to Dandenong pipeline route. Anecdotal evidence from APA suggests that the gas pipeline is an aging asset which may be sensitive to activities that generate ground vibrations. APA advise that a 275 metre 'measurement length' is applied to the pipeline. Any works within the measurement length will require a third party works approval from APA Group.

Recommendation:

21. Casey City Council ensure that future use and developments in and adjoining the hub consider impacts of the existing gas pipeline, powerlines and associated buffers, and that these buffers be built into any site masterplan in line with EPA guidance documents.

Figure 12: Services constraints



Floodway

As discussed in [Overlays](#), a section of land to the western edge of the site is covered by an LSIO identifying land that may be subject to flooding from waterways and open drainage systems, (also known as a floodplain).

A UFZ also applies in the same area, which indicates a high potential flood risk and applies strict controls over land uses that can occur. A permit is not required for the use of the land as informal outdoor recreation, and the following are permit required uses:

- agriculture (other than animal production and apiculture)
- grazing animal production

- leisure and recreation (other than informal outdoor recreation, indoor recreation facility and motor racing track)
- road
- utility installation (other than telecommunications facility)
- any use listed in Clause 62.01 (Uses not requiring a permit) if any requirement is not met.

All other land uses are prohibited within the UFZ.

A permit application under the UFZ must be referred to Melbourne Water Corporation, while the LSIO requires a planning permit where buildings and works are intended, which must be referred to Melbourne Water Corporation.

Site access

Currently, most the hub's land parcels are accessed via Hallam Road or South Gippsland Highway. Site access to the northern portion of the hub from Hallam Road is generally considered good for the current level of traffic. There are some land parcels which can only be accessed from south bound lanes which requires exiting the site south bound as well. This is a limitation for both access and traffic movement in the local area, particularly if truck movements increase in the future.

The current site access arrangements also limit the potential for public open space use in the future.

Planned road upgrades near the site include:

- Hallam Road upgrade extending from Ormond Road to the South Gippsland Highway. This upgrade includes an extra lane in each direction, installation of new traffic lights at the intersection of Hallam Road, South Gippsland Highway and Evans Road, and traffic lights at the SUEZ Resource Recovery Precinct which will facilitate traffic movement into and out of this portion of the hub.
- Glasscocks Road along the southern boundary of the site which may improve access to 825 and 829 South Gippsland Highway and 605 Glasscocks Road.

Whilst there are plans to upgrade external roads, a need has been identified for an internal road network in the hub. An internal road network to allow movement of traffic within the site will:

- support industrial ecology and complementary land uses
- improve access to hub land parcels, especially 280 Hallam Road which is currently accessed through a vacant residential lot on its eastern boundary
- support other future land uses such as public open space
- allow for the retention of a significant tree reserve along the northern boundary of the hub.

Recommendation:

22. Casey City Council consult with the operators and landowners to plan the development of an internal road network that best supports the retention of the existing tree reserve adjoining the northern boundary of the hub, community access to future open space areas, site access to adjoining lots and safe access to waste and resource recovery activities.

Land capability assessment

The hub is a valuable piece of waste and resource recovery infrastructure for the region with proximity to Melbourne, other hubs of state importance, transport links, and sources of waste. The lack of other community accessible transfer stations and resource recovery infrastructure within the City of Casey further highlights the importance and value of the hub.

The landfill on the site has been accepting waste since 1997 through a series of designed, constructed and operated landfill cells. The boundaries of the cells, and therefore the extent of the landfilled waste, has been well defined over the life of the landfill. The definition of the extent of the landfill will help inform any future development seeking placement nearby.

While the landfill is a major aspect to the current hub, it will close around 2025 when airspace is predicted to run out. The closure of the landfill, one of the major landfills servicing the south east of Melbourne, has the potential to displace approximately 500,000 tonnes of putrescible waste. While closure of the landfill may cause disruption, it is also an opportunity to adapt and improve the waste and resource recovery infrastructure network.

To improve the waste and resource recovery network, consideration of the following site improvements should be made:

- an internal road network to allow movement of traffic within the site
- improved access for land parcels in the hub, particularly 280 Hallam Road
- increased vegetation or screening along property boundaries to act as a visual buffer.

Former landfills require ongoing management measures (such as landfill gas and groundwater monitoring). Settlement of capped landfill cells is also expected which raises geotechnical and construction challenges and typically precludes building structures on finished cells for a period of time. Open air operations which do not require permanent or large structures are generally preferred in these locations.

The areas that are outside the extent of the landfill cells have either been quarried in the past or are encumbered in other ways, through service easements or due to flooding overlays and zoning. These areas are generally also suitable for open air operations. As the southern portion of the site is progressively rehabilitated, it will become available for other uses as identified in the Development Plan.

The biggest threat to land capability identified by the waste and resource recovery operators is encroachment by sensitive receptors, as shown in Figure 10. These receptors will likely preclude future putrescible waste reprocessing or organics processing at the hub.

Table 8 assesses the Hallam Road hub against the SWRRIP's listed parameters of a well located and well functioning hub.

Table 8: Ideal hub definition

Definition of a well located and well functioning hub	Application to the hub
Facilitate aggregation and consolidation of individual material streams to achieve the tonnages needed to maximise resource recovery	There is an opportunity to aggregate and consolidate putrescible kerbside material following the closure of the landfill. The southern portion of the site aggregates C&D waste for resource recovery.
Attract investment in resource recovery infrastructure, particularly those relying on specific material streams	Ongoing protection of buffer areas and acknowledgement of long term support for waste and resource recovery activities in the hub by MWRRG and the Casey City Council will help bolster private industry investment.
Have appropriate buffers to support the waste and resource activities (which may be shared with other activities requiring buffers)	Stronger protection of remaining areas in the buffers where residential development has not progressed is required.
Have good access to transport networks	The hub has access to the South Gippsland Highway. The Glasscocks Road upgrade will likely improve access for properties within the hub. An internal road network will improve the access to what is already a good surrounding road network.
Be co-located with, or close to complementary activities that provide feedstocks or markets for the products and services made from the activities	There are parcels of land within the hub boundary which are currently unused or open space which have the potential for complementary activities.
Minimise community, amenity, environment and public health impacts	Current waste and resource recovery activities must operate to EPA standards of amenity, environment and public health impacts. Ongoing community education, and protection of buffer distances for current and future activities will help to minimise these impacts.
Support employment and industrial activities to create additional job opportunities	Acknowledgement of long term support for waste and resource recovery activities in the hub by MWRRG and the Casey City Council will help support private industry development and employment in the hub.
Be integrated with a broader precinct with complementary activities in terms of land use planning	There are limitations to integrating the hub within the broader precinct, given the proximity of residential zones and the required separation of these two land uses. The hub does consider integration within the broader network of neighbouring hubs of state importance.
Operate over time to underpin the investment in infrastructure	The development of additional planning tools to assist in assessing future applications and protecting the role of the hub as a site for waste and resource recovery infrastructure will help secure the future of this area. Using the buffer areas for complementary uses that also serve the community and provide employment will help to ensure that the hub has community support to retain its waste infrastructure functions.

Future opportunities

C&D processing

C&D processing is a key waste and resource activity taking place on the site. C&D processing typically requires larger land parcels than other activities within the industry. The Hallam Road hub area has a significant area of currently unused land adjacent to the existing C&D facility and therefore has capacity to accommodate further C&D processing. Given that the Ordish Road and Lyndhurst hubs have comparatively smaller parcels of land, the Hallam Road hub is well suited to have a C&D processing focus in comparison.

Consideration for increased C&D recycling capacity at the hub should be made to support future gaps in C&D processing for the region.

Increased throughput across the site, especially in C&D materials will increase traffic flows into and out of the site. Improved internal road networks within the hub will ensure access occurs at the most appropriate and safest locations on the road network and improve transport routes for waste and resource recovery.

One of the major C&D processing facilities in the south east of Melbourne is expected to close in 2023, due to permit expiry. The facility is in Clarinda and recycles up to one million tonnes of material per year. The site processes both glass and construction materials.

The future capacity of the Hallam Road hub to meet regional C&D capacity is still to be determined. Its capacity will be explored in the development of the VRIP.

Recommendation:

23. MWRRG, Casey City Council and hub operators work together to consider increasing the capacity for C&D processing to meet the upcoming shortfall of such facilities in the region due to closures of nearby facilities.
24. Casey City Council investigate improved internal roadways to ensure access occurs at the most appropriate and safest locations on the road network.

Waste processing gaps

One of the overarching strategic directions for waste management in Victoria is reducing the amount of material sent to landfill. In 2019, the Victorian Government banned the disposal of e-waste from landfill. Should other streams of materials be banned from landfill, additional processing capacity will be required, including an increased need for transfer station, resource recovery and materials recovery facilities.

Diversion of organic material from landfill has had increased focus in recent years. Many councils now provide a food organics and garden organics (FOGO) collection to the community. The FOGO material is transported to a processing or treatment facility. The Ordish Road hub has an organics processing focus and appropriate buffers in place. Encroachment by residential subdivisions largely precludes the development of an organics processing facility at the Hallam Road hub.

Similarly, the development of a waste to energy facility is largely precluded from the site due to a lack of buffers. Recently, there has been increased industry interest in the development of waste to energy and advanced waste processing, especially around Melbourne. While such a facility may not be located within the hub, there will be a need to process or treat the material outputs from waste to energy facilities, such as the treatment of bottom ash.

Other inert material processing could be supported at the site, such as e-waste, plastics, metal or glass recycling. As we move towards a circular economy, there will be an increased need to process a wider range of waste stream, as has developed with the e-waste reprocessing industry. The hub is well positioned to support this transition.

The development of the circular economy supports a reduction in the state's greenhouse gas emissions through organic waste management and maximising the use of materials while minimising waste. Maximising the use of materials will require additional reprocessing infrastructure which may be accommodated at the hub.

Recommendation:

25. MWRRG, Casey City Council and industry should work together to prepare for additional processing capacity of new waste streams by:

- identifying appropriate areas of the site for these activities to occur in site masterplanning
- ensuring that current activities are appropriately located.

Complementary land uses

Current activities within the hub have buffer zones and threshold distances that are designed to minimise risk and amenity impacts for the surrounding environment and people. Throughout the consultation process to develop this hub plan, it was clear that private industry are seeking to maximise use of land within the buffer zones. While it is important to support growth in the local economy and increase jobs in the area, activities in buffer zones must consider the needs of established industries, especially those that are providing an essential service such as waste and resource recovery. Development can be managed within the buffers to ensure that appropriate and complementary land uses thrive.

Ideal land uses within the hub or buffer areas, would fit the following criteria:

- non-residential
- resilient to dust, noise and odour
- promote the principles of a circular economy
- build industrial ecology relationships between businesses in the hub (e.g. one business uses a by-product of another business).

The concept of the circular economy aims to keep resources productive for as long as possible and is a key concept for supporting complementary land uses. The potential for increased throughputs and new waste and resource recovery activities to be established at the hub presents an opportunity to connect businesses and align industries to promote sustainability and reduce our dependence on virgin resources.

Future needs

Future needs for waste and resource recovery are influenced by several factors:

- existing and new waste and resource recovery infrastructure
- population growth
- closure of neighbouring facilities
- markets for recycled products
- local development
- appetite of private industry.

Predicting these future needs can be difficult given their changing nature. Through investigating the current activities at the hub and surrounding hubs, we can infer that:

- increased C&D processing capacity will be a need for the future of the hub
- other inert material processing could be supported at the site, such as e-waste, plastics, metal or glass recycling
- future waste streams will require reprocessing infrastructure as we move towards a circular economy (similar to the recent development of the e-waste reprocessing industry)
- following the closure of the site's landfill, there will likely be a need for consolidation and bulk haulage of kerbside putrescible material.



Hub plan

Vision

The Hallam Road Waste and Resource Recovery Hub is a valuable, well placed site for waste and resource recovery infrastructure to service the City of Casey, the region and the state. As the Hallam Road landfill closes, the hub will transition away from waste disposal activities and focus on waste transfer activities and the resource recovery of inert materials, while also providing valuable public open space to the City of Casey.

Objectives

The hub plan has the following established objectives:

- support the long term waste and resource recovery activities on the site
- encourage complementary land uses in the hub and buffer areas
- provide support for industry investment and development of infrastructure at the site
- improve management of amenity and reverse amenity in the hub and surrounding areas
- integrate planning for the hub with other neighbouring hubs of state importance.

Recommendations

Recommendations made throughout the hub plan are summarised in Table 9.

Table 9: Summary of recommendations

Theme	Recommendations
Assessments	12. Casey City Council to assess the availability of land within the hub for open space through masterplanning (for example, using the <i>Hampton Park Development Plan</i>). This masterplan should include consideration of the impacts of aftercare activities for the landfill on public access to future open space. 25. MWRRG, Casey City Council and industry should work together to prepare for additional processing capacity of new waste streams by: - identifying appropriate areas of the site for these activities to occur in site masterplanning - ensuring that current activities are appropriately located and operate in line with Environment Protection Authority Victoria environmental requirements.
Future infrastructure and land use	9. Interim post closure waste and resource recovery activities should be assessed to utilise the landfill area if public access is excluded during the aftercare period. 10. Given there are established transport routes to the site, population and waste growth, and the planned closure of landfilling operations on the site strong consideration should be given to supporting the development of a commercial scale waste transfer facility. 13. Casey City Council and the landowner ensure that the agreement for the return of land post closure is suitable for the intended open space utilisation. 14. Casey City Council, the EPA and industry work together to ensure future development considers the existing and future constraints of the hub. 22. Casey City Council consult with the operators and landowners to plan the development of an internal road network that best supports the retention of the existing tree reserve adjoining the northern boundary of the hub, community access to future open space areas, site access to adjoining lots and safe access to waste and resource recovery activities. 23. MWRRG, Casey City Council and hub operators work together to consider increasing the capacity for C&D processing to account for closures in nearby facilities in line with the goals of the <i>Recycling Victoria: a new economy</i> policy to recycle more resources and increase the use of recycled materials. 24. Casey City Council investigate improved internal roadways to ensure access occurs at the most appropriate and safest locations on the road network.

Theme	Recommendations
Buffer preservation	- Casey City Council to include design requirements for development adjacent to the hub which mitigates adverse amenity impacts from resource recovery activities. - Casey City Council to explore the use of buffer and reverse amenity planning tools proposed by the Department of Environment, Land, Water and Planning (DELWP) to deter inappropriate development adjacent to the hub, following their incorporation into the Victorian Planning Provisions. - Casey City Council to consider including visual screening requirements as a planning permit condition for development applications on parcels of land within the hub. - Casey City Council, in considering any proposed use and developments within 500 metres of the landfill gas and amenity buffers, must require applicants to show consideration that their operations will not be adversely impacted by waste and resource recovery activities particularly during upset and adverse weather conditions in line with EPA guidance documents. - Casey City Council to require that proposed developments within buffer areas show design and operational considerations to mitigate any potential adverse impacts from waste and resource recovery activities (e.g. dust, odour, noise) in line with EPA guidance documents. - Casey City Council consider the buffer requirements as outlined in Landfill buffer and C&D buffer when masterplanning future activities on the site, to ensure that waste and resource recovery activities can continue to operate successfully and in line with EPA guidance documents. - Casey City Council ensure that future use and developments in and adjoining the hub consider impacts of the existing gas pipeline, powerlines and associated buffers, and that these buffers be built into any site masterplan in line with EPA guidance documents.
Planning	- Casey City Council and MWRRG work with the EPA to review the appropriateness of existing site buffers in light of current site activities and the revision of buffers related to Planning Policy Framework and Clause 53.10 of the Victorian Planning Provisions. - Casey City Council to review and apply the appropriate planning tools used for buffer areas which will incorporate the concept of reverse amenity. - Casey City Council review and update the planning framework for the hub including a review of the Development Plan and overlay to ensure it meets future needs of the City of Casey and the south east region. New planning provisions must acknowledge and strengthen the existing waste and resource recovery operations on the site. - Casey City Council clarify the future public open space and identify mechanisms to acquire the open space when landfilling activities allow for open space use. - Casey City Council to consider applying appropriate planning tools to the hub plan area which will action the hub plan recommendations (e.g. Development Plan Overlay, Buffer Area Overlay, Design and Development Overlay, zoning).
Social integration with hubs and community	- Casey City Council engage with the community in the review of the planning framework on the role and value of the hub to the state, the region and the local community, as well as how the site and its services meet disposal and resource recovery needs. - MWRRG support Casey City Council in the ongoing engagement of the community on the hub's waste and resource recovery role and function. - Casey City Council to work with hub operators to identify and implement local services and solutions to enable the community to participate in a circular economy. - MWRRG ensure future hub plans consider the surrounding hub network to ensure integration.

Endnotes

1. *Sustainability Victoria Act 2005*
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3. Metropolitan Waste and Resource Recovery Group, 2016. *Metropolitan Waste and Resource Recovery Implementation Plan*. <https://mwrrg.vic.gov.au/about-us/strategic-framework/the-metropolitan-waste-and-resource-recovery-implementation-plan/>
4. Department of Environment, Land, Water and Planning, 2018. *Recycling Industry Strategic Plan*. https://www.environment.vic.gov.au/__data/assets/pdf_file/0027/408366/Recycling-Industry-Strategic-Plan-RISP.pdf
5. Birch W.D (Editor), Geological Society of Australia (Victoria Division), 2003. *Geology of Victoria, Geological Society of Australia, Special Publication 23*.
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7. Environment Protection Authority Victoria, 2015. *Siting, design, operation and rehabilitation of landfills, Publication 788.3*.
8. AusNet Services, *Transmission – Easement Use* (webpage). Accessed February 2020: <https://www.ausnetservices.com.au/Business/Electricity/Safety/Transmission-Easements>

Appendix A: Glossary

Term	Definition
Airspace	The remaining capacity of a landfill.
Buffer zone	A buffer zone is an area of land outside the operating area of a facility that is set aside to maintain an adequate distance between the facility and sensitive land uses (such as residential development) so those uses are not adversely affected by noise, odour or dust. The land may or may not be owned by the facility owner.
Circular economy	In a circular economy, resource use is minimised, and waste and pollution are avoided with good design and efficient practices. This reduces environmental impacts while maintaining or increasing the value people obtain from goods and services.
Co-mingled recyclables	Materials combined generally for the purposes of collection, mainly through municipal collection services. Includes plastic bottles, other plastics, paper, glass and metal containers. Co-mingled recyclable materials require sorting after collection before they can be recycled. Can also be called commingled materials.
Composting	The process whereby organic materials are microbiologically transformed under controlled aerobic conditions to create a pasteurised and stabilised organic product for application to land.
Construction and demolition (C&D) waste	Solid inert waste generated from residential and commercial construction and demolition activities e.g. bricks and concrete.
DELWP	The Department of Environment, Land, Water and Planning. A Victorian Government department providing policy planning, preparation of legislative amendments, leadership coordination and oversight of the environment portfolio.
EPA	Environment Protection Authority Victoria. Established under the auspices of the <i>Environment Protection Act 1970</i> , EPA's role is to be an effective environmental regulator and an influential authority on environmental impacts. The <i>Environment Protection Act 1970</i> will be superseded in July 2020 by the <i>Environment Protection Act 2017</i> .
E-waste	E-waste comprises of electronic equipment with a plug or battery that requires a current to operate and that has reached end of life. It includes televisions, computers, monitors and whitegoods such as fridges and washing machines.
FOGO	Food organics and garden organics. The combined collection and processing of food and garden organics. Preferred term for composting industry and some councils. Use food and green waste in any public communication.
Food waste	Food waste from households or industry, including food processing waste, out of date or off specification food, meat, fruit and vegetable scraps. Excludes liquid wastes.
Gate fee	A charge made by a facility operator for the receipt of a quantity of waste or recyclable material.
Green organics	See green waste.
Green waste	Waste from garden sources e.g. grass clippings, tree prunings. Also known as garden waste.
Hampton Park Resource Recovery Precinct	Hampton Park Resource Recovery Precinct is currently operated by SUEZ Recycling and Recovery Australia (SUEZ). This forms the core of the hub and has been variously referred to as the SITA landfill, the SUEZ Hallam landfill and the Hallam Road landfill. The precinct also includes a public transfer station.

Term	Definition
Kerbside waste/ collection	Waste collected by local councils from residential properties, including rubbish, commingled recyclables and garden organics, but excluding hard waste.
Landfill	A facility for the burial of solid waste. Modern landfills are designed with base and side wall liners, as well as leachate collection systems to minimise leakage of leachate to groundwater. Waste is deposited and compacted within the landfill, and once the landfill cell is full, it is capped with clay (at a minimum) and rehabilitated. As landfill designs and processes have evolved over time, some closed landfills may not have all the environmental controls listed above.
Landfill gas (LFG)	A methane rich gas produced by the anaerobic decomposition of animal and plant matter in a landfill.
Leachate	Contaminated water that has percolated through or drained from a landfill.
Metropolitan Waste and Resource Recovery Implementation Plan (Metropolitan Implementation Plan)	The Metropolitan Implementation Plan outlines how the long term directions and goals of the <i>Statewide Waste and Resource Recovery Infrastructure Plan</i> will be achieved in metropolitan Melbourne. The Metropolitan Implementation Plan's objectives are to: • reduce waste sent to landfill • increase organic waste recovered • deliver community, environmental and economic benefits • plan for Melbourne's growing population.
Municipal and Industrial Landfill Levy (known as the landfill levy)	A levy collected by landfill operators for each tonne of waste deposited at specific scheduled premises as outlined in the <i>Environment Protection Act 1970</i>. It is applied at differential rates to municipal, C&I and prescribed wastes disposed of at licensed landfills. It was introduced as a price incentive to increase resource recovery and divert waste from landfill. The levy funds some Victorian environmental agencies (including Sustainability Victoria and the Waste and Resource Recovery Groups) and initiatives that improve waste management or action on climate change.
Putrescible waste	Waste that readily decomposes, including food and green waste.
Recyclables	While this term strictly applies to all materials that may be recycled, the term is generally used to refer to the recyclable component of kerbside waste e.g. it excludes garden organics.
Recycling	A term that may be used to cover a wide range of activities, including collection, sorting, reprocessing and manufacture into new products.
Recycling Victoria	Is the Victorian Government's 10-year policy and action plan for waste and recycling. It outlines a plan of reform to establish a recycling system based on circular economy principles that Victorians can rely on. It transforms how our economy uses materials and how our state reuses, repairs and recycles.

Term	Definition
Reprocessing	Changing the physical structure and properties of a waste material that would otherwise have been sent to landfill to add financial value to the processed material. Without reprocessing, the beneficial use of waste materials would be lost.
Reprocessor/ reprocessing facility	Facility that changes the physical structure and properties of a waste material that would otherwise be sent to landfill to add financial value to the processed material. Without reprocessing the beneficial use of the material would be lost.
Residual waste	Waste that is left over after suitable materials have been recovered for reuse and recycling. This generally means the environmental or economic costs of further separating and cleaning the waste are greater than any potential benefit of doing so.
Resource recovery	The process of obtaining matter or energy from discarded materials. Occurs at resource recovery centres.
Resource recovery centre	Facilities established to receive and/or recover re-usable and recyclable materials that would otherwise be destined for disposal. Can be combined with a transfer station and may include resale centres.
Spokes	The sequence of activities that move materials from waste generators to (and from) hubs e.g. collection, transport and sorting. The length of the spoke and hence the location of the hub for a material stream is influenced by the impact of transport on the margin of return for that material stream.
Sustainability Victoria (SV)	Statutory authority established in October 2005 under the <i>Sustainability Victoria Act 2005</i> with the key objective of 'facilitating and promoting environmental sustainability in the use of resources'. SV works across the areas of energy, waste and water with communities, industries and government applying the best ideas and encouraging action to enable change in environmental practices.
Transfer station/ resource recovery centre	A facility allowing the drop off and consolidation of rubbish and a wide range of recyclable materials. Can be combined with a resource recovery centre and may include resale centres. Does not undertake processing activities.
Victorian Recycling Infrastructure Plan (Prior to February 2020 it was called the Statewide Waste and Resource Recovery Infrastructure Plan)	Prepared by Sustainability Victoria on behalf of the Victorian Government, it is a central component of Victoria's Waste and Resource Recovery Infrastructure Planning Framework and Victoria's integrated approach to waste and recycling. The vision of the Recycling Infrastructure Plan is to develop an integrated statewide waste and resource recovery system that continues to provide an essential community service. SV works closely with the seven WRRGs, responsible for complementary Regional Implementation Plans, to deliver change at a state, regional and local level and maximise impact. Related terms: Sustainability Victoria, <i>Metropolitan Waste and Resource Recovery Implementation Plan</i>.

Appendix B: Site aerials

Source of imagery: City of Casey

1939



1956



1957



1960



1962



1968



1972



1974



1979



1985



1987



1989



1991



2000



2001



2003



2004



2005



2006



2007



2008



2009 Jan



2009 Nov



2011 Jan



2012 Oct



2013 Mar



2013 Oct



2014 Mar



2014 Oct



2015 Oct



2016 Apr



2016 Nov



2017 Dec



2018 Dec



2018 Feb



2018 Oct



2019 Mar



Appendix C: Hub property summary

Address	Parcel	Parcel Size (ha)	Current activity	Encumbrances
829 South Gippsland Hwy	Lot 2, PS815327	4.9	Vacant	Gas pipeline 300 metre C&D buffer
825 South Gippsland Hwy	Lot 1, PS815327	1.5	Vacant	Gas pipeline 300 metre C&D buffer
795 South Gippsland Hwy	Lot 4, PS517790	35.9	C&D Processing	Powerline easement Gas pipeline 500 metre landfill buffer 300 metre C&D buffer
735 South Gippsland Hwy	Lot 2, PS718341	2.7	Garden Nursery	500 metre landfill buffer 300 metre C&D buffer
605 Glasscocks Rd	Lot 6, PS517790	60.8	Remediation	Powerline easement Flood overlay 500 metre landfill buffer Gas pipeline 300 metre C&D buffer
310 Hallam Rd	Lot 2A, PS517790	62.5	Landfill & Transfer Station	500 metre landfill buffer Landfill post closure requirements 300 metre C&D buffer
290 Hallam Rd	Lot 10A, PS517790	7.3	Slimes drying (landfill)	500 metre landfill buffer Concrete batching 100 metre separation distance
286 Hallam Rd	Lot 1, PS517790	22	Stockpile Area (landfill)	500 metre landfill buffer Concrete batching 100 metre separation distance
282 Hallam Rd	Lot 7, PS517790	4.1	C&D Processing	500 metre landfill buffer Concrete batching 100 metre separation distance
280 Hallam Rd	Lot 3, PS445749	38	Grazing	Powerline easement Flood overlay 500 metre landfill buffer 300 metre C&D buffer
270 Hallam Rd	Lot 1, PS718341	2.1	Garden Nursery	500 metre landfill buffer Concrete batching 100 metre separation distance