

ATTACHMENTS

Ordinary Council Meeting

24 September 2024

Part 2 – 10.3.1

ATTACHMENTS TO AGENDA ITEMS

Ordinary Council Meeting - 24 September 2024

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10.3.1 DRAFT KARAWARA PEDESTRIAN AND CYCLE ACCESS PLAN

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City of South Perth

Karawara Pedestrian and Cycle Access Plan 2024



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1 Introduction

Pedestrian Access Ways (PAWs) are narrow parcels of land that provide pedestrian access between streets and lots.

PAWs were originally introduced to provide unimpeded movement of pedestrians and cyclists through suburbs and followed the planning shift from grid layouts to cul-de-sacs and loop roads during the 1970s and 1990s. PAWs were also chosen as an efficient location for public infrastructure such as water, sewer, gas and electricity.

Karawara was developed in 1973 as a State Government initiative to accommodate War Service Homes and housing for the Department of Communities. It was designed in accordance with Radburn design principles, originating in America in 1929 with the promise of a modern and safe lifestyle for residents of the 'Motor Age'. This design approach centred on the 'Greenway', a central area of POS which adjoins most sites in the suburb.

To realise the Radburn design vision, houses in Karawara were arranged in a series of culs-de-sac within a 'superblock' encircled by perimeter roads. Homes were designed with double carports to the street and dwellings with full height windows to facilitate a visual connection between occupants and the Greenway. Boundary fencing to PAWs and the Greenway was designed to be visually permeable.

Subsequent changes to residential development including the installation of visually solid, full height side and rear fencing, has resulted in reduced surveillance of the original communal areas. Combined with discrete and somewhat hidden entry points to the Greenway, positioned along external ring roads and at cul-de-sac heads, this has resulted in a reduction in public awareness and corresponding use of these spaces for both movement and recreational activities, and requests for community members to close PAWs.

In response to the increasing number of requests to close these PAWs, the City recognised the need to conduct an evaluation of all PAWs within the suburb through the development of the Karawara Pedestrian and Cycle Access Plan (KPCAP). This evaluation aims to create a coordinated assessment tool to make informed recommendations to the Western Australian Planning Commission (WAPC) on PAW closure applications, considering all relevant factors.

The City has identified a total of 32 'PAWs' in Karawara shown on **Figure 1**. An audit of each PAW is provided at **Appendix 2**.

2 Objectives and Methodology

The objectives of this Plan are as follows:

- a) To provide a co-ordinated plan to guide future decision-making in relation to requests to close PAWs;
- b) To identify the role played by each PAW in the local movement network;
- c) To provide recommendations on PAWs for retention or closure; and
- d) To identify recommendations for the improvement, upgrading and maintenance of PAWs to be retained.

The Plan has been developed in accordance with the WAPC's Procedure for the Closure of Pedestrian Access Ways – Planning Guidelines 2009 (the Guidelines).



Figure 1 Pedestrian Access Ways in Karawara

3 Plan area

The Study area generally aligns with the suburb boundary for Karawara and include areas to the west comprising properties on both sides of Abjornson Street, the Meath Care Retirement Village and the Curtin Primary School as shown in **Figure 2**.

Karawara has a range of PAW widths, with several PAWs not meeting the recommended minimum dimension, achieving instead a 3 - 4m average width, for example, PAW Nos. 3, 5, 7, 9, 10, 11, 12, 13, 15, 25, 27, 29, 31. The widths of linear POS in Western Karawara range from 6 - 26.5m, achieving a 5m average width. In Eastern Karawara, POS varies considerably with widths ranging from 3m – 55m.

As shown in **Figure 3**, PAW distribution in Western Karawara is more regular in distribution with alternating short and long PAWs. The short PAWs are located at cul-de-sac heads, positioned to provide north-south movement between two culs-de-sacs. In-between and running parallel with each cul-de-sac are long, linear POS areas, the reduced width of which limit use to access only. These linear POS areas connect external ring roads with wider diamond shaped areas of POS for passive recreation.

The shape and distribution of PAWs and POS within the Greenway changes in Eastern Karawara becoming less regular in configuration and more disjointed in distribution, including several isolated areas of POS not directly connected to the Western Karawara Greenway. Refer to **Figure 4** for example PAWs which include PAW Nos. 14, 18, 19 and 23.

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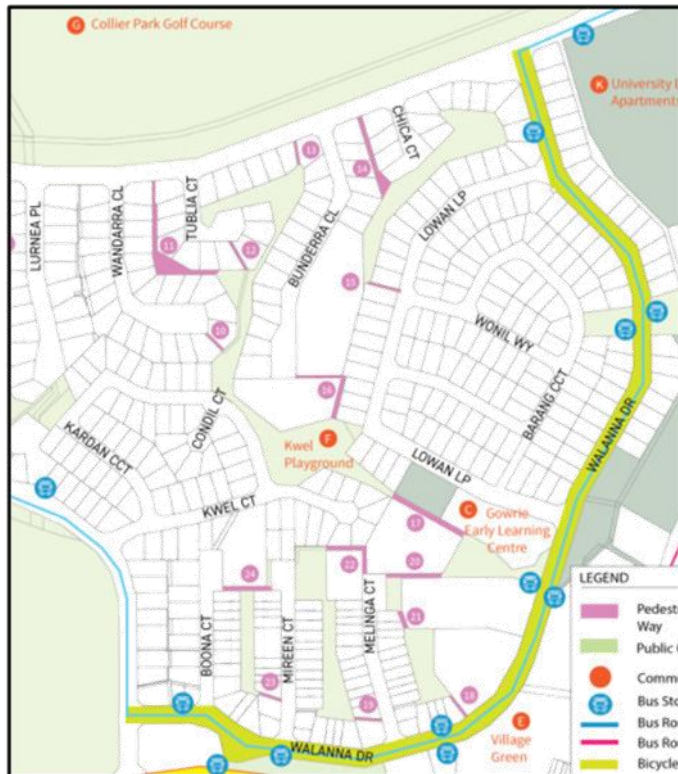


Figure 4 Eastern Karawara irregular distribution of PAWs and POs



Figure 5 Map showing PAW ownership

4 Research and Review

The City has undertaken a literature review including an examination and analysis of various planning instruments and relevant documentation as detailed below.

Document	Details	Alignment
Perth & Peel @3.5million	Perth and Peel @ 3.5 Million is the overarching report to the South Metropolitan Peel Sub Regional Planning Framework informed by the key principles of Directions 2031.	<p>The KPCAP aligns with the following principles:</p> <ul style="list-style-type: none"> Promoting shared infrastructure corridors for transport, community, social and service infrastructure. The provision of land use development and mutually compatible infrastructure.
Local Planning Strategy	The Local Planning Strategy is the key guiding document that identifies planning and development priorities for the City.	<ul style="list-style-type: none"> The Local Planning Strategy identifies Karawara as a 'neighbourhood centre' within State Planning Policy 4.2 - Activity centres' hierarchy of centres with a walkable catchment of 200m. Karawara's walkability score is 62; and area considered 'very walkable' would achieve a score above 70. Karawara has 327,868m² of open space which represents 33.1% of the suburb. Parts of Karawara are bushfire prone. Notes that Council resolved not to proceed with several actions of the draft Local Housing Strategy 2011, including investigation of density increases in the part of Karawara known as the 'Karawara Greenways'.
City of South Perth Local Planning Scheme No. 7 (LPS7)	Local planning schemes set out the zoning of land, permissible land uses, the scale of development and other important information relating to building and development standards across the City of South Perth. It forms the basis for all planning decisions made by the City.	<ul style="list-style-type: none"> Proposed infrastructure improvements identified in the KPCAP align with LPS7. Should PAW and linear POS be closed in the future, land will require a zoning by scheme amendment.

Document	Details	Alignment
Local Integrated Transport Plan	To guide transport planning, programs, operations and advocacy in the City of South Perth 2021-2031.	<ul style="list-style-type: none"> Development of the KPCAP is an identified action of the Integrated Transport Plan. Recommended improvements to signage will contribute towards development of a wayfinding strategy. Recommendations to formalise closure of PAW Nos. 2 & 6 will align with the action requiring the City to liaise with the State Government regarding investigating reconfiguration of State Government land holdings to support improved movement networks.
<i>Planning and Development Act 2005</i>	An Act to provide for a system of land use planning and development in the State and for related purposes.	<ul style="list-style-type: none"> Enables land to be vested to the crown for the purpose of PAW through conditions of subdivision approval (s. 152).
<i>Transfer of Land Act 1893</i>	The statute governing the registration in WA of titles to Freehold land and dealings with those titles.	<ul style="list-style-type: none"> Enables the acquisition of private parcels of land.
<i>Land Administration Act 1997</i>	An Act to provide a system for the dealings with Crown land including the compulsory acquisition of land.	<ul style="list-style-type: none"> Requests to close PAWs will be processed by the Department of Lands in accordance with Section 87 of the Land Administration Act 1987 (LAA). Section 87 of the Land Administration Act 1997 sets out a self-contained process by which an amalgamation of remnant Crown land may be achieved
<i>Local Government Act 1995</i>	An Act to provide for a system of local government in WA.	<ul style="list-style-type: none"> Section 3.52 requires public access to be maintained, and plans of public thoroughfares kept and made available to the public. Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by Asset Management Plans for sustainable service delivery.

Document	Details	Alignment
<i>Planning and Development (Local Planning Schemes) Regulations 2015</i>	Regulations made under the <i>Planning and Development Act 2005</i> that cover local planning schemes and local planning strategies.	<ul style="list-style-type: none"> The Regulations guide future development activity on land within the plan area.
Procedure for the Closure of Pedestrian Access Ways Planning Guidelines 2009	The Guidelines require the preparation of a pedestrian and cycle access plan, used to identify existing and future pedestrian and cycle access ways and includes a classification system to identify the relative importance of each access way in the local movement system.	<ul style="list-style-type: none"> In addition to the process and requirements outlined in Appendix 1 of the Guidelines, the KPCAP also includes analysis of Human Mobility Data to better understand the role of each PAW within the movement network over multiple years and to inform and support recommendations. The Guidelines offer two options for PAW closure – ‘Option A’ with an endorsed pedestrian and cycle access plan and ‘Option B’ without a plan. Once endorsed, the KCACP will ensure that future modifications to the PAW network can be progressed in accordance with ‘Option A’, which will improve certainty of outcome for all parties and is a key step in ensuring the process can be resident led rather than requiring the City’s intervention.
Reducing Crime and Anti-Social Behaviour in Pedestrian Access Ways – Planning Guidelines	The Reducing Crime and Anti-Social Behaviour in Pedestrian Access Ways Planning Guidelines are designed to be used by State and local government when evaluating the temporary or permanent closure of PAWs. These guidelines are used to develop an understanding of the principles of PAW design and how it can reduce crime and antisocial behaviour.	<ul style="list-style-type: none"> The guidelines detail problems associated with PAWs and provides a tool for use by local governments to assess and respond to crime problems within PAWs. The safety level of each PAW within Karawara was assessed as per the criteria outlined within the document. The document outlines design methods that are seen to aid in the reduction of crime within PAWs which will be utilized in the potential upgrade of PAWs. The Guidelines describe PAWs in locations with road layouts based on culs-de-sac and loop roads, as is the case in Karawara, to be essential to the pedestrian and

Document	Details	Alignment
		<p>cycling access network, but often poorly designed in terms of designing out crime given the narrowness of width located between property boundaries. Given security concerns have been regularly cited as a basis for recent closure requests, the City also conducted a 'situation crime prevention assessment' for each PAW as part of this Study.</p> <p>The Guidelines identify four PAW classifications, with those in Karawara being broadly consistent with the following two:</p> <ul style="list-style-type: none"> • PAWs in suburbs with road layouts based on cul-de-sac and loop roads; and • PAWs that are a pedestrian connection to a retail services area. <p>Whilst the subject PAWs broadly align with both classifications, there are characteristics that make Karawara's local movement network unique, including noticeable differences in the distribution and design of PAW and POS across the suburb.</p>
Safer Places by Design: Crime Prevention through Environmental Design Planning Guidelines 2023	Safer Places by Design (2023) supports the creation of well-designed built environments through the principles of 'crime prevention through environmental design' (CPTED) and replaces the Designing out Crime Guidelines. It complements the Reducing Crime and Anti-Social Behaviour in Pedestrian Access Ways – Planning Guidelines.	<ul style="list-style-type: none"> • The Guidelines encourage local government to select responses that meet the needs of each site when modifying PAWs. This is a key consideration for Karawara where PAWs form an integral part of the local movement network.
WAPC Development Control Policy 2.6 – Residential road planning	This policy is used to encourage the design of the road network within a residential neighbourhood with focus on amenity whilst maintaining the safe movement of vehicles, pedestrians, and cyclists.	<ul style="list-style-type: none"> • The WAPC Development Control Policy 2.6 addresses the future of PAWs and the pedestrian network in the following manner: • Supports the implementation of dual use paths. • Supports the implementation of cyclist networks within the road carriageway.

Document	Details	Alignment
		<ul style="list-style-type: none"> • Supports the increase in the amount of footpaths alongside roads. • Supports the implementation of direct route footpaths to major activity centers. • PAWs, if utilised, are encouraged to be located within open space. • 3m wide PAWs are considered to be the most widely sought to close due to negative impacts. • PAWs between property boundaries are discouraged in new subdivisions.
Liveable Neighbourhoods	Liveable Neighbourhoods (LN) is a Western Australian Planning Commission (WAPC) operational policy for the design of urban development. LN applies to structure planning in greenfield areas and brownfield development in urban infill areas and includes requirements for laneways.	<ul style="list-style-type: none"> • The Liveable Neighbourhoods document does not mention PAWs. • The WAPC has directed focus away from the construction of PAWs and has promoted the use of footpaths and cycle paths within road reserves that are fronted by dwellings as to increase casual surveillance. • The Draft Liveable Neighbourhoods (2015) does not encourage the development of new culs-de-sac unless it can include, amongst others design elements, a PAW with a minimum 8m width to provide connection to the nearest route cul-de-sac head. • Karawara has a range of PAW widths, with several PAWs not meeting the recommended minimum dimension, achieving instead a 3 - 4m average width, for example, PAW Nos. 3, 5, 7, 9, 10, 11, 12, 13, 15, 25, 27, 29, 31. The widths of linear POS in Western Karawara range from 6 - 26.5m, achieving a 5m average width. In Eastern Karawara, Public Open Space (POS) varies considerably with widths ranging from 18 – 55m. • In terms of POS contributions, Liveable Neighbourhoods does not support the inclusion of PAWs when designed as linear POS. It does however allow well-designed linear open space to contribute towards

Document	Details	Alignment
		<p>POS provided it achieves the following:</p> <ul style="list-style-type: none"> ➤ At least 15 metres average width (less than 15 metres wide is a PAW and cannot be credited as POS); ➤ Used to connect with at least two key destinations in the public open space network; ➤ Designed in accordance with Designing Out Crime Guidelines (WAPC 2006); and ➤ Overlooked by residential lots for at least 50% of its length. <ul style="list-style-type: none"> • Whilst the majority of linear POS in Karawara does not meet the above criteria and therefore cannot be contribute towards POS, any changes to PAW and linear POS should ensure it remains functional and able to achieve the desired recreational, amenity, health, cultural and environmental outcomes for the community.
Development Control Policy 2.3 Public Open Space in residential areas	The basic component of this policy is the requirement that 10 per cent of the gross subdivisible area of a conditional subdivision shall be given up free of cost by the subdivider for public open space.	<p>A review of POS in Karawara identifies the following areas being reserved for Public Open Space, both with and without George Burnett Park which is reserved under the Metropolitan Region Scheme (MRS):</p> <ul style="list-style-type: none"> • 8.25% (or 6.99 hectares) excluding George Burnett Park; or • 33% (or 27.97 hectares) including George Burnett Park.
City of South Perth Access and Inclusion Plan 2022-2027	The purpose of the Access and Inclusion Plan is to ensure that people with disability can access all information, services and facilities provided by the City of South Perth and be included in the community.	<ul style="list-style-type: none"> • The KPCAP aligns with the intent of the Access and Inclusion Plan by proposing PAW and Greenway infrastructure improvements which will increase accessibility for disabled people.
New subdivisions in and abutting the plan area	Subdivision and development applications received.	There are no current subdivision or development applications otherwise impacting the PAWs in the plan area.
Active Travel to School	Seeks to address the key barriers to active travel to school and support initiatives that	The KPCAP aligns with the intent of encouraging active travel to school by including recommendations to improve the

Document	Details	Alignment
Roadmap 2023-2030	encourage children to switch from private car to public transport trips.	walkability and accessibility of the local movement network. By identifying essential PAWs, the Plan will ensure the functionality of the local movement network.

The following outlines the previous strategic decisions and submissions to the City seeking closure of PAWs in the plan area.

Document	Comment
Original planning provisions to support the Radburn design (1973-1998)	The City introduced special planning controls in 1973 in Town Planning Scheme No. 2 as a means of controlling the interface between POS and housing. These provisions were amended over time to better reflect changing expectations toward housing design. This included removing the requirement to provide visually permeable side and rear fencing in 1998.
Karawara Redevelopment Area & Scheme Amendment No. 89 (1998)	The Karawara Estate Improvement Program began in 1994 to revitalise State owned land in Eastern Karawara by zoning public reserves for residential development, reducing State ownership from 75% to 20%, and by improving the quality of housing stock retained by State Government. These changes brought about suspension of the original Radburn design for Eastern Karawara and introduced a more contemporary approach to urban design. Whilst planning for the redevelopment area sought to retain linkages for pedestrian movement by connecting existing pathways within linear POS to the modified local road system, continuity of pedestrian connection between East and West Karawara has been affected. Subsequent improvements to the area through the Karawara Public Open Space Master Plan and Collaborative Action Plan after 2015, sought to positively address negative impacts from these changes to the local pedestrian movement network.
Scheme Amendment No. 8 (2006)	In December 2006, Council resolved to review former Town Planning Scheme provisions for the Karawara Special Area which sought to control the interface between the Greenway and private properties. This included modifying building setback and boundary fencing requirements. Whilst this amendment did not proceed, it did inform development of the subsequent Karawara Community Vision.
Karawara Community Vision 2009-2012	In 2009, the City engaged consultants Creating Communities Australia and Development Planning Strategies to undertake consultation with landowners, residents, and other local stakeholders to identify ways to further enhance and improve Karawara. Community feedback reported a lack of regular activity in the large areas of POS and lack of surveillance from adjoining properties as factors contributing to crime and anti-social behaviour in the area. Residents also expressed interest in retaining the open space network subject to its improvement. The project report recommended a range of community development strategies and physical improvement works, including closure

	<p>of some PAWs, to address crime and enhance the suburb's appearance and social wellbeing.</p> <p>The consultants recommended that the City close some of the narrow POS links at the rear of houses and connecting PAWs with the following closure options explored:</p> <ol style="list-style-type: none"> 1. Closure of the pedestrian accessways at the ends of the cul-de-sac streets and retention of the open space links at the rear of houses; 2. Closure of the open space links at the rear of houses and retention of the pedestrian accessways at the ends of the cul-de-sac streets; or 3. A combination of Options 1 and 2, with some pedestrian accessway closures and some open space link closures. <p>Further consultation with the Water Corporation revealed that owing to the location of water and sewer mains, Option 3 was the only viable possibility for further exploration.</p> <p>In January 2012 a proposed closure plan was mailed to all Karawara landowners and residents for comment. Responses were received from 60 property owners adjoining proposed PAW closures with 46 owners (74%) in support. The highest supporting response was received from Boongala Close and Lurnea Place, where 56% (or 9 properties) supported closure, 6% (or 1 property) opposed and 38% (or 6 properties) did not respond.</p> <p>In August 2012 Council considered the results of the community consultation and resolved to not proceed to progress potential closure of selected PAWs and linear POS in Karawara, resolving:</p> <ol style="list-style-type: none"> (a) the City develops a procedural policy specific to PAW/POS reserve closures in Karawara to guide officers in the implementation of closures and this policy be adopted by Council before pursuing closures; and (b) the City advise submitters of the above Council decision. (c) The procedural policy shall require that before any closure of a PAW/POS be considered, that all residents directly affected by the closure be required to provide their support; (d) the POS that runs between Meathcare and the rear of the four houses in Lenna Court be retained and that there be no requirement for the re-opening of the PAW between number 7 and 12 Lenna Court; and (e) no action be taken to require the owners of number 11 and 16 Woonan Place to reopen the PAW between their properties.
Karawara Public Open Space Master Plan and Collaborative Action Plan 2013	<p>In a move away from focussing on PAWs, the City in 2012 engaged landscape architecture firms UDLA and CoDesign to develop the Karawara Public Open Space Masterplan and Collaborative Action Plan (the Master Plan). This Master Plan and associated Action Plan was developed to address spatial and social concerns in Karawara. Whilst the plan related to the whole of Karawara, it specifically focused on the Greenway. The plan identified upgrades to POS areas to improve the overall character, connectivity, amenity, and safety of the area.</p> <p>The Masterplan sought to provide a holistic response to community feedback, with initiatives promoting improvements to the built</p>

	<p>environment and to social capital. It focussed on maximising community and stakeholder input with the consultants and City officers facilitating several community workshops and drop-in activities within Karawara between February and May 2013. The Master Plan was endorsed by Council at its December 2013 Ordinary Meeting of Council and included 14 projects that aimed to 'strengthen Karawara's public open space and community character'.</p> <p>Since adoption, the Master Plan has been delivered with 61 of 66 actions having been implemented. The City has allocated approximately \$1,377,033 towards implementing the Master Plan, which is inclusive of \$230,560 for CCTV and lighting upgrades around the central playground area.</p> <p>Remaining actions include development of a wayfinding strategy to be designed and implemented through PAWs and the Greenways, and to investigate and trial the installation of permeable fencing along rear property boundaries.</p> <p>Temporary trial PAW closure was investigated in 2015/16 with the City deciding to instead focus on alternative measures to improve the environment of Karawara, through other actions of the Masterplan.</p> <p>Wayfinding through the Greenway presents an opportunity to improve legibility and provide understanding of the areas rich cultural, planning and heritage value. It is recommended that future wayfinding be informed by this Plan and community development initiatives.</p>
PAW Closure Investigation (1993)	<p>In August 1993 the City submitted a plan to close 10 PAWs in Western Karawara, to the Department of Planning, Lands and Heritage (DPLH) along with four (4) utility service providers. The City cited social problems raised by residents as reason for the closure request.</p> <p>The PAWs selected were all 'short', being located at the end of several short cul-de-sac roads. The City argued these did not form part of the Greenway 'spine', acting more as a service corridor which could be protected through use of an easement.</p> <p>Whilst this plan did not proceed, this process identified 2 PAWs at the cul-de-sac head of Lenna and Court and Woonan Place as not being accessible.</p>
PAW Closure Karawara Estate Improvement Program (1998)	<p>The following 2 PAWs were closed in 1998 by Scheme Amendment No. 89 to former Town Planning Scheme No. 5:</p> <ul style="list-style-type: none"> • North-south PAW from Jackson Road between Wandarra Close and Lurnea Place; and • North-south PAW from Walanna Drive between Boona Court and Gillon Street.

5 Community Facility Mapping

All relevant community facilities and public transport in the plan area have been plotted on **Figure 6** and detailed below.

5.1 Community Facilities

Community facility category	Community facility / Local Attractor / Employment node
Schools and other educational establishments	Curtin Primary School
	Como Secondary College
	Gowrie Early Learning Centre
	Curtin University - Curtin University is located to the east of Karawara. This is the largest university in Western Australia, with 34,485 full time student enrolments and 24,104 part time enrolments. Student housing located within the north-eastern corner of Karawara accommodates 324 students.
Shops	The Village Green Shopping Centre (formerly Waterford Plaza) and 3 Fast Food Restaurants. The local retail offering is concentrated in the south-eastern corner of the suburb where the Village Green Shopping Centre and 3 fast food restaurants are located alongside several fast food outlets. The Village Green is currently the largest retail centre in the City of South Perth, with two supermarkets, 38 specialty shops and a dining high street.
Retail recreation	Dome Café (future)
Parks and recreation facilities	Kwel Playground is identified as providing district level play space. It includes a range of play equipment which has been upgraded between 2016-2020 and is rated as being in 'good' condition except for the 'twin peaks' equipment which is rated 'fair'.
	Collier Park Golf Course is a public course providing a place for community recreation, engagement and socialisation. Its facilities include a clubhouse, pro-shop, function room, café, mini golf, driving range and 27 hole golf course.
	The Karawara community has access to a range of greenspaces including the Greenway, and neighbouring George Burnett Reserve to the south and the Collier Park Golf Course to the North. Whilst Collier Park Golf Course is immediately to the north of Karawara, entry is limited to the north of the site off Hayman Avenue
	George Burnett Park (sports field, playgrounds, skate park).

	To the south of Karawara is the George Burnett Recreation Precinct. In 2020 the <i>George Burnett Recreation Precinct Masterplan 2020</i> was developed to guide future use and development of this community space. The precinct comprises a range of community facilities and open spaces, including the George Burnett Leisure Centre, George Burnett Park, the Manning Skate Park, the George Burnett Pavilion, and surrounding bushland. The precinct is currently home to a rugby league club, touch football association and a cricket club and is used by local residents for informal recreation purposes, such as walking, dog walking, jogging, bicycle riding, skateboarding and other wheeled sports
Community facilities	George Burnett Leisure Centre (sports halls & meeting rooms)
Employment nodes	Village Green Shopping Centre, Bentley Technology Park and Curtin University
Aged person facilities	Meath Care Retirement Village

Table 1 Community facilities in Karawara

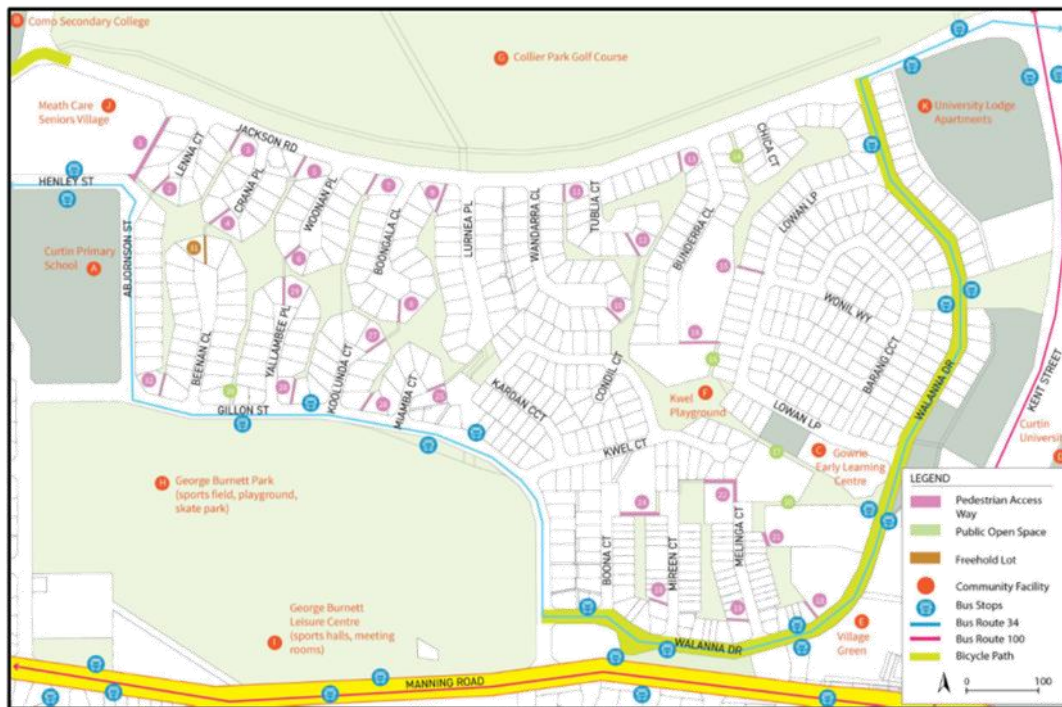


Figure 6 Community Infrastructure and Local Attractors in Karawara

5.2 Public Transport Services

Connectivity within Karawara is facilitated by both bus and cycle infrastructure with this information mapped in **Figure 7**.

Public transport in Karawara includes five (5) local bus routes (Nos. 30, 33, 34, 100, 101) to the Perth CBD and the Causeway in the north, the City of Canning and Town of Victoria Park in the east, and the Canning Bridge Station in the west. Bus stops are positioned around portions of Karawara's ring roads facilitating bus movement along the eastern section of Jackson Road, Walanna Drive, Gillon Street, and Abjornson Street. Access to bus stops along Gillon Street for properties in Northwestern Karawara is achieved by north-south PAW connections.

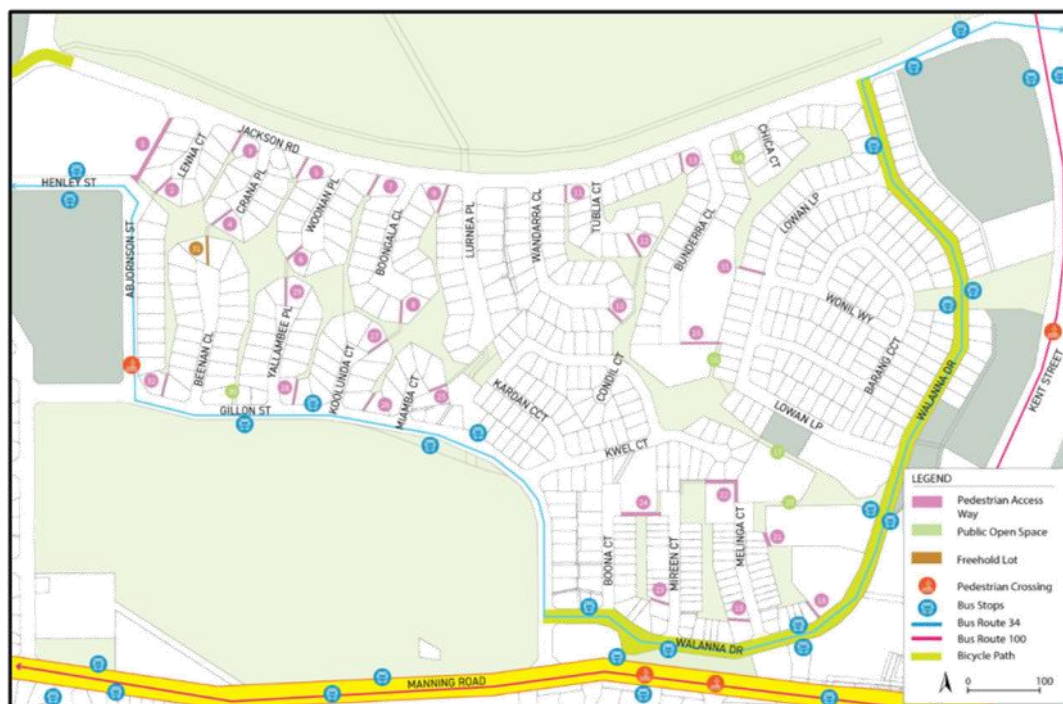


Figure 7 Public Transport and Pedestrian Movement Network Karawara

6 Connectivity Assessment

An assessment of the connectivity of areas around each community facility was carried out based on a walkable catchment with a radius of 400 metres. Refer to **Figure 8**. This radius should be increased to 800 metres in the case of large-scale community facilities such as town centres, train stations, bus stations, schools, district open space or other facilities likely to attract large numbers of people.

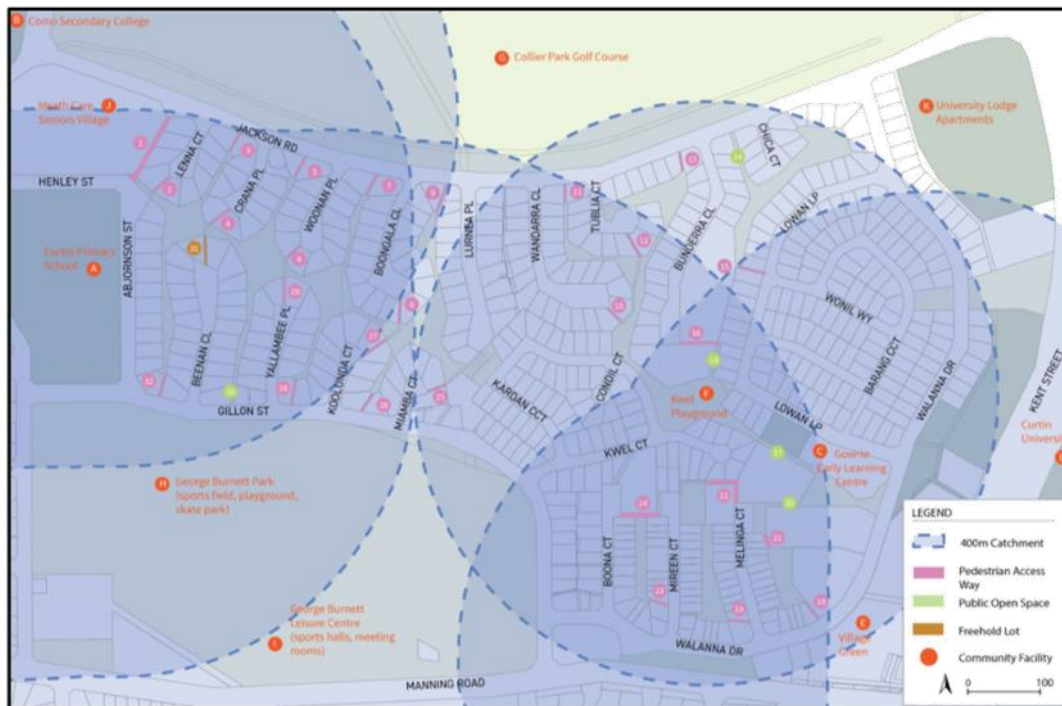


Figure 8 Karawara Ped Shed Assessment

6.1.1 Pedestrian Movement

Pedestrian movement is facilitated through the shared path that runs east-west within the Greenway from Abjornson Street to Kardan Court, then from Condit Court to Walanna Drive.

Pedestrian movement in and out of Karawara is facilitated through use of signalised crossings at Kent Street for Curtin University, and across the intersection at Manning Road, Kent Street and Waterford Avenue.

A Traffic Warden Controlled Childrens' Crossing has been installed to facilitate movement across Abjornson Street for Curtin Primary School.

6.1.2 Cycling

The *Joint Bike Plan for the City of South Perth and Town of Victoria Park* (2018) shows existing cycle infrastructure to include a bicycle lane/sealed shoulder along Walanna Drive and shared path along Kent Street and a new separated shared path between Jackson Road and Henley Street. Refer to **Figure 9** for current cycling infrastructure in the Study Area.

Additional infrastructure is planned to facilitate 'strategic' bike movements along Jackson Road via a separated path for bikes only, and along Manning Road as a high quality shared path for bikes and

pedestrians. A section of bicycle lane of sealed shoulder is also proposed for the intersection of Kent Street and Manning Road.

Realignment of the shared path parallel to Manning Road is proposed to ensure it terminates at Walanna Drive, where people riding can then transition to the existing bike lanes on Walanna Drive. From there, bike riders can enter the shopping centre car park or continue onto Curtin University via the Walanna Drive underpass and the Kent Street shared path. Refer to **Figure 10** for a plan for proposed cycling infrastructure.

Local cycling routes are planned though George Burnett Reserve, along local roads including Gillon Street, Kardan Court, Kwel Court, Walanna Drive, and through PAW No. 17 and between PAW No. 26 and Paw No. 9.



Figure 9 Existing Cycling Network Karawara (source: Joint Bike Plan for the City of South Perth and Town of Victoria Park)



Figure 10 Aspiration Cycle Network Karawara (source: Joint Bike Plan for the City of South Perth and Town of Victoria Park)

7 Infrastructure Provider Identification

7.1 Dial-Before-You-Dig

PAWs are often used to locate private and public infrastructure such as water, sewer and gas pipes or electrical cables.

Infrastructure providers that may have an interest in a particular pedestrian access were identified using the Dial-Before-You-Dig Services website and recorded accordingly.

The City obtained spatial data through the Dial-Before-You-Dig platform in February 2024 to ascertain any obstructions such as essential infrastructure which may affect potential PAW upgrade or closure. A review of findings notes service infrastructure to be present in most of Karawara's PAWs with Water Corporation infrastructure for water and sewerage making up the bulk of services. Refer to **Figure 11** for a diagrammatic representation of the number of services in each PAW.



Figure 11 Essential Service Infrastructure

7.2 Consultation with Essential Service Infrastructure Providers

While identification of PAWs affected by service infrastructure is essential for the purposes of this Plan, the extent of impact for service providers is also required. To better understand possible implications of any changes to the PAWs, the City engaged with the following providers in February 2024. The City received the following responses which are detailed in **Table 2** and indicated in **Figure 11**.

Utility provider	Comment																																																																											
Telstra	No objection to plan.																																																																											
ATCO	ACTO assets are in PAW No. 15. ATCO has advised it has no objection to the proposed plan subject to protection of its infrastructure. Should PAW No. 15 be closed, it is recommended that an easement be imposed to ensure protection and access.																																																																											
Water Corporation	<p>The Water Corporation has both water and sewer assets the majority of PAW's identified including the following PAWs:</p> <table><tr><th>PAW No.</th><th>Water Mains</th><th>Sewerage</th></tr><tr><td>1.</td><td></td><td>Yes</td></tr><tr><td>2.</td><td>Yes</td><td></td></tr><tr><td>3.</td><td></td><td>Yes</td></tr><tr><td>4.</td><td>Yes</td><td></td></tr><tr><td>5.</td><td></td><td>Yes</td></tr><tr><td>6.</td><td>Yes</td><td></td></tr><tr><td>7.</td><td></td><td>Yes</td></tr><tr><td>8.</td><td>Yes</td><td></td></tr><tr><td>9.</td><td></td><td>Yes</td></tr><tr><td>10.</td><td>Yes</td><td></td></tr><tr><td>11.</td><td></td><td>Yes</td></tr><tr><td>12.</td><td>Yes</td><td></td></tr><tr><td>13.</td><td></td><td>Yes</td></tr><tr><td>14.</td><td>Yes</td><td></td></tr><tr><td>15.</td><td>Yes</td><td></td></tr><tr><td>16.</td><td>Yes</td><td></td></tr><tr><td>17.</td><td>-</td><td>-</td></tr><tr><td>18.</td><td>-</td><td>-</td></tr><tr><td>19.</td><td></td><td>Yes</td></tr><tr><td>20.</td><td>-</td><td>-</td></tr><tr><td>21.</td><td>-</td><td>-</td></tr><tr><td>22.</td><td>Yes</td><td>Yes</td></tr><tr><td>23.</td><td>-</td><td>-</td></tr><tr><td>24.</td><td>Yes</td><td>Yes</td></tr></table>	PAW No.	Water Mains	Sewerage	1.		Yes	2.	Yes		3.		Yes	4.	Yes		5.		Yes	6.	Yes		7.		Yes	8.	Yes		9.		Yes	10.	Yes		11.		Yes	12.	Yes		13.		Yes	14.	Yes		15.	Yes		16.	Yes		17.	-	-	18.	-	-	19.		Yes	20.	-	-	21.	-	-	22.	Yes	Yes	23.	-	-	24.	Yes	Yes
PAW No.	Water Mains	Sewerage																																																																										
1.		Yes																																																																										
2.	Yes																																																																											
3.		Yes																																																																										
4.	Yes																																																																											
5.		Yes																																																																										
6.	Yes																																																																											
7.		Yes																																																																										
8.	Yes																																																																											
9.		Yes																																																																										
10.	Yes																																																																											
11.		Yes																																																																										
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21.	-	-																																																																										
22.	Yes	Yes																																																																										
23.	-	-																																																																										
24.	Yes	Yes																																																																										

	25.	Yes	
	26.		Yes
	27.	Yes	
	28.		Yes
	29.	Yes	
	30.		Yes
	31.	Yes	
	32.		Yes
<p>Comments from the Water Corporation include:</p> <ul style="list-style-type: none"> It should be noted that water mains cannot run through private land, therefore the Corporation objects to the closure of any PAW with a water asset running through it. Water assets within PAW's listed below: 2, 4, 6, 8, 10, 12, 15, 16, 22, 24, 25, 27, 29, 31, With regards to sewer assets the Water Corporation would require the sewer line to be protected by an easement if the PAW is determined to be closed. This would depend on the location of the proposed boundary as in some cases a sewer line can be protected by a boundary without requiring an easement. If some of the PAW's are closed and absorbed into the neighbouring lots, the Water Corp would ask that the lot boundaries not be placed on top of the sewer lines as the Water Corporation needs to be able to access its assets at all times. Sewer assets within PAW's listed below: 1, 3, 5, 7, 9, 11, 13, 14, 19, 22, 24, 26, 28, 30, 32. 			
Western Power	<p>Western Power has underground assets in PAW Nos. 2, 4, 6, 8, 10, 12, 15, 16, 22, 24, 25, 27, 29, 31.</p> <p>Western Power advise that should these PAWs be closed or the property boundaries be realigned and where the new property boundary changes the relationship of distribution equipment to that boundary, i.e. poles, cables, or ground mounted equipment formerly in the road reserve or running in proximity to the old boundary are now well within the property, an application will need to be made to move or remove equipment. This application will determine if an easement is required or if a physical change is necessary.</p> <p>Even if Western Power assets are present but not affected by a boundary change, continued physical access for maintenance and emergency response must be provided. If this is not via the original road path, changed access conditions should be communicated via a Land Entry Preferences form.</p>		
NBN Co.	No response received		

Table 2 Utility provider comments

Further consultation with all utility providers will occur when the draft Plan is advertised for public comment and as part of future, individual PAW closure requests.

8 Pedestrian Access Way Inspection and Assessment

8.1 Physical Assessment

The City understands the importance of good quality, working public infrastructure to the success of Karawara's local movement network, and undertakes regular infrastructure audits and maintenance in accordance with its adopted *Asset Management Plan 2013-2023* which includes a *Cycling & Pedestrian Pathways Asset Management Plan (July 2013)*.

To inform the KPCAP of any potential infrastructure deficiencies, physical assessments were undertaken of all 32 PAWs. This included evaluating the condition of footpaths, bollards, signage and security lighting. The outcomes have informed upgrade recommendations discussed in the following section. Refer to **Appendix 1** for the outcome of the audit.

8.1.1 Footpaths

As one of the first City suburbs to have concrete footpaths, Karawara's footpaths were originally constructed with a thinner profile. Over time, original paths have been replaced with paths of increased depth that comply with current specification standards. The audit confirmed footpaths to be in 'Good' or 'Fair' condition.

The audit identified each PAW entry to have a bollard structure to limit access by motor vehicles. These included yellow bollard pillars, wooden bollards, or 'U' grab path dividers. The audit identified additional footpath clearance is required around each bollard to improve universal accessibility and satisfy *Disability Discrimination Act 1992* requirements.



Figure 12 Images of PAWs showing insufficient clearance around bollard structures for universal access.

The audit identified a lack of footpath between the public street and PAW entrance at PAW No. 29 (Yallambee Place) and No. 31 (Beenan Close). This reduces the legibility of each entry with each 'reading' as private spaces which may reduce use.



Figure 13 PAW entrances reading as private and not public spaces.

PAW No. 22 is accessed via a driveway which is concealed by landscaping. Access to PAW No. 23 is via a footpath where vehicles have been noted blocking view of the entry. View of the entry is further reduced by landscaping to its north.



Figure 14 PAW entrances accessed via private driveways.

8.1.2 Lighting

Lighting is necessary to support safer nighttime use in both the Greenway and PAWs. In 2024 the City upgraded the lighting network to improve functionality and resolve systemic problems that compromised operability. This did not apply to lights around Kwel Court Playground, which had been upgraded as part of Stage 2 of the Karawara Greenways CCTV network.

This program of lighting upgrades involved replacing existing Halogen lights with new LED fixtures which included RCD (Residual Currency Devices) to eliminate multiple light failures by isolating each individual pole from a current surge or earth leakage. As shown at **Figure 15**, these lights differ to previous fixtures by directing light downward rather than outward, reducing light spill into private residences.



Figure 15 Security lighting in Karawara (former and current)

8.1.3 CCTV

CCTV infrastructure was installed in Eastern Karawara as an action of the Karawara Public Open Space Master Plan and Collaborative Action Plan to improve local security. In 2020 as part of Stage 2 of the Karawara Greenways CCTV works, the City extended the CCTV facilities around the Kwel Court Playground to enhance the security.

The works were completed in conjunction with the upgrade and installation of additional lighting infrastructure, bringing the number of CCTV poles to 8, and cameras to twenty (20). Refer to **Figure 16** for pictures of CCTV infrastructure and **Figure 17** for a location map.



Figure 16 CCTV infrastructure in Eastern Karawara



Figure 17 Red dots indicate CCTV Pole locations Eastern Karawara (location approximate)

8.1.4 Signage

The City is responsible for the installation and maintenance of signage within PAWs. As shown in **Figure 18**, current messaging identifies cycleway and dog walking locations within PAWs and the Greenway.



Figure 18 Bike signage Karawara

The audit of signage shows evidence of missing signage (i.e. posts with nothing atop) which is reflected in the condition report at Table 5, ten (10) PAWs are identified to have the lowest ranking for signage condition i.e. 'Very Poor', with the remaining signage being 'Fair' and 'Poor'.

There is an opportunity to support the pedestrian movement network through installation of new signage which may include indication of navigation paths to the nearest street, bus stop, community facility and/or local attractors.

8.1.5 Stormwater

The audit shows stormwater facilities to be present in PAW Nos. 17, 18, 19, 20, 23, 24. The condition of this infrastructure is rated 'Fair'. No improvements are proposed.

8.1.6 Parks and Landscaping

Landscaping within the Greenway plays a valuable role in supporting the local sense of place. The audit shows vegetated garden beds, mature trees and areas of lawn to be well maintained. Within long areas of linear POS, landscaping includes 'park' trees, lawn and shrubs. **Table 3** provides a brief description on trees present in 'long' PAWs containing linear POS.

PAW No.	City trees present (desktop audit)
3	3 large eucalypts (marri)
7	2 large and eucalypts (significant)
9	20-30 trees
11	Nil
14	1-2 eucalypts on the boundary
18	12 trees
21	15-20 medium size eucalypts
26	1 tree (not significant)
28	2-4 trees small trees (not significant)

30	1-2 small trees
32	1-2 small trees

Table 3 Trees located in 'long' areas of linear POS

It is recommended that branches from private property also be removed where they impact PAW accessibility at PAW Nos. 19 and 23, and that landscaping is trimmed back off the pathway to enable full use of PAW No. 30.

		
PAW No. 23 Landscaping at PAW entrance and over the PAW		PAW No. 30

Figure 19 Landscaping obscuring PAW entries and impacting accessibility

8.1.7 Graffiti

As an indicator of anti-social activity, evidence of graffiti within the Greenway and PAWs is comparatively low. Reports to WA Police for graffiti offences are low with 5 incidents in Karawara reported between 2020-2023. When comparing incidents of graffiti reported across the City between October 2022 – September 2023, Karawara has the second lowest count with 125 incidents reported.

8.1.8 Other

The audit identified a small number of remnant structures that have no identified benefit and can be removed. As shown in **Figure 20**, this applies to a partially removed gate structure at PAW No. 18 and a pole at PAW No. 13.



Figure 20 Other structures in PAWs

8.2 Usage Assessment

8.2.1 Main uses of the Pedestrian Access Ways

This will be determined during consultation.

8.2.2 Main groups using the Pedestrian Access Ways

This will be determined during consultation.

8.2.3 Level and distribution of use

8.2.3.1 Movement counts

A key component of the KPCAP lies in understanding how the PAWs in Karawara are being used. This was undertaken by physical observation and pedestrian counts.

Over the course of eight weeks in February and March 2024, all 32 PAWs were observed twice a day on a Monday and Wednesday, during both morning and afternoon periods to coincide with before and after school movement peaks. In response to one incidence of very hot weather conditions, the City rescheduled counting. Results of the movement counts are summarised in **Table 4** and **Figure 21**.

This investigation found PAW Nos. 1, 3, 10, 16, 17 and 32 to have the 'Most Movements'. The high use of PAW Nos. 1 and 17 can be attributed to a combination of elements including location within the movement network and positive urban design features. These features include:

- The 6m width of both PAWs supporting the passage of parties moving in different directions at a comfortable distance.

- Both PAWs provide good visibility of the exit point from the entry point.
- Both PAWs have regular dimensions with no opportunity for concealment areas.
- Both PAWs include some degree of visually permeable fencing.
 - Fencing along the western side of PAW No. 1 is visually permeable to Meath Care Retirement Village, Como which provides aged care services.
 - Fencing along the northern side of PAW No. 17 is visually permeable to the carpark of the Gowrie Early Learning Centre and a vacant site.
- Both PAWs connect with areas of high pedestrian and vehicle activity, including:
 - PAW No. 1 connects Jackson Road with Henly Street in north and Abjornson Street in the south and Curtin Primary School.
 - PAW No. 17 connects the underpass, the shopping centre (Village Green) with areas of public open space on the east and west including the Kwel Court playground and Kardan Court in the west.

In Western Karawara north-south movement is predominantly occurring between the following PAWs:

- PAW Nos. 3 and 32 (both Plenty of Movement);
- PAW Nos. 4 and 31 (both Little movement); and
- PAW Nos. 8 and 27 (both Little movement).

Across the suburb, 10 PAWs did not show any pedestrian movements. Two of these PAWs are inaccessible, (PAW Nos. 2 and 6). It is noted that whilst the PAW No. 6 is inaccessible, the connecting short PAW No. 29 located to its south recorded 'Some Movement'.

In Western Karawara PAW Nos. 5, 7, 9, 11, 30 include linear POS. These have reduced visibility of exit and concealed locations which reduce the perception of safety. In Eastern Karawara, PAW No. 19 opens onto a wider area of POS which support recreational uses.

Pedestrian movement between the shopping centre and Jackson Road in the east of Karawara is mostly occurring via PAWs Nos. 16 and 17, with numbers along this path ranging from 'Most' to 'Plenty of Movement'. Pedestrian movement within the southern portion of Walanna Drive is occurring via PAWs Nos. 18 and 23 with 'Little' levels of movement recorded.

PAW No.	Monday am	Monday pm	Wednesday am	Wednesday pm	Total
1	2	4	0	2	8
2	0	0	0	0	0
3	0	4	4	0	8
4	1	1	1	0	3
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	1	0	0	1
9	0	0	0	0	0
10	0	0	0	1	8
11	3	2	4	0	0
12	0	0	0	0	0
13	0	2	0	0	0
14	0	2	0	0	3
15	0	2	0	0	2
16	3	1	1	3	8
17	12	6	1	7	26
18	2	0	1	0	3
19	0	0	0	0	0
20	0	2	2	4	8

21	2	0	1	0	3
22	0	1	2	2	5
23	1	0	0	0	1
24	0	1	0	1	2
25	2	1	3	0	6
26	0	0	1	0	1
27	0	0	1	0	2
28	1	0	0	1	2
29	3	0	1	0	4
30	0	0	0	0	0
31	2	0	0	0	2
32	1	4	1	2	8
Average Use 3.6563					

Table 4 Pedestrian Movements in PAWs counted between February 6 – 18 March 2024.

The following provides thresholds of pedestrian movements counted in Karawara:

Movement description	Number of people counted	Colour coding
• Most movement	8+ pedestrian movements	
• Plenty of movement	5-7 pedestrian movements	
• Some Movement	3-4 pedestrian movements	
• Little Movement	1-2 pedestrian movements	
• No Movement	Nil pedestrian movements	



Figure 21 Pedestrian Counting Results

8.2.3.2 Spatial analysis of Human Mobility Data

The City recognises that the use of each PAW will vary across any given day, week and across the year. Given the City's pedestrian movement counting program did not provide a complete understanding of use, additional spatial analysis was undertaken by Element Advisory in June 2024 using Human Mobility Data captured across a 4 year period between June 2021 - June 2024. A copy of this report is provided as **Appendix 3**.

8.2.3.2.1 Human Mobility Data Analysis Approach

Human Movement Data refers to the digital traces, sometimes referred to as breadcrumbs, left behind by individuals' devices as they navigate through physical spaces. Aggregated from smartphones, GPS devices, and sensors, human movement data offers a wealth of information that can be harnessed to comprehensively analyse the utilisation of spaces both in terms of spatial distribution and temporal patterns. Data sources also included devices seen within the project area that were sending geolocation information out to a service such as Google, Uber, Garmin or TomTom. Not all devices or people that moved through this area were included due to devices not contributing data, or people not carrying spatially aware devices which is more likely for primary school children.

The data is anonymized to create a broad picture of where people move. A spatial analytic analysis of this data facilitates the identification of popular gathering spots, assessment of foot traffic density, and recognition of usage trends across different times of the day or year. This data is represented at **Figure 22** as a heat map to provide an understanding of the macro trends in movement.

8.2.3.2.2 Calendar movements across a week

Calendar Heat Charts visualize patterns in temporal data by aggregating data points into a calendar grid. As the human movement data collected from within the Karawara study area is timestamped, it can be grouped and summarised in this way. Each point of interest within the study area has been assigned a bounding area, with all human movement data points within each area grouped into the respective hour and day of week they were observed. This in turn provides a summarised, averaged view of the activity intensity of each hour of the day, for each day of the week across the three-year period the data spans. Refer to **Figure 22** for the heat map of Karawara.

As shown in **Figures 22 and 23**, Human Mobility Data shows less pedestrian movement in Western Karawara when compared with Eastern Karawara. East-west movement across the suburb is not as strong in Western Karawara, when compared with movement in eastern parts of Karawara.

Across the suburb, patterns of distinct movement paths to/from Eastern Karawara are indicated from the southernmost underpass on Walanna Drive through PAW Nos. 17 and 20, and through PAW No. 19 to Walanna Drive and Manning Road. Likely destinations for these movement patterns include:

- Eastward - Curtin University and bus stops along Walanna Drive and Kent Street;
- Southward - the Village Green Shopping Centre, 3 fast food restaurants on Manning Road and bus stops along Walanna Drive and Manning Road.

Human Movement Data supports findings from the City's pedestrian count. This includes patterns of north-south movements between Jackson Road and Gillon Street in Western Karawara and between the Village Green Shopping Centre and associated restaurants in the south-eastern corner of the suburb to Jackson Road in the north through PAWs Nos. 13, 14, 16 and 17.

Density of Human Mobility Data within the 32 PAWs reveals varying levels of activity which have been summarised as follows:

- Minimum activity levels on PAW Nos. 2, 4, 5, 6, 8, 10, 11, 12, 18, 24, 25, 27, 29, 31.
- Moderate activity levels on PAW Nos. 1, 3, 7, 9, 15, 21, 22, 26, 30.
- Maximum activity levels on PAW Nos. 13, 14, 16, 17, 19, 20, 23, 28, 32.

Human Mobility Data reveals the most popular locations or ‘hotspots’ to be areas within the Greenway itself, including:

- An area between PAW No. 16, the Kwel Court Playground through to Kwel and Kardan Courts;
- Within the Greenway to the south of PAW No. 10 where it meets with Condil and Kardan Courts;
- An area to the south of PAW No. 13 in the Greenway;
- and
- An area of Greenway between PAW Nos. 14 and 15 with a hotspot located at the southern end of PAW No. 14.

Other trends include the presence of hot spots of activity mid-way along the PAW itself which can be explained as high levels of pedestrian movements through a small number of rear boundary fences. Examples of this trend can be found along PAW Nos. 13, 14, 19, 28 and 32.

Examination of averaged daytime and evening trends over the 4 year period in **Figure 23**, reveals activity within PAWs to be steady across day and night periods each day of the year. A notable trend is the popularity of PAWs at 7pm with peak activity occurring 6 of the 7 days of the week across an averaged year. Evening peak period include Monday between 7pm-9pm, Thursday between 7pm-midnight, Sunday between 7pm-10pm. These trends are consistent with PAW use appearing stronger in the late afternoon and evening, perhaps driven by residents arriving home from work and late night trading on Thursday nights (prior to standardisation of shopping hours).

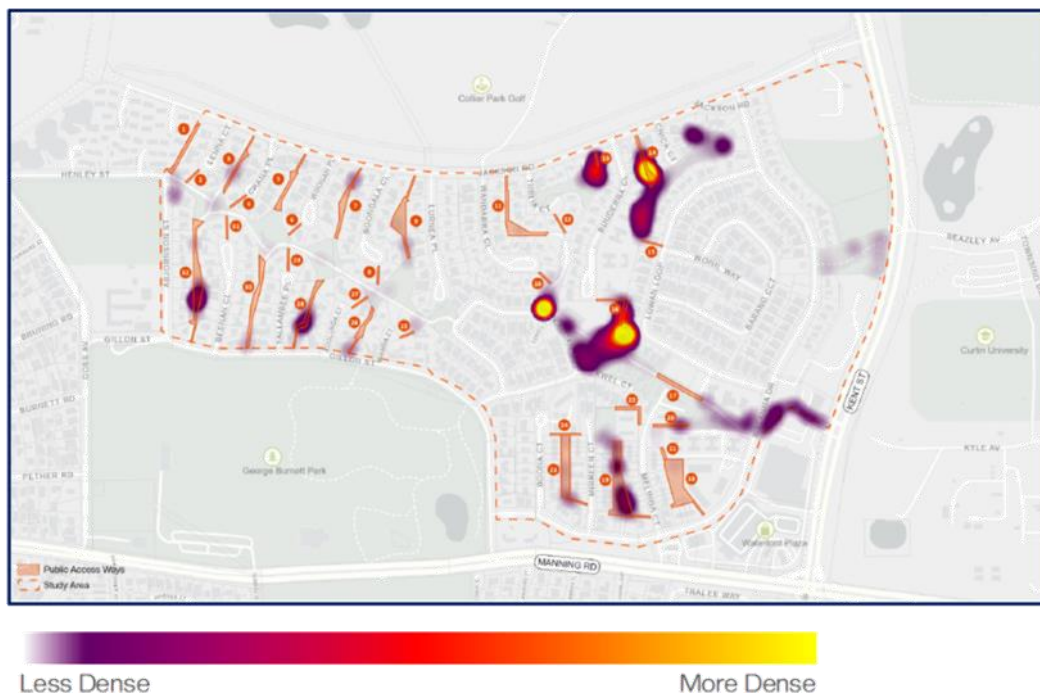


Figure 22 Heat Map (June 2021 – June 2024).

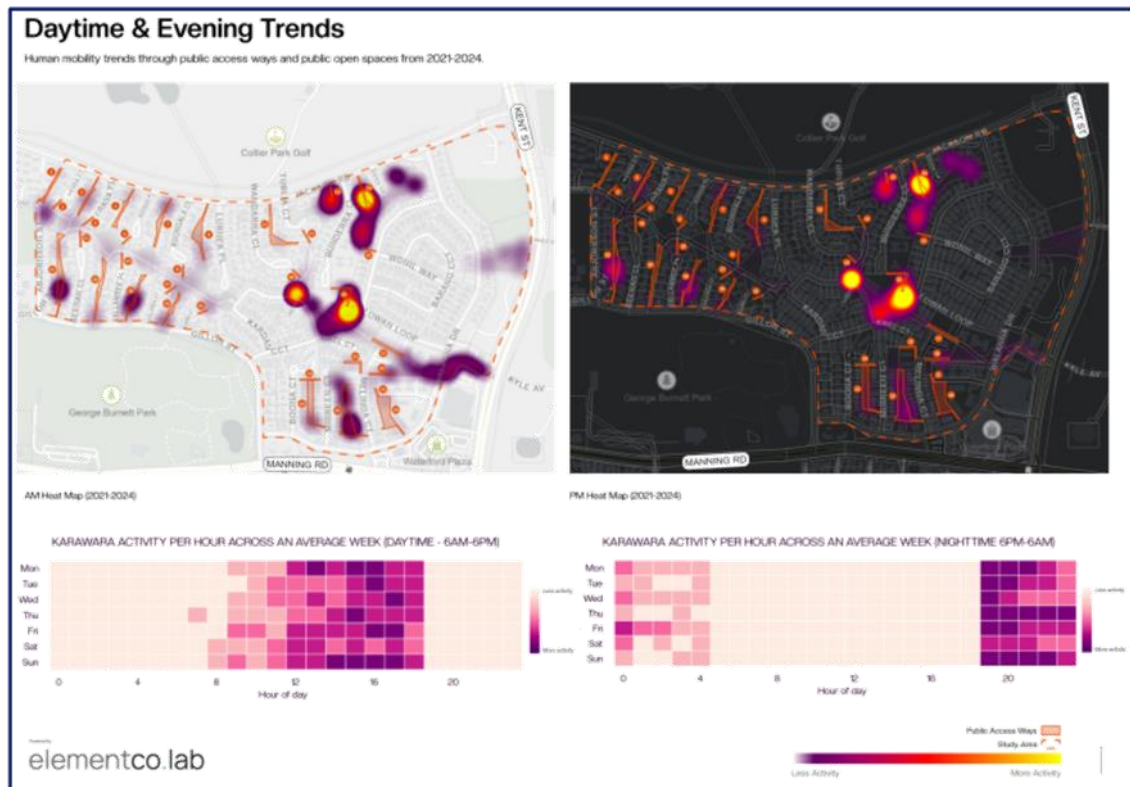


Figure 23 Daytime & Evening Trends (June 2021 – June 2024).

8.3 Connectivity Assessment- Pedestrian Access Way Design and Safety and Security

The City undertook an assessment using the designing out crime PAW assessment from *Reducing Crime and Anti-Social Behaviour in Pedestrian Access Ways* to assess the safety of each PAW from a design perspective. This assessment provides a simple snapshot of the potential vulnerability of a PAW to crime by comparing a specific PAW with the key attributes of one designed to best practice designing out crime and CPTED standards.

The results of this assessment are arrived at by counting the number of 'yes' answers to the questions outlined at **Table 5** with PAWs with more 'yes' answers considered to be safer. These thresholds are as follows:

- High designing out crime PAW, being a low vulnerability PAW: 10-14
- Medium designing out crime PAW, being a medium vulnerability PAW: 5-9
- Low designing out crime PAW assessment, being a high vulnerability PAW: 0-4

Safety and Security Assessment		
Risk Criteria	Yes	No
1. The PAW is overlooked (visual surveillance) at either of its ingress/ egress		
2. The PAW is overlooked (visual surveillance) along its route?		
3. Does the PAW have adequate lighting (eg facial recognition at 10m distance)?		

4. On entering the PAW, can you see the exit?		
5. There are no entrapment spots or hiding places along the length of the PAW?		
6. The PAW is appropriately maintained?		
7. The boundaries between public space and private space are clearly defined?		
8. The boundaries between public space and private space are robustly fenced?		
9. Does the PAW have signs indicating acceptable behaviour?		
10. The PAW is wide enough to allow pedestrians to pass each other easily?		
11. The PAW is not adjacent to vacant land or property?		
12. The PAW is not close to a supplier of alcohol (e.g. retail store)?		
13. The PAW is not a path to a school?		
14. The PAW is not close to an ATM, public telephone box or public toilet?		
Total		

Table 5 Safety and Security Assessment

The outcomes of the safety and security assessment are summarised in Table 6 and reflected in **Figure 25**. The assessment does not include PAWs No. 2 and 6 as these are not accessible to the public.

1-4 LOW Designing out crime (i.e. high vulnerability PAW)	5-9 MEDIUM Designing out crime (i.e. medium vulnerability PAW)	10-14 HIGH designing out crime (i.e. low vulnerability PAW)
	PAW Nos. 3, 5, 7, 9, 11, 15, 16, 17, 18, 19, 22, 23, 25, 26, 28, 29, 30, 31, 32	PAW Nos. 1, 4, 8, 10, 12, 13, 14, 20, 21, 24, 27

Table 6 Results of a Safety and Security Assessment for each PAW

An audit of each PAW shows a wide range of PAW lengths, widths and distribution. Together with an absence of standardised signage and within a landscaped setting that lacks distinguishing landmarks, can negatively affect legibility and perceptions of safety. This is further exacerbated by problems with sightlines along certain PAWs. For example, PAW Nos. 11, 16, 22, 28 are affected by 90 degree corners or 'dog legs'.

In a similar fashion, the long length and curved shape of PAW Nos. 3, 5, 7, 9, 11, 26, 32 also impedes entry sightlines. The audit also identified indentations built into the walls as creating opportunities for concealment that reduce actual and perceived pedestrian safety. As shown in **Figure 24** and **Table 7**, this design feature can be found in PAW Nos. 3, 5, 7, 9, 11, 26, 32.

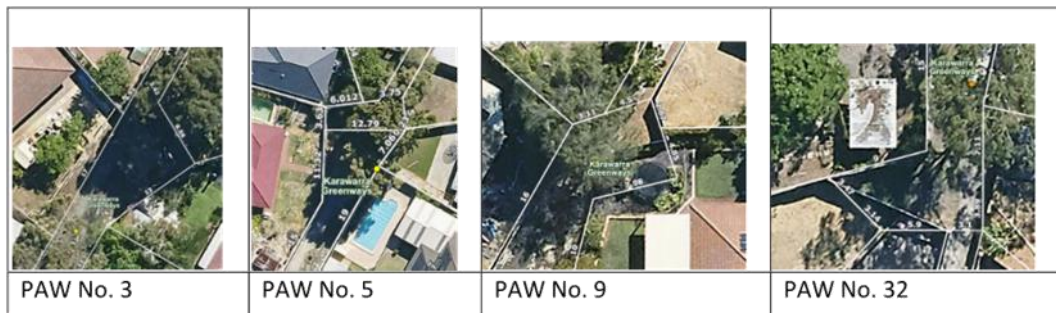


Figure 24 Examples PAW with concealment indentations

PAW No.	Land area affected (approx.)	Abutting properties
3	54.5m ²	No. 9 Jackson Road No. 3 Crana Place
5	West - 64.9m ²	No. 13 Jackson Road No. 2 Crana Place No. 2A Crana Place No. 4 Crana Place
	East - 11.7m ²	No. 15 Jackson Road No. 3 Woonan Place
7	29.8m ²	No. 19 Jackson Road No. 3 Boongala Close
9	11.1m ²	No. 1 Lurnea Place No. 3 Lurnea Place
11	10m ²	No. 31 Jackson Road No. 3 Tublia Court
26	East - 77.2m ² West – 41.8m ²	No. 18 Gillon Street No. 20 Gillon Street No. 2 Koolunda Court No. 4 Koolunda Court
32	46.66m ²	No. 22 Abjornson Street No. 2 Gillon Street No. 2A Gillon Street

Table 7 Locations of concealment indentations within PAWs

The safety and security assessment show Karawara's PAWs to have a low or medium vulnerability score and no PAWs with a high vulnerability score. In purely physical design terms this indicates Karawara's PAWs to have characteristics associated with low – medium opportunities for crime.

Notwithstanding, antisocial behaviour relates to more than just design, and it is recognised that a PAW with a high designing out-crime assessment score and a corresponding low crime risk, can still facilitate antisocial behaviour.



9 Recommendations

9.1 Essential and Non-Essential Pedestrian Access Ways

The City has provided a recommendation for each PAW based on its role within Karawara's local movement network as either 'Essential' or 'Non-Essential'. Refer to Table 9 for an explanation of each category.

Classification	Description
Essential (E)	The PAW should be retained and kept open, as it forms an essential or important function in the local pedestrian and cycle movement network.
Non-essential (NE)	The PAW/accessway could be closed without significantly affecting the local pedestrian and cycle movement network. Closure would be undertaken in accordance with the PAW Closure guidelines.

Table 8 PAW classification of importance

This process considered the following elements to allocate a recommended classification:

- Pedestrian use data from the City's pedestrian counting exercise and the Human Mobility Data investigation;
- The number and type of service infrastructure present and potential impact on closure;
- The potential vulnerability of each PAW to crime; and
- The role played by the PAW connecting locations within the local movement network.

Outcomes are summarised in a map at **Figure 26** and in table format at **Appendix 4**.

9.1.1 Western Karawara

In Western Karawara the City has identified most 'short' PAWs as 'Essential' for the following reasons:

- These PAWs provide direct access from the street to the Greenway;
- They provide the most direct north-south route across the suburb;
- Their short length and clear sightlines provide a lower vulnerability to crime environment; and
- They contain Western Power and Water Mains infrastructure. The Water Corporation have advised that access to this infrastructure is critical.

This recommendation does not apply to PAW Nos. 2 and 6 which are both inaccessible. Investigation of their role within the movement network identified the role of PAW No. 2 to be duplicated by PAW No. 1 with both terminating in the same location on Abjornson Street. The north-south route provided by PAW No. 6 can be provided via PAW Nos. 5.

Given both PAW Nos. 2 and 6 are currently inaccessible and have been for many years, the City is recommending formalisation of the current state. Both PAWs contain water mains infrastructure. Whilst closure of both PAWs is contrary to the recommendation of the Water Corporation, ensuring access to water mains and power infrastructure will be a critical consideration. It is recommended the City advocate for an easement over water infrastructure to protect assets and ensure they are permanently accessible. Further investigation is required with Western Power to identify the most

appropriate course of action, be it physical removal of infrastructure or the imposition of an easement to ensure physical access for maintenance and emergency purposes.

The process to close the PAW will involve an application to the DPLH in accordance with the *Procedure for the Closure of Pedestrian Access Ways*. Once a PAW closure is authorised, it requires land reclassification by scheme amendment to ensure the resulting section has an applicable zone classification.

Most 'long' PAWs are identified as 'Non-Essential' for the following reasons:

- The length and shape of these PAWs includes curves, doglegs and concealment indentations that reduce necessary sightlines required to provide a lower vulnerability to crime environment;
- These PAWs provide access past the backs of dwellings providing opportunity for access in a low surveillance environment; and
- They do not provide the most direct north-south route across the suburb, nor direct access to the Greenway from external roads.

This recommendation does not apply to PAW No. 5. As discussed above, with closure of PAW No. 6, this PAW is required to ensure long term north-south connectivity between Jackson Road and Gillon Street through PAW No. 29.

9.1.2 Northeastern Karawara

In Northeastern Karawara the City is identifying PAW Nos. 10, 12, 13 as 'Essential' for the following reasons:

- These PAWs provide direct access from the street to the Greenway;
- Their short length and clear sightlines provide a lower vulnerability to crime environment; and
- PAW Nos. 10 and 12 contain Western Power and Water Mains infrastructure with Water Corporation advising against closure as access to their infrastructure is critical.

It is recommended that PAW No. 14 is 'Non-Essential' with its role duplicated by Chica Court which connects directly from Jackson Road to the Greenway through a 23m wide opening at the cul-de-sac head.

9.1.3 Southeastern Karawara

In Southeastern Karawara the City is identifying PAW Nos. 16, 17, 19, 20, 22, 23, 24 as 'Essential' for the following reasons:

- PAW Nos. 17 and 20 provide important east-west connections through the Greenway to bus stops on Walanna Drive, Curtin University and the Village Green Shopping Centre;
- PAW No. 24 provides an important east-west link between Boona and Mireen Courts.
- The short length and clear sightlines of PAW Nos. 17, 19, 20, 23, 24 provide a low vulnerability to crime environment; and
- PAW Nos. 22 and 24 contain Western Power and Water Mains infrastructure. The Water Corporation have advised that access to infrastructure is critical.

PAW Nos. 18 and 21 are 'Non-Essential' for the following reasons:

- Overall pedestrian usage is low to moderate, with pedestrian preference given to neighbouring PAW Nos. 19 and 23 for north-south routes to Walanna Drive; and
- They do not contain Water Corporation or Western Power infrastructure.



Figure 26 Recommended PAW classifications

9.2 Recommendations to Improve Pedestrian Access Ways

The City has identified a series of improvements to the PAW and local movement network in Karawara. These improvements are explained below and included in **Appendix 2** and **Appendix 4** where relevant for each PAW.

Recommendation	Detail
Entry Treatments and Signage	<p>There is an opportunity to support Karawara’s pedestrian movement network, link areas of disconnected POS, and attract additional Greenway patronage through the installation of new signage. New signage should also form part of any future wayfinding strategy as a requirement of the Karawara Public Open Space Masterplan and Collaborative Action Plan.</p> <p>Development of a style guide and signage hierarchy for signage and entry statements is recommended to assist in supporting use of the Greenway. This could include a unique symbol that reflects local Aboriginal culture and heritage such as is used on the Munda Biddi Trail which runs between Mundaring and Albany (refer to Figure 27).</p>



Figure 27 Directional Signage from the Mudda Biddi Trail

Karawara was not originally developed with footpaths along its cul-de-sacs. This approach was in part continued in Eastern Karawara when that land was redeveloped in the early 2000's. The absence of footpaths and the discreet nature of PAW entries between 2 property boundaries is likely to negatively impact the overall legibility of the Greenway. This Plan does not recommend installation of footpaths along local roads given that these would interfere with mature street trees and the ability of residents to park on verges. Instead, to encourage and direct pedestrians along cul-de-sacs toward PAWs, entry treatments and signage are recommended for key entry points and along the Greenway itself.

Specific entry statement and signage initiatives are summarised as follows:

- Recommendation 1.1: Development of a style guide for all new signage, entry statements and furniture.
- Recommendation 1.2: Installation of entry statements in the following locations:
 - Western Greenway entry at Abjornson and Henley Streets;
 - Along Kardan and Kwel Courts connecting Western, Eastern and Northern Greenway;
 - Eastern Greenway entry at the Walanna Drive underpass; and
 - Eastern Greenway entry to Kwel Court Playground between Nos. 43 and 47 Lown Loop.
- Recommendation 1.3: Installation of signage at cul-de-sac entry points where these intersect with the outer ring roads (e.g. Gillon Street, Jackson Road and Walanna Drive).
- Recommendation 1.4: Installation of signage at the PAW entry where it intersects with cul-de-sacs.
- Recommendation 1.5: Installation of signage within the Greenway to assist navigation to the outside points of interest such as the nearest street, bus stop, community facility and/or local attractors.

Concealment Location	<p>It is recommended that concealment indentations are removed from PAW Nos. 3, 5, 7, 9, 11, 26, 32. This can be achieved by trialling the installation of temporary fencing to close off the affected portion of land over a period of 12 months.</p> <p>At the end of this period, the City will liaise with adjoining landowners and the community to ascertain the success of the closure. Should the closure improve both sightlines, perceptions of safety and PAW use, the City can advocate for permanent closure of the affected portions with landowners and the DPLH.</p>
Lighting	<p>Lighting improvements include an additional light to provide continuous illumination along the east-west leg of PAW NO. 22.</p>
Mirrors	<p>Mirrors are recommended to improve visibility around corners for PAW Nos. 16 and 22.</p>
Landscaping	<p>It is recommended that landscaping is trimmed away from PAWs to maximise accessibility. This applies to the following PAWs:</p> <ul style="list-style-type: none"> PAW Nos. 19 and 23 – remove branches from private property that encroach the PAW. PAW No. 30 - that landscaping is trimmed back where it encroaches the path. Tree retention within closed linear POS is recommended to support future canopy cover. Any future closure investigations should recommend that mature trees of local species be retained unless there are compelling safety or condition reasons to the contrary.
Footpath Design	<p>The following recommendations are provided for footpath design in Karawara:</p> <ul style="list-style-type: none"> Additional paving is installed around bollards to achieve a minimum footpath clearance of 1.5m to ensure universal accessibility for prams, wheelchairs and similar vehicles. A dedicated footpath between the public street and PAW entrance at PAWs' Nos. 29 and 31 to improve PAW legibility and accessibility. These paths will require a design response that maximises pedestrian safety whilst respecting the unique characteristics of each location including streetlights and the narrow land dimensions between two existing driveways. The City explore measures such as a dedicated footpath between the PAW and road, or the use of signage to improve PAW legibility and accessibility of entry to PAW Nos. 22 and 23. Remnant structures with no identified benefit can be removed from PAW Nos. 13 and 18.
Bike & Pedestrian Paths	<ul style="list-style-type: none"> It is proposed to retain 'strategic bike' routes along Jackson Road, Kent Street and Manning Road as proposed in the Joint Bike Plan, and 'local' routes proposed and developed for Eastern Karawara along Kwel Court, PAW No. 17, and Walanna Drive.

	<ul style="list-style-type: none"> • A review of 'local' routes for bike movement providing north-south connections in Western Karawara between Jackson Road and Gillon Street is recommended. This includes the north-south connection proposed via PAW Nos. 9 and 26. Given the length and reduced sightlines of both PAWs, it is recommended this route be reconsidered and new north-south routes identified as part of future bike plan reviews. The preferred alternative route is via Lurnea Close and PAW No. 25. This provides a direct connection between Jackson Road and Gillon Street, whilst being close to the current north-south link. It also provides ease of connection with Kardan Court, connecting with the eastern local bike route at Kardan Court. • To delineate and enhance key east-west connections and assist wayfinding across Karawara, use of coloured paving such as red asphalt or similar path treatment is recommended. The use of colour can help visually differentiate shared and separated paths from the road network, with asphalt recognised as providing a smooth surface for cyclists. Given the good condition of Karawara's pathways, replacement is not urgent. It is therefore recommended the identified east-west path be delivered to coincide with the City's longer term path upgrades for Karawara.
Asset Management	<p>Future upgrades and improvements to PAWs should consider the outcomes of this review and seek to employ the design approaches recommended in the WA State Government's <i>Safer Places by Design CEPTED Guidelines</i> (July 2023) to support better public safety and local pedestrian movements.</p> <p>Specific improvements have been recommended where they meet the following criteria:</p> <ul style="list-style-type: none"> • Required to satisfy legislative requirements e.g. <i>Disability Discrimination Act 1992</i>, • Demonstrated as supporting the local movement network, and • Demonstrated as contributing toward improved wayfinding. <p>It is recommended that these improvements are included in the City's Asset Management Plan (AMP).</p> <p>This AMP identifies responsibilities, maintenance standards and inspection regimes required to manage civil liability. Through the AMP, the City ensures assets that support the delivery of services to the community are cost effectively managed over their lifecycle and take into consideration community expectations for levels of service (time, quality and value for money).</p> <p>It is noted that any costings included with recommendations are only valid at time of issuing and will need review prior to implementation</p>

Appendix 1 – Infrastructure Quality Assessment

PAW No.	Pathway condition	Lighting Points		Signage point condition	
		Number of lights	Condition of lights		
1.	3	3	3	3	4
2.	Nil	Nil	Nil		
3.	3	3	3	5	
		1	4		
4.	2	Nil	-		
5.	3	3	3	5	
		1	4		
6.	Nil	Nil	Nil		
7.	3	4	3	5	
		1	4		
8.	2	Nil	-		
9.	3	4	3	5	
		1	4		
10.	3	Nil	-		
11.	2	5	3	3	
12.	3	Nil	-		
13.	3	1	4	5	
14.	3	3	3	5	
15.	2	1	3		
16.	2	2	3		
17.	2	3	3		
18.	2	5	3	5	
		1	4		
19.	3	8	3	4	
		1	4		
20.	3	1	3		
21.	3	1	3		
22.	2	1	3		
23.	3	2	3	5	
		3	4		
24.	3	2	4		
25.	2	Nil	-		
26.	2	3	3	5	
		1	4		
27.	3	Nil	-		
28.	3	4	3		
29.	3	Nil	-		
30.	2	3	3		
		2	4		
31.	3	Nil	-		
32.	2	6	3	5	
		1	4		

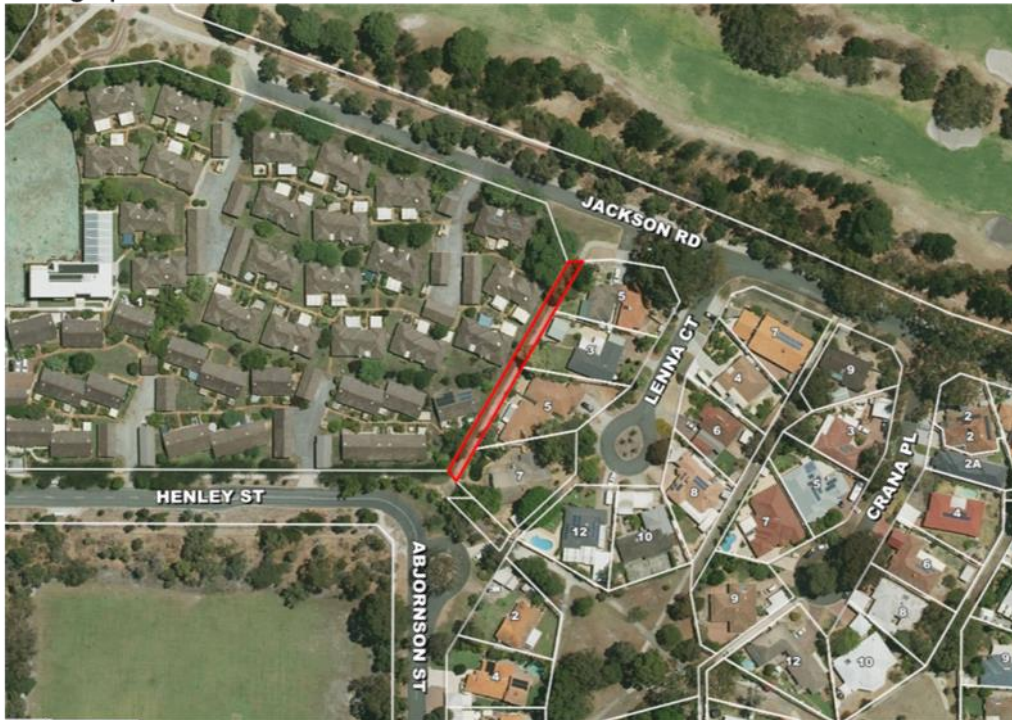
Table 9 Infrastructure Quality with the pedestrian Access Ways

Condition Score	Description of Condition	
1	Very Good	
2	Good	
3	Fair	
4	Poor	
5	Very Poor	

Appendix 2- Pedestrian Access Way Assessment Sheets

PAW 1 - Lot 3605 on Plan 217021 Jackson Road			
Location	Between Jackson Road and Abjornson Street/Henley Street		
Responsible Agency	Reserved under management order to City of South Perth		
Legal Status	Pedestrian Access Way Reserve 41339	Lot/Volume/Folio	3605/LR3055/712
Zoning	Local Road	Plan No.	Deposited Plan 217021
Area	529m ² approx.		
Physical Assessment:			
Safety	10 = low vulnerability	Landscaping	City Parks (trees and grass)
Lighting (number and condition)	1 streetlight at each entry. 3 City security Lights: Condition 3 (Fair)	Passive Surveillance	Good. Opportunity for passive surveillance from adjoining properties with permeable fencing along western boundary.
Path Infrastructure (bollards, signage)	Metal print sign and 'U' shaped handrail and wooden bollards at both entrances.	Footpath Condition	City pathway condition 3 (Fair)
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Signage condition	City signage condition 3 (Fair) and 4 (Poor)
		Storm Water structure condition	Nil City stormwater
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	Yes
Comments	Recommend new directional signage for both entries and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs



Northern entry Jackson Road

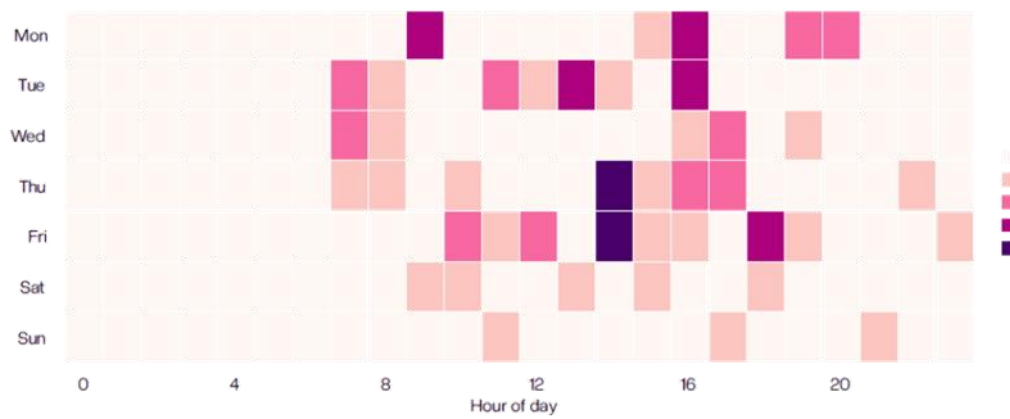


Southern entry Abjornson Street

Human Mobility Trends



Human Mobility Trends through PAW No. 1



Activity through the week, per hour in PAW No. 1

PAW 2 - Lot 56 on Plan 11702 Lenna Court - CLOSED TO PUBLIC ACCESS			
Location	Lenna Court Cul-de-sac head		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	56/2752/475
Zoning	Residential R20	Plan No.	11702
Area	95m ² approx.		
Physical Assessment:			
Safety	N/A	Landscaping	N/A
Lighting (number and condition)	1 streetlight Lenna Court entry. Nil City security lights	Passive Surveillance	N/A
Path Infrastructure (bollards, signage)	N/A	Footpath Condition	N/A
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Signage Condition	N/A
		Storm Water structure condition	Nil
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	Yes
Comments	Recommend formalising current state of 'closure' with Department of Lands.		
Recommendation	Non-Essential		

Photographs



View of PAW from Lenna Court (inaccessible)



View of PAW from Greenway (inaccessible)

Human Mobility Trends



Human Mobility Trends through PAW No. 2 – note PAW in accessible to public



Activity through the week, per hour in PAW No. 2 - note PAW in accessible to public

PAW 3 – Portion of Lot 3205 Jackson Road & Lot 56 on Plan 11702			
Location	Between No's 7-9 Jackson Road		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reserve 34691	Lot/Volume/ Folio	56/2752/475 3205/LR3013/502
Zoning	Local road; Public Open Space	Plan No.	Plan 11702
Area	525m ² approx. (PAW 84m ² , POS 441m ²)		
Physical Assessment:			
Safety	8 = medium vulnerability NOTE: Concealment indentation.	Lighting (number and condition)	Nil immediate streetlight. 4 City security lights:- Condition 3 (Fair) & 4 (Poor)
Landscaping	City Parks (trees and grass)		
Passive Surveillance	Poor. PAW's length and absence of 2-storey dwellings reduces passive surveillance.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal post with sign missing and bollard at Jackson Road entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.		
Recommendation	Non-Essential		

Photographs



Northern entry Jackson Road

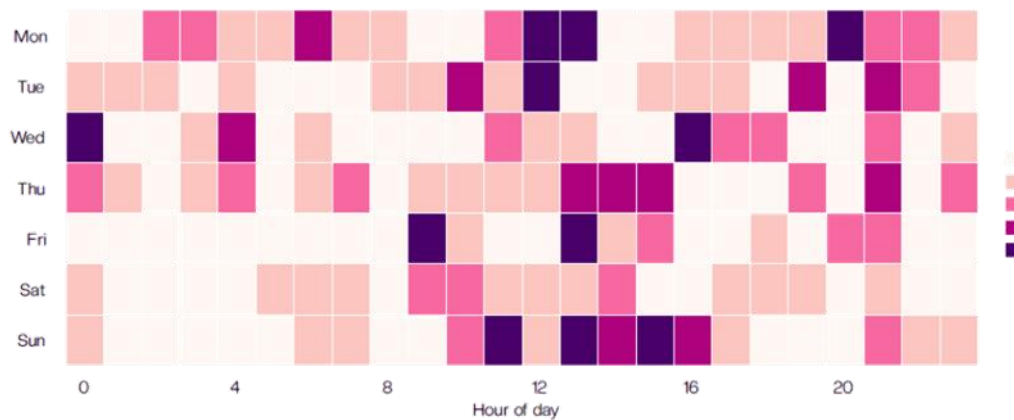


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 3



Activity through the week, per hour in PAW No. 3

PAW 4 - Lot 56 on Plan 11702 Crana Court			
Location	Crana Place Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	56/2752/475
Zoning	Local road	Plan No.	11702
Area	107m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Crana Place entry. Nil City security lights	Safety	10 = low vulnerability
Passive Surveillance	Poor. No opportunity for passive surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Wooden bollards at Crana Place entry.	Signage condition	Nil City signs
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs



Northern entry Crana Court

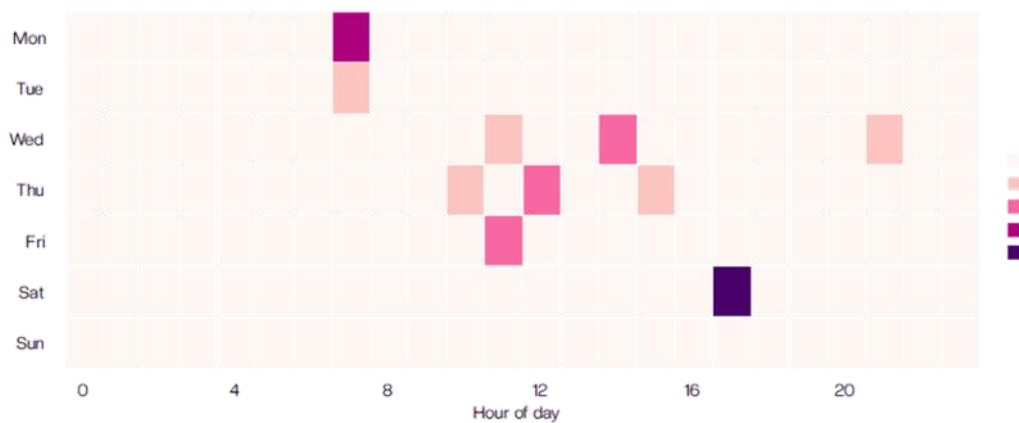


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 4



Activity through the week, per hour in PAW No. 4

PAW 5 – Lot 55 on Plan 11701, Lot 3219 on Plan 11701 & Portion of Lot 2893 on Plan 11414			
Location	Between No's 13-15 Jackson Road		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reserve 34691	Lot/Volume/ Folio	55/2751/357 3219/LR3013/504 2893/LR3013/499
Zoning	Local road; Public Open Space	Plan No.	11701 11414
Area	670m ² approx. (PAW 100m ² , POS 570m ²)		
Physical Assessment:			
Safety	9 = medium vulnerability. NOTE: Concealment indentation.	Lighting (number and condition)	1 streetlight Jackson Road entry. 4 City security lights:- Condition 3 (Fair) & 4 (Poor)
Passive Surveillance	Poor. Opportunity for surveillance from 2-storey dwelling to west.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Sign post without sign and 'U' shape shaped handrail at Jackson Road entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (trees and grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.		
Recommendation	Essential		

Photographs

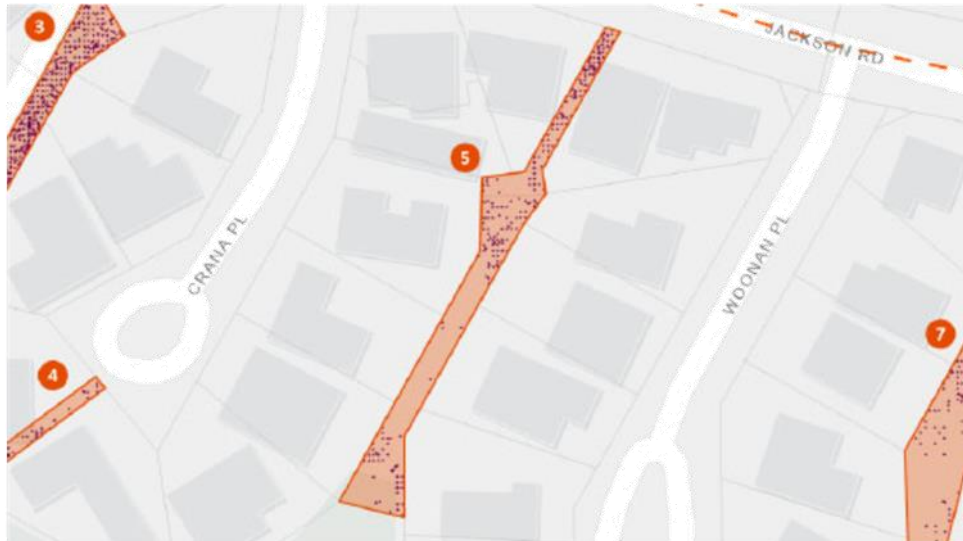


Northern entry Jackson Road



Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 5



Activity through the week, per hour in PAW No. 5

PAW 6 – Lot 55 on Plan 11701 Woonan Place - CLOSED TO PUBLIC ACCESS			
Location	End of Woonan Place Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	55/2751/357
Zoning	Local road	Plan No.	11701
Area	86m ² approx.		
Physical Assessment:			
Lighting (number and condition)	Streetlight Woonan Place entry. Nil City security lights	Safety	Nil. Closed to public access.
Passive Surveillance	Nil. Closed to public access.	Footpath Condition	Nil City pathway present
Path Infrastructure (bollards, signage)	Nil City infrastructure.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil city stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend formalising current state of 'closure' with Department of Lands.		
Recommendation	Non-Essential		

Photographs

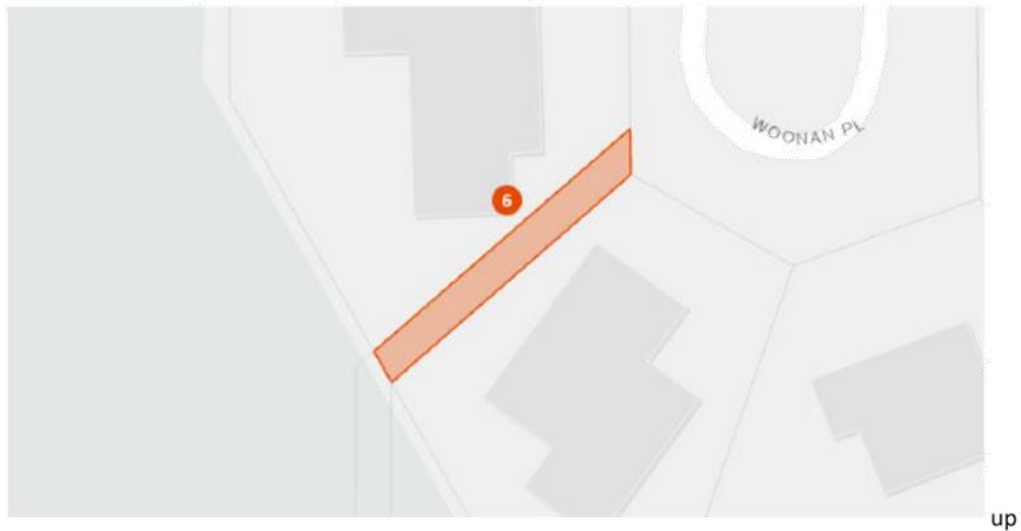


Northern entry Woonan Place (inaccessible)



Southern entry Greenway (inaccessible)

Human Mobility Trends



Human Mobility Trends through PAW No. 6— note PAW is accessible to public



Activity through the week, per hour in PAW No. 6

PAW 7 – Lot 55 on Plan 11701 & Portion of Lot 3220 Gillon Street			
Location	Between No's 17-19 Jackson Road		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reserve 34691	Lot/Volume/Folio	55/2751/357 3220/LR3013/505
Zoning	Local road; Public Open Space	Plan No.	Plan 11701
Area	837m2 approx. (PAW 95m ² , POS 742m ²)		
Physical Assessment:			
Safety	9 = medium vulnerability NOTE: Concealment indentation.	Lighting (number and condition)	1 streetlight Jackson Road entry. 5 City security Lights:- Condition 3 (Fair) & 4 (Poor)
Passive Surveillance	Poor. No opportunities for passive surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal pole with sign missing and 'U' shaped handrail at Jackson Road entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (trees and grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.		
Recommendation	Non-Essential		

Photographs

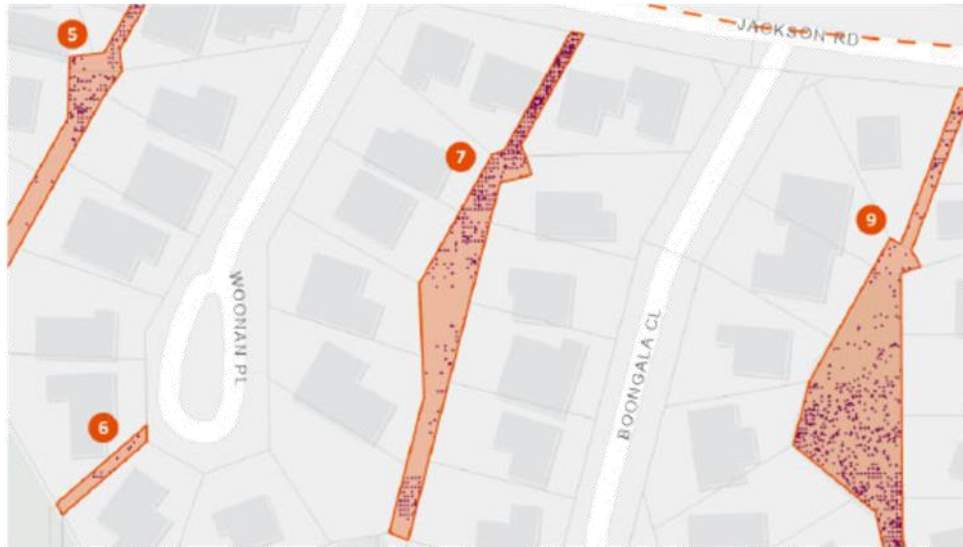


Northern entry Jackson Road

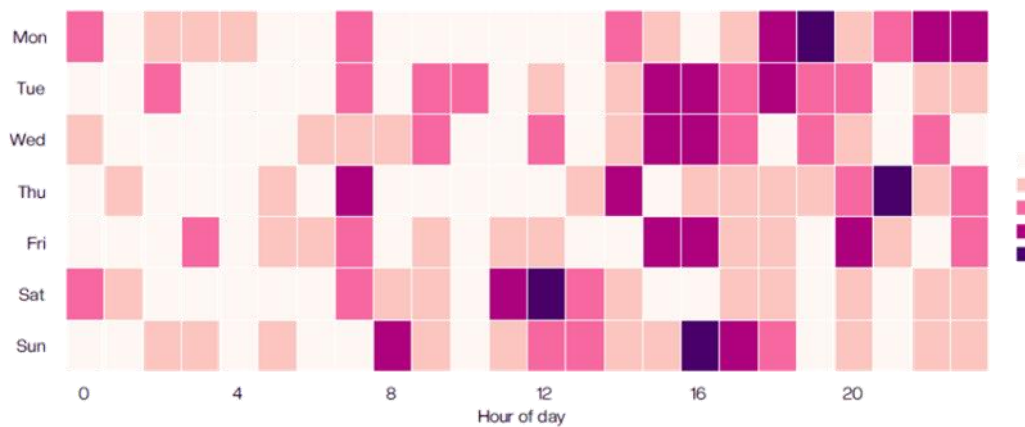


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 7



Activity through the week, per hour in PAW No. 7

PAW 8 – Lot 57 on Plan 11413 Boongala Close			
Location	End of Boongala Close Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	57/2745/983
Zoning	Local road	Plan No.	Plan 11413
Area	96m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Boongala Close entry. Nil City security lights.	Safety	11 = low vulnerability
Passive Surveillance	Poor. No opportunities for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Metal bollard at Boongala Close entry.	Signage condition	Nil City signage
Pedshed Accessibility	Within 450m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs



Northern entry Boongala Close

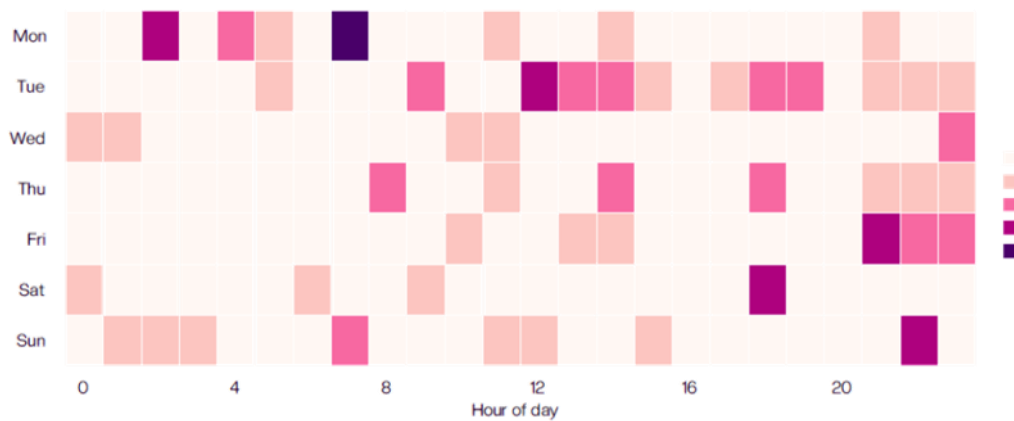


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 8



Activity through the week, per hour in PAW No. 8

PAW 9 - Lot 57 on Plan 11413 & Portion of Lot 3201 Boongala Close			
Location	Between No's 21-23 Jackson Road		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reservation 36791	Lot/Volume/ Folio	57/2745/983 3201/LR3103/702
Zoning	Local road; Public Open Space	Plan No.	Plan 11413
Area	1575m ² approx. (PAW 130m ² , POS 1315m ²)		
Physical Assessment:			
Safety	8 – medium vulnerability NOTE: Concealment. Indentation.	Lighting (number and condition)	1 streetlight Jackson Road entry. 5 City security lights Condition 3 (Fair) & 3 (Poor)
Passive Surveillance	No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal bollard at Jackson Road entry.	Signage condition	City signage condition 5 (Vey Poor)
Pedshed Accessibility	Within 500m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (trees and grass)		
Infrastructure Assets within PAW			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation. Identify alternative north-south bike path between Jackson Road and Gillon Street in future Bike Plan.		
Recommendations	Non-Essential		

Photographs

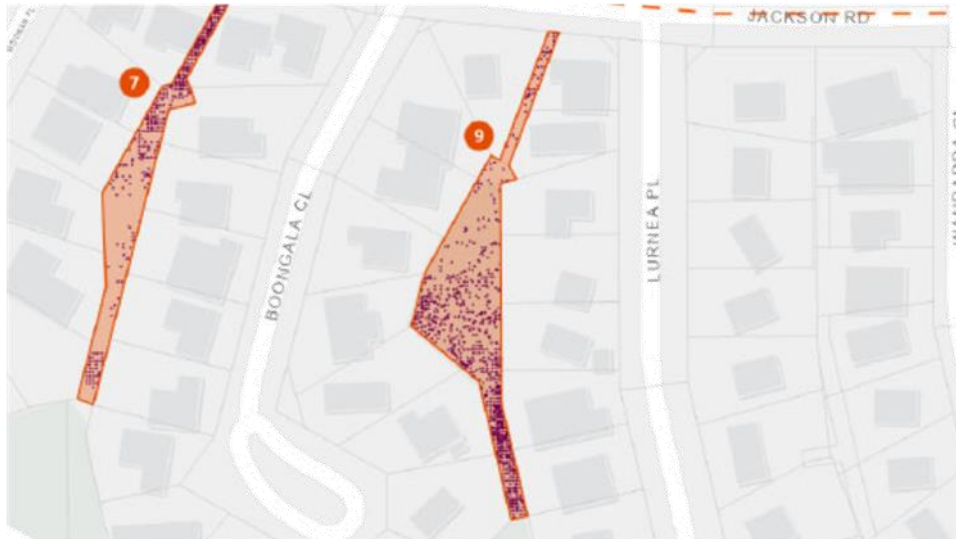


Northern entry Jackson Road

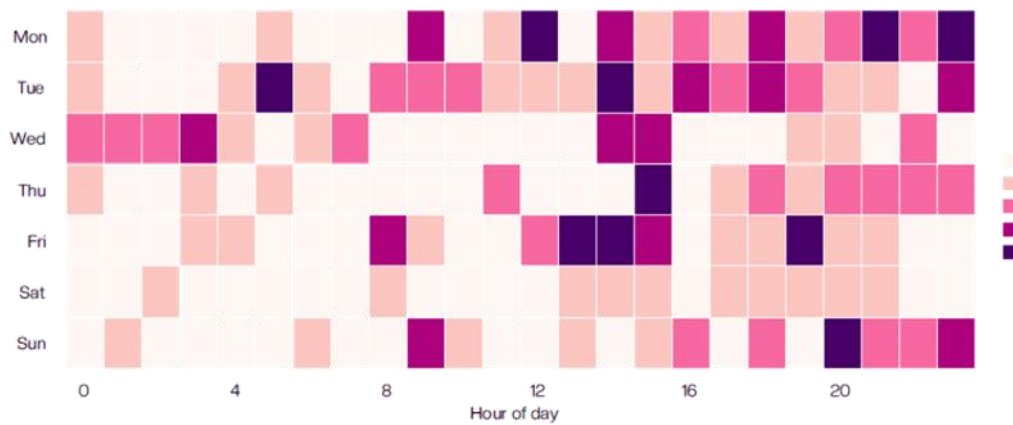


Southern entry Greenway with indentation

Human Mobility Trends



Human Mobility Trends through PAW No. 9



Activity through the week, per hour in PAW No. 9

PAW 10 – Lot 56 on Plan 11412 Wandarra Close			
Location	End of Wandarra Close Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	56/2751/355
Zoning	Local road	Plan No.	Plan 11412
Area	82m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Wandarra Close entry. Nil City security lights.	Safety	11 = low vulnerability PAW
Passive Surveillance	Moderate. No opportunities for passive surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Metal bollard at Wandarra Close entry.	Signage condition	Nil City signage
Pedshed Accessibility	Within 800m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards. Recommend review should PAW Nos. 12 & 13 be closed.		
Recommendation	Essential		

Photographs



Northern entry Wandarra Close

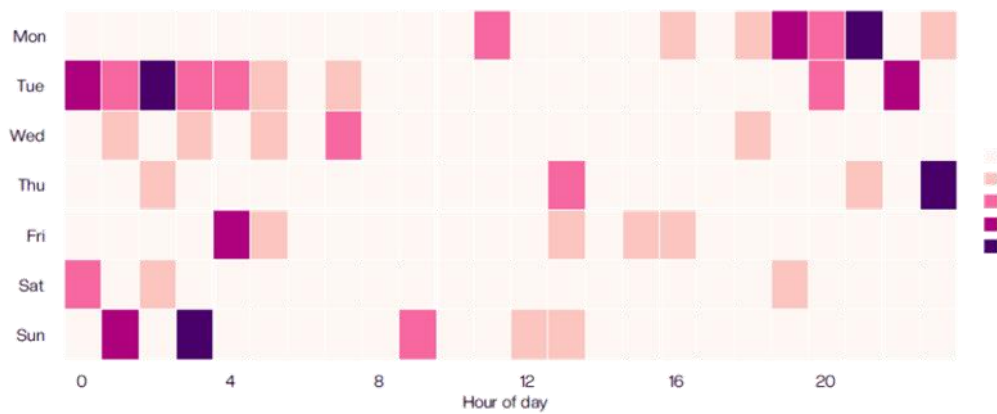


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 10



Activity through the week, per hour in PAW No. 10

PAW 11 – Lot 56 on Plan 11412 and Portion of Lot 4360 on Plan 220692			
Location	Between No's 2-31 Jackson Road		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reserve 36791	Lot/ Volume/ Folio	56/2751/355 4360/LR3115/364
Zoning	Local road; Public Open Space	Plan No.	Plan 11412 Plan 220692
Area	1154m ² approx. (PAW 74m ² , POS 1080m ²)		
Physical Assessment:			
Safety	8 = medium vulnerability NOTE: PAW includes indentation for concealment.	Lighting (number and condition)	No immediate streetlight. 5 City security lights Condition 3 (Fair)
Passive Surveillance	Moderate. Opportunity for surveillance from adjoining two-storey dwellings. Corner shape in PAW reduces surveillance.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal print sign and 'U' shaped handrail at Jackson Road entry.	Signage condition	City signage condition 3 (Fair)
Pedshed Accessibility	Within 800m of Curtin Primary School, Meath Care, George Burnett Leisure Centre, Village Green Shopping Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (trees and grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.		
Recommendation	Non-Essential		

Photographs



Northern entry Jackson Road

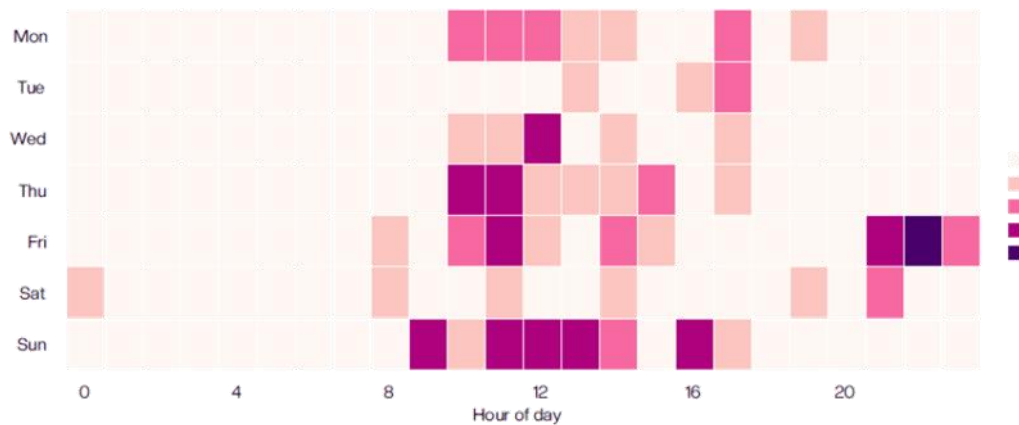


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 11



Activity through the week, per hour in PAW No. 11

PAW 12 – Tublia Court			
Location	End of Tublia Court Cul-de-sac		
Responsible Agency	City of South Perth		
Legal Status	Local road	Volume/ Folio	P ROAD
Zoning	Local road	Plan No.	Nil
Area	111m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Tublia Court entry. Nil City security lights.	Safety	11 = low vulnerability
Passive Surveillance	Moderate. No opportunity for surveillance form adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	‘U’ shaped handrail at Tublia Court entry.	Storm Water structure condition	Nil City stormwater
Pedshed Accessibility	Within 800m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.		
Landscaping	Nil City Parks		
Infrastructure Assets within PAW			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs

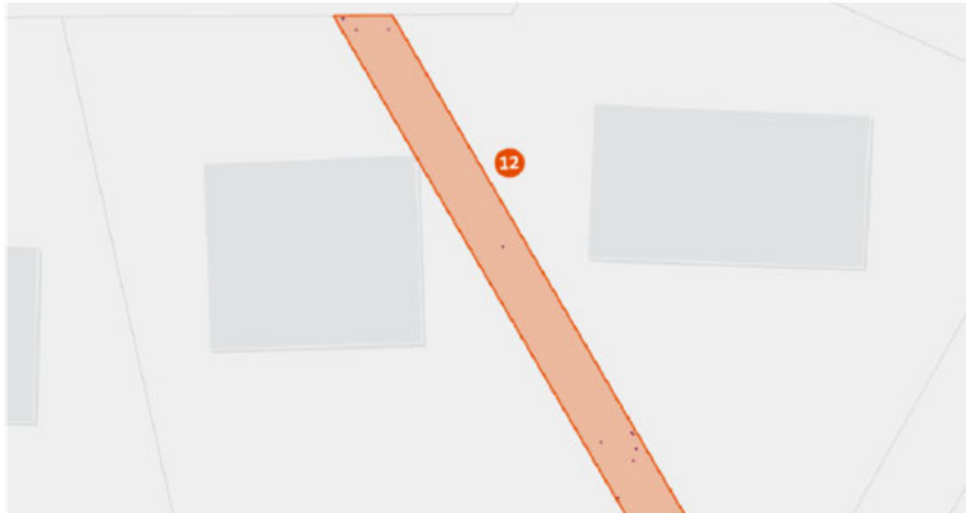


Northern entry Tublia Court

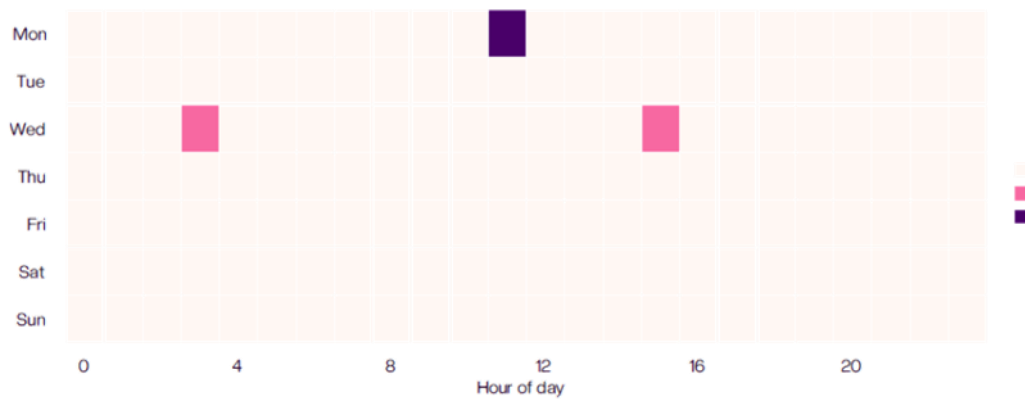


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 12



Activity through the week, per hour in PAW No. 12

PAW 13 – Lot 56 on Plan 11412 Jackson Road			
Location	Between No's 14 – 43-45 Jackson Road		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	56/2751/355
Zoning	Local road	Plan No.	Plan 11412
Area	82m ²		
Physical Assessment:			
Safety	11 = low vulnerability	Lighting (number and condition)	No immediate streetlight. 1 City security light Condition 4 (Poor)
Passive Surveillance	Moderate. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Sign post with missing message and 'U' shaped handrail at Jackson Road entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 800m of Curtin Primary School, Meath Care, George Burnett Leisure Centre.	Storm Water structure condition	Nil Cty stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs



Southern entry Jackson Road

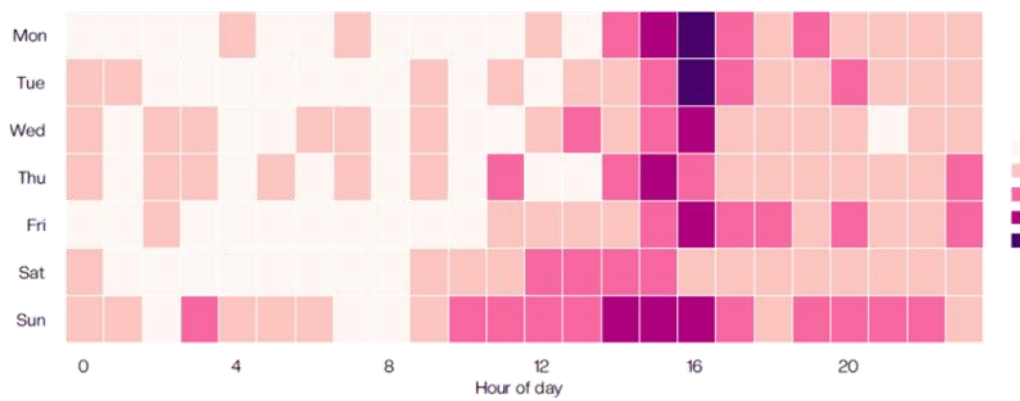


Northern entry Greenway

Human Mobility Trends

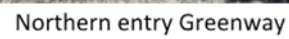
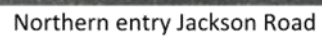


Human Mobility Trends through PAW No. 13



Activity through the week, per hour in PAW No. 13

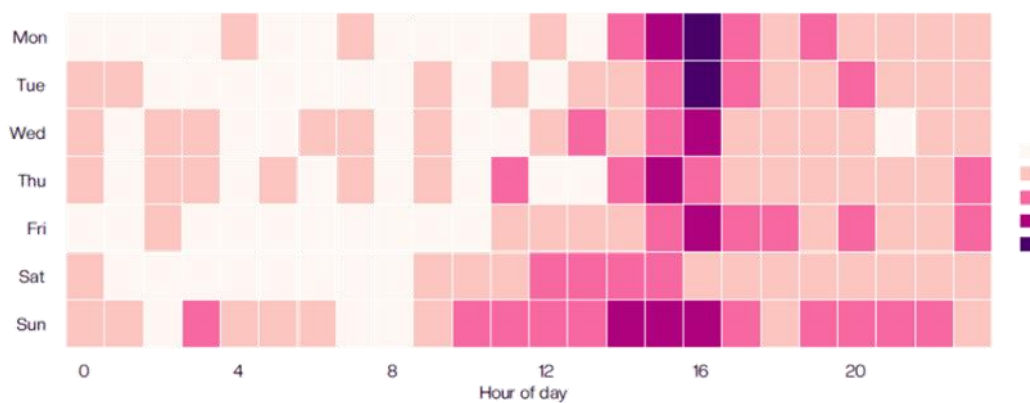
PAW 14 – Portion of Lot 4362 on Plan 220679			
Location	Between No's 47A and 49 Jackson Road		
Responsible Agency	Reserved under management order to City of South Perth		
Legal Status	Public Recreation Reserve 36791	Lot/Volume/ Folio	4362/LR3115/366
Zoning	Public Open Space	Plan No.	Plan 220679
Area	310m ² approx.		
Physical Assessment:			
Safety	10 = low vulnerability	Lighting (number and condition)	1 streetlight at Jackson Road entry. 3 City security lights:- Condition 3 (Fair)
Passive Surveillance	Poor. No opportunity for surveillance from neighbouring dwellings.	Footpath Condition	City pathway condition 3 - (Fair)
Path Infrastructure (bollards, signage)	Sign post with message missing and 'U' shaped handrail at Jackson Road entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 600m of the Gowrie Early Learning Centre and Village Green Shopping Centre.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Non-Essential		



Human Mobility Trends



Human Mobility Trends through PAW No. 14



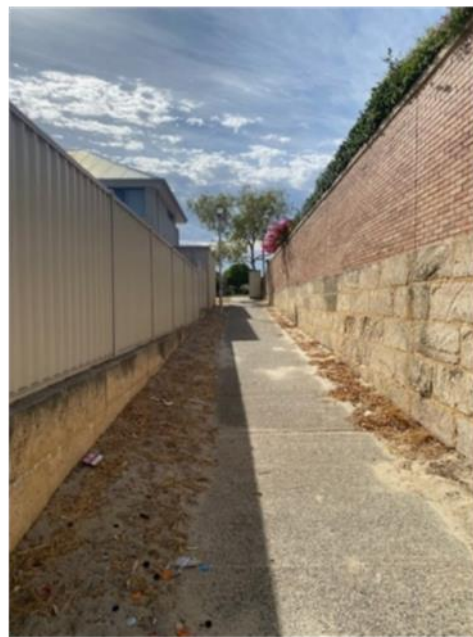
Activity through the week, per hour in PAW No. 14

PAW 15 – Lot 55 on Plan 11311 Lowan Loop			
Location	Between Nos. 25 and 27 Lowan Loop		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	55/2748/37
Zoning	Local road	Plan No.	Plan 11411
Area	97m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Lowan Loop entry. 1 City security light:- Condition 3 (Fair)	Safety	9 = medium vulnerability PAW
Passive Surveillance	Moderate. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Nil.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	Yes
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards. Recommend review should No. 14 Bunderra Close be redeveloped.		
Recommendation	Essential		

Photographs

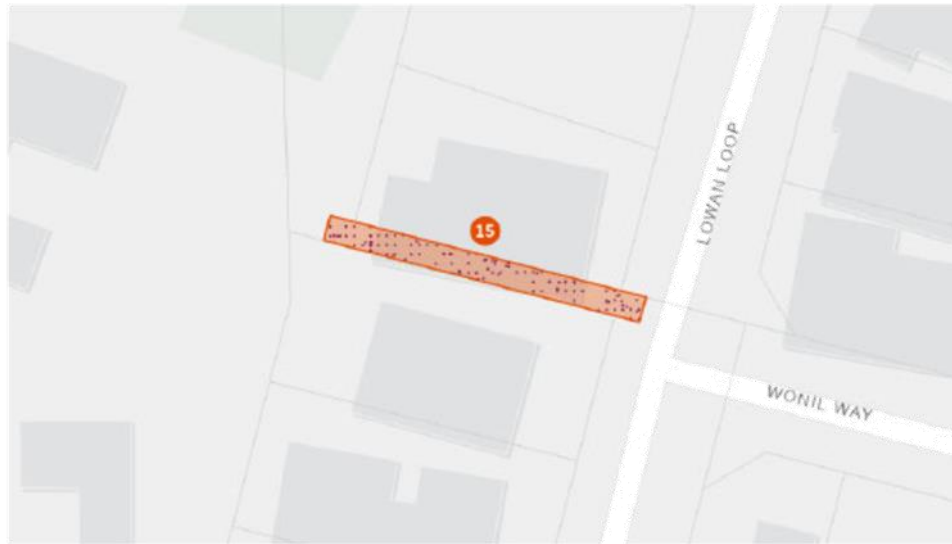


Eastern entry Lowan Loop

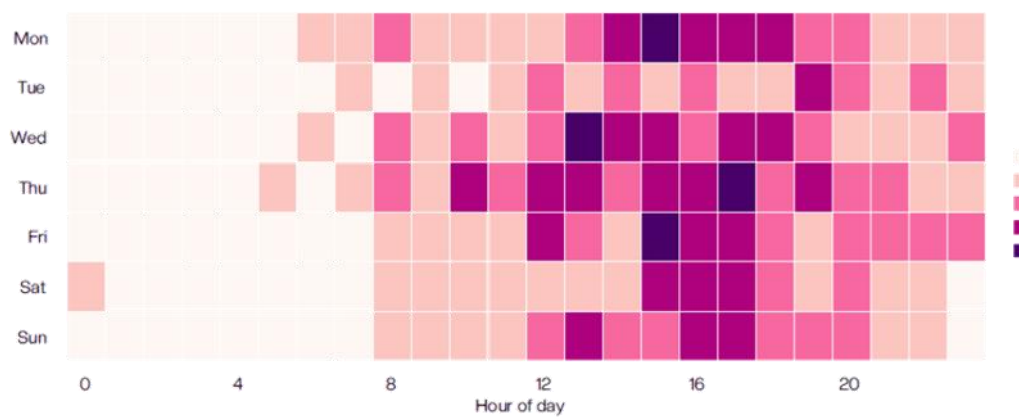


Western entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 15



Activity through the week, per hour in PAW No. 15

PAW 16 – Lot 55 on Plan 11411 & Portion of Lot 4361 Bunderra Close			
Location	End of Bunderra Close Cul-de-sac		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way Public Recreation Reserve 36791	Lot/Volume/Folio	PAW 55/2748/37; POS 4361/LR3115/365
Zoning	Local road; Public Open Space	Plan No.	Plan 11411 Deposited Plan 220692
Area	382m ² approx. (PAW 153m ² ; POS 252m ²)		
Physical Assessment:			
Lighting (number and condition)	No immediate streetlight. 4 City security lights:- Condition 3 (Fair)	Safety	6 = medium vulnerability Includes 90 degree corner.
Passive Surveillance	Poor. No opportunity for surveillance from neighbouring dwellings. Corner shape of PAW reduces surveillance.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Nil.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie ELC and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (tree)		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	Yes
Sewage	No	NBN	Yes
Comments	Recommend new directional signage, 1.5m footpath extension around bollards, upgrade lighting and mirrors. Recommend review should Nos. 14-16 Bunderra Close be redeveloped.		
Recommendation	Essential		

Photographs

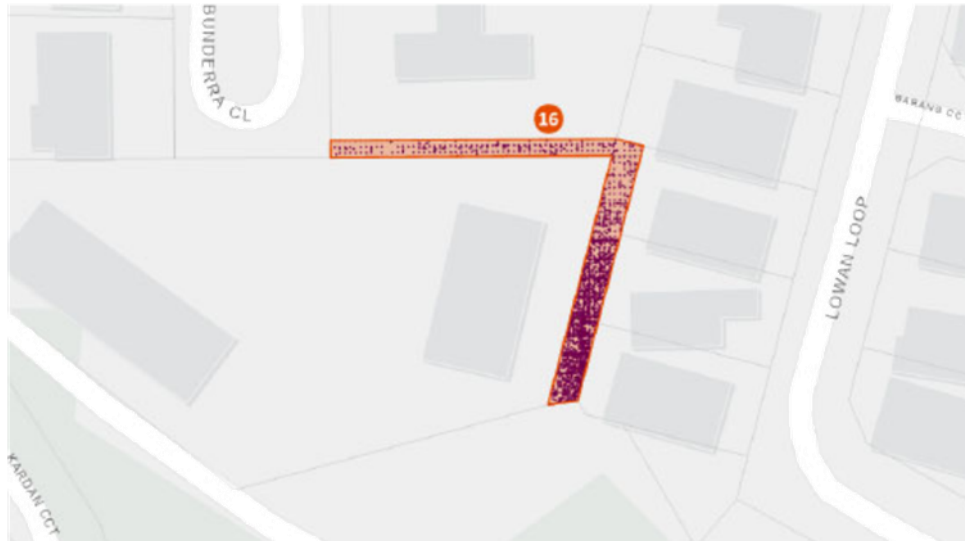


PAW 16 looking east toward corner

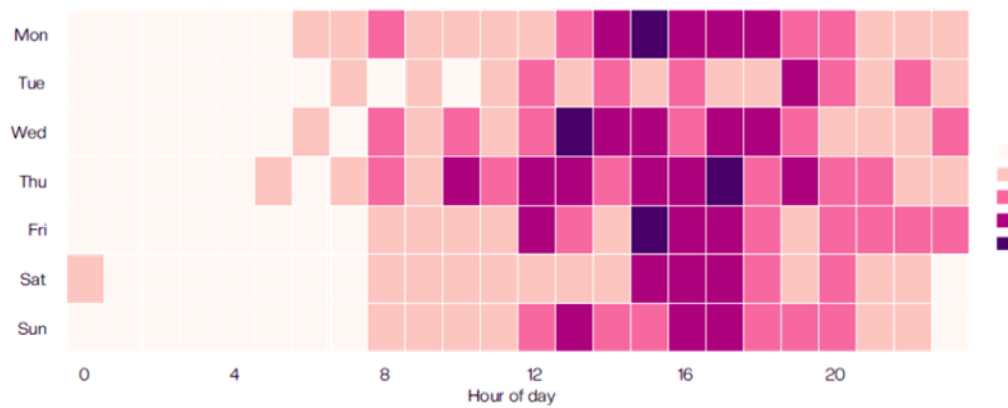


PAW 16 looking south from corner

Human Mobility Trends



Human Mobility Trends through PAW No. 16



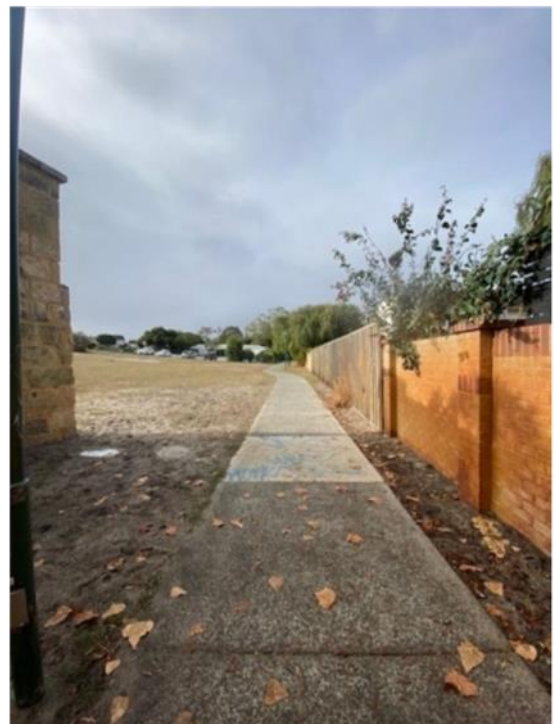
Activity through the week, per hour in PAW No. 16

PAW 17 - Lot 2836 on Plan 11228			
Location	To the south of Lowan Loop and east of Kwel Court		
Responsible Agency	Reserved under management order to City of South Perth		
Legal Status	Public Recreation Reserve 34241	Lot/Volume/ Folio	2836/LR3057/668
Zoning	Public Open Space	Plan No.	Plan 11228
Area	553m ² approx.		
Physical Assessment:			
Safety	9 = Medium vulnerability	Lighting (number and condition)	3 City security Lights:- Condition 3 (Fair)
Passive Surveillance	Good. Opportunity for surveillance through a large vacant site on the northern boundary, and visually permeable fencing and two-storey dwellings facing the PAW along the southern boundary.	Footpath Condition	City pathway condition 2 (Good) & 3 (Fair)
Path Infrastructure (bollards, signage)	Nil.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields. Direct route to Curtin University.	Storm Water structure condition	City stormwater condition 2 (Good)
Landscaping	City Parks (grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards. Recommend review should Nos. 14-16 Bunderra Close be redeveloped.		
Recommendation	Essential		

Photographs

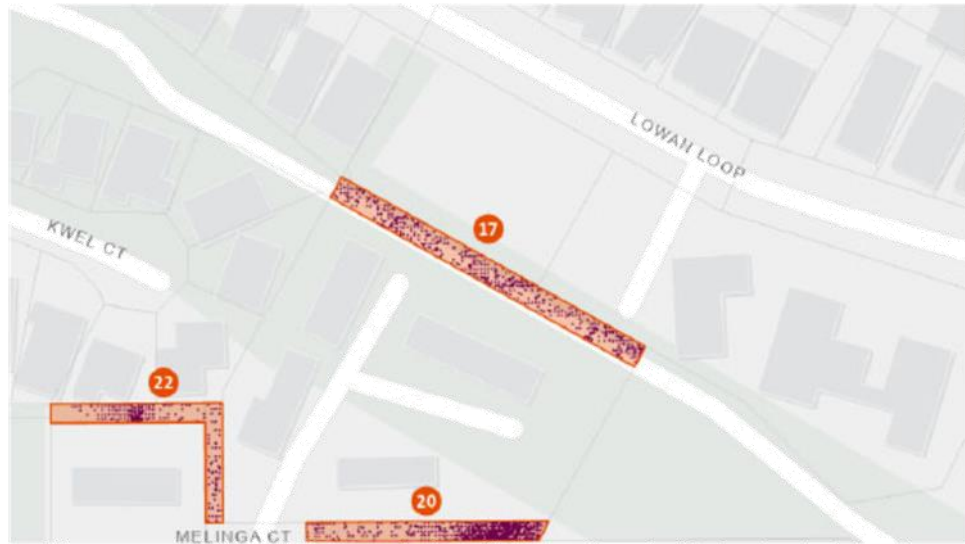


Eastern entry looking west

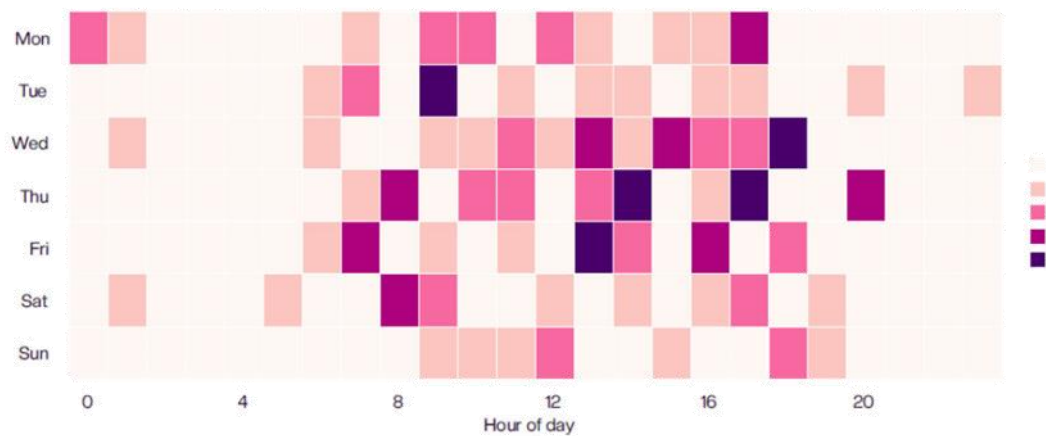


Western entry looking east

Human Mobility Trends



Human Mobility Trends through PAW No. 17



Activity through the week, per hour in PAW No. 17

PAW 18 – Lot 55 on Plan 11228 Walanna Drive			
Location	Between No's 34-36 Walanna Drive		
Responsible Agency	State of Western Australia, Department of Planning, Lands and Heritage		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/Folio	PAW 55/2754/19
Zoning	Local road	Plan No.	Plan 11228
Area	92m ²		
Physical Assessment:			
Lighting (number and condition)	2 streetlights near Walanna Drive entry. 1 City security light:- Condition 3 (Fair)	Safety	9 = medium vulnerability PAW
Passive Surveillance	Moderate. Opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal print sign, 'U' shaped handrail and fence posts.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	City stormwater condition 3 (fair)
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	No	NBN	No
Comments	<p>Recommend new directional signage, lighting along PAW path and trial fencing off concealment indentation.</p> <p>Recommend PAW closure and amalgamation of POS into PAW No. 17 should PAW No. 21 be closed or No. 36 Walanna Drive be redeveloped.</p>		
Recommendation	Non-Essential		

Photographs



Southern entry Walanna Drive

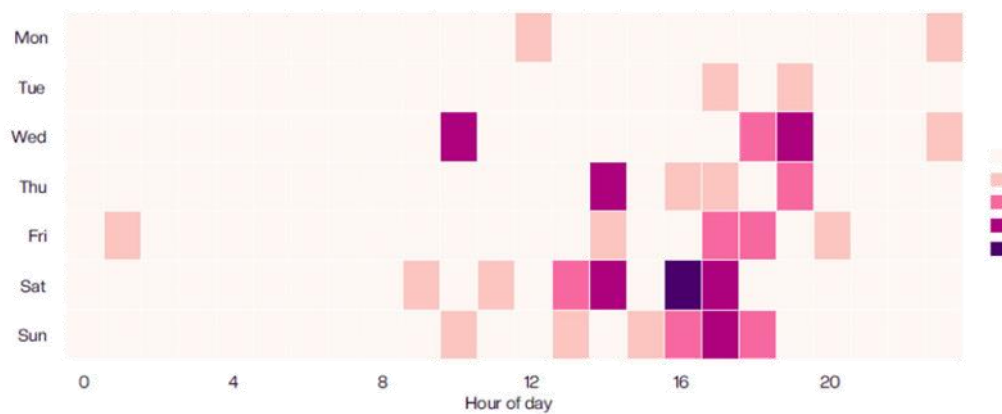


Northern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 18



Activity through the week, per hour in PAW No. 18

PAW 19 – Lot 55 on Plan 11228 Melinga Court			
Location	Between Nos. 1-3 Melinga Court		
Responsible Agency	State of Western Australia; Department of Planning, Lands and Heritage		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/Folio	PAW 55/2754/19
Zoning	Local road	Plan No.	Plan 11228
Area	90m ²	Landscaping	Nil City Parks
Physical assessment:			
Lighting (number and condition)	1 streetlight Melinga Court entry. 1 City security light:- Condition 3 (Fair)	Safety	9 = medium vulnerability PAW
Passive Surveillance	Moderate. Opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal print sign and 'U' shaped handrail at Melinga Court entry.	Signage condition	City signage condition 4 (Poor)
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	City stormwater condition 3 (Fair)
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards, repair of buckled path and trial fencing off concealment indentation.		
Recommendation	Essential		

Photographs



Eastern entry Melinga Court

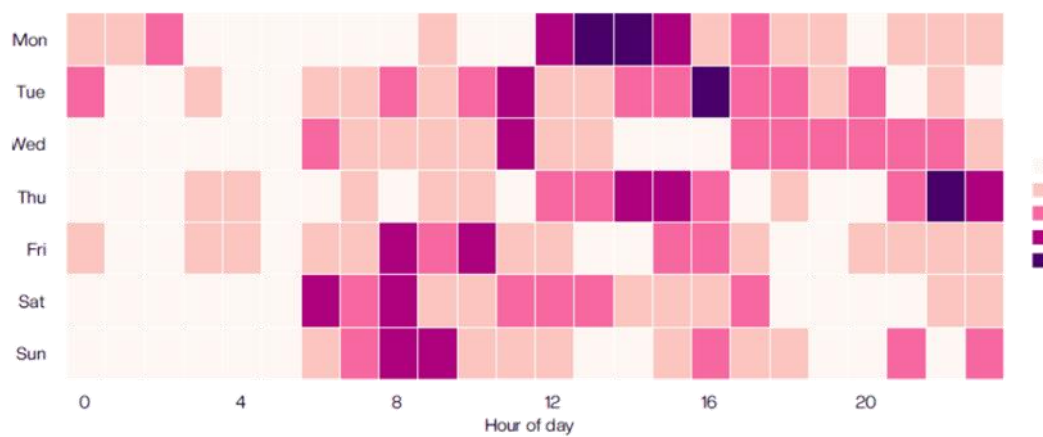


Western entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 19



Activity through the week, per hour in PAW No. 19

PAW 20 – Portion Lot 2836 on Plan 11228 Melinga Court			
Location	End of Melinga Court Cul-de-sac, to the east		
Responsible Agency	Reserved under management order to City of South Perth		
Legal Status	Public Recreation Reserve 34241	Lot/Volume/ Folio	2836/LR3057/668
Zoning	Public Open Space	Plan No.	Plan 11228
Area	234m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight opposite Melinga Ct entry. 1 City security light:-Condition 3 (Fair)	Safety	12 = low vulnerability
Passive Surveillance	Good. Opportunity for passive surveillance from adjoining dwellings and open style wooden bollard fencing and from the Greenway.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	CCTV and series of wooden bollards along Southern PAW boundary.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	City stormwater condition 3 (Fair)
Landscaping	City Parks (grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	Yes
Sewage	No	NBN	Yes
Gas	No	-	
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs

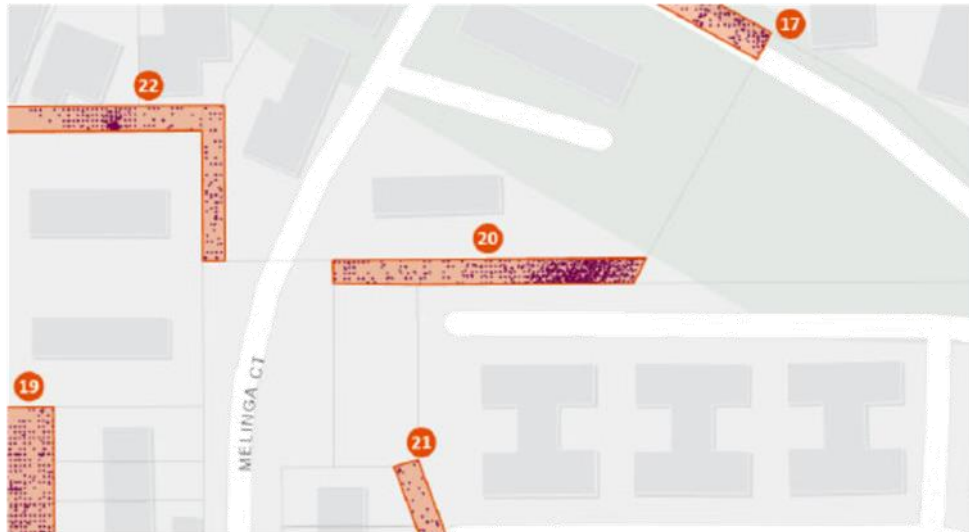


Western entry Melinga Court

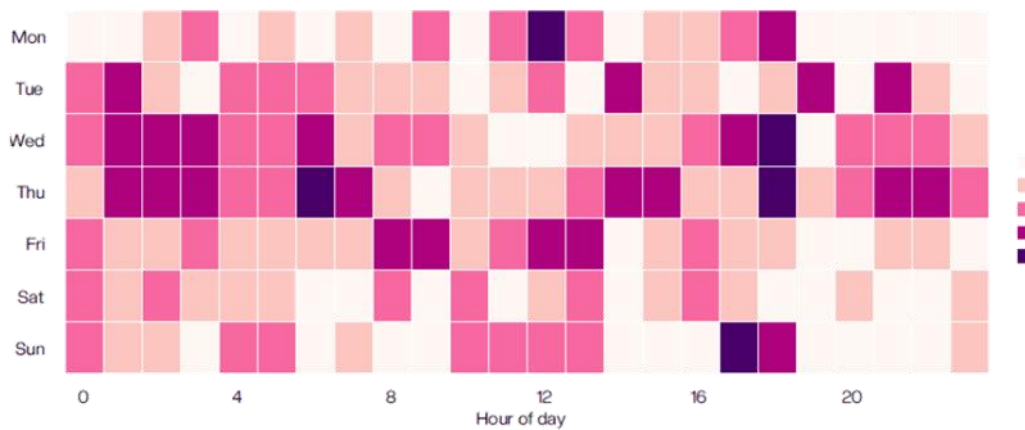


Eastern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 20



Activity through the week, per hour in PAW No. 20

PAW 21 – Portion of Lot 2836 on Plan 11228 Melinga Court			
Location	End of Melinga Court Cul-de-sac, to the southeast		
Responsible Agency	Reserved under management order to City of South Perth		
Legal Status	Public Recreation Reserve 34241	Lot/Volume/ Folio	2836/LR3057/668
Zoning	Public Open Space	Plan No.	Plan 11228
Area	110m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight opposite Melinga Court entry. 1 City security light:- Condition 3 (Fair)	Safety	10 = low vulnerability
Passive Surveillance	Good. Opportunity for surveillance available from adjoining two-storey dwellings on western boundary and from the Greenway.	Footpath Condition	City pathway northern section condition 3 (Fair), southern section condition 2 (Good).
Path Infrastructure (bollards, signage)	Nil.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (grass)		
Infrastructure Assets within PAW			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	No	NBN	No
Comments	<p>Recommend new directional signage and 1.5m footpath extension around bollards.</p> <p>Recommend PAW closure and amalgamation of POS into PAW No. 17 should PAW No. 18 be closed or No. 38 Walanna Drive be redeveloped.</p>		
Recommendation	Non-Essential		

Photographs

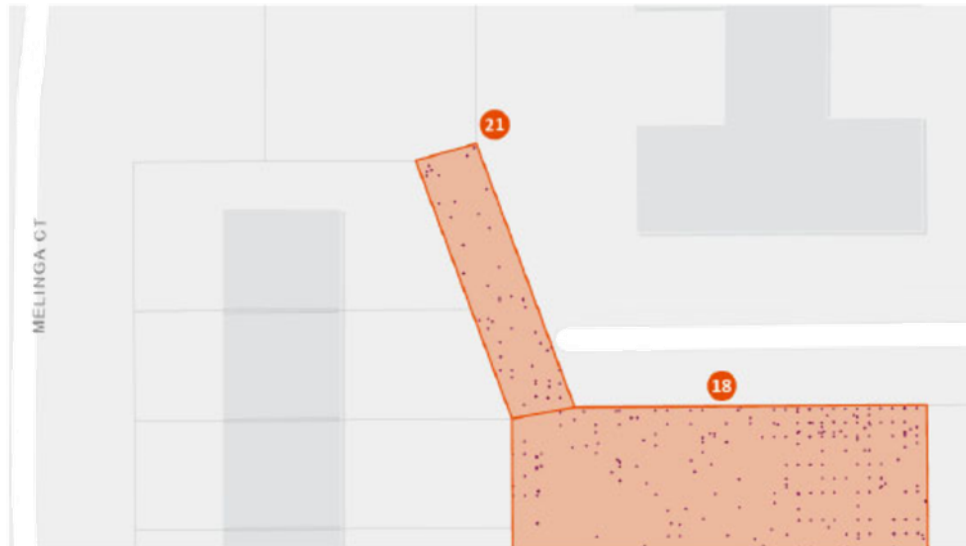


Northern entry Melinga Court

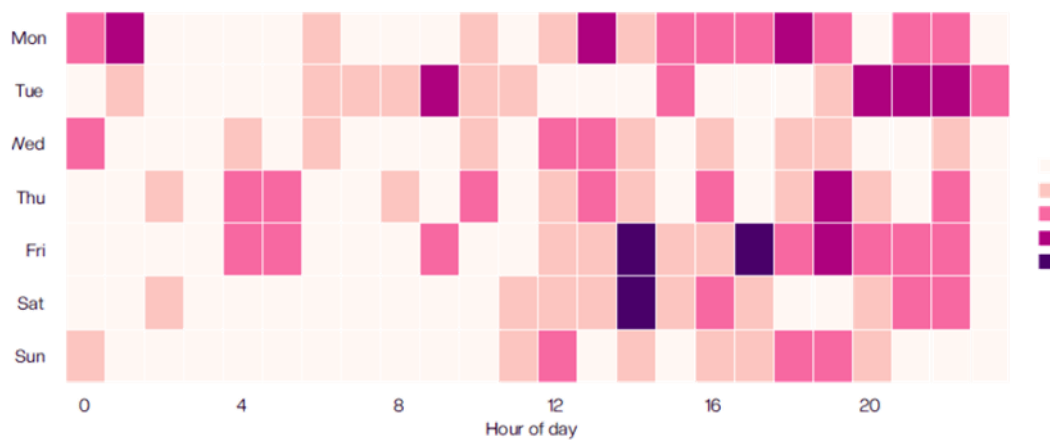


Southern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 21



Activity through the week, per hour in PAW No. 21

PAW 22 - Lot 55 on Plan 11228& portion of Lot 4363 Melinga Court			
Location	End of Melinga Court Cul-de-sac, to the west		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reservation 36791	Lot/Volume/ Folio	PAW 55/2754/19 POS 4363/LR3115/367
Zoning	Local road	Plan No.	Plan 11228 Deposited Plan 220692
Area	340m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight at Melinga Court entry. 1 City security light:- Condition 3 (Fair)	Safety	7 = medium vulnerability
Passive Surveillance	Poor. No opportunity for surveillance from adjoining dwellings. Corner shape and landscaping reduces surveillance.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Nil. NOTE: no dedicated pedestrian crossover from Melinga Court	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre, George Burnett Leisure Centre & playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (trees and shrubs).		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	Yes
Sewage	Yes	NBN	Yes
Comments	Recommend new directional signage, 1.5m footpath extension around bollards, additional lighting on east-west leg and mirrors. Recommend review should Nos. 24 or 27 Melinga Court be redeveloped.		
Recommendation	Essential		

Photographs



Southern entry Melinga Court

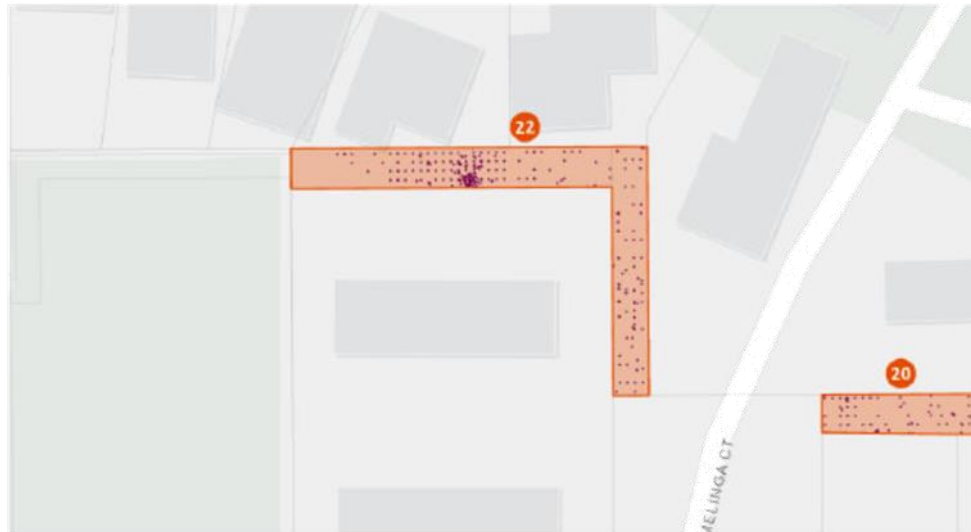


View westward from corner

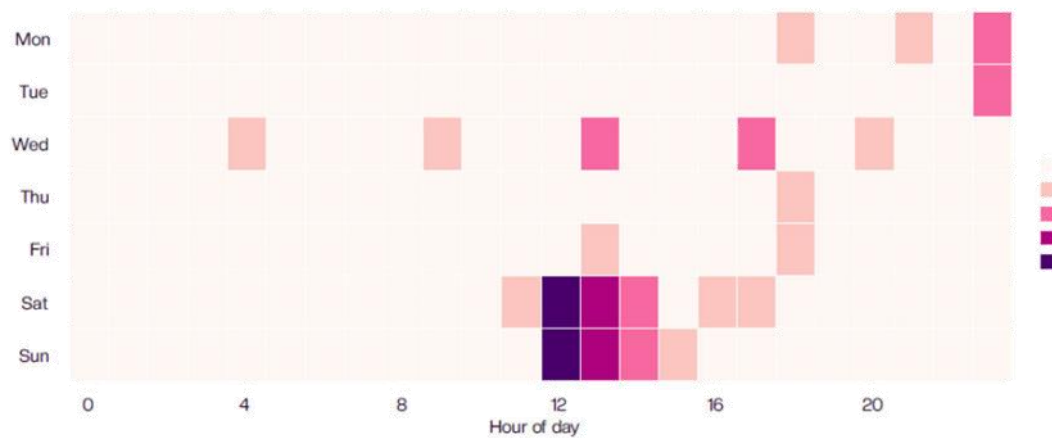


Western entry Mireen Court

Human Mobility Trends



Human Mobility Trends through PAW No. 22



Activity through the week, per hour in PAW No. 22

PAW 23 – Lot 55 on Plan 11228 Mireen Court			
Location	Between No's 1-3 Mireen Court		
Responsible Agency	State of Western Australia; Department of Planning, Lands and Heritage		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	PAW 55/2754/19
Zoning	Local road	Plan No.	Plan 11228
Area	80m ²	Landscaping	Nil City Parks
Physical Assessment:			
Lighting (number and condition)	1 streetlight near Mireen Court entry. 1 City security light:- Condition 4 (Poor)	Safety	8 = medium vulnerability PAW
Passive Surveillance	Moderate. Opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal print sign and 'U' shaped handrail at Mireen Court entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	City stormwater condition 3 (Fair)
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs



Eastern entry Mirreen Court

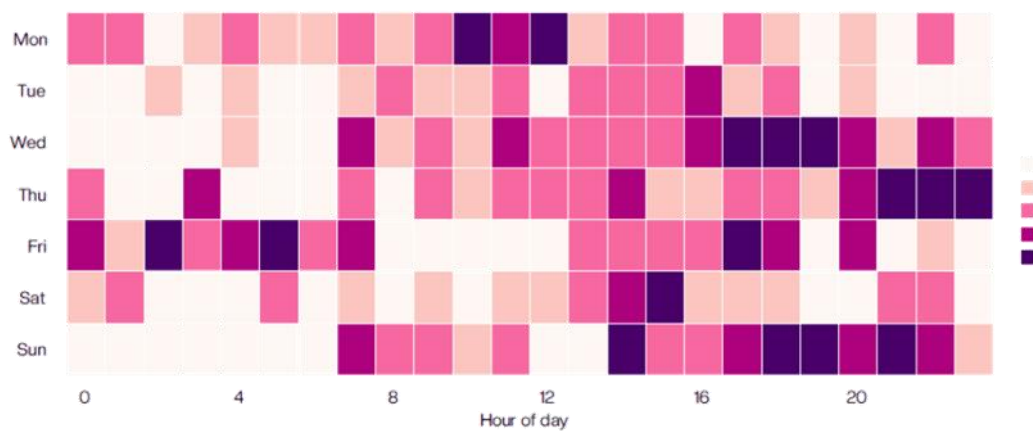


Western entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 23



Activity through the week, per hour in PAW No. 23

PAW 24 – Lot 55 on Plan 11228			
Location	Between Mirreen Court and Boona Court Cul-de-sacs		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/Folio	55/2754/19
Zoning	Local road	Plan No.	Plan 11228
Area	244m ² approx.	Landscaping	City Parks (trees)
Physical Assessment:			
Lighting (number and condition)	2 streetlights at each entry. 2 City security lights:- Condition 4 (Poor)	Safety	10 = low vulnerability
Passive Surveillance	Poor. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Nil	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Village Green Shopping Centre, the Gowrie Early Learning Centre and George Burnett Leisure Centre and playing fields.	Storm Water structure condition	City stormwater condition 3 (Fair)
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	Yes
Sewage	Yes	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards. Recommend review should No. 20 Boona Court be redeveloped.		
Recommendation	Essential		

Photographs

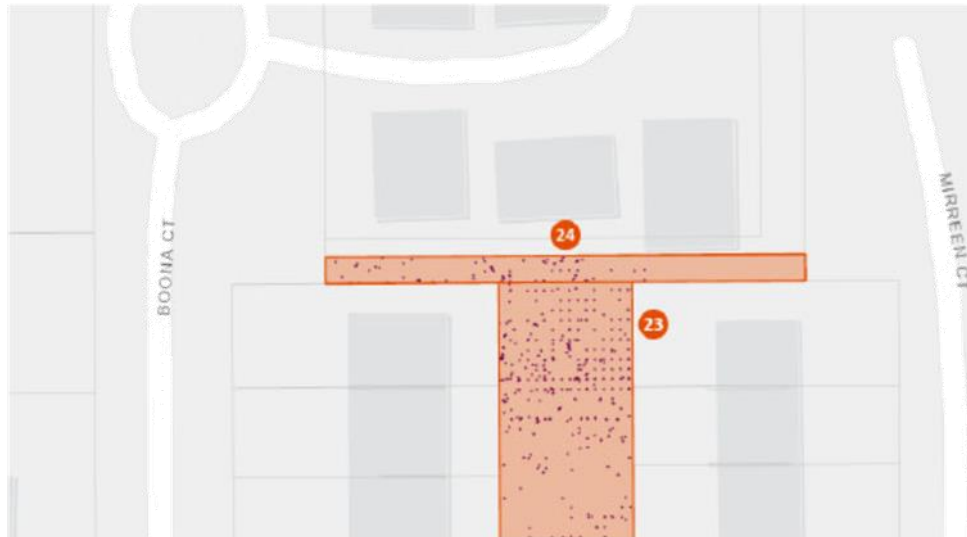


Eastern entry Mireen Court

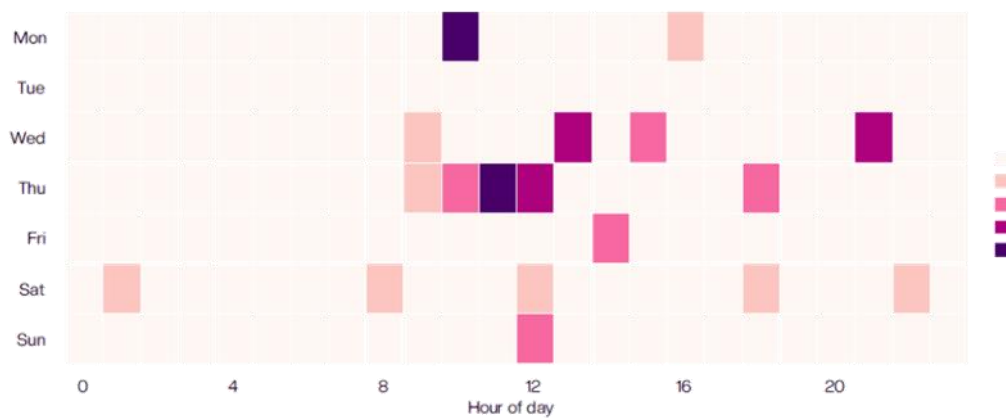


Western entry Boona Court

Human Mobility Trends



Human Mobility Trends through PAW No. 24



Activity through the week, per hour in PAW No. 24

PAW 25 – Lot 57 on Plan 11413 Miamba Court			
Location	End of Miamba Court Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/Folio	57/2745/983
Zoning	Local road	Plan No.	Plan 11413
Area	74m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight at Miamba Court entry. Nil City security lights	Safety	9 = medium vulnerability
Passive Surveillance	Moderate. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	'U' shaped handrail at Miamba Court entry.	Signage condition	Nil City signage
Pedshed Accessibility	Within 500m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards. Recommended for north-south local bike route with Lurnea Place.		
Recommendation	Essential		

Photographs



Southern entry Miamba Court

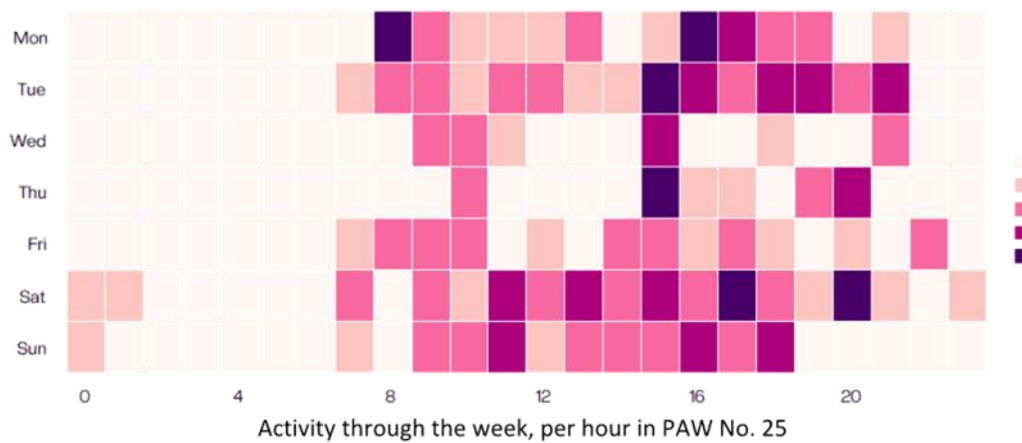


Northern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 25



PAW 26 – Lot 57 on Plan 11413 and portion of Lot 3201 Gillon Street			
Location	Between No's 2-18 Gillon Street		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reserve 36791	Lot/Volume/Folio	PAW 57/2745/983 POS 3201/LR3103/702
Zoning	Local road; Public Open Space	Plan No.	Plan 11413
Area	524m ² approx. (PAW 88m ² , POS 436m ²)		
Physical Assessment:			
Passive Surveillance	Poor. PAW's long length and a lack of adjoining two-storey dwellings act to reduce opportunities for surveillance.	Lighting (number and condition)	1 streetlight Gillon Street entry. 4 City security lights Condition 3 (Fair) & 4 (Poor)
Safety	7 = medium vulnerability PAW NOTE: Concealment indentation.	Footpath Condition	City pathway condition 3-average (Fair)
Path Infrastructure (bollards, signage)	Metal bollard and 'U' shaped handrail at Gillon Street entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 500m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (trees, grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation. Identify alternative north-south bike path between Jackson Road and Gillon Street in future Bike Plan.		
Recommendation	Non-Essential		

Photographs



Southern entry Gillon Street

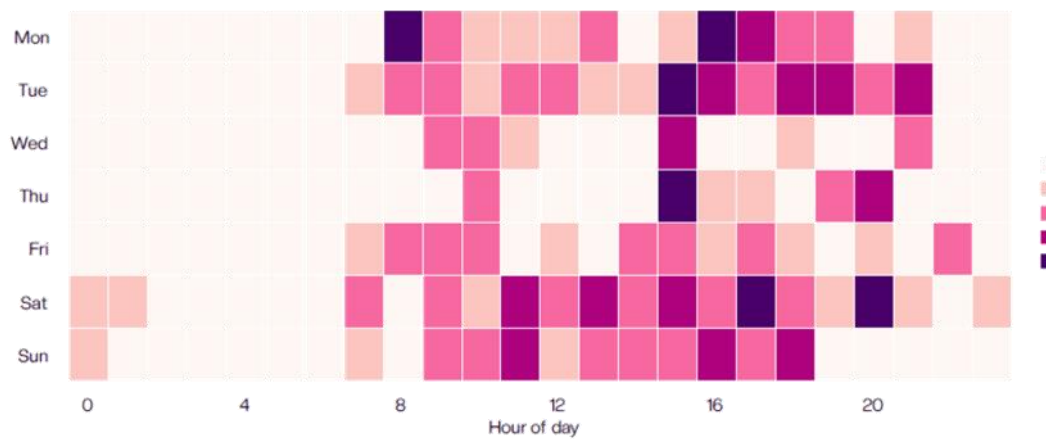


Northern entry Greenway

Human Mobility Trends



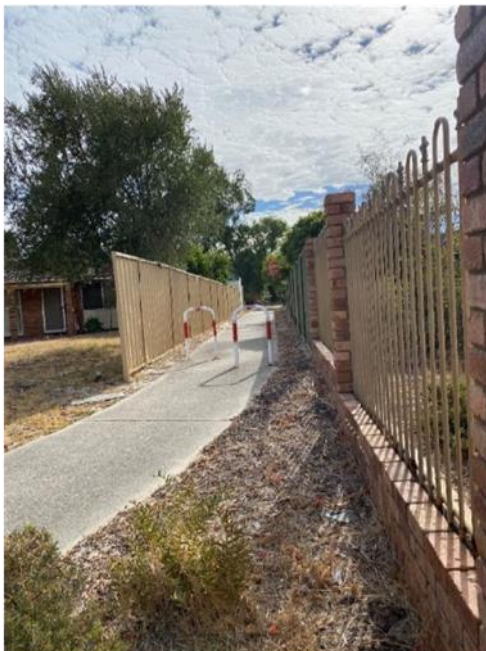
Human Mobility Trends through PAW No. 26



Activity through the week, per hour in PAW No. 26

PAW 27 - Lot 75 on Plan 11413 Koolunda Court			
Location	End of Koolunda Court Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/ Folio	57/2745/983
Zoning	Local road	Plan No.	Plan 11413
Area	96m ² approx.		
Physical Assessment:			
Safety	10 = low vulnerability	Lighting (number and condition)	1 streetlight Koolunda Court entry. Nil City security lights
Passive Surveillance	Moderate. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Two 'u' shaped handrail at Koolunda Court entry.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and 1.5m footpath extension around bollards.		
Recommendation	Essential		

Photographs



Southern entry Koolunda Court



Northern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 27



Activity through the week, per hour in PAW No. 27

PAW 28 - Lot 56 on Plan 11414 and portion of Lot 2893 Gillon Street			
Location	Between No's 2 Yallambee Place and 12 Gillon Street		
Responsible Agency	State of Western Australia; Reserved under management order to City of South Perth		
Legal Status	Vested as a Pedestrian Access Way; Public Recreation Reserve 34691	Lot/Volume/ Folio	PAW 56/2753/322 POS 2893/LR3013/499
Zoning	Local road; Public Open Space	Plan No.	Plan 11414
Area	700m ² approx. (PAW 110m ² ; POS 590m ²)		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Gillon Street entry. 4 City security lights Condition 3 (Fair) & 4 (Poor)	Safety	7 = medium vulnerability Note: Dog leg shape of PAW reduces surveillance.
Passive Surveillance	Poor. No opportunity for passive surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	'U' shaped handrail at Gillon Street entry.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (tree, grass)		
Infrastructure Assets within PAW			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	No improvements recommended as PAW is subject to closure application with DPLH.		
Recommendation	Non-Essential		

Photographs



Southern entry Gillon Street

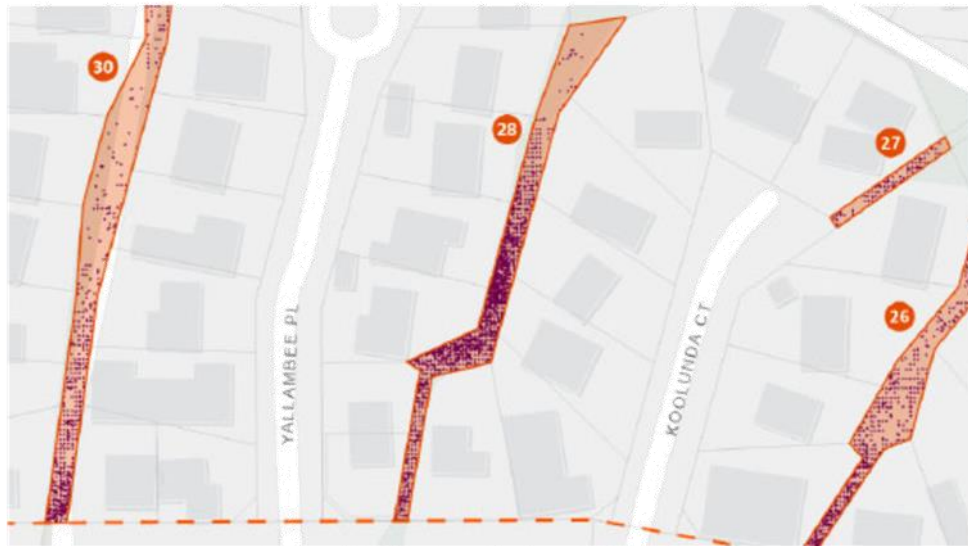


Dog-leg curve in PAW

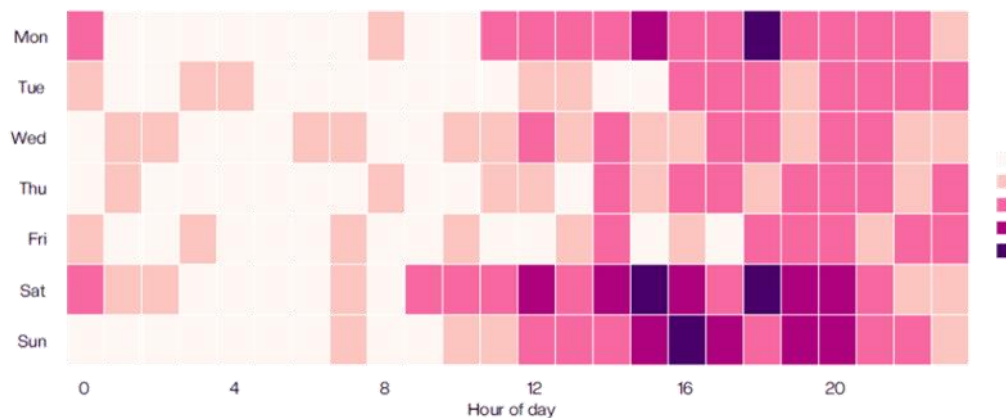


Northern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 28



Activity through the week, per hour in PAW No. 28

PAW 29 – Lot 56 on Plan 11414 Yallambee Place			
Location	End of Yallambee Place Cul-de-sac		
Responsible Agency	State of Western Australia		
Legal Status	Vested as a Pedestrian Access Way	Lot/Volume/Folio	56/2753/322
Zoning	Local road	Plan No.	Plan 11414
Area	124m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Yallambee Place entry. Nil City security lights	Safety	9 = medium vulnerability
Passive Surveillance	Moderate. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good)
Path Infrastructure (bollards, signage)	Wooden bollards at Yallambee Place entry. NOTE: no dedicated pedestrian crossover from Melinga Court	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	Yes
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and additional path connecting between PAW and road.		
Recommendation	Essential		

Photographs

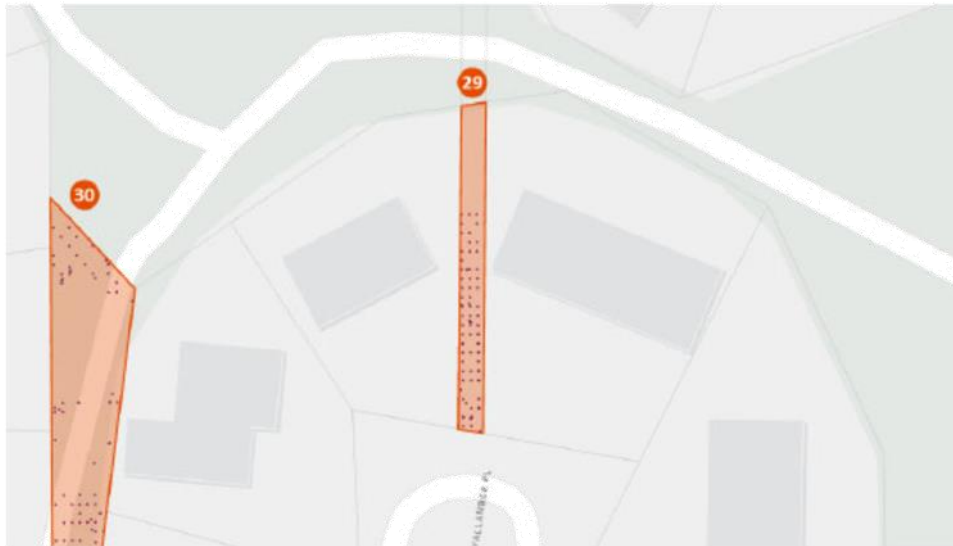


Southern entry Yallambee Place

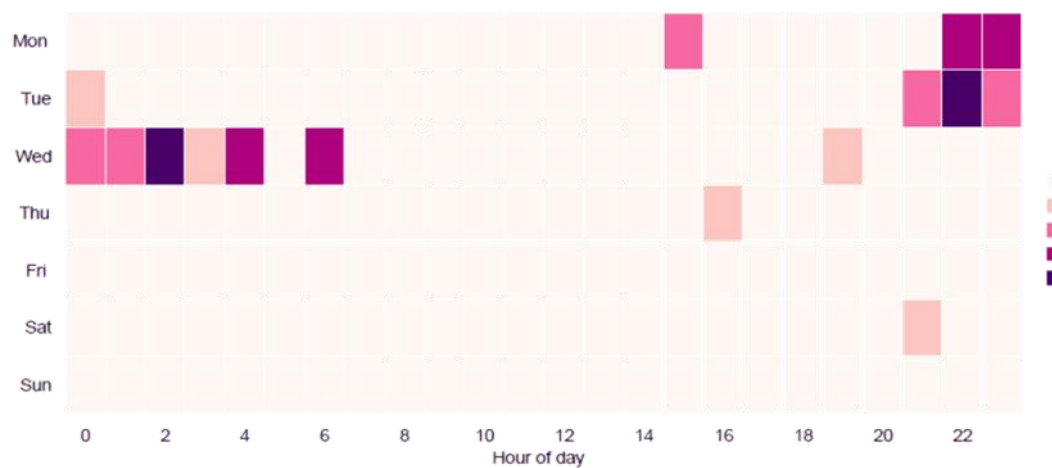


Minimal surveillance along PAW

Human Mobility Trends



Human Mobility Trends through PAW No. 29



Activity through the week, per hour in PAW No. 29

PAW 30 – Portion of Lot 2893 on Plan 11414 Gillon Street			
Location	Between No 2 Beenan Close and 8 Gillon Street		
Responsible Agency	Reserved under management order to City of South Perth		
Legal Status	Public Recreation Reserve 34691	Lot/Volume/ Folio	2893/LR3013/499
Zoning	Public Open Space	Plan No.	Plan 11414
Area	1046m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Gillon Street entry. 5 City security lights:- Condition 3 (Fair) & 4 (Poor)	Passive Surveillance	Poor. No opportunity for surveillance from adjoining dwellings.
Footpath Condition	City pathway condition 3 (Fair)	Safety	7 = medium vulnerability
Path Infrastructure (bollards, signage)	'U' shaped handrail at Gillon Street entry.	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	City Parks (grass)		
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.		
Recommendation	Non-Essential		

Photographs



Southern entrance Gillon Street

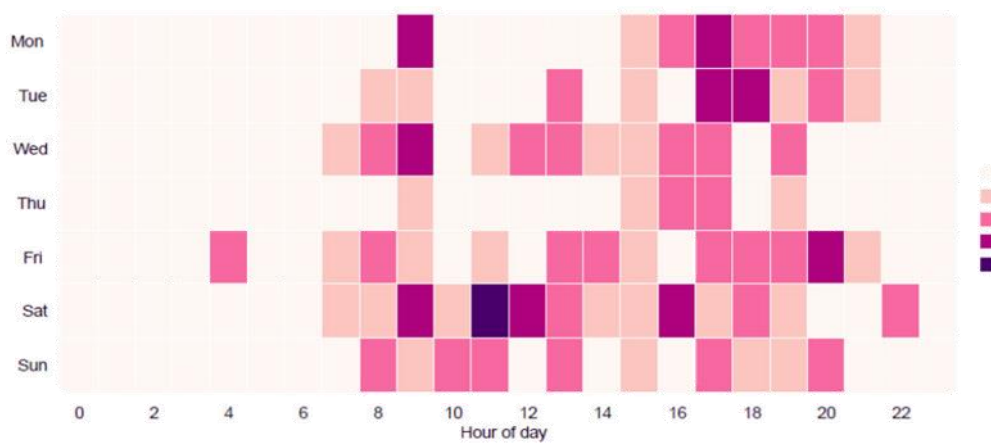


Northern entrance Greenway

Human Mobility Trends



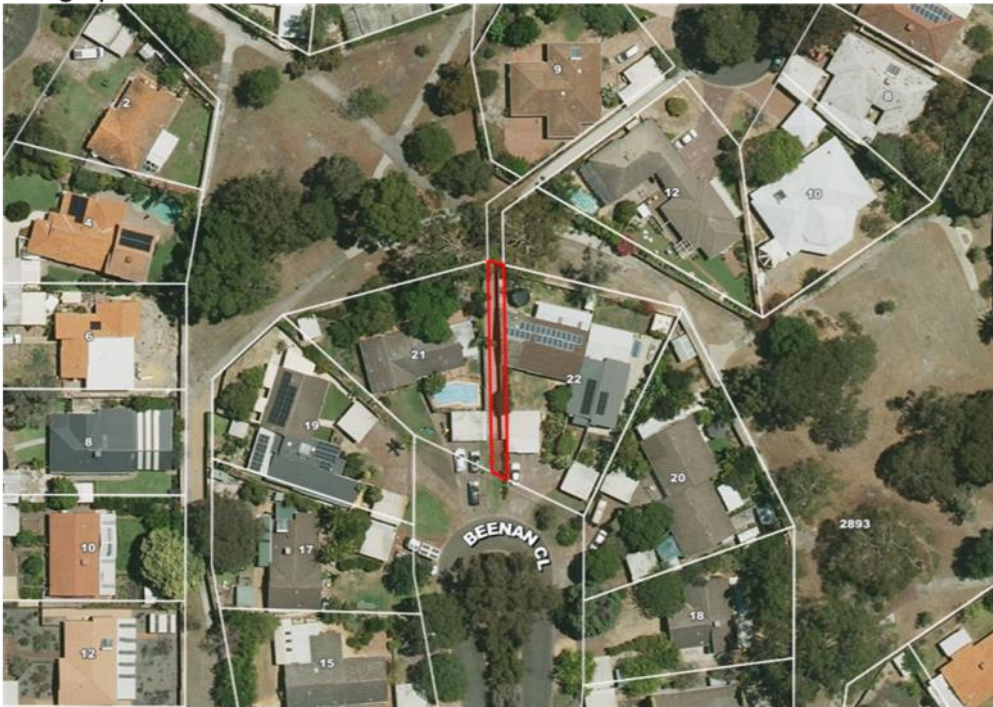
Human Mobility Trends through PAW No. 30



Activity through the week, per hour in PAW No. 30

PAW 31 - Lot 57 on Plan 11415 Beenan Close			
Location	End of Beenan Close Cul-de-sac between Nos. 21 & 22 Beenan Close		
Responsible Agency	Water Corporation proprietor		
Legal Status	Freehold	Lot/Volume/ Folio	57/2090/549
Zoning	Local road	Plan No.	Plan 11415
Area	125m ² approx.		
Physical Assessment:			
Lighting (number and condition)	1 streetlight Beenan Close entry. Nil City security lights	Safety	9 = medium vulnerability
Passive Surveillance	Moderate. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 2 (Good) NOTE: Crossover absent between street and PAW.
Path Infrastructure (bollards, signage)	Wooden bollards at Beenan Close entry. NOTE: no dedicated pedestrian crossover from Melinga Court	Signage condition	Nil City signage
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Landscaping	Nil City Parks		
Infrastructure Assets within PAW:			
Power	Yes	Gas	No
Water	Yes	Telecommunications	No
Sewage	No	NBN	No
Comments	Recommend new directional signage and additional path connecting between PAW and road.		
Recommendation	Essential		

Photographs

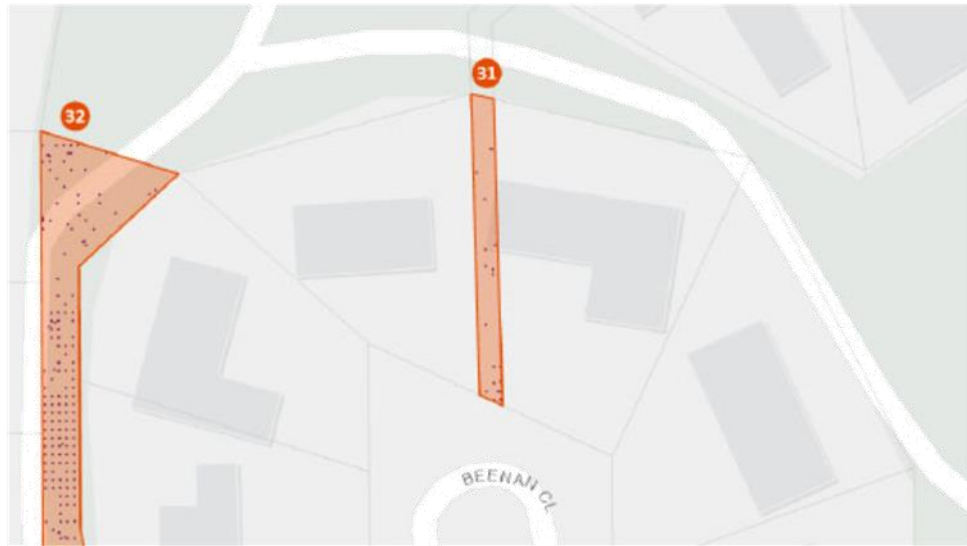


Southern entry Beenan Close

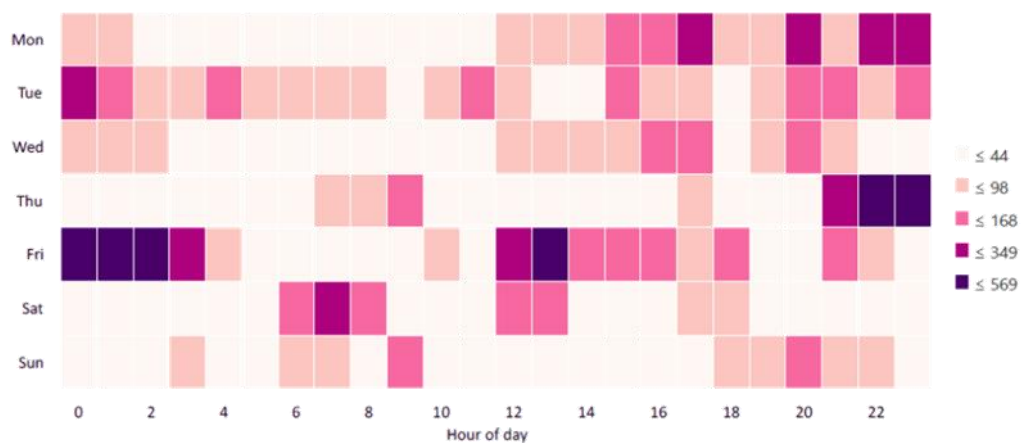


Northern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 31



Activity through the week, per hour in PAW No. 31

PAW 32 – Lot 56 on Plan 11415 and Portion of Lot 2893 Gillon Street			
Location	Between Nos. 2A-4 Gillon Street		
Responsible Agency	State of Western Australia – Vested as a pedestrian accessway; Reserved under management order to City of South Perth		
Legal Status	Pedestrian Access Way; Public Open Space Reserve 34691	Lot No. Volume/ Folio	PAW 56/1448/101 POS 2893/LR3013/500
Zoning	Local road; Public Open Space	Plan No.	Plan 11415
Area	1758m ² approx. (PAW – 98m ² ; POS - 1660m ²)	Landscaping	City Parks (tree and grass)
Physical Assessment:			
Safety	7 = medium vulnerability NOTE: PAW includes indentation for concealment.	Lighting (number and condition)	1 streetlight Gillon Street entry. 7 security lights Condition 3 (Fair) & 4 (Poor)
Passive Surveillance	Poor. No opportunity for surveillance from adjoining dwellings.	Footpath Condition	City pathway condition 3 (Fair)
Path Infrastructure (bollards, signage)	Metal print sign and 'U' shaped handrail at Gillon Street entry.	Signage condition	City signage condition 5 (Very Poor)
Pedshed Accessibility	Within 400m of Curtin Primary School, Meath Care, George Burnett Leisure Centre and playing fields.	Storm Water structure condition	Nil City stormwater
Infrastructure Assets within PAW:			
Power	No	Gas	No
Water	No	Telecommunications	No
Sewage	Yes	NBN	No
Comments	Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.		
Recommendation	Non-Essential		

Photographs



Southern entry Gillon Street

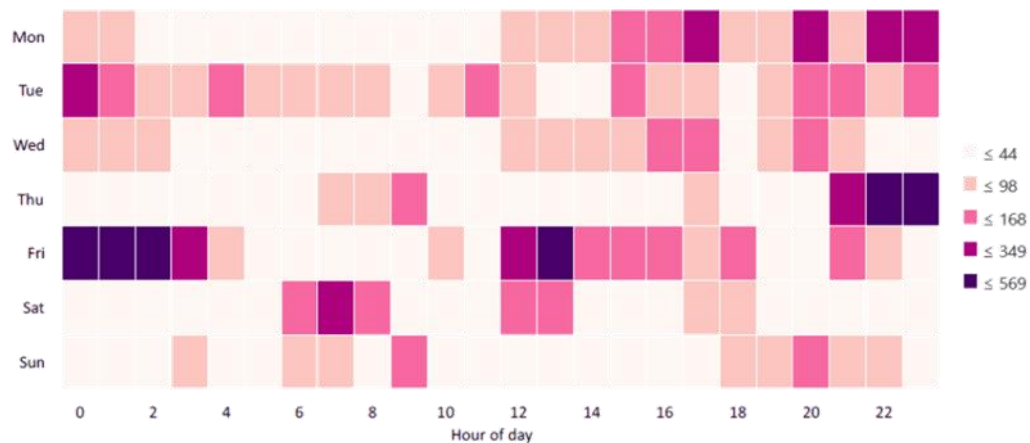


Northern entry Greenway

Human Mobility Trends



Human Mobility Trends through PAW No. 32



Activity through the week, per hour in PAW No. 32

Appendix 3- Human Mobility Data by Element Advisory Pty Ltd

DRAFT



Karawara Human Mobility Analysis

City of South Perth

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Acknowledgement to Country

We acknowledge the custodians of this land, the Whadjuk people of the Noongar nation and their Elders past, present and emerging.
We wish to acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

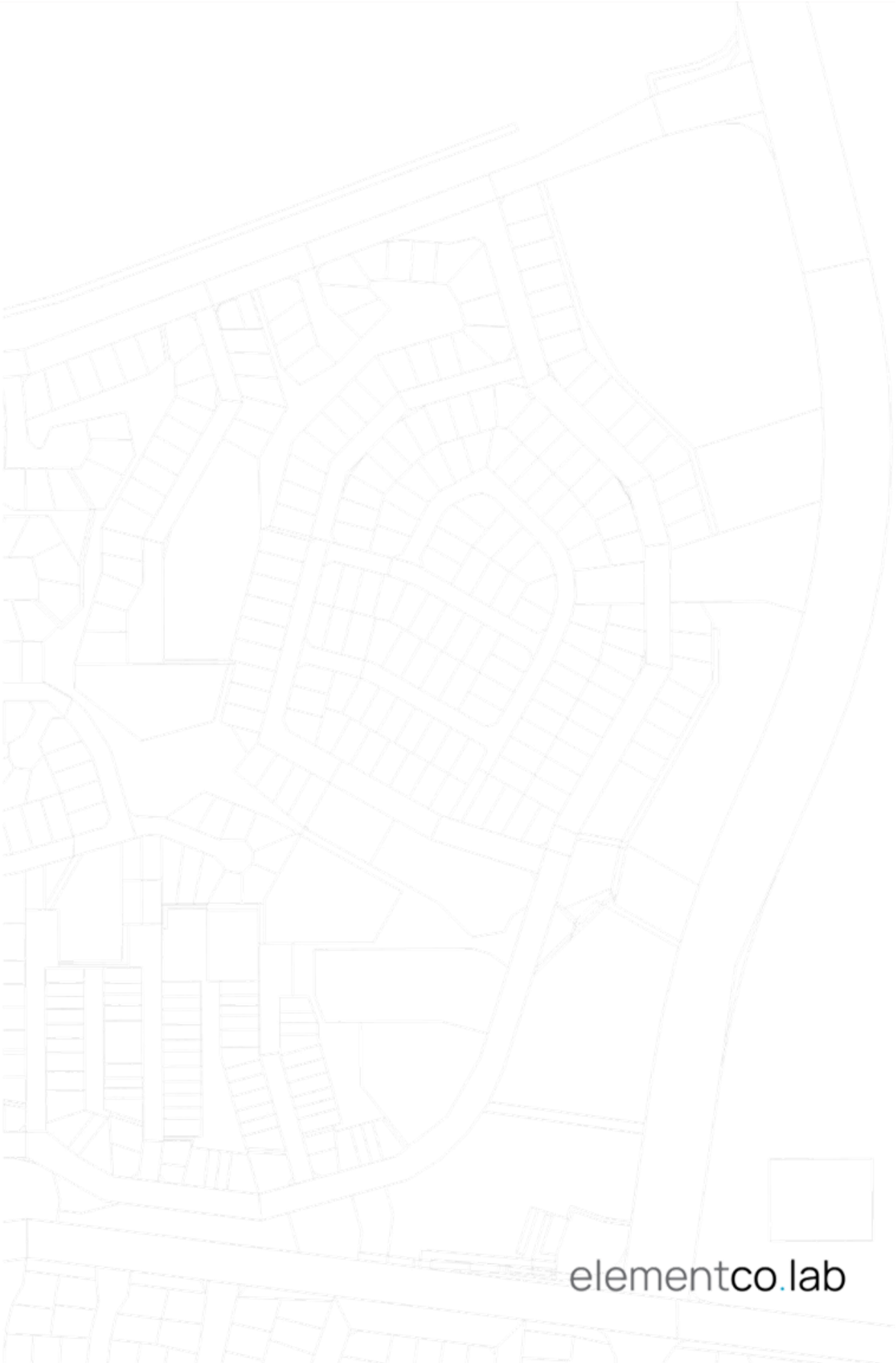
Document ID: BE-HMA					
Issue	Date	Status	Prepare by	Approved by	File
1	03/07/2024	Draft	Yasmine Mnahy	James Parker	D1
2	16/07/2024	Final	Yasmine Mnahy	James Parker	F2
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Project Background

The City of South Perth is preparing a Pedestrian and Cycle Access Plan for the suburb of Karawara. The Plan is a requirement of the Department of Planning, Lands and Heritage to close pedestrian access ways (PAWs).

It has identified 32 PAWs in the suburb. The development of this plan involves a physical assessment, CPTED assessment, and usage assessment of each PAW to identify which should remain open, and which may be closed. The City is also identifying which require maintenance or upgrades.

This human mobility analysis has been prepared to aid the City in assessing the usage of all PAW's.



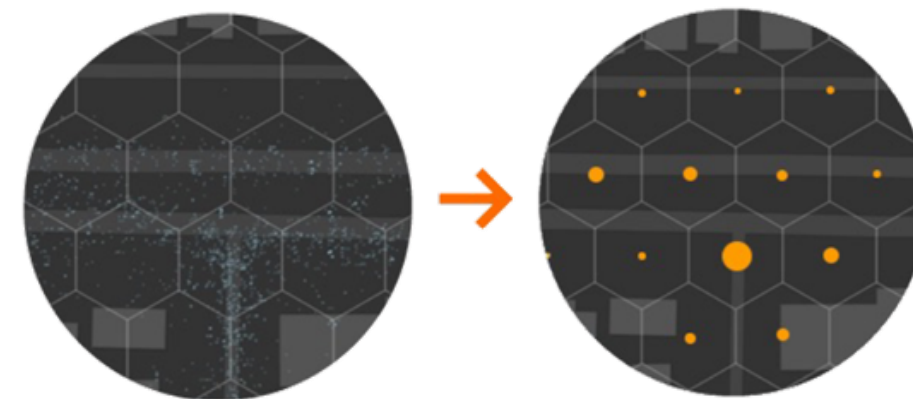
Digital Breadcrumbs

Human Mobility Data refers to the digital traces (or breadcrumbs) left behind by individuals' devices as they navigate through physical spaces. This data provides invaluable insights into human behaviors, preferences, and interactions within various environments. Aggregated from smartphones, GPS devices, and sensors, human mobility data offers a wealth of information that can be harnessed to comprehensively analyze the utilization of spaces both in terms of spatial distribution and temporal patterns. The data is anonymized to create a broad picture of where people move.

A spatial analytic analysis of this data facilitates the identification of popular gathering spots, assessment of foot traffic density, and recognition of usage trends across different times of the day or seasons.

The following series of maps includes an analysis of human mobility data captured within Karawara and the 32 PAWs, as well as respective calendar heat charts.

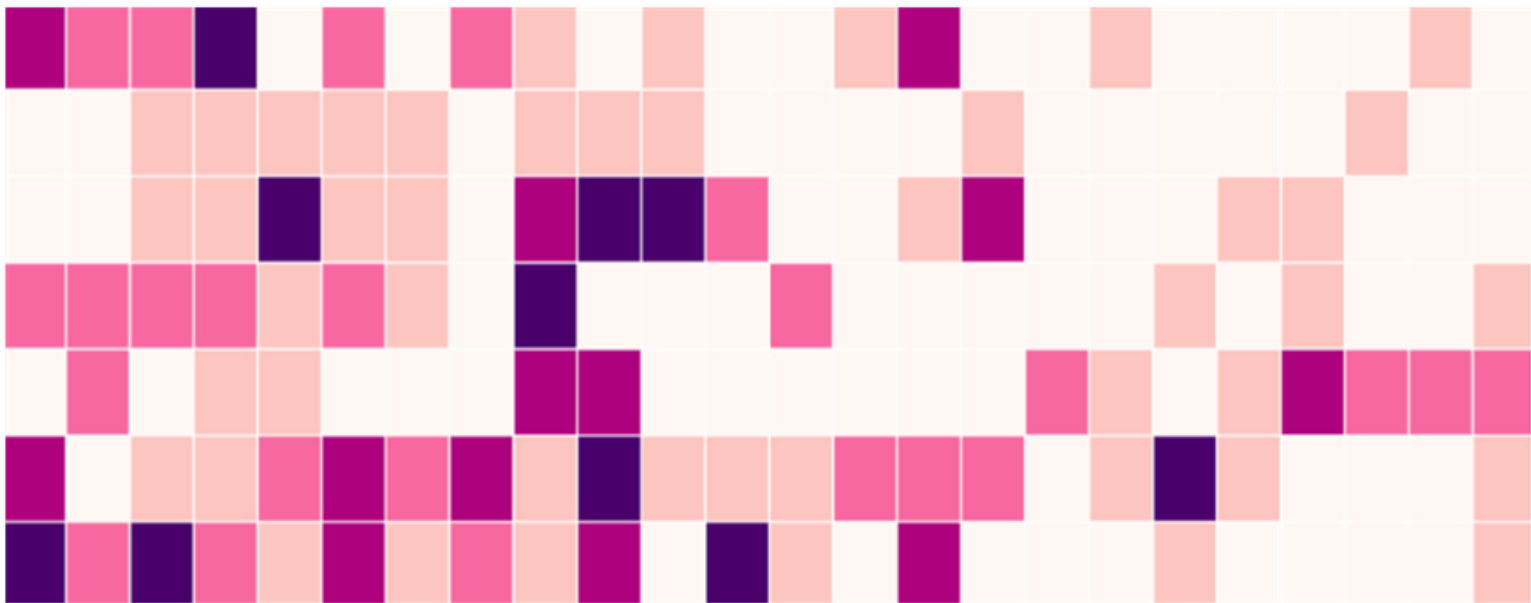
The data used in this analysis was captured between June 2021 – June 2024. It includes devices seen within the project area that were sending geolocation information out to a service such as Google, Uber, Garmin or TomTom. Not all devices or people that moved through this area are included due to devices not contributing data or people not carrying spatially aware devices. When interrogated closely the data is often unintelligible, random and lacks clarity. However, when viewed at scale with hundreds of thousands –sometimes millions – of datapoints, patterns emerge and insights are revealed.



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Calendar Heat Charts

Calendar heat charts visualize patterns in temporal data by aggregating data points into a calendar grid. The human mobility data collected from within the Karawara study area is timestamped and can therefore be grouped and summarised in this way. All human mobility data points within each Public Access Way are grouped into the respective hour and day of week they were observed. This in turn provides a summarised, averaged view of the activity intensity of each hour of the day, for each day of the week across the three-year period the data spans.



Karawara Human Mobility Trends

Human mobility trends through public access ways and public open spaces from 2021-2024.



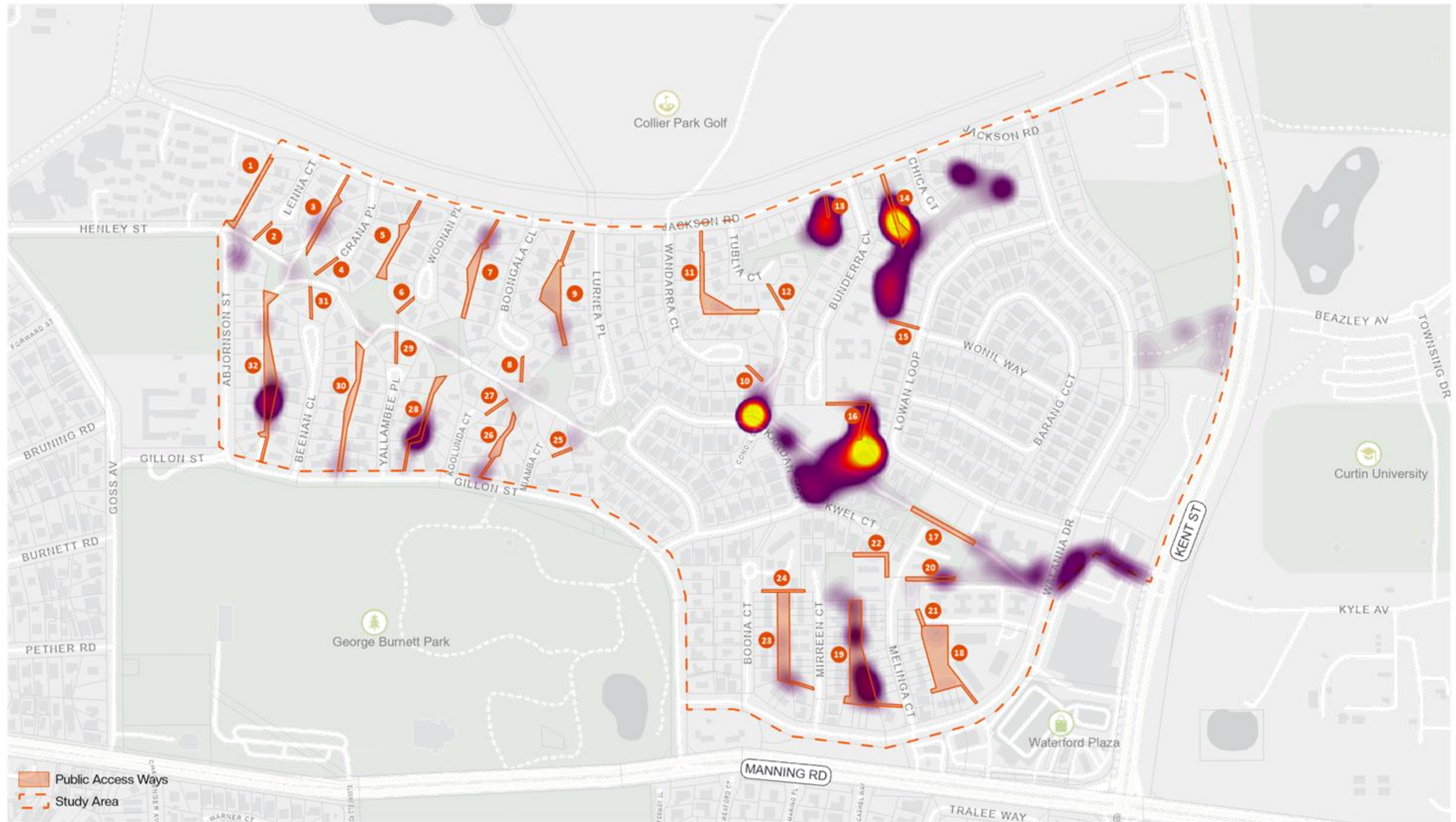
Pin Report (2021-2024)

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0 200 m

Karawara Human Mobility Trends

Human mobility trends through public access ways and public open spaces from 2021-2024.



Heat Map (2021-2024)

Powered by

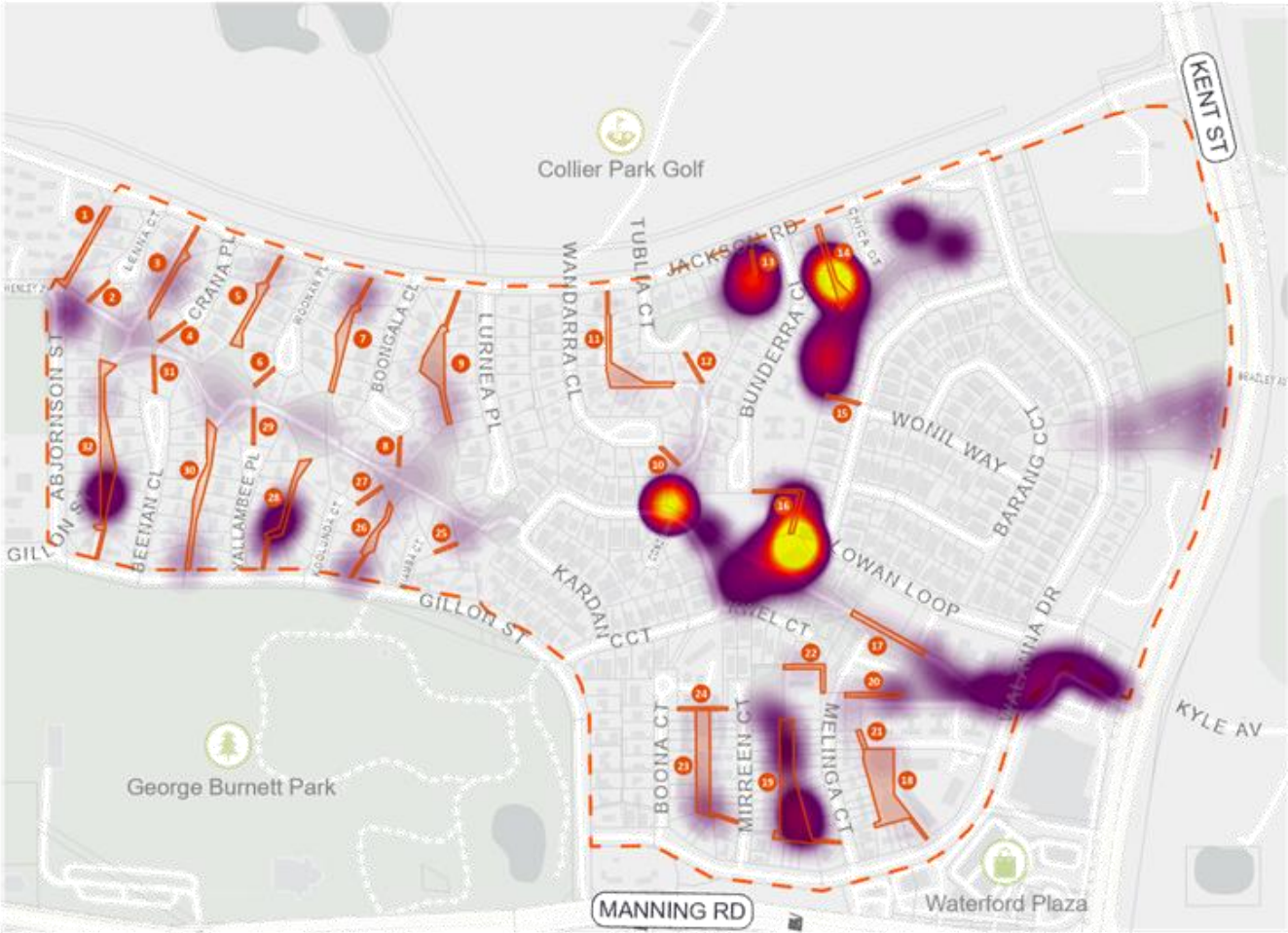
elementco.lab

Less Dense More Dense

0 200 m

Daytime & Evening Trends

Human mobility trends through public access ways and public open spaces from 2021-2024.

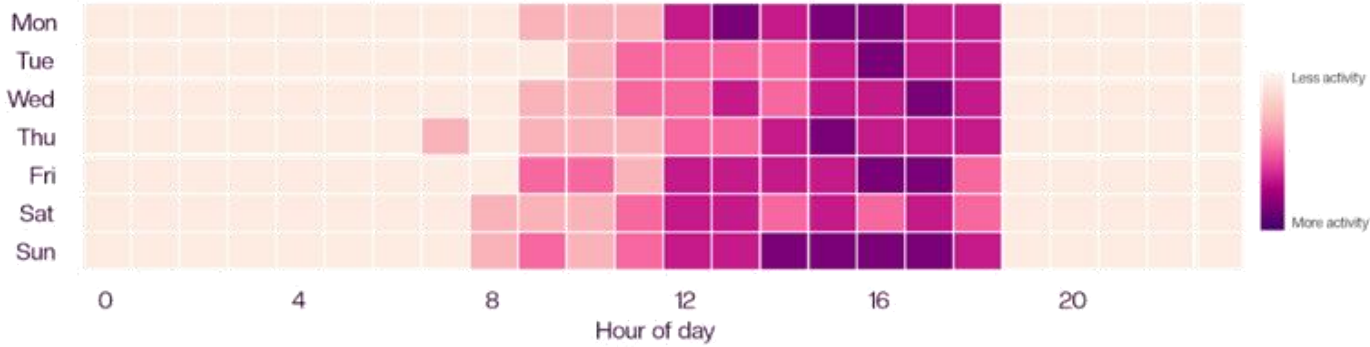


AM Heat Map (2021-2024)



PM Heat Map (2021-2024)

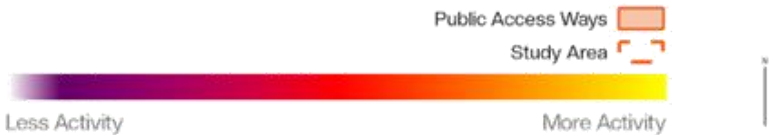
KARAWARA ACTIVITY PER HOUR ACROSS AN AVERAGE WEEK (DAYTIME - 6AM-6PM)



KARAWARA ACTIVITY PER HOUR ACROSS AN AVERAGE WEEK (NIGHTTIME 6PM-6AM)

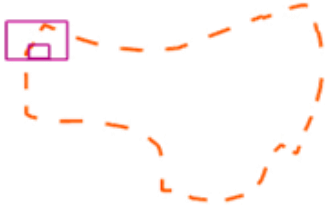


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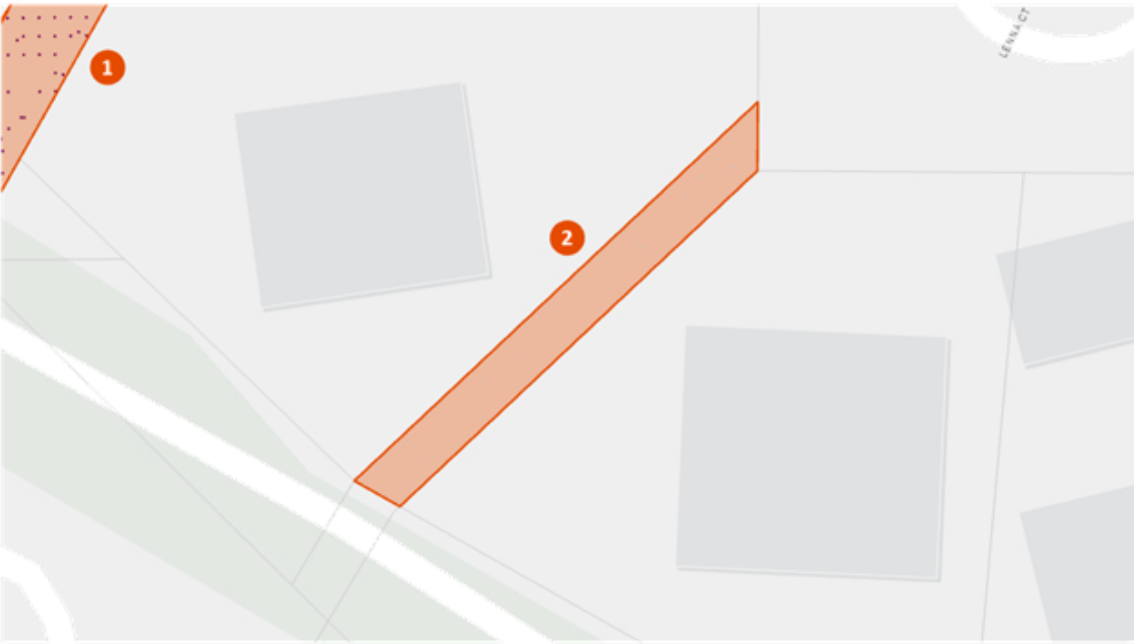
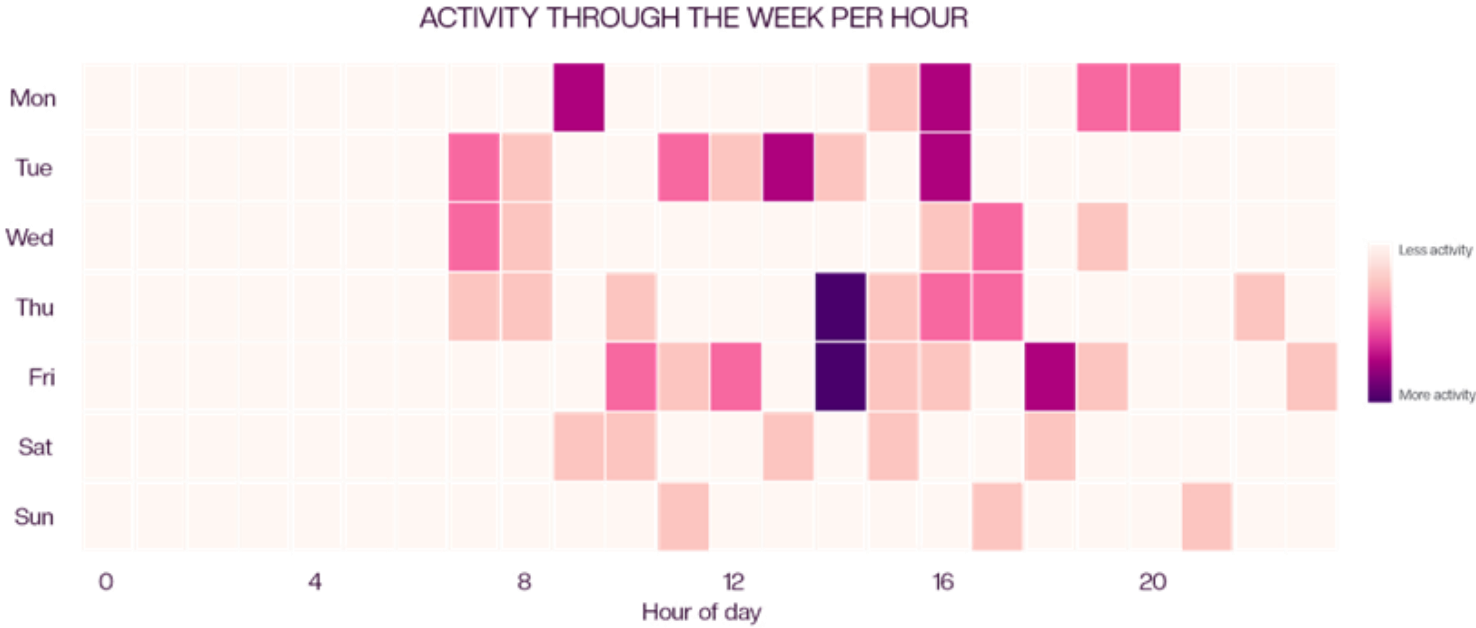


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.



PAW 1



PAW 2



Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

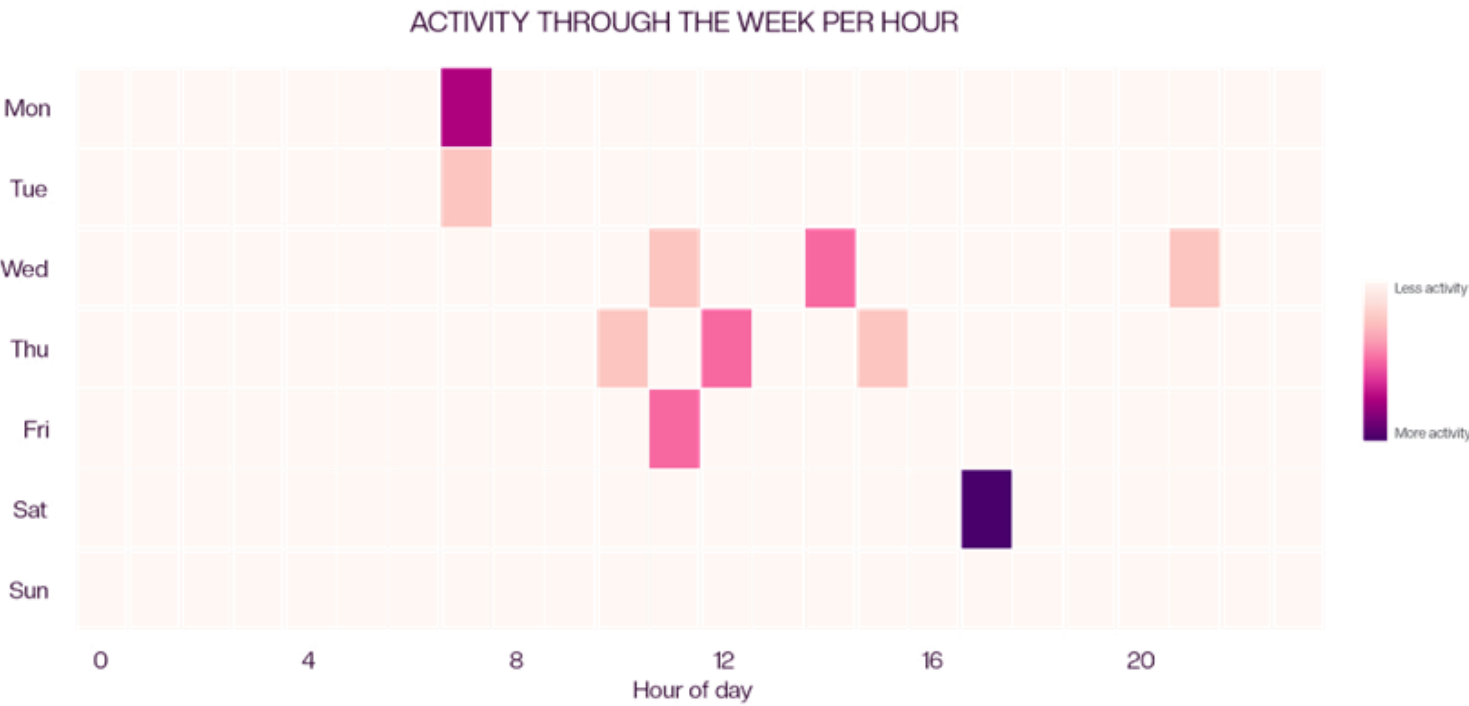
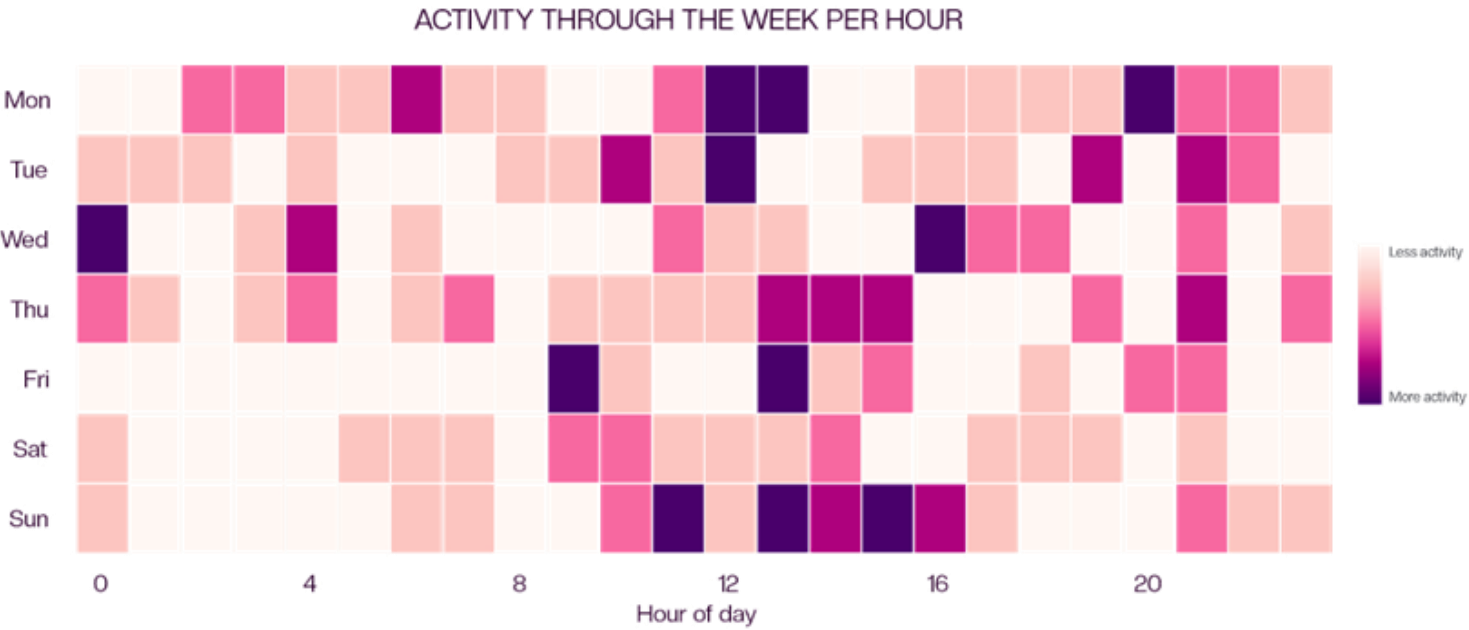
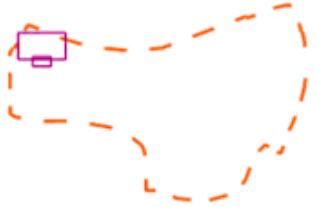


PAW 3



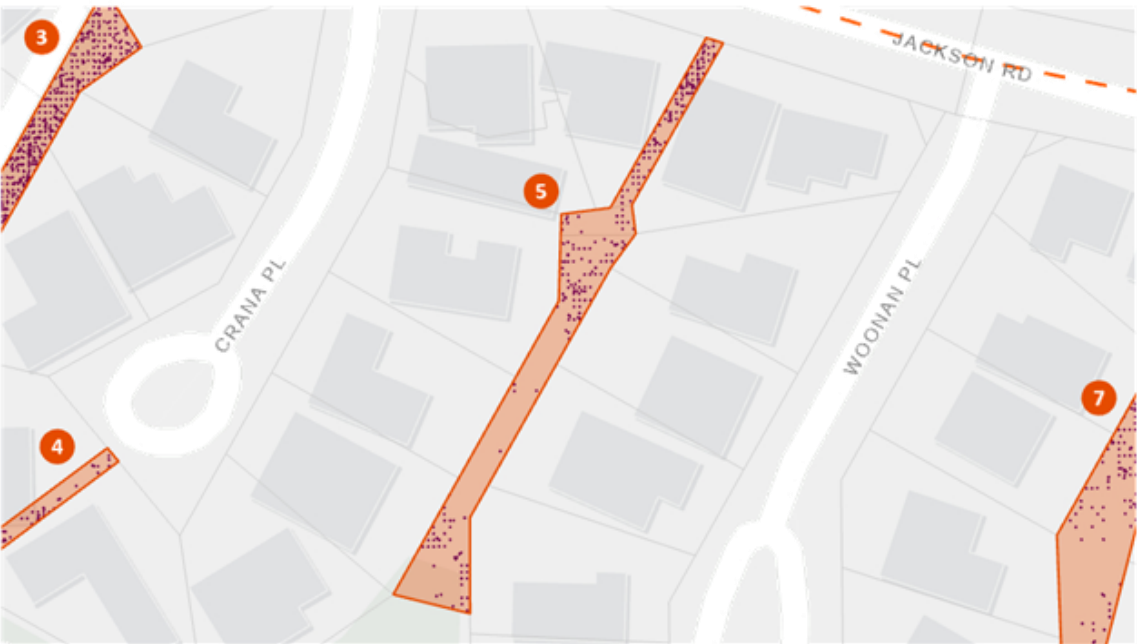
PAW 4

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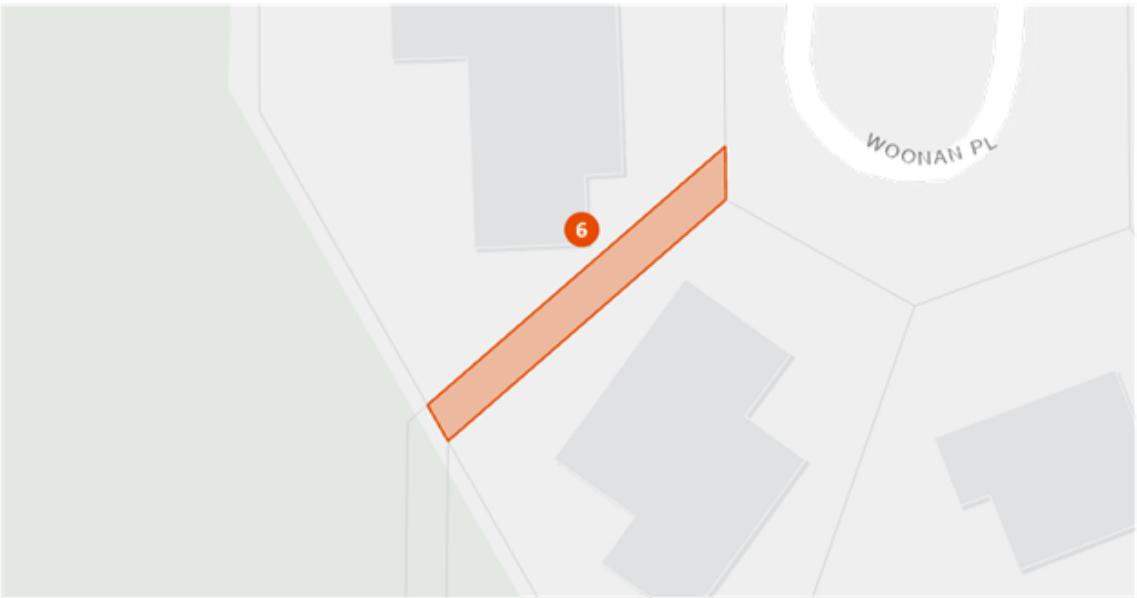


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

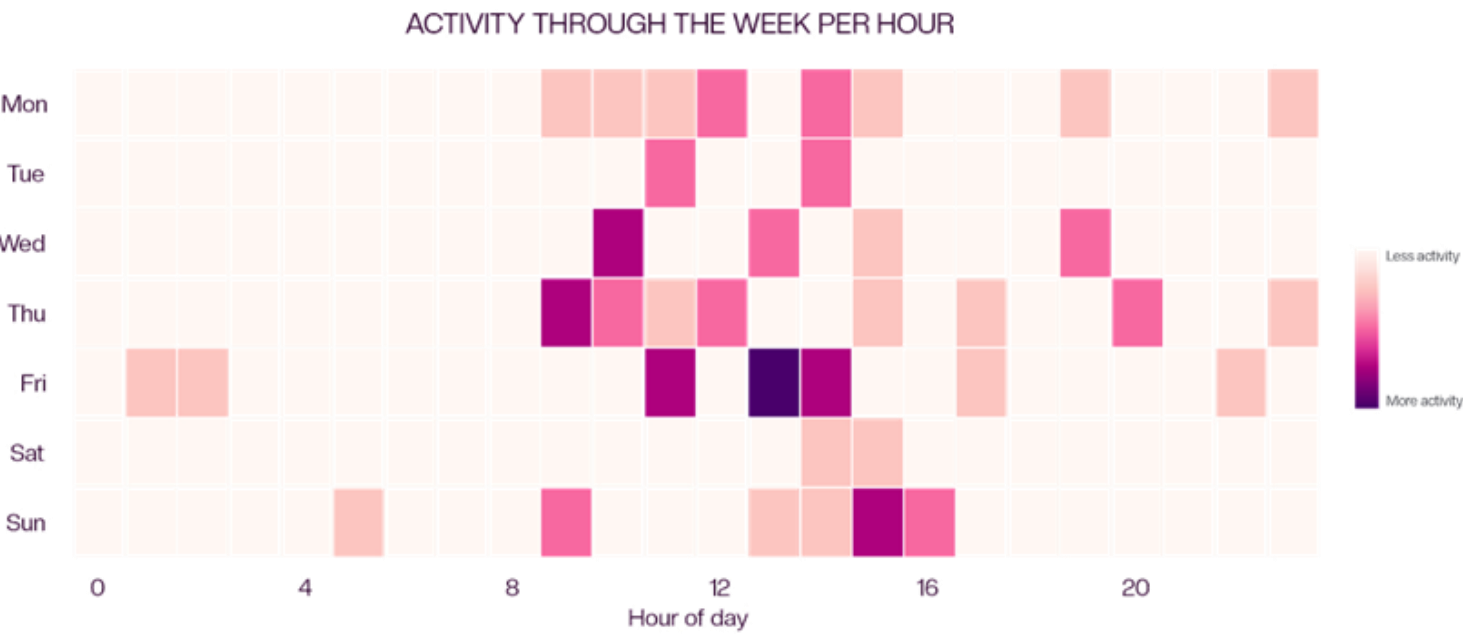


PAW 5



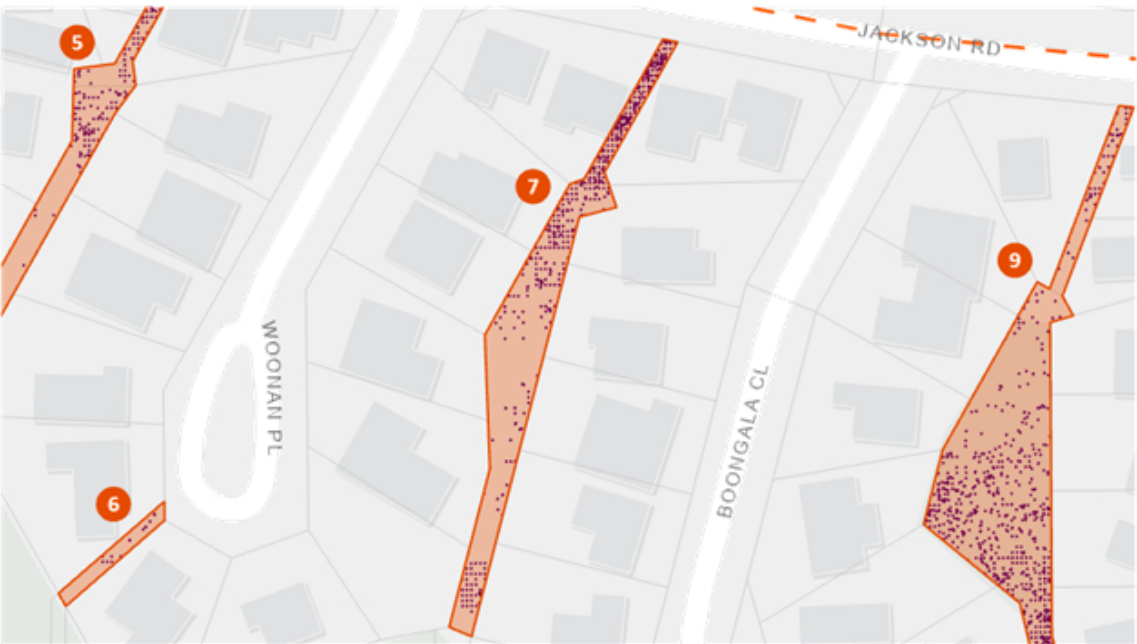
PAW 6

Powered by
elementco.lab

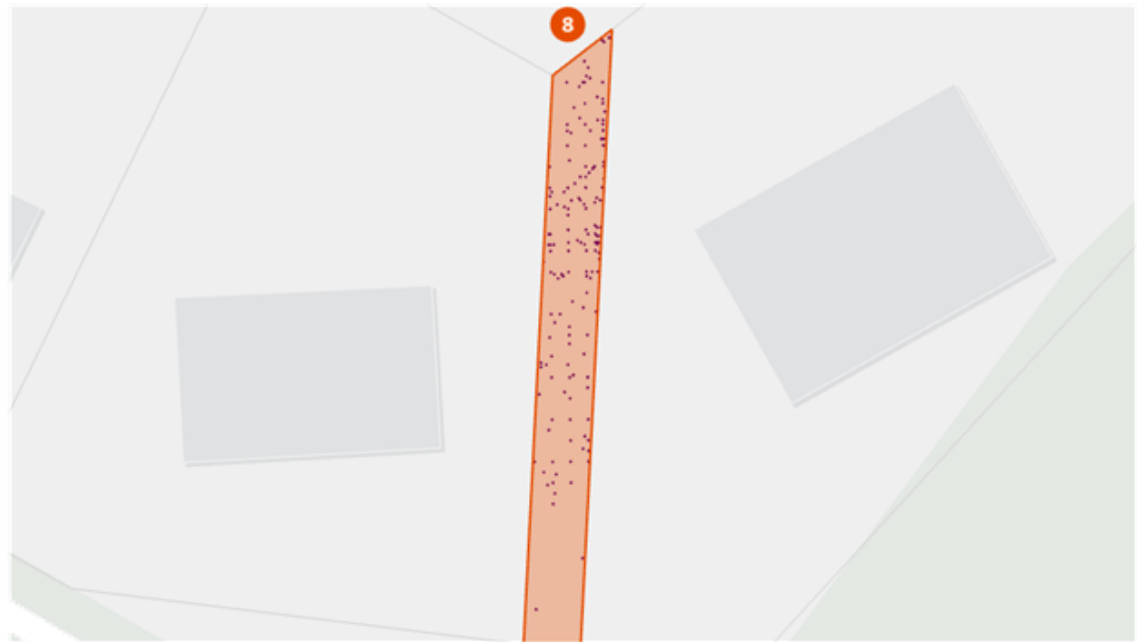


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

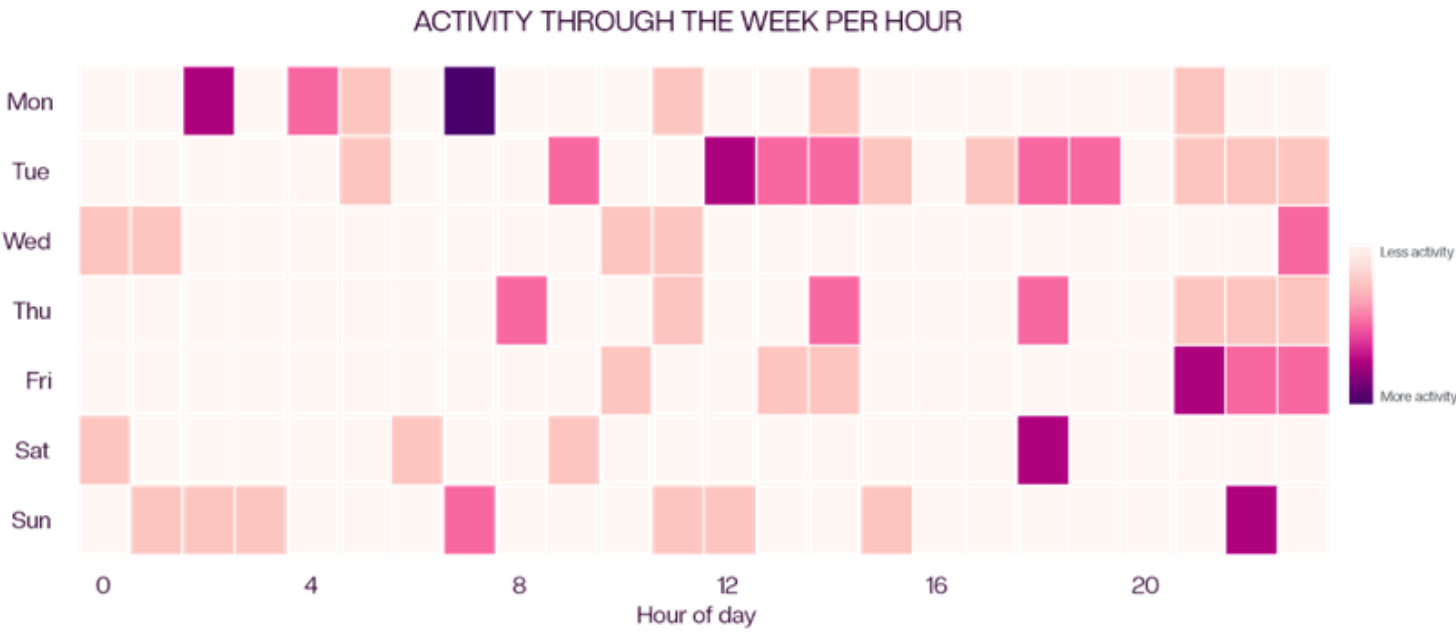
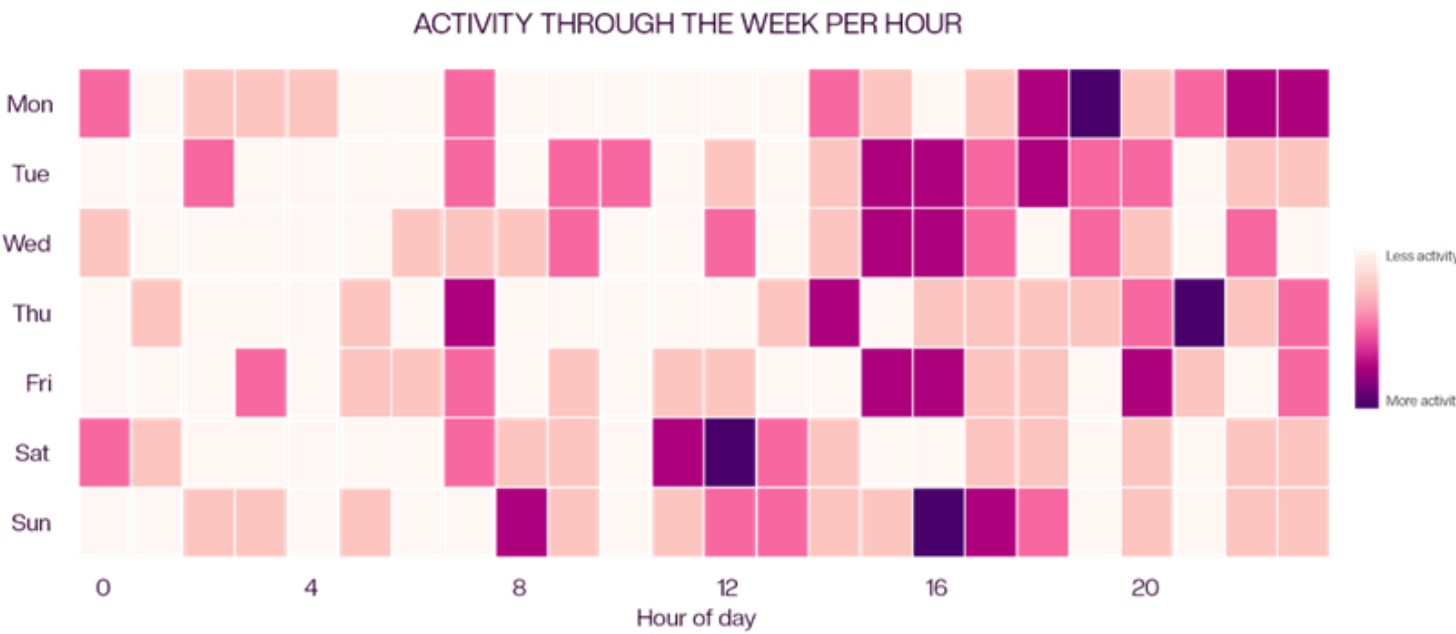


PAW 7



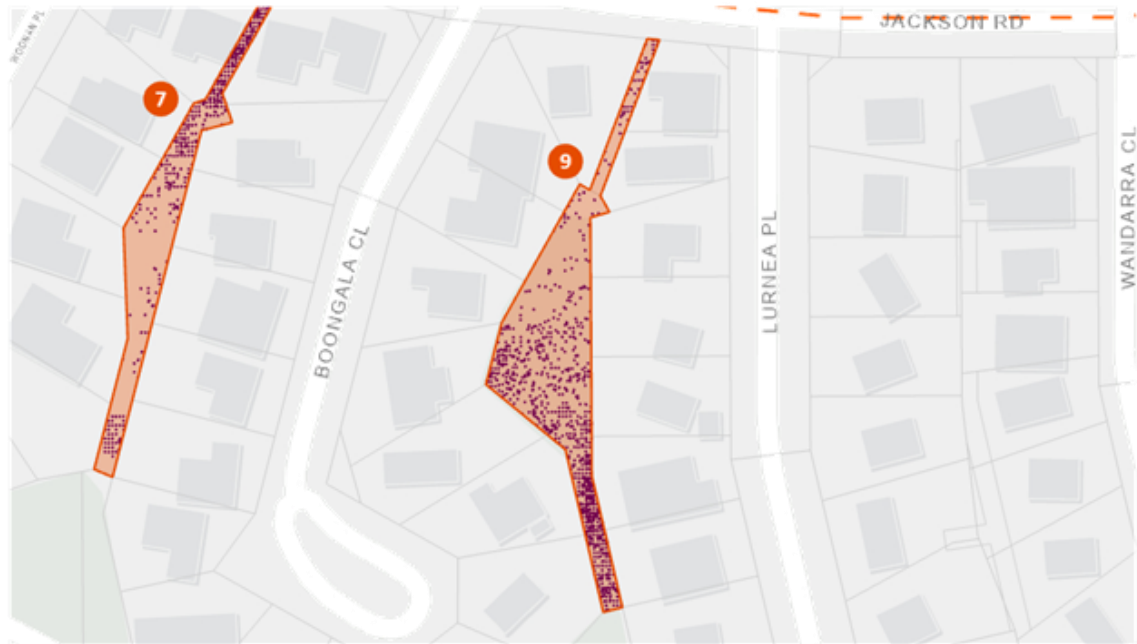
PAW 8

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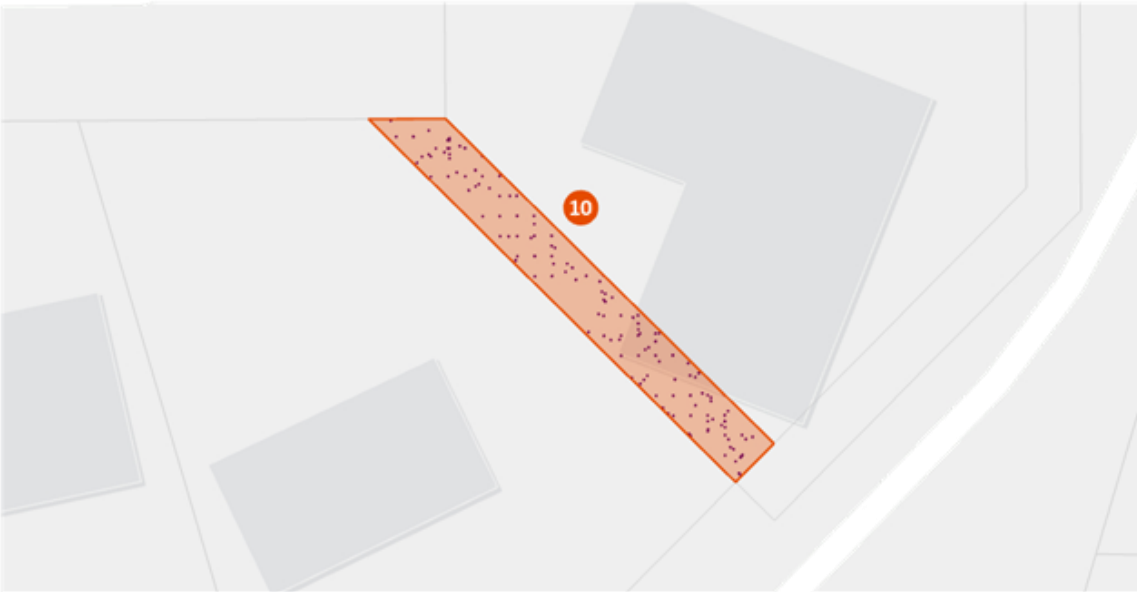


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

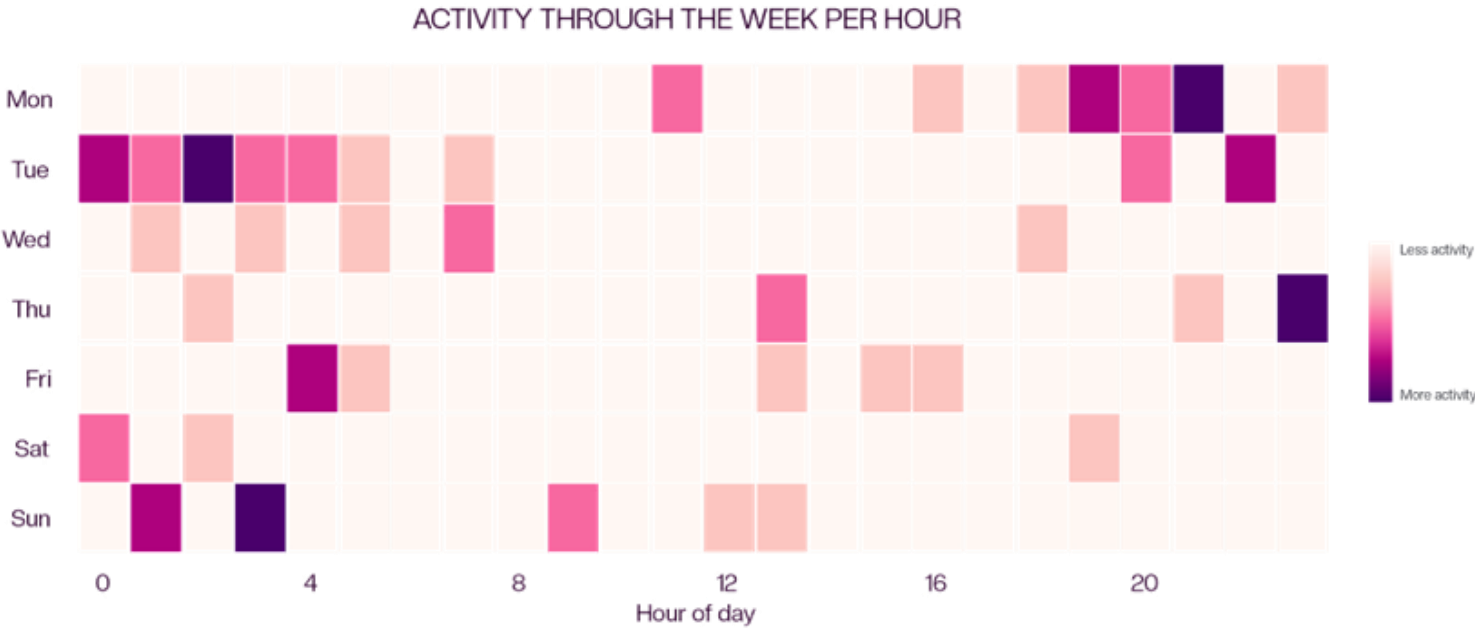
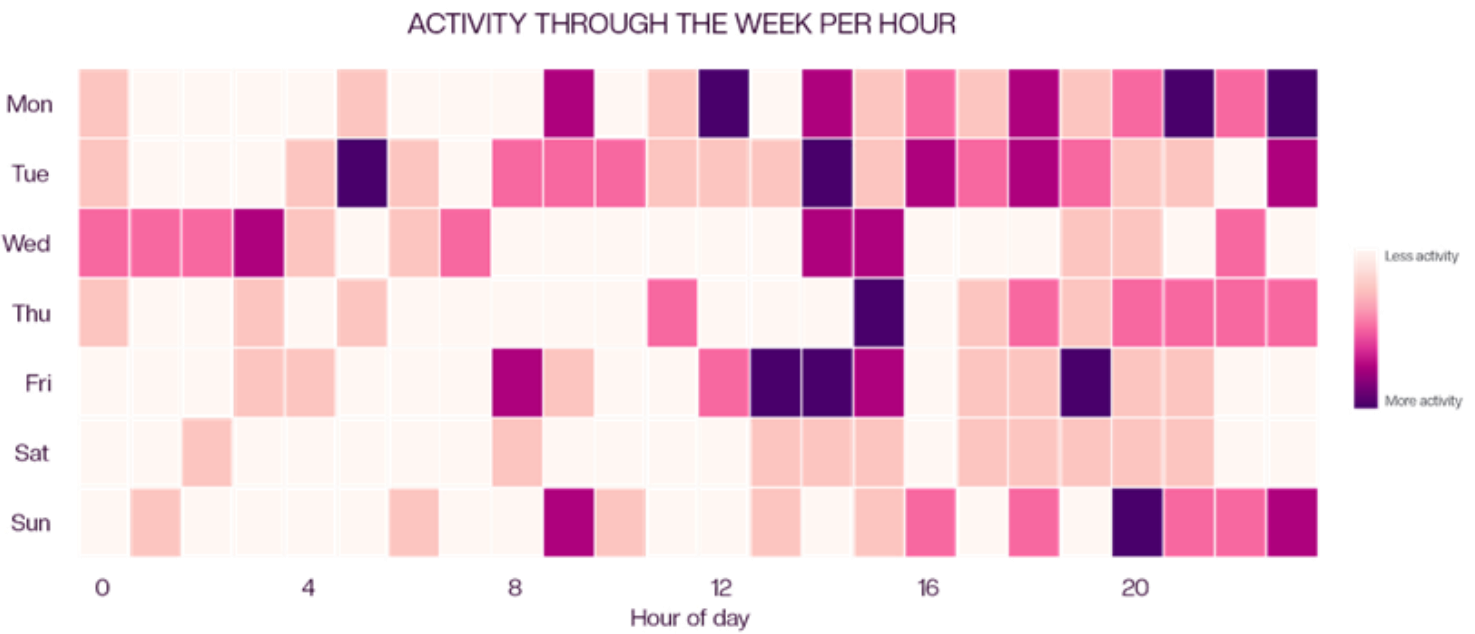
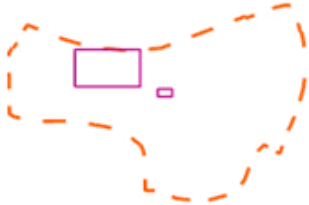


PAW 9



PAW 10

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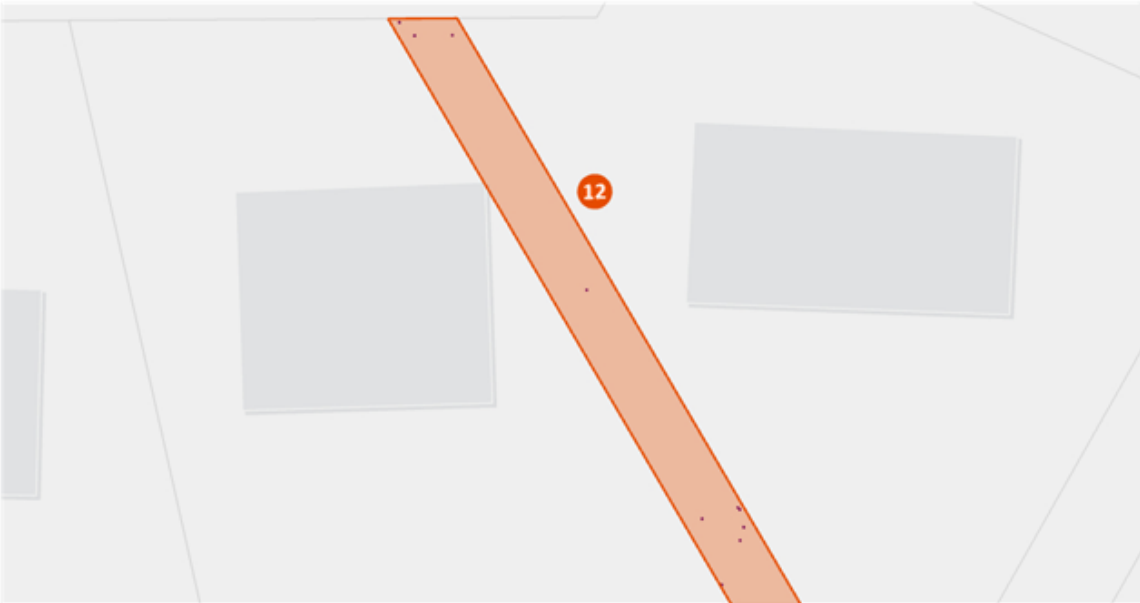
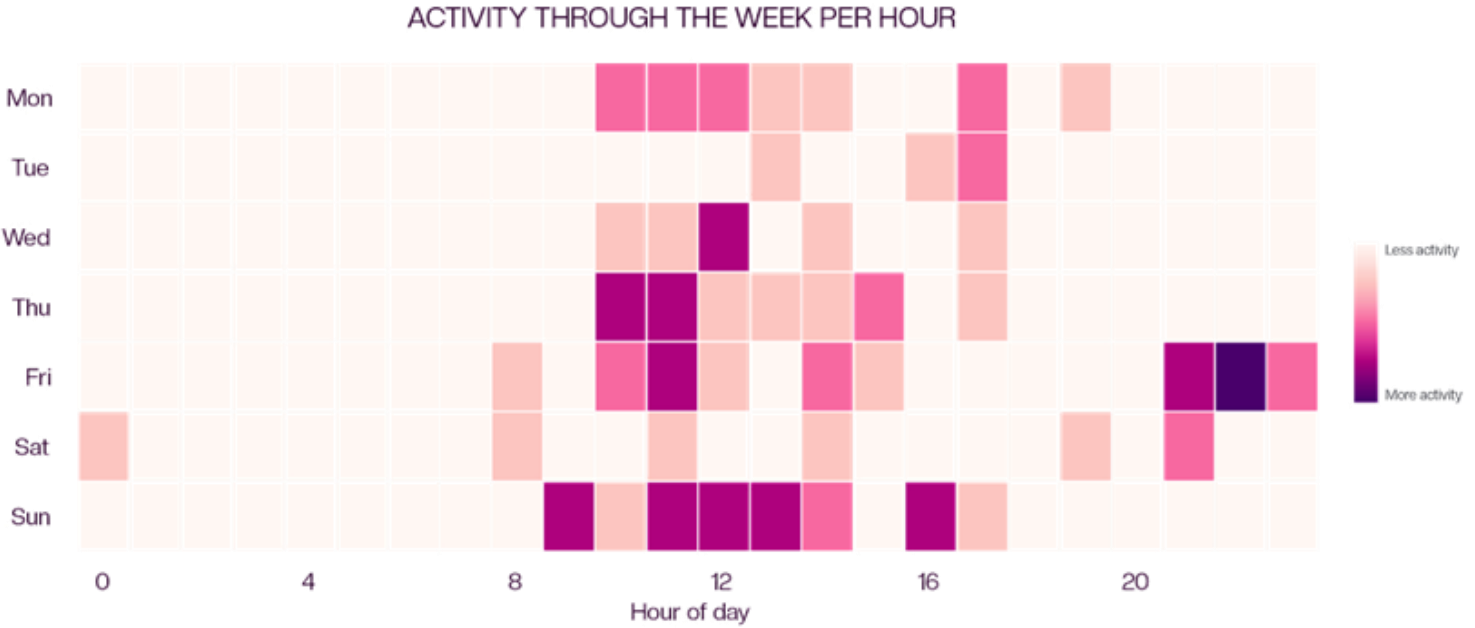


Trends Per Public Access Way

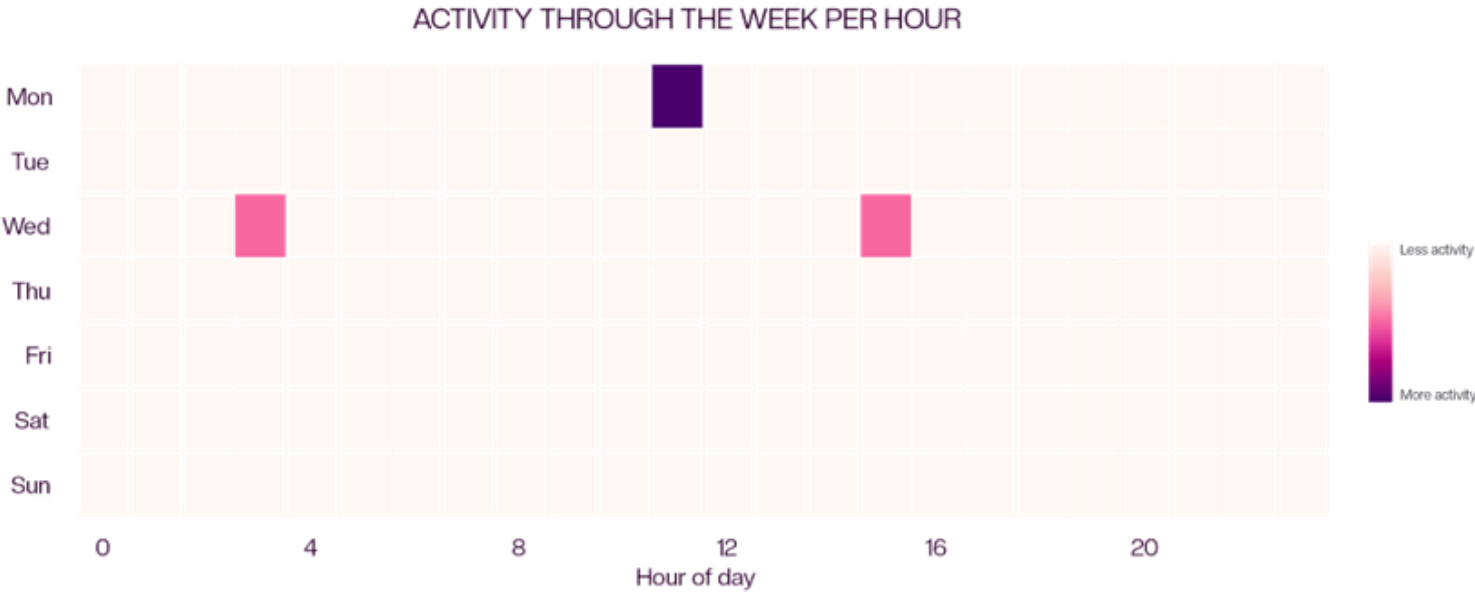
Human mobility trends through public access ways from 2021-2024.



PAW 11



PAW 12



Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

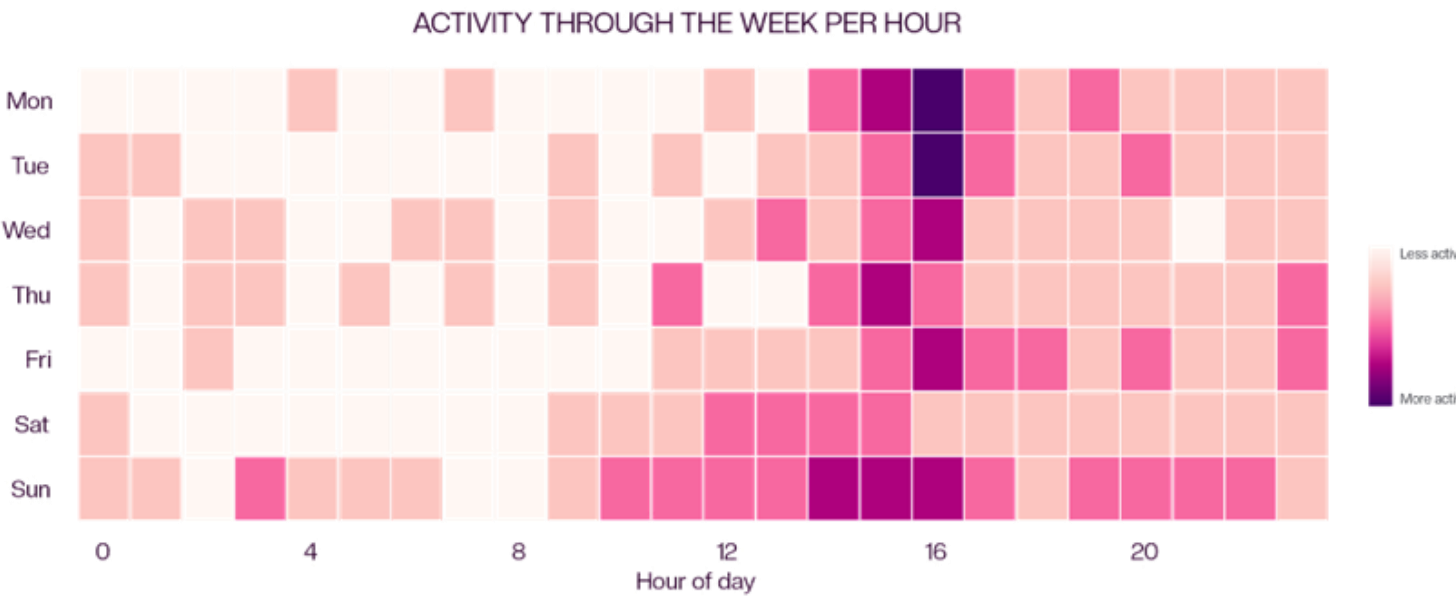
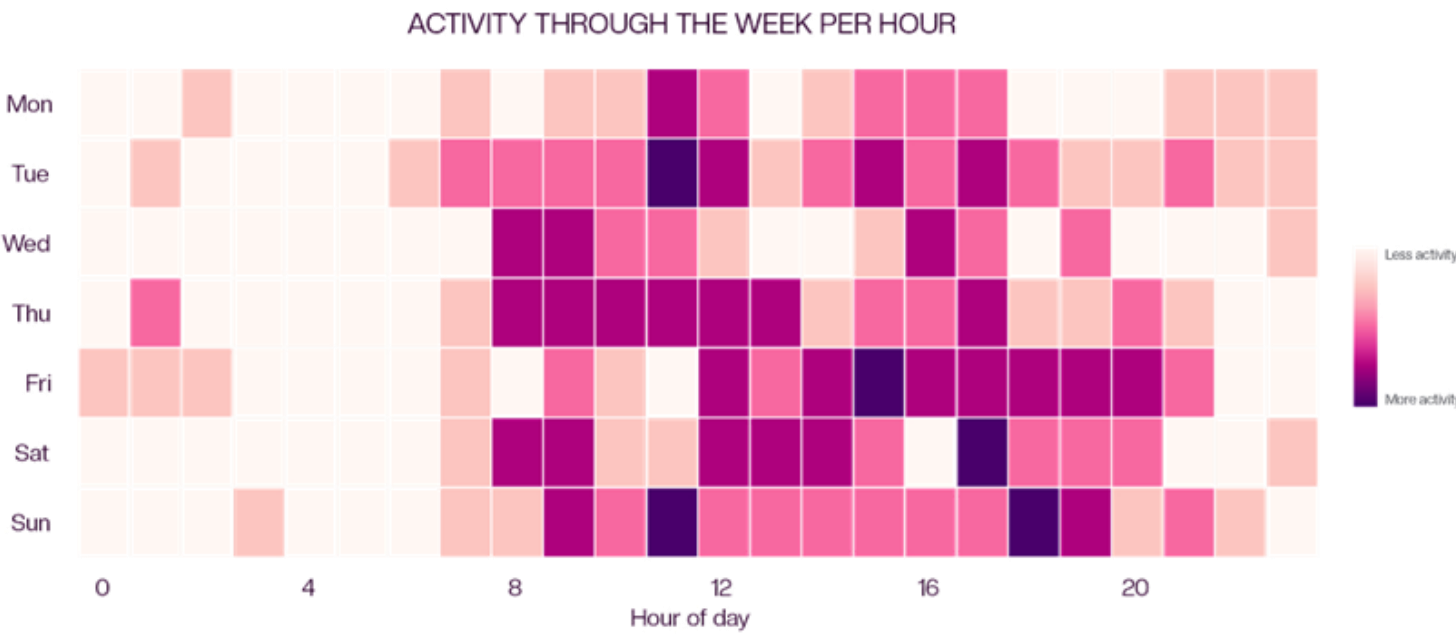


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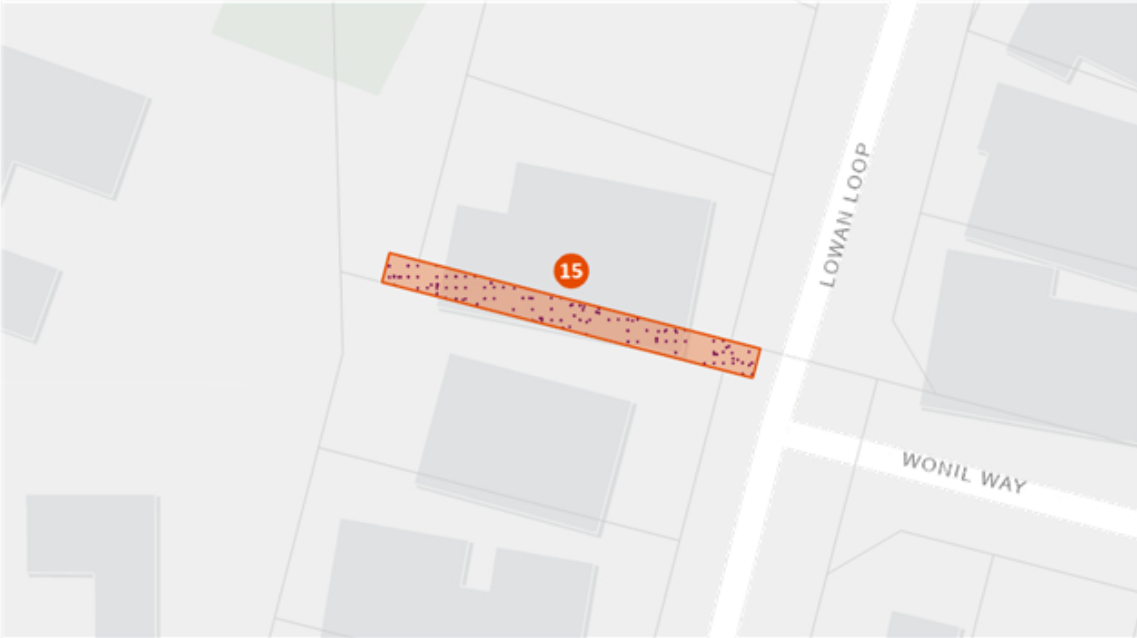
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Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

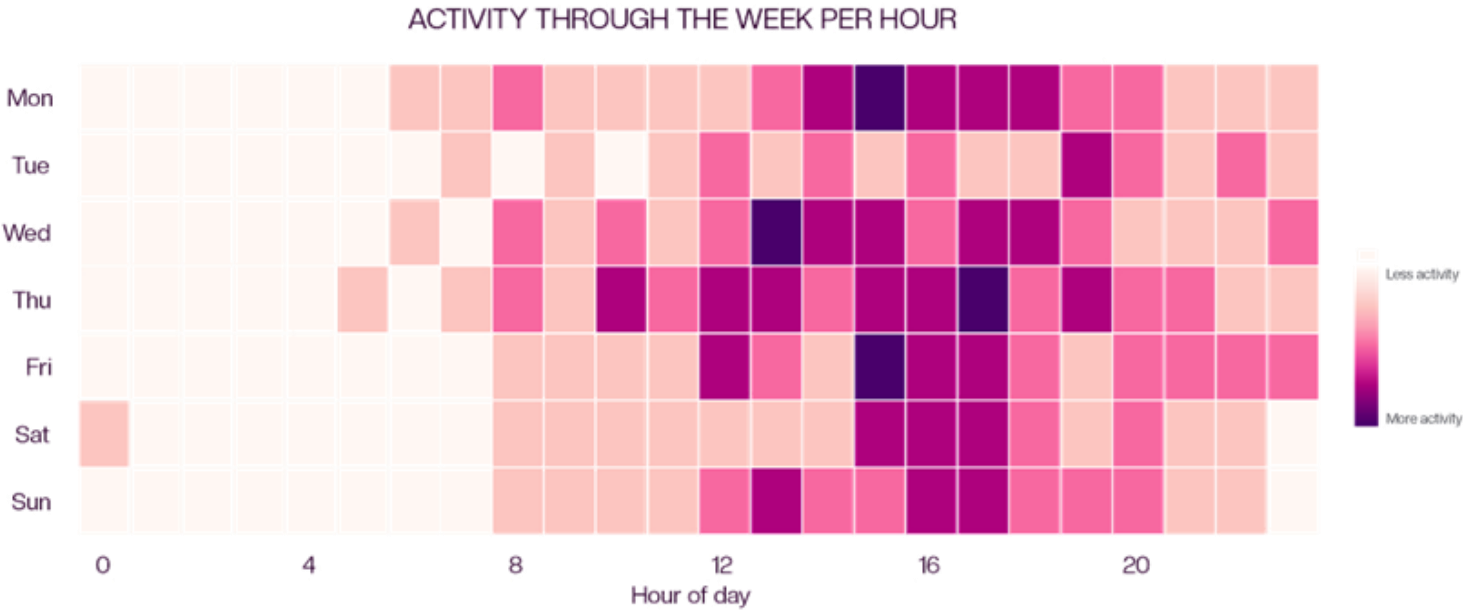
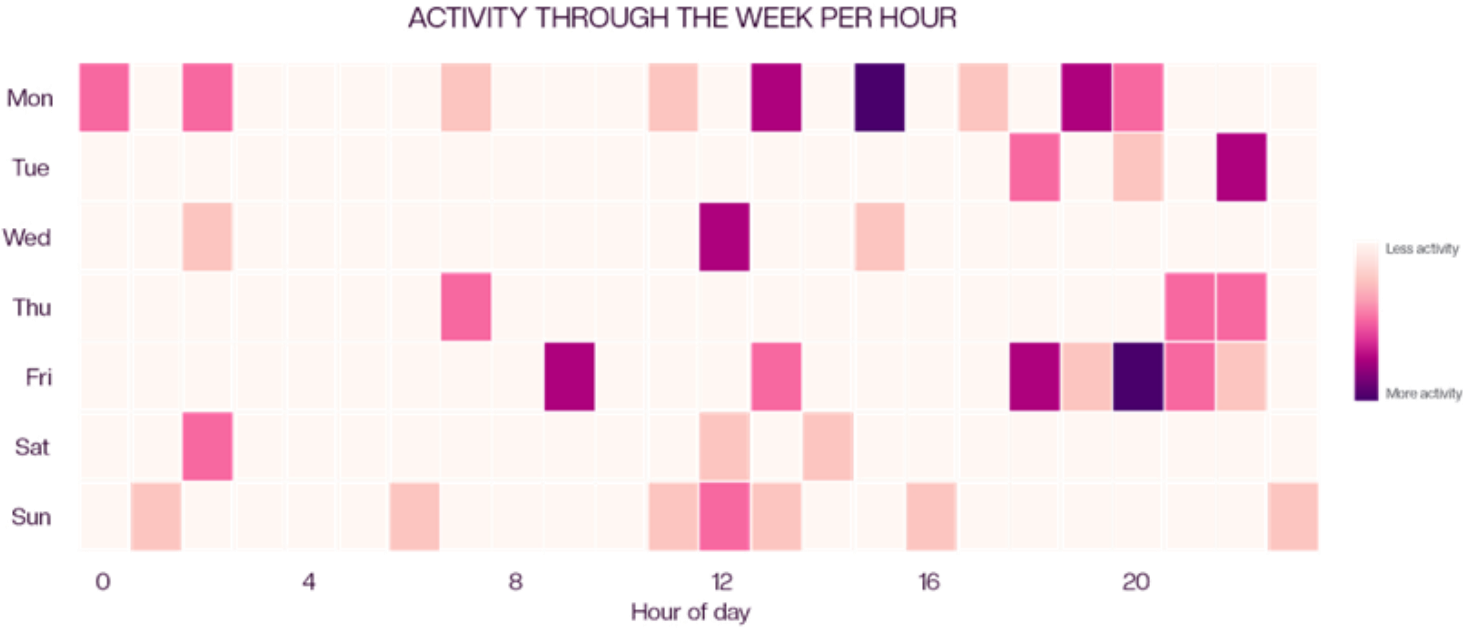


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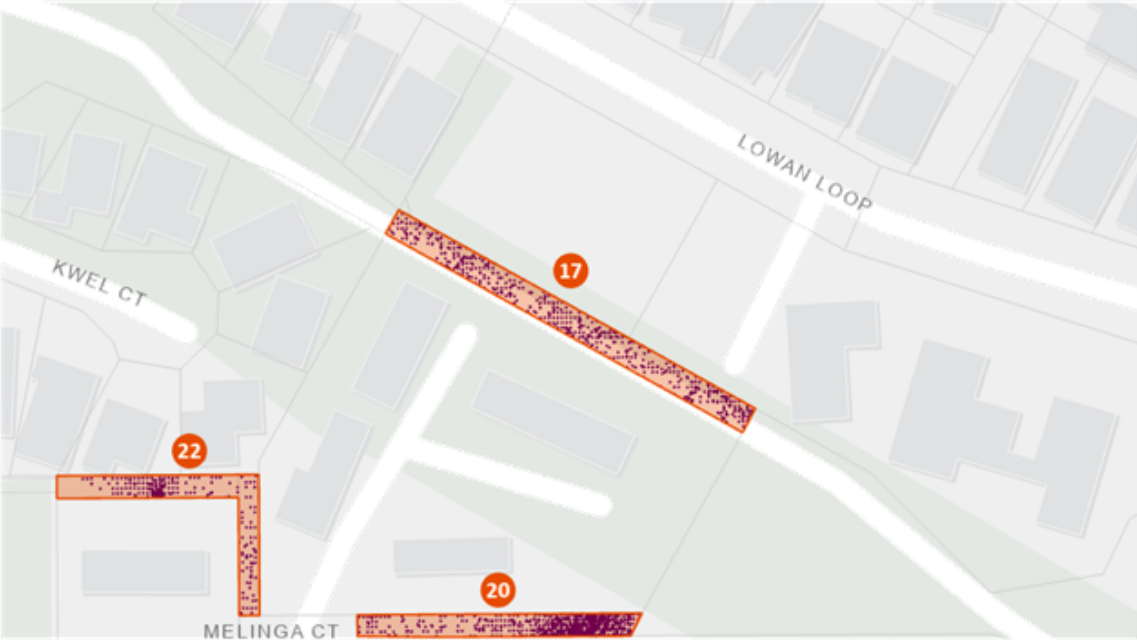
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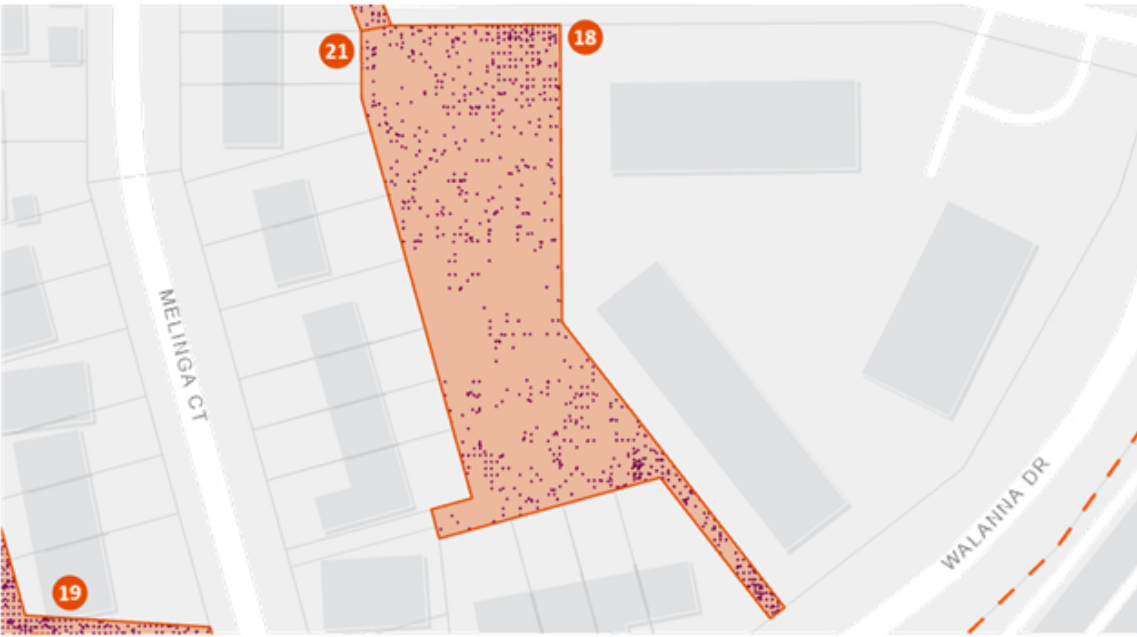


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

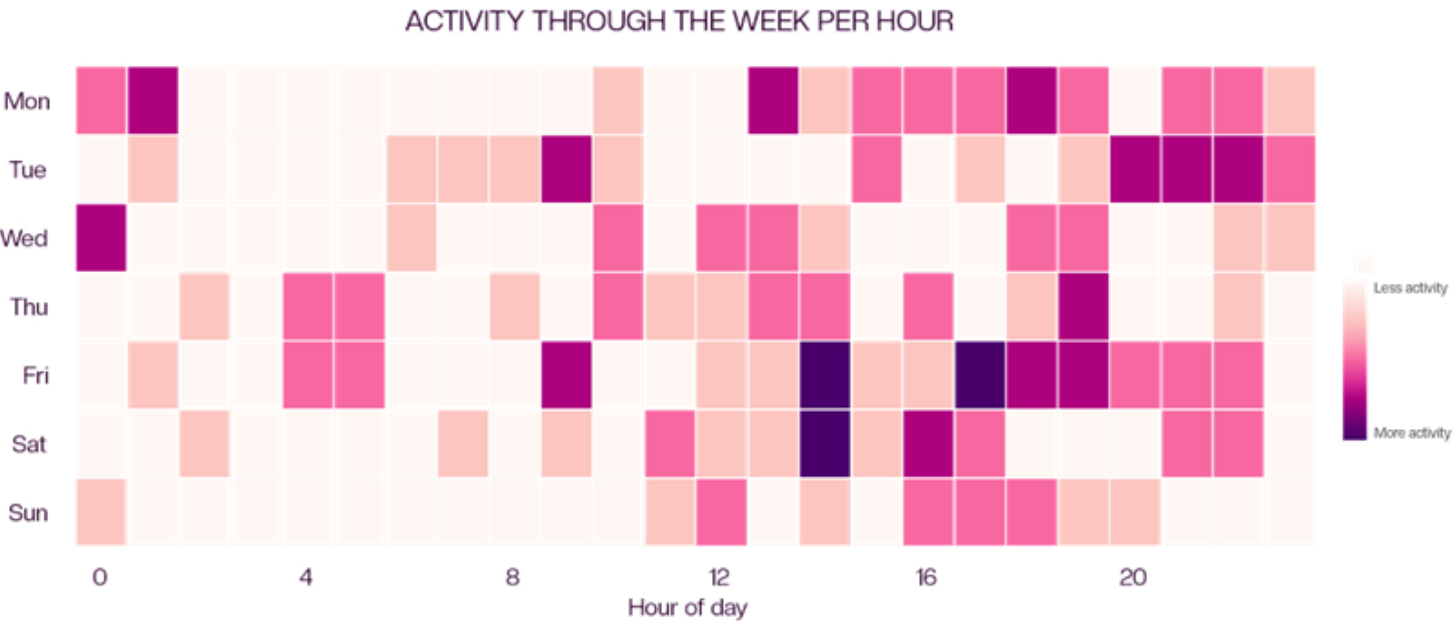
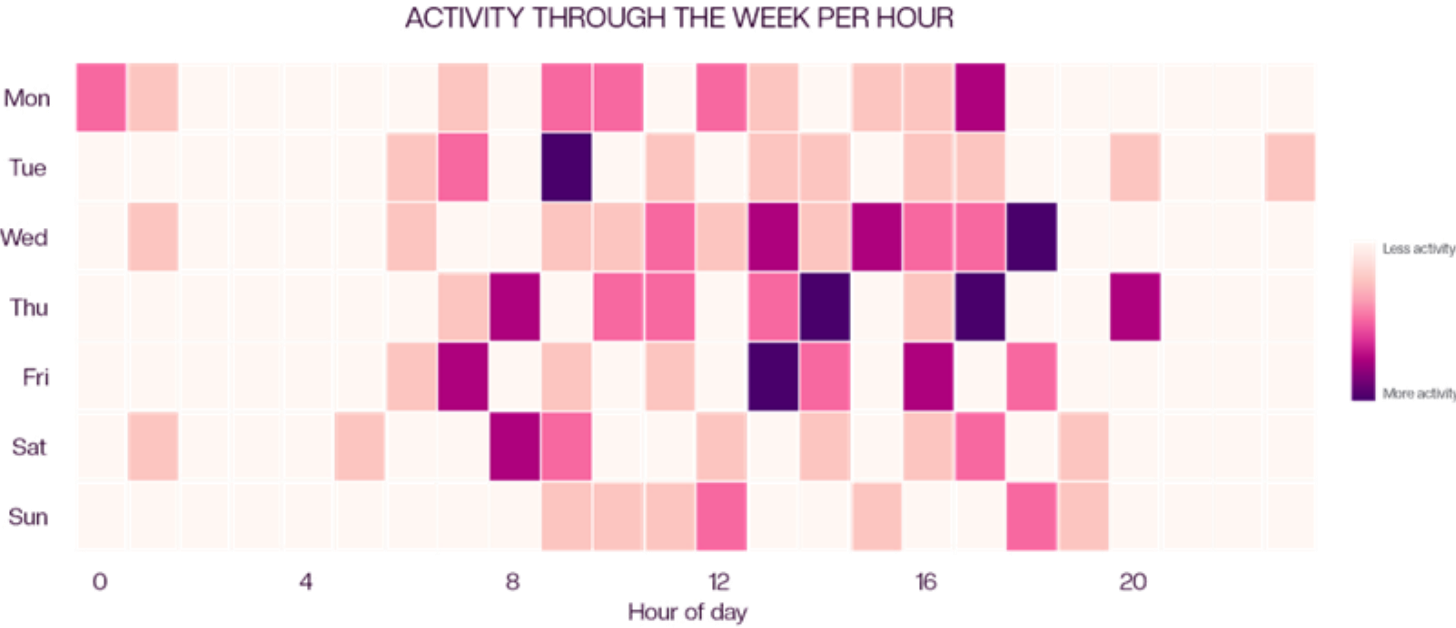


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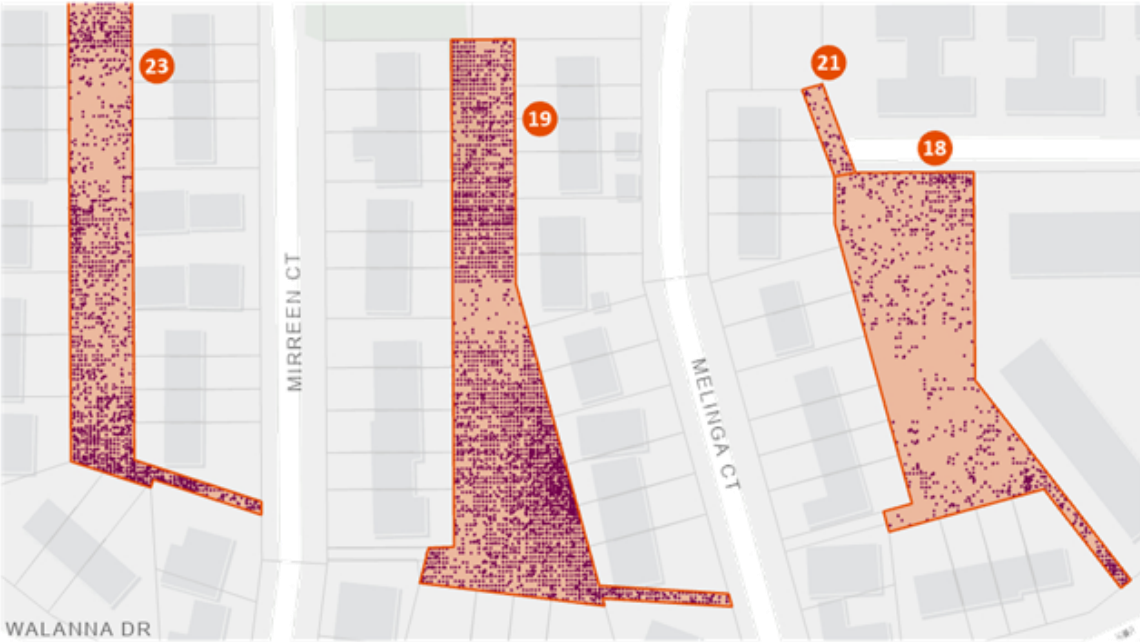
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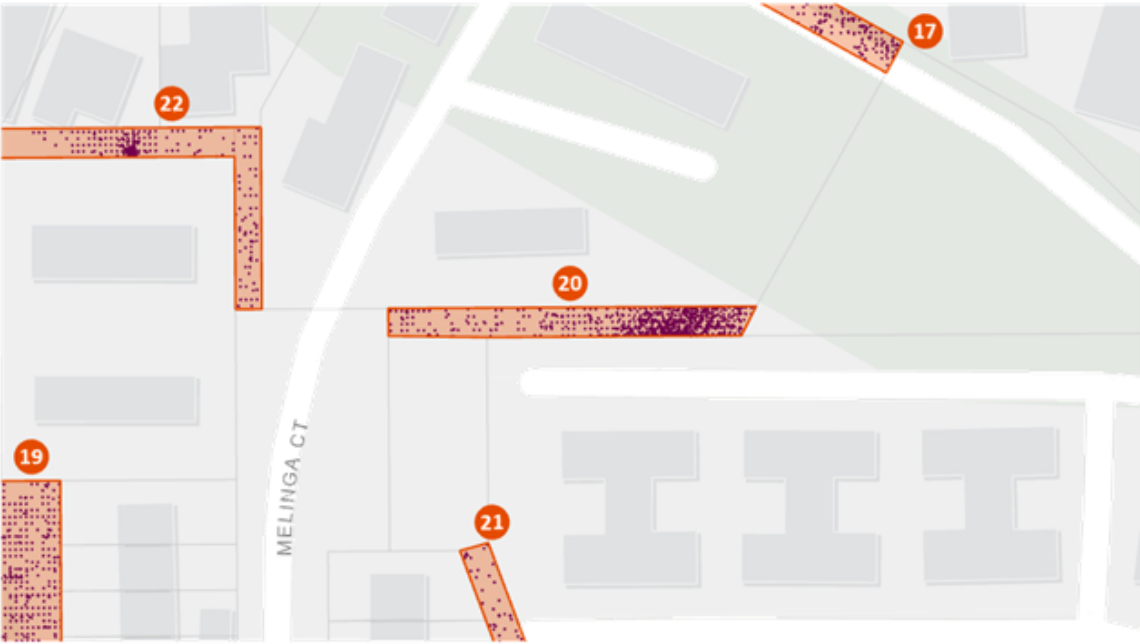


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

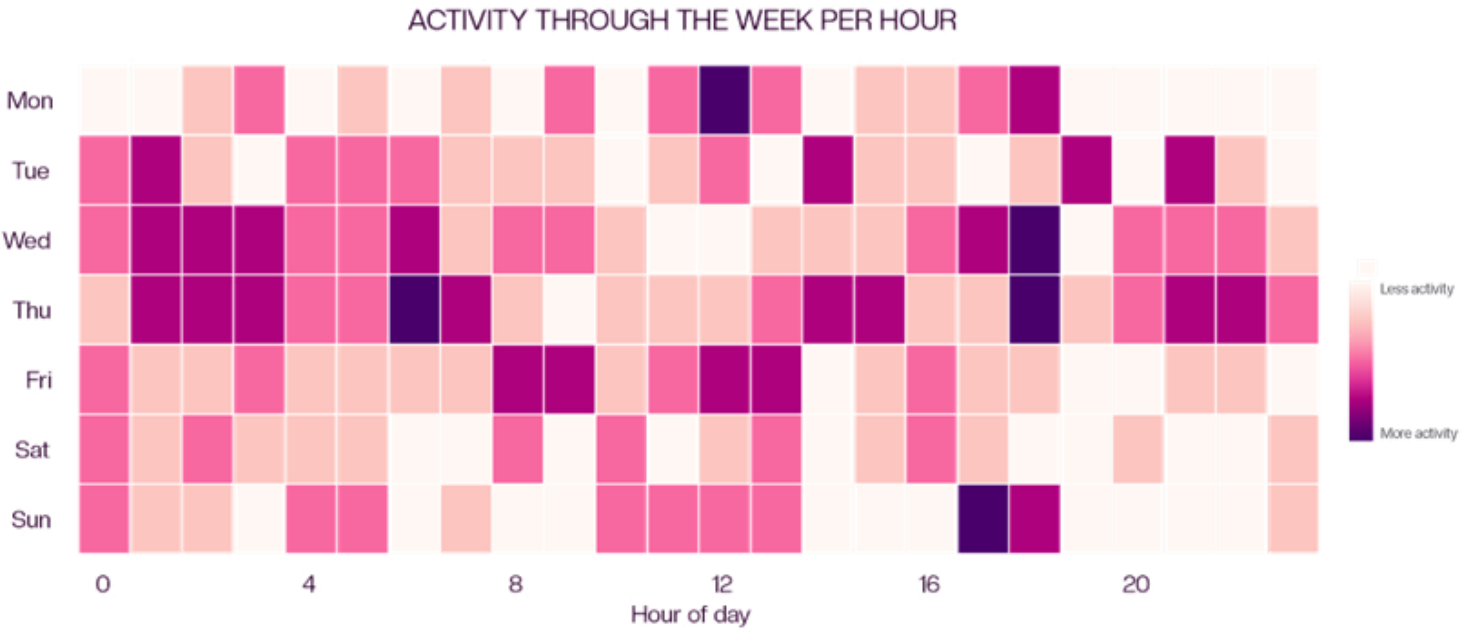
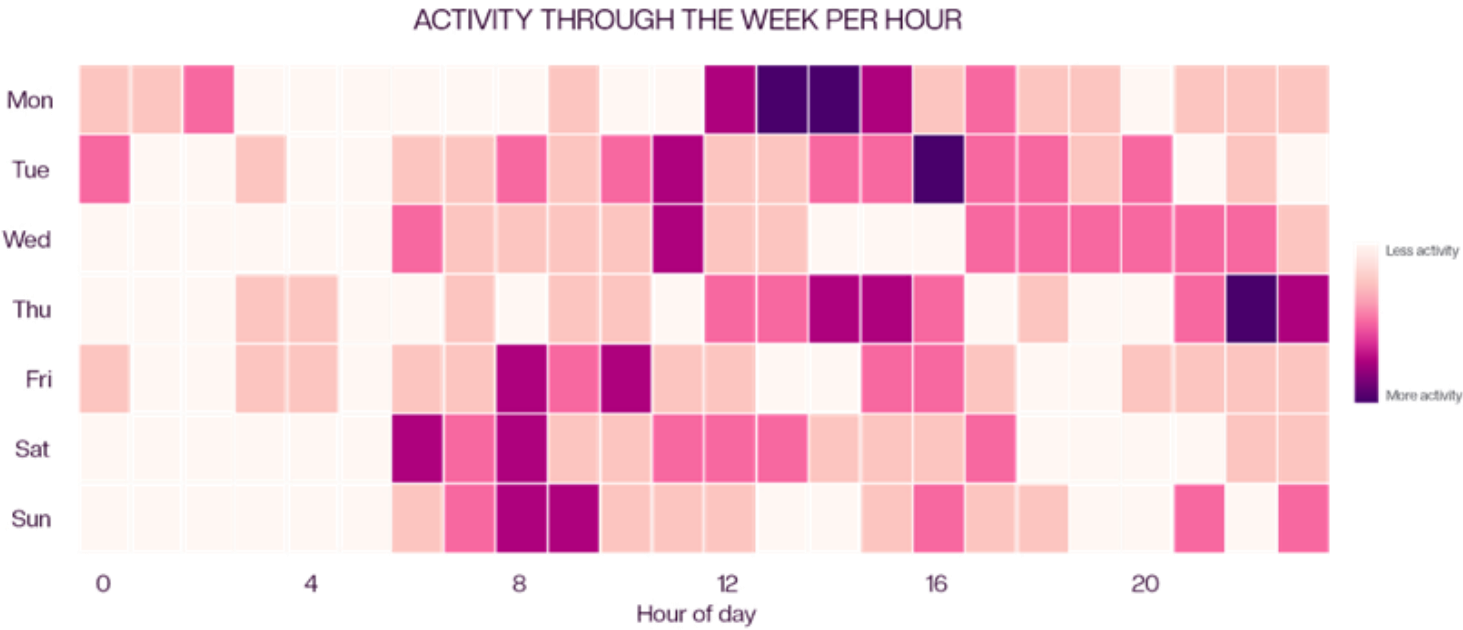


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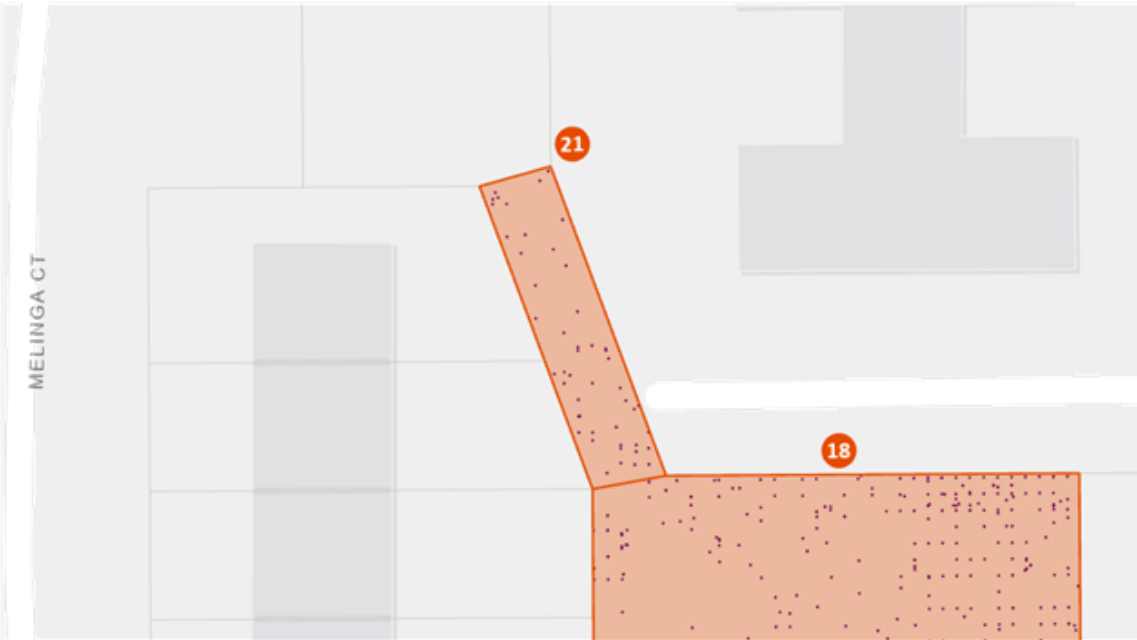
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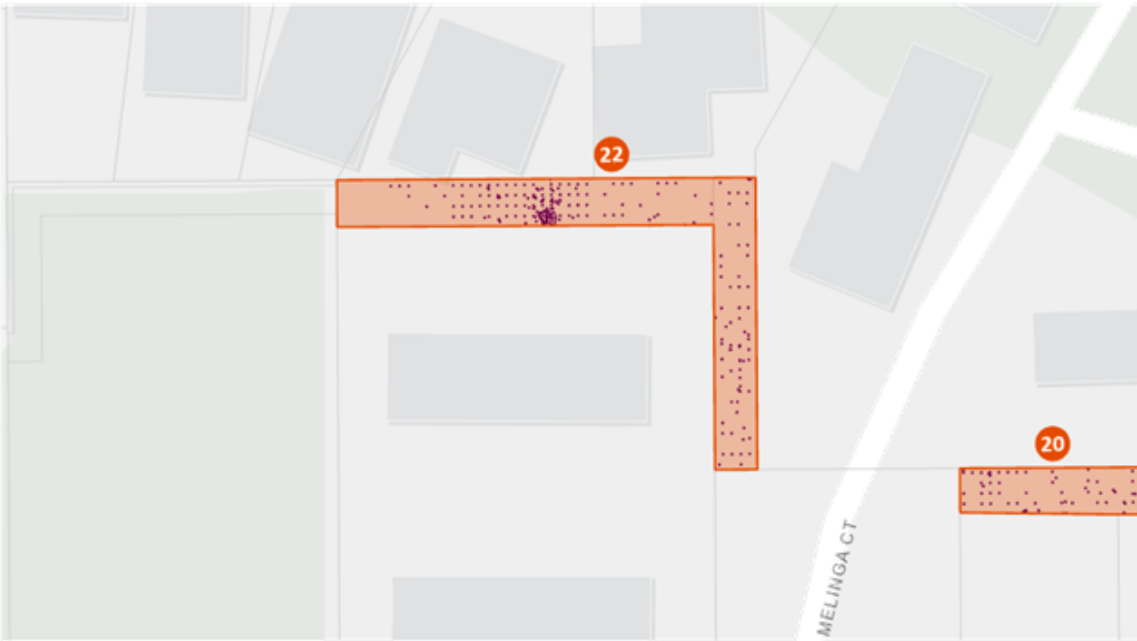


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

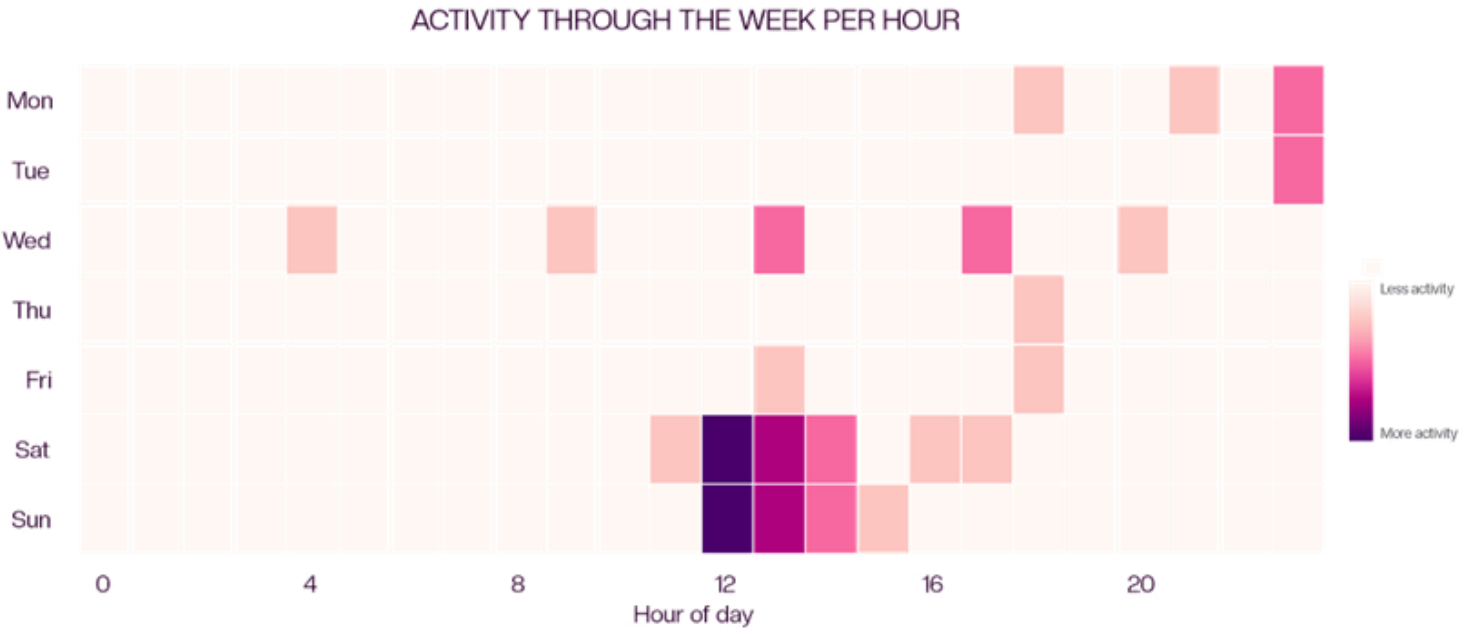
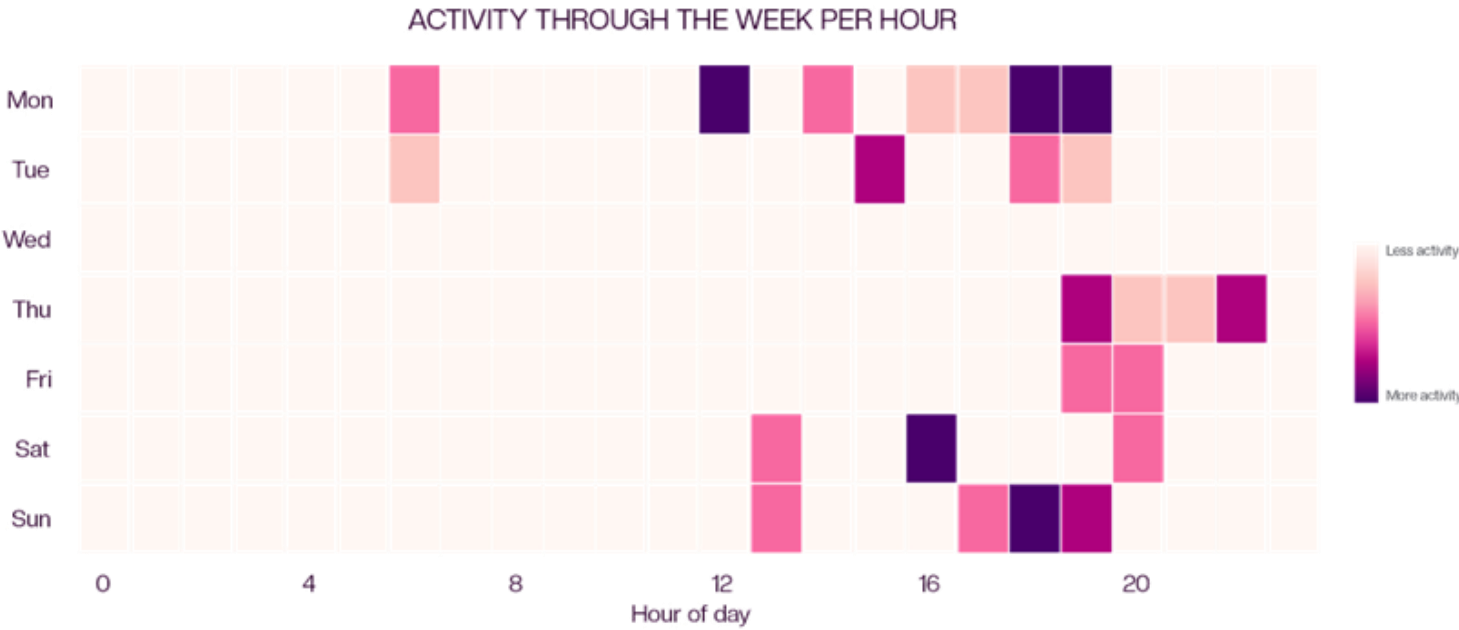


PAW 21



PAW 22

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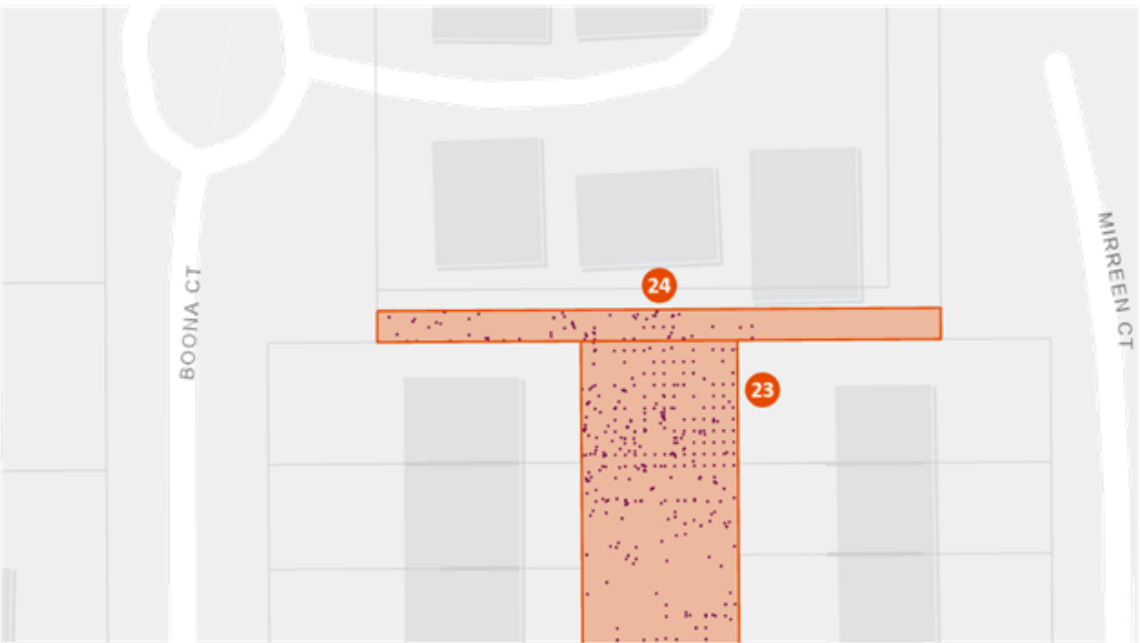


Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

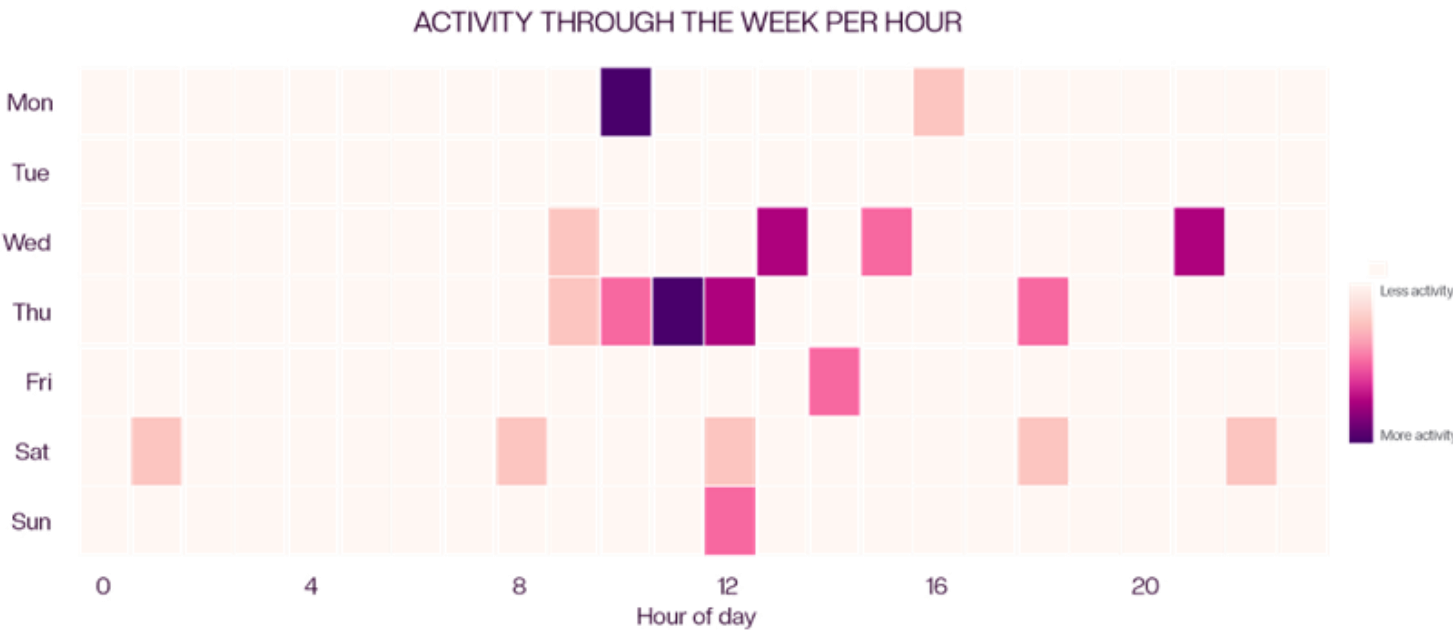
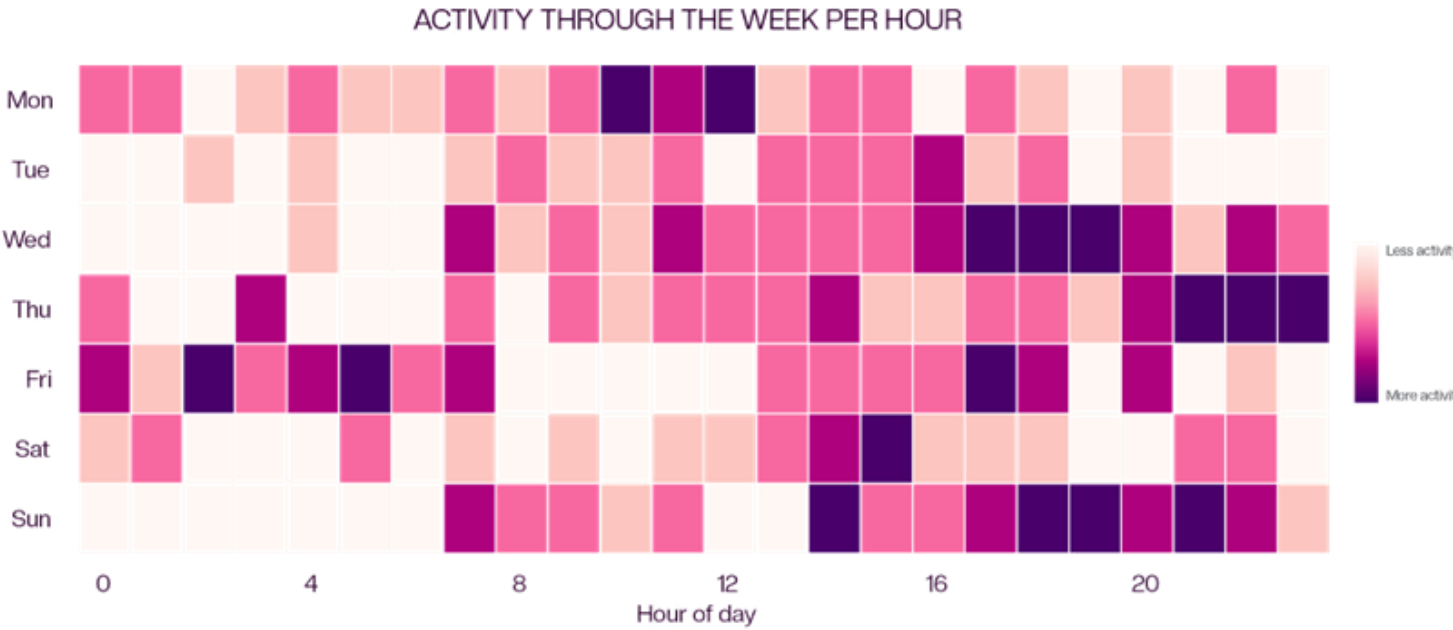


PAW 23



PAW 24

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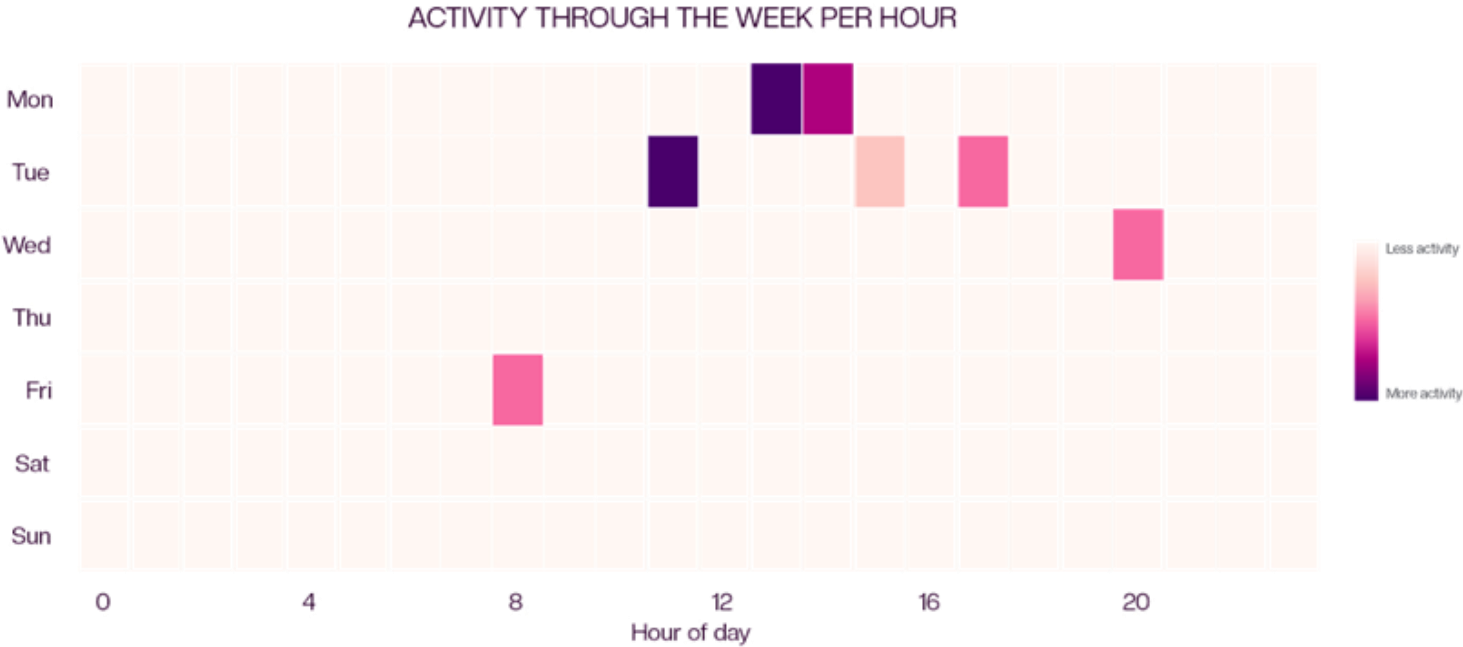


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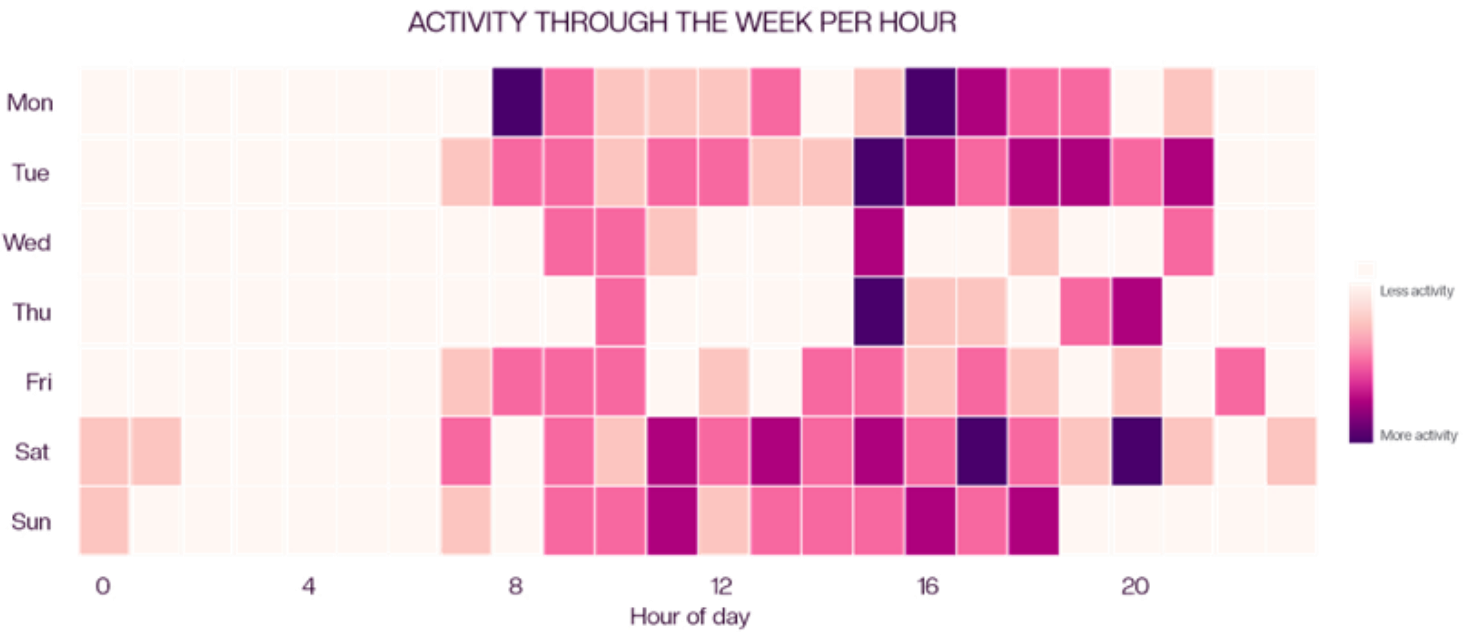
Human mobility trends through public access ways from 2021-2024.



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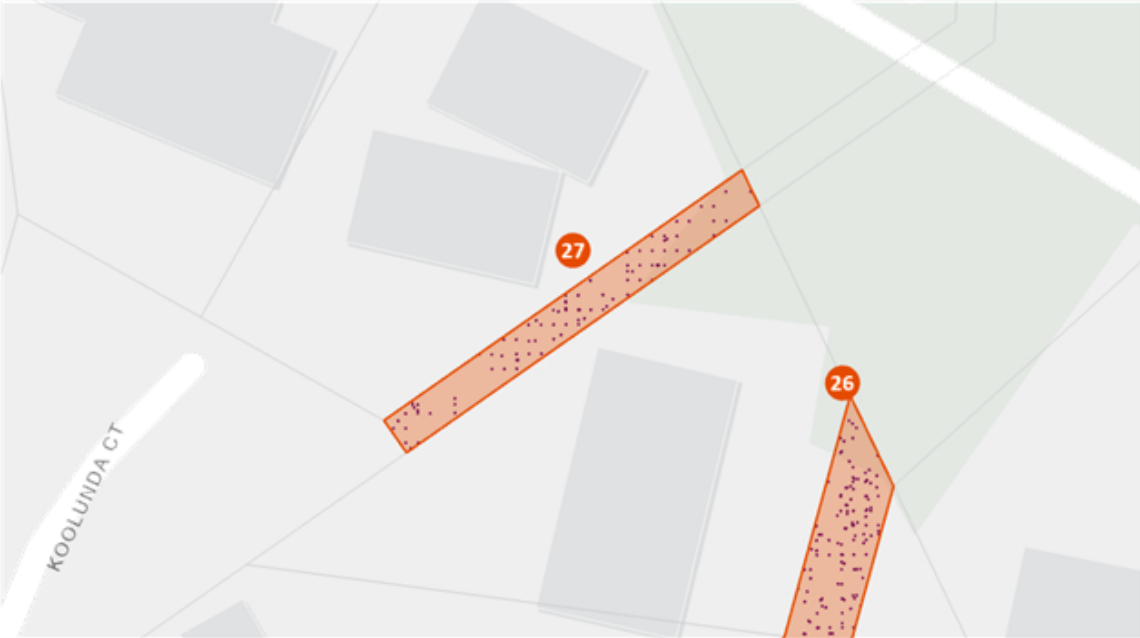
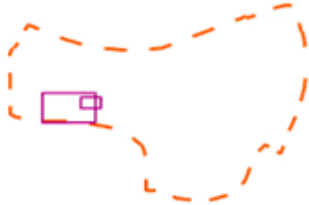


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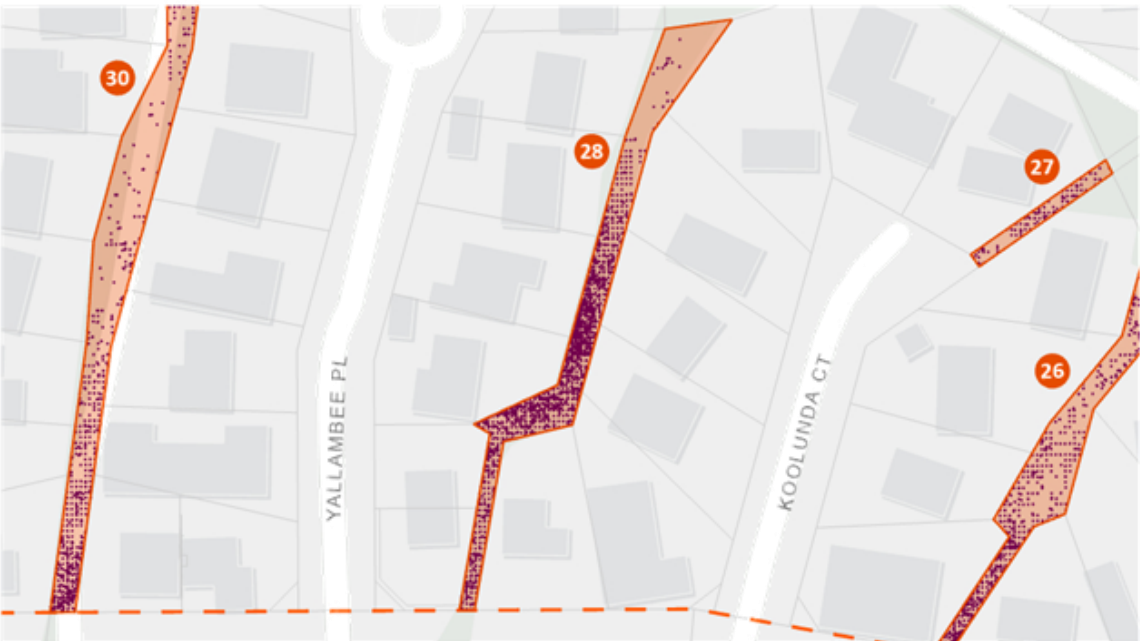
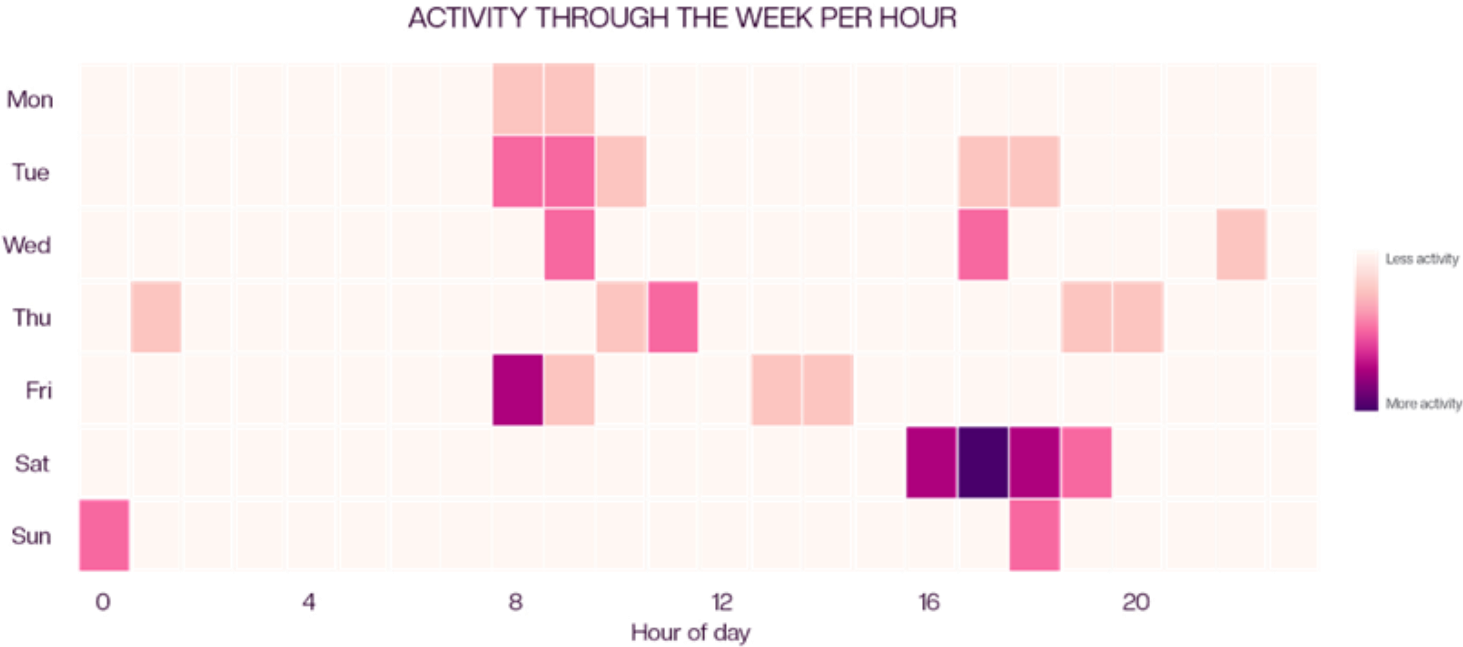


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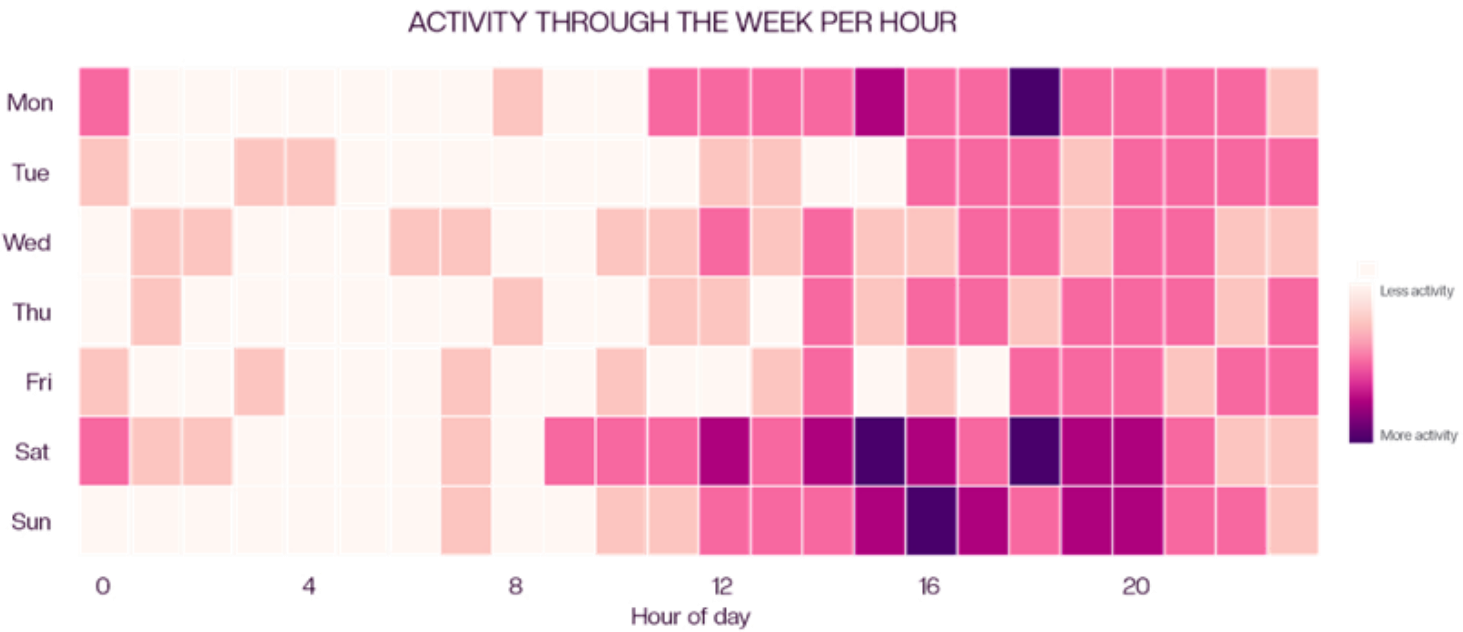
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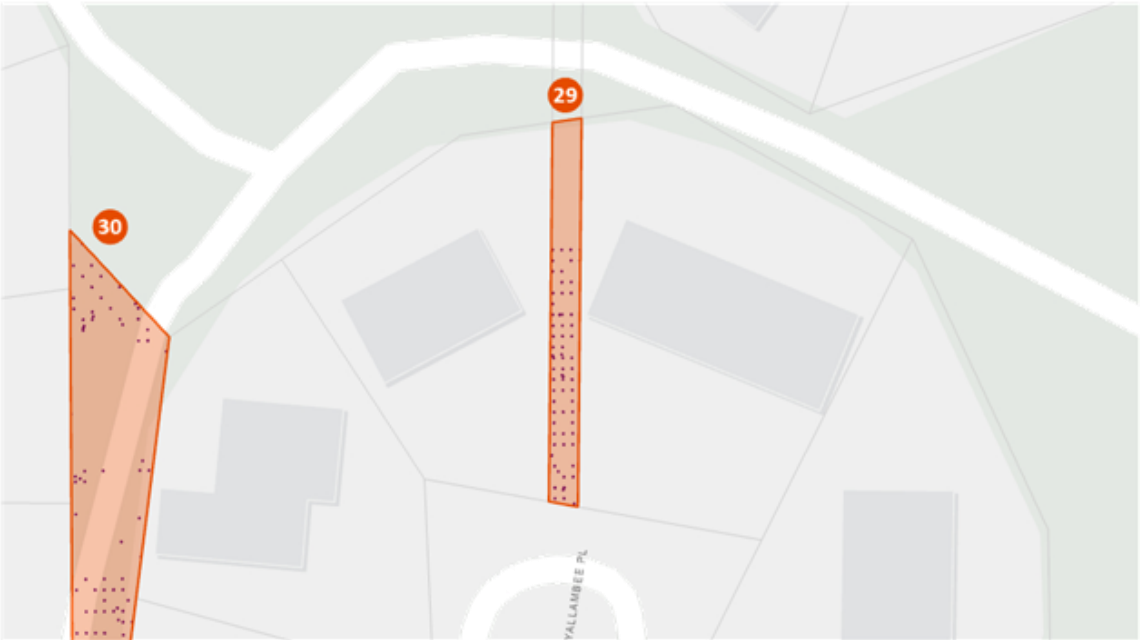


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Trends Per Public Access Way

Human mobility trends through public access ways from 2021-2024.

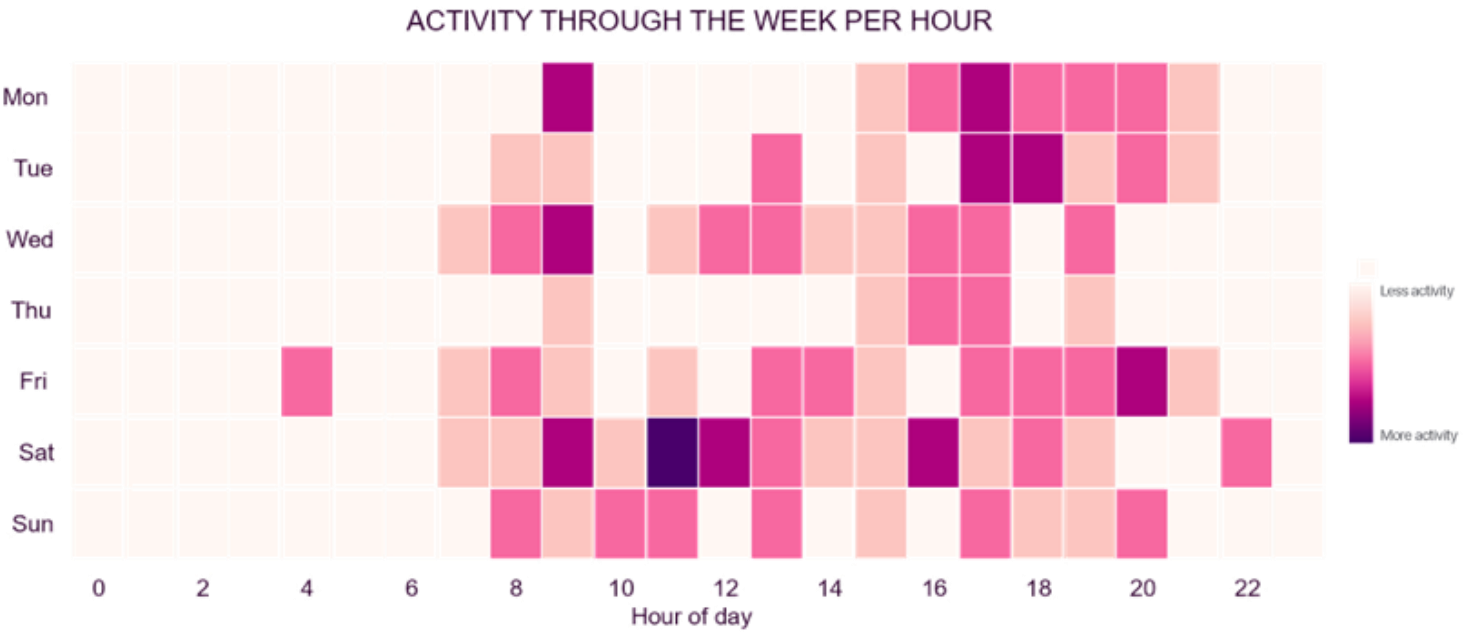
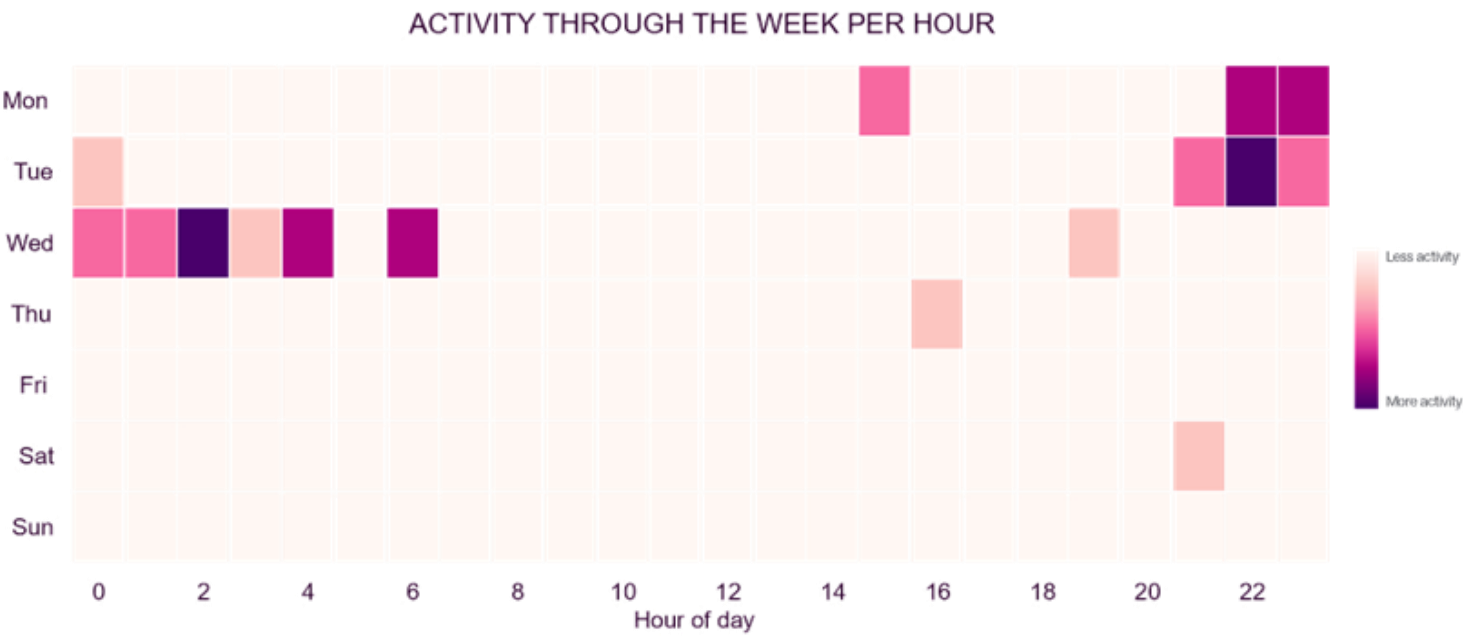
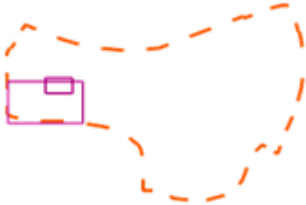


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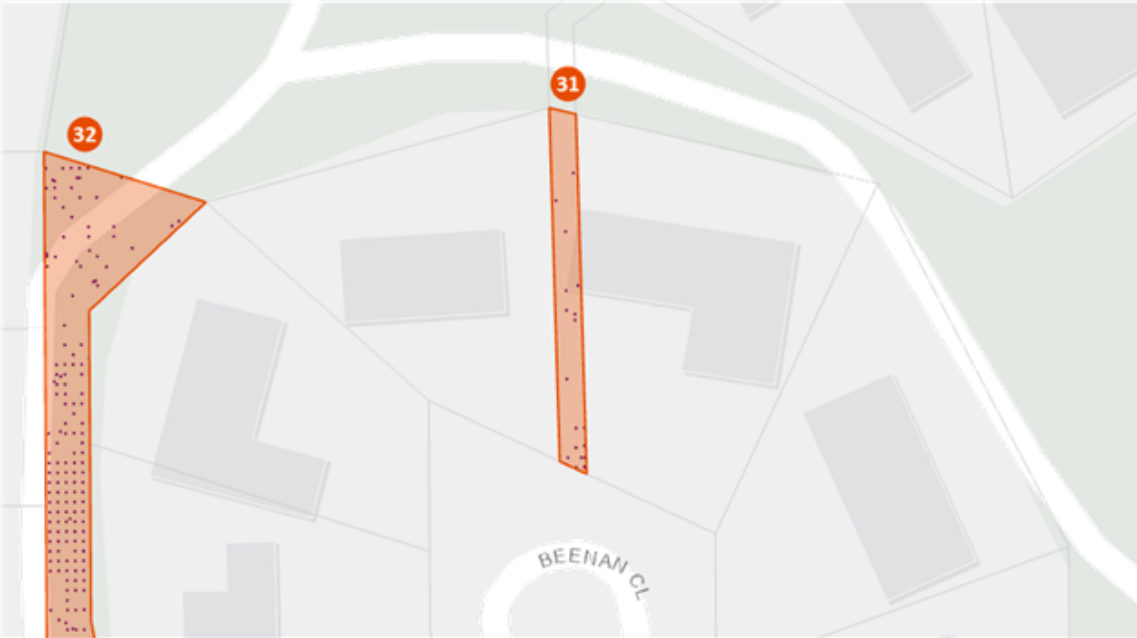
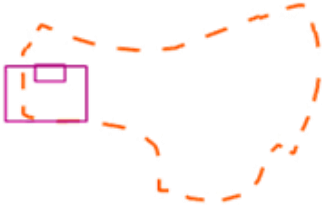
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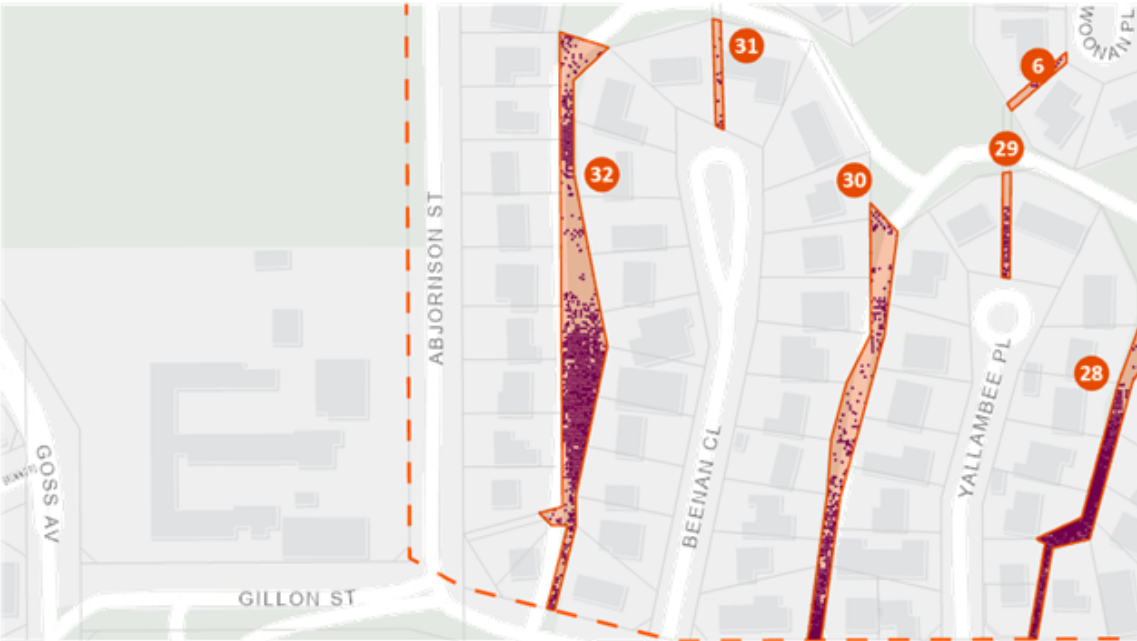
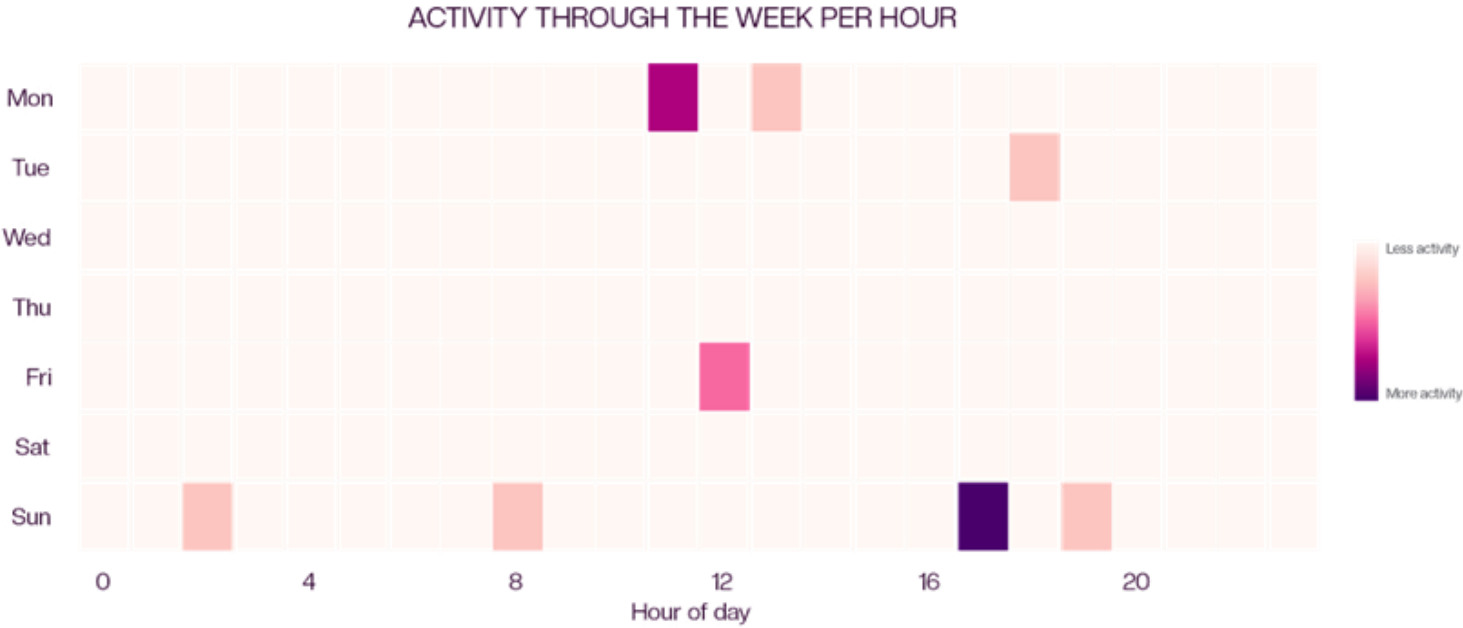


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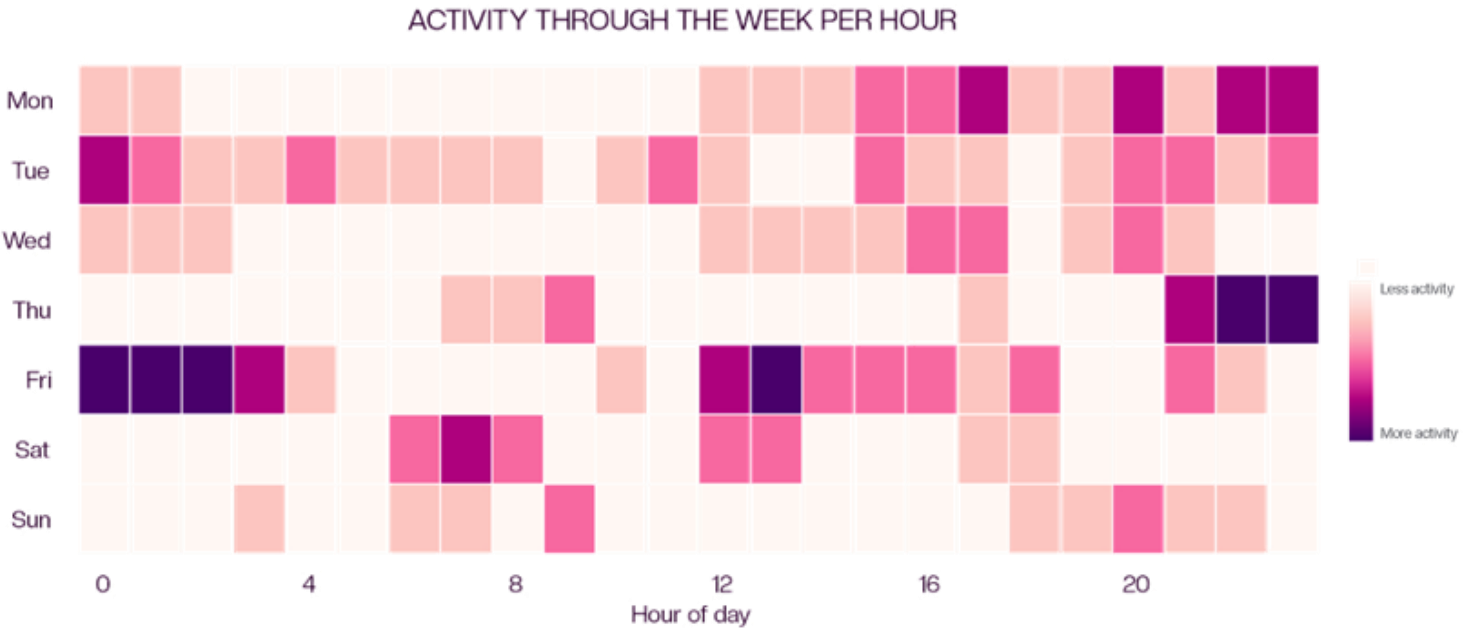
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PAW 31



PAW 32



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Appendix 4 – Recommendations Table

PAW No.	Pedestrian Usage		Service infrastructure restrictions	CPTED	Connectivity within network		Draft comments / recommendation
	City's Ped Count	Human Mobility Data			Connectivity	Comments on connectivity role	
1 Long	Most Movement (8 persons counted)	Moderate Activity	Multiple services present: Sewer easement (if closed). NBN Co comment required.	10 = low vulnerability <ul style="list-style-type: none"> Width (5.96m) Length (93m) Straight shape Open side fencing Abuts 5 properties. 	Connects north-south between Jackson Road and Abjornson Street/ Gillon Street. Connects with Greenway west entry.	High connectivity role: <ul style="list-style-type: none"> Moderate-high pedestrian use. Low CEPTED vulnerability. Important north-south connection. Important connection with western entry to Greenway. Connects with Curtin Primary School. 	Essential Multiple services present (Sewer, NBN Co) Recommend new directional signage for both entries and 1.5m footpath extension around bollards.
2 Short	Nil movement	Nil Activity	Multiple services present: Water Corporation does not support PAW closure. Western Power easement or relocation to be determined if closed.	No CPTED measured as PAW inaccessible to public. <ul style="list-style-type: none"> Width (4m) Length (32m) Straight shape Abuts 2 properties. 	Currently inaccessible to public.	Low connectivity role: <ul style="list-style-type: none"> Currently inaccessible to public. Alternative connection available via PAW No. 1 (Essential). PAWs' southern entry terminates near PAW No. 1 (i.e. PAW No. 2 duplicates PAW No. 1 role). 	Non-Essential Multiple services present (Water Mains, NBN Co) Recommend formalising current state of 'closure' with Department of Lands.
3 Long	Most Movement (8 persons counted)	Moderate Activity	Water Corporation recommends sewer easement if closed.	8 = medium vulnerability <ul style="list-style-type: none"> Width (3m) Length (107m) Straight shape Concealment indentation (10m wide) Abuts 9 properties. 	Connects north-south between Jackson Road and Gillon Street via PAW Nos. 31 (Essential) & 32 (Non-Essential)	Medium connectivity role: <ul style="list-style-type: none"> Moderate-high pedestrian use. Medium CPTED vulnerability (entrapment indentation present). Currently provides north-south connection. Alternative north-south connection available via PAW Nos. 1 (Essential) and 4 (Essential) 	Non-Essential Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.
4 Short	Some movement (3 persons counted)	Low Activity	Multiple services present: Water Corporation does not support closure. Western Power easement or relocation to be determined if closed.	10 = low vulnerability <ul style="list-style-type: none"> Width (3m) Length (35m) Straight shape Abuts 2 properties. 	Connects north-south between Jackson Road and Gillon Street via PAW No. 31 (Essential)	High connectivity role: <ul style="list-style-type: none"> Low pedestrian use Low CPTED vulnerability Important north-south connection Provides direct shortest and most direct path from public realm to Greenway. Role increases should PAW Nos 3 (Non-Essential), 5 (Essential), 30 (Non-Essential) or 32 (Non-Essential) be closed. 	Essential Multiple services present (Water Mains, Power) Recommend new directional signage and 1.5m footpath extension around bollards.
5 Long	No movement (no persons counted)	Moderate Activity Activity concentrated at north entry within concealment indentation	Water Corporation recommends sewer easement if closed.	9 = medium vulnerability <ul style="list-style-type: none"> Width (3m). Length (107m). Straight shape Concealment indentation (12m wide). Abuts 11 properties. 	Connects north-south between Jackson Road and Gillon Street via PAW No. 29 (Essential).	High connectivity role: <ul style="list-style-type: none"> Low to moderate pedestrian use. Medium CPTED vulnerability (entrapment indentation present). Length (107m) is less than alternative PAW No. 7 (131m) with 11 adjoining landowners affected. Alternative north-south connection available via PAW Nos. 4 (Essential), 6 (Inaccessible), 30 (Non-Essential). 	Essential Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.
6 Short	No movement (no persons counted)	Nil Activity	Multiple services present: Water Corporation does not support PAW closure.	No CPTED measured as PAW inaccessible to public. <ul style="list-style-type: none"> Width (4m) Length (29m) Straight shape 	Currently inaccessible to public.	Low connectivity role: <ul style="list-style-type: none"> Currently inaccessible. Possible north-south connection with PAW No. 29 (Essential) to the south. 	Non-Essential Multiple services present (Water Mains, Power)

			Western Power easement or relocation to be determined if closed.	<ul style="list-style-type: none"> Abuts 2 properties. 		<ul style="list-style-type: none"> Role increases should PAW Nos. 5 (Essential) or 7 (Non-Essential) be closed Provides direct shortest and most direct path to Greenway. 	Recommend formalising current state of 'closure' with Department of Lands.
7 Long	No movement (no persons counted)	Moderate Activity Concentrated at north entry close to Jackson Road	Water Corporation recommends sewer easement if closed.	9 = medium vulnerability <ul style="list-style-type: none"> Width (3m) Length (131m) Curved shape Concealment indentation (present 10m wide) Abuts 12 properties. 	Connects north-south between Jackson Road and Gillon Street via PAW No. 28 (in the process of being closed).	Low connectivity role: <ul style="list-style-type: none"> Low to moderate pedestrian use. Medium CEPTED vulnerability (entrapment indentation present). Alternative connection available via PAW No. 8 (Essential). 	Non-essential Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.
8 Short	Little Movement (1 person counted)	Moderate Activity	Multiple services present: Water Corporation does not support closure. Western Power easement or relocation to be determined if closed.	11 = low vulnerability <ul style="list-style-type: none"> Width (4m) Length (31m) Straight shape Abuts 2 properties. 	Connects north-south between Jackson Road and Gillon Street via Boongala Close and PAW No. 27 (Essential).	Medium connectivity role: <ul style="list-style-type: none"> Low-moderate pedestrian use. Low CPTED vulnerability. Provides direct shortest and most direct path from public realm to Greenway. Role increases should PAW Nos. 7 (Non-Essential) or 9 (Non-essential) be closed. 	Essential Multiple services present (Water mains, Power) Recommend new directional signage and 1.5m footpath extension around bollards.
9 Long	No movement (no persons counted)	Moderate – High Activity	Water Corporation recommends sewer easement if closed.	8 = medium vulnerability <ul style="list-style-type: none"> Width (3m) Length (146m) Curved shape Concealment indentation present (10m wide) Abuts 16 properties. 	Connects north-south between Jackson Road and Gillon Street via both PAW No. 26 (Non-Essential) and 25 (Essential) . Identified in Joint Bike Plan as north-south bike path through PAW No. 9 (Non-Essential).	Low connectivity role: <ul style="list-style-type: none"> Low-moderate pedestrian use. Medium CPTED vulnerability (entrapment indentation present). Alternative connection available via PAW No. 8 (Essential) and the Lurnea Place cul-de-sac head. Potential impact to proposed bike path (Joint ToVP & CaSP Bike Plan). 	Non-Essential Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation. Identify alternative north-south bike path between Jackson Road and Gillon Street in future Bike Plan.
10 Short	Little Movement (1 person counted)	Moderate Activity	Multiple services present. Water Corporation does not support closure. Western Power easement or relocation to be determined if closed.	11 = low vulnerability <ul style="list-style-type: none"> Width(4m) Length (27m) Straight shape Abuts 2 properties. 	Connects north-south between Jackson Road and Kardan Court via Wandarra Close and the Greenway. Connects with other PA Nos. (11 (Non-Essential), 12 (Essential), 13 (Essential) via the Greenway.	High connectivity role: <ul style="list-style-type: none"> Low pedestrian use. Low CPTED vulnerability. Important north-south connection. Provides direct shortest and most direct path from public realm to Greenway. Alternative connection available via PAW No. 12 (Essential)). 	Essential Multiple services present (Water mains, Power). Recommend new directional signage and 1.5m footpath extension around bollards.
11 Long	9 Most movement	Low Activity Movement is dispersed widely along the PAW	Water Corporation recommends sewer easement if closed.	8 = medium vulnerability <ul style="list-style-type: none"> Widths vary (3m-5m-24m) Length (193m) Dogleg shape Concealment indentation present (5m wide) 	Connects north-south between Jackson Road and Kardan Court via the Greenway. Connects with other PAW Nos. 10 (Essential), 12 (Essential), 13 (Essential) via the Greenway.	Low connectivity role: <ul style="list-style-type: none"> Low – medium pedestrian use. Medium CPTED vulnerability (entrapment indentation present and overall dogleg shape). Alternative connections are available (PAW Nos. 10 (Essential) and 13 (Essential)). 	Non-Essential Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.

				<ul style="list-style-type: none"> Abuts 16 properties. 			
12 Short	No movement (no persons counted)	Low Activity Movement is distributed evenly along the PAW.	Multiple services present. Water Corporation does not support closure. Western Power easement or relocation to be determined if closed.	11 = low vulnerability <ul style="list-style-type: none"> Width (3.5m) Length (36m) Straight shape Abuts 2 properties. 	Connects north-south between Jackson Road and Kardan Court via the Greenway. Connects with other PAW Nos. (10 (Essential), 11 (Non-Essential), 13 Essential) via the Greenway.	Medium connectivity role: <ul style="list-style-type: none"> Low pedestrian use. Medium CPTED vulnerability. Provides direct shortest and most direct path to Greenway. Alternative connections are available (PAW Nos. 10 (Essential), 13 (Essential) and the Tublia Court cul-de-sac head. 	Essential Recommend new directional signage and 1.5m footpath extension around bollards. Multiple services present (Water mains, Power).
13 Short	Little Movement (2 persons counted)	Moderate-High Activity Movement is distributed evenly along the PAW.	Water Corporation recommends sewer easement if closed.	11 = low vulnerability PAW <ul style="list-style-type: none"> Width (3m) Length (26.5m) Straight shape Abuts 2 properties. 	Connects north-south between Jackson Road and Kardan Court via the Greenway. Connects with other PAW Nos. (10 (Essential), 11 (Non-Essential), 12 (Essential), 13 Essential) via the Greenway.	High connectivity role: <ul style="list-style-type: none"> Range of pedestrian uses from low to high. Low CPTED vulnerability. Important north-south connection. Provides direct shortest and most direct path to Greenway. Alternative connections are available (PAW No. 12 (Essential). 	Essential Recommend new directional signage and 1.5m footpath extension around bollards.
14 Long	Little Movement (2 persons counted)	High Activity Movement is distributed along the PAW with areas of concentration mid-way along path.	Water Corporation recommends sewer easement if closed.	10 = low vulnerability <ul style="list-style-type: none"> Width (5m) Length (79m) Straight shape. Abuts 7 properties. 	Connects north-south between Jackson Road and Lown Loop via PAW No. 15 (Essential). Not directly connected to east-west Greenway.	Medium connectivity role: <ul style="list-style-type: none"> A range of pedestrian use from low to high. Low CPTED vulnerability. Alternative connections to the Greenway and PAW No. 15 (Essential) are available via the Chica Court cul-de-sac head (entry 40m to east). 	Non-Essential Recommend new directional signage and 1.5m footpath extension around bollards.
15 Short	Little Movement (2 persons counted)	Moderate Activity Movement is distributed evenly along the PAW.	Multiple services present: Water Corporation does not support closure. An ATCO Gas easement may be required if closed. Western Power easement or relocation to be determined if closed.	9 = medium vulnerability <ul style="list-style-type: none"> Width (3m) Length (32m) Straight shape Abuts 2 properties. 	Connects north-south between Jackson Road and Lown Loop via PAW No. 14 (Non-Essential) and Chica Court cul-de-sac head. Connects east-west to Walanna Drive via Wonil Way. Connects north-south between Walanna Drive via Lowan Loop. Not directly connected to east-west Greenway.	Medium connectivity role: <ul style="list-style-type: none"> A range of pedestrian use from low to high. Medium CPTED vulnerability. Important north-south and east-west connections. Connects to 2 bus stops on Walanna Drive. Abuts large Department of Communities site (No. 14 Bunderra Close). PAW No. 15 (Essential) provides access to an isolated area of POS unconnected from the Greenway proper. Closure has the potential to reduce surveillance and safety. Provides direct shortest and most direct path to Greenway. 	Essential Multiple services present (Water mains, ATCO, Power). Recommend new directional signage and 1.5m footpath extension around bollards. Recommend review should No. 14 Bunderra Close be redeveloped.
16 Long	Most Movement (8 persons counted)	High Activity Movement is concentrated along the north-south leg of PAW	Multiple services present: Water Corporation does not support closure. Telstra does not object. Western Power easement or relocation to be determined if closed.	6 = medium vulnerability <ul style="list-style-type: none"> Widths vary: <ul style="list-style-type: none"> 3m east-west, 5m north-south Length (100m) 90 degree corner. CCTV available from Kwel Court Playground. 	Connects north-south between Jackson Road and Lowan Loop via Bundarra Close. Connects east-west between: <ul style="list-style-type: none"> Bunderra Close and Lowan Loop; and Walanna Drive underpass via PAW No. 17 (Essential). 	Medium connectivity role: <ul style="list-style-type: none"> High pedestrian use. Medium CPTED vulnerability. Important north-south and east-west connections. Connects with Kwel Court Playground (south) and bus stops on Jackson Road. Design flaws (shape) reduce role in movement network. 	Essential Multiple services present (Water mains, Power, Telstra). Recommend new directional signage and 1.5m footpath extension around bollards, mirrors.

							Recommend review should Nos. 14-16 Bunderra Close be redeveloped.
17	Most Movement (26 persons counted)	High Activity Movement is distributed evenly along the PAW	Nil services	9 = Medium vulnerability <ul style="list-style-type: none"> Width (6m) Length (90m) Straight shape CCTV available within PAW Abuts 3 properties. 	Connects east-west between Walanna Drive Underpass and Gillon Street via Kwel Court.	High connectivity role: <ul style="list-style-type: none"> High pedestrian use. Medium CPTED vulnerability. Important east-west connection. Connects to Curtin, Kwel Court Playground, Village Green shopping precinct and bus stops on Walanna Drive. 	Essential Recommend new directional signage and 1.5m footpath extension around bollards.
18 Long	Some Movement (2 persons counted)	Low Activity Movement is distributed evenly along the PAW	Nil services	10 = Low vulnerability <ul style="list-style-type: none"> Width (3m) Length (30m) Straight shape Abuts 2 properties including 1 Department of Communities group dwelling site (No. 36 Walanna Drive). 	Connects north-south between Walanna Drive and Melinga Court via PAW No. 21 (Non-Essential). Not directly connected to northern or western areas of Greenway.	Low to Medium connectivity role: <ul style="list-style-type: none"> Low pedestrian use. Low CPTED vulnerability. Connects to fast food restaurant and bus stops on Walanna Drive. PAW Nos 18 (Non-Essential) and 21 (Non-Essential) provide access to an isolated area of POS unconnected with the wider Greenway. Closure of either PAW has the potential to reduce its surveillance and safety. Alternative connections are available via PAW No. 19 (Essential). 	Non-Essential Recommend new directional signage and 1.5m footpath extension around bollards. Recommend PAW closure and amalgamation of POS into PAW No. 17 should PAW No. 21 be closed or No. 36 Walanna Drive be redeveloped.
19 Long	No movement (no persons counted)	High Activity Movement is distributed evenly along the PAW	Water Corporation recommends sewer easement if closed.	9 = Medium vulnerability <ul style="list-style-type: none"> Width (3m) Length (30m) Straight shape Abuts 2 properties. 	Connects north-south between Walanna Drive and Mireen Court via Melinga Court and through an area of POS at the Mireen Court cul-de-sac head. Not directly connected to northern or western areas of Greenway.	High connectivity role: <ul style="list-style-type: none"> High pedestrian use. Medium CPTED vulnerability. Important north-south connection. Connects to fast food restaurants and bus stops on Walanna Drive. PAW No. 19 (Essential) provides access to an isolated area of POS unconnected with the wider Greenway. Closure of PAW has the potential to reduce its surveillance and safety. 	Essential Recommend new directional signage and 1.5m footpath extension around bollards.
20 Short	Most Movement (8 persons counted)	High Activity Movement is distributed towards the east of the PAW.	Multiple services present: Telstra does not object. NBN Co comment required.	12 = Low vulnerability <ul style="list-style-type: none"> Width (5m) Length (50m) Straight shape Open sided bollards to private internal driveway (No. 38 Walanna Drive). CCTV available on PAW. Abuts 2 properties both grouped dwelling sites (No. 38 Walanna Drive owned by Department of Communities and privately owned No. 24 Melinga Court) 	Connects east-west between Walanna Drive and Melinga Court. Connections to wider network: <ul style="list-style-type: none"> Kwel Court Playground via PAW No. 17 (Essential). Mireen Court via PAW No. 22 (Essential). Boona Court via PAW No. 24 (Essential). 	High connectivity role: <ul style="list-style-type: none"> High pedestrian use. Medium CPTED vulnerability. Important east-west connection. Connects with Walanna Drive Underpass, shopping centre and bus stops on Walanna Drive. Provides direct shortest and most direct path to Greenway. 	Essential Multiple services present (NBN Co and Telstra). Recommend new directional signage and 1.5m footpath extension around bollards.
21 Short	Some Movement (3	Low Activity	Nil services	10 = low vulnerability PAW <ul style="list-style-type: none"> Width (5m) Length (23m) 	Connects north-south between Melinga Court and PAW No. 18 (Non-Essential).	Low connectivity role: <ul style="list-style-type: none"> Low pedestrian use. Low CPTED vulnerability. 	Non-Essential

	persons counted)			<ul style="list-style-type: none"> Straight shape. Abuts 3 properties including a Department of Communities group dwelling site (No. 38 Walanna Drive). 		<ul style="list-style-type: none"> Connects to bus stops on Walanna Drive. Alternative connections are available via PAW No. 19 (Essential). PAW Nos 18 (Non-Essential) and 21 (Non-Essential) provide access to an isolated area of POS unconnected with the Greenway. Closure of either PAW has the potential to reduce its surveillance and safety. 	<p>Recommend new directional signage and 1.5m footpath extension around bollards.</p> <p>Recommend closure should PAW No. 18 be closed or No. 38 Walanna Drive be redeveloped.</p>
22 Long	Plenty of movement (5 persons counted)	Low Activity	<p>Multiple services present:</p> <p>Water Corporation does not support closure.</p> <p>Water Corporation recommends sewer easement if closed.</p> <p>Telstra does not object.</p> <p>Western Power easement or relocation to be determined if closed.</p> <p>NBN Co comment required.</p>	<p>7 = Medium vulnerability</p> <ul style="list-style-type: none"> Width (4.5m) Length (70m) 90 degree corner creates concealment opportunity. Abuts 4 properties including 2 privately owned grouped housing developments. 	<p>Connects east-west between Melinga and Mireen Courts via POS located at Mireen Court cul-de-sac head.</p> <p>Connections to wider network:</p> <ul style="list-style-type: none"> Mireen Court and Boona Court via PAW No. 24 (Essential); and Melinga Court and Walanna Drive Underpass via PAW No. 20 (Essential). <p>Not directly connected to northern or western areas of Greenway.</p>	<p>Low to medium connectivity role:</p> <ul style="list-style-type: none"> Low to medium pedestrian use. Medium CPTED vulnerability. Important east-west connection. Connects to bus stops on Walanna Drive. Design flaws (shape) reduce safety in movement network. 	<p>Essential</p> <p>Multiple services present (Water Mains, Sewer, NBN, Power, Telstra)</p> <p>Recommend new directional signage, 1.5m footpath, mirrors, extension around bollards and lighting along east-west path.</p> <p>Recommend review should Nos. 24 or 27 Melinga Court be redeveloped.</p>
23 Long	Little Movement (1 person counted)	High Activity	Nil services	<p>7 = Medium vulnerability</p> <ul style="list-style-type: none"> Width (3m) Length (26m) Straight shape Abuts 2 properties. 	<p>Connects north-south between Walanna Drive and PAW No. 24 (Essential).</p> <p>Not directly connected to northern or western areas of Greenway.</p>	<p>High connectivity role:</p> <ul style="list-style-type: none"> Low to High pedestrian use. Medium CPTED vulnerability. Important north-south connection. Connects to fast food restaurants and bus stops on Walanna Drive. PAW Nos. 23 (Essential) and 24 (Essential) provide access to an isolated area of POS unconnected with the wider Greenway. Closure of either PAW has the potential to reduce its surveillance and safety. 	<p>Essential</p> <p>Recommend new directional signage and 1.5m footpath extension around bollards.</p>
24 Short	Little Movement (2 persons counted)	Low Activity	<p>Multiple services present:</p> <p>Water Corporation does not support closure of water mains.</p> <p>Water Corporation recommends sewer easement if closed.</p> <p>Telstra does not object</p> <p>Western Power easement or relocation to be determined if closed.</p>	<p>10 = low vulnerability PAW</p> <ul style="list-style-type: none"> Width vary (3m, 15) Length (112m) Straight shape Abuts 3 properties including 1 grouped housing site owned by Department of Communities at No. 20 Boona Court. 	<p>Connects east-west between Mireen and Boona Courts.</p> <p>Connections to wider network:</p> <ul style="list-style-type: none"> Mireen Court and Melinga Court via PAW No. 22 (Essential). Not directly connected to northern or western areas of Greenway. 	<p>Low to Medium connectivity role:</p> <ul style="list-style-type: none"> Low to medium pedestrian use. Low CPTED vulnerability. Important east-west connection. PAW Nos 23 (Essential) and 24 (Essential) provide access to an isolated area of POS unconnected with the wider Greenway. Closure of either PAW has the potential to reduce its surveillance and safety. 	<p>Essential</p> <p>Multiple services present (Water mains, Sewer, Telstra, Power)</p> <p>Recommend new directional signage and 1.5m footpath extension around bollards.</p> <p>Recommend review should No. 20 Boona Court be redeveloped.</p>

25 Short	Plenty of movement (6 persons counted)	Low Activity	Multiple services present: Water Corporation does not support closure. Water Corporation recommends sewer easement if closed. Western Power easement or relocation to be determined if closed.	9 = Medium vulnerability <ul style="list-style-type: none"> Width vary (3m, 15m) Length (25m) Straight shape Abuts 2 properties (1 owned by Department of Communities) 	Connects north-south between Gillon Street and Jackson Road via the Lurnea Place cul-de-sac head.	High connectivity role: <ul style="list-style-type: none"> Low to medium pedestrian use. Medium CPTED vulnerability. Important north-south connection. Connects to bus stops on Gillon Street. Provides direct shortest and most direct path to Greenway. 	Essential Multiple services present (Water Mains, Sewer, Power). Recommend new directional signage and 1.5m footpath extension around bollards. Preferred north-south local bike route location connecting through Lurnea Place.
26 Long	Little Movement (1 person counted)	Moderate Activity	Water Corporation recommends sewer easement if closed.	7 = Medium vulnerability <ul style="list-style-type: none"> Width vary (3m, 12m) Length (90m) Curved shape Concealment indentation present (15m wide). Abuts 7 properties. 	Connects north-south between Gillon Street and Jackson Road via PAW No. 8 (Essential) and Boongala Place. Identified in Joint Bike Plan as north-south bike path through PAW No. 9 (Non-Essential).	Low to Medium connectivity role: <ul style="list-style-type: none"> Low to medium pedestrian use. Medium CPTED vulnerability. Alternative north-south connections to Jackson Road are available via: <ul style="list-style-type: none"> PAW No. 25 (Essential) to Lurnea Place; and PAW No. 27 (Essential) via PAW No. 8 (Essential). 	Non-Essential Recommend new directional signage and trial fencing off concealment indentation. Identify alternative north-south bike path between Jackson Road and Gillon Street in future Bike Plan.
27 Short	Little Movement (2 persons counted)	Low Activity	Multiple services present: Water Corporation does not support closure. Western Power easement or relocation to be determined if closed.	10 = low vulnerability PAW <ul style="list-style-type: none"> Width (3m) Length (32m) Straight shape Abuts properties. 	Connects north-south between Gillon Street and Jackson Road via PAW No. 8 (Essential) and Boongala Place.	High connectivity role: <ul style="list-style-type: none"> Low to medium pedestrian use. Medium CPTED vulnerability. Important north-south connection. Connects to bus stops on Gillon Street. Provides direct shortest and most direct path to Greenway. 	Essential Multiple services present (Water mains, Power). Recommend new directional signage and 1.5m footpath extension around bollards.
28 Long	Little Movement (2 person counted)	High Activity	Water Corporation recommends sewer easement if closed.	7 = Medium vulnerability <ul style="list-style-type: none"> Width vary (3m, 8m) Length (130m) Curved shape with dog leg kink Abuts 12 properties. 	Connects north-south between Gillon Street and Jackson Road via PAW No. 7 (Non-Essential) or PAW No. 8 (Essential).	Low connectivity role: <ul style="list-style-type: none"> Low to high pedestrian use. Medium CPTED vulnerability. Alternative north-south connections to Jackson Road are available via PAW Nos. 27 (Essential) and 29 (Essential). 	Non-Essential No improvements recommended as PAW is subject to closure application with DPLH.
29 Short	Some Movement (4 persons counted)	Moderate Activity	Multiple services present: Water Corporation does not support closure. NBN Co comment required	9 = Medium vulnerability <ul style="list-style-type: none"> Width (3m) Length (37m) Straight shape Path to road missing. Abuts 2 properties. 	Connects north-south between Gillon Street and Jackson Road via PAW Nos. 5 (Essential) and 7 Non-(Essential).	High connectivity role: <ul style="list-style-type: none"> Low to medium pedestrian use Medium CPTED vulnerability Provides direct shortest and most direct path to Greenway. 	Essential Multiple services present (Water mains, NBN Co). Recommend new directional signage, 1.5m footpath extension around bollards and additional path connecting between PAW and road.
30 Long	No movement (no persons counted)	Moderate to high Activity Movement concentrated	Water Corporation recommends sewer easement if closed.	7 = medium vulnerability <ul style="list-style-type: none"> Width varies (5m, 8.4m) Length (130m) Curved shape Abuts 15 properties. 	Connects north-south between Gillon Street and Jackson Road via PAW No. 5 (Essential) and 4 (Essential).	Low connectivity role: <ul style="list-style-type: none"> Low to moderate pedestrian use. Medium CPTED vulnerability. Connects to bus stops on Gillon Street. Alternative routes available via PAW Nos. 29 (Essential) and 31 Essential). 	Non-Essential Recommend new directional signage, 1.5m footpath extension around bollards and

		toward southern entry					trial fencing off concealment indentation.
31 Short	Little Movement (2 persons counted)	Low Activity	Multiple services present: Water Corporation does not support closure. Western Power easement or relocation to be determined if closed.	9 = medium vulnerability <ul style="list-style-type: none"> Width 3m Length (39m) Straight shape Path to road missing. Abuts 2 properties. 	Connects north-south between Gillon Street and Jackson Road via PAW No. 4 (Essential).	High connectivity role: <ul style="list-style-type: none"> Low pedestrian use. Medium CPTED vulnerability. Important north-south connection. Provides direct shortest and most direct path to Greenway. 	Essential Multiple services present (Water mains, Power). Recommend new directional signage and additional path connecting between PAW and road.
32 Long	Most movement (8 persons counted)	High Activity Movement is concentrated toward the southern entry	Water Corporation recommends sewer easement if closed.	7 = medium vulnerability <ul style="list-style-type: none"> Width varies (3m, 16.5m) Length (212m) Curved shape Concealment indentation (6-9m wide) Abuts 20 properties. 	Connects north-south between Gillon Street and Jackson Road via PAW Nos. 1 (Essential) and 3 Non-Essential).	Low connectivity role: <ul style="list-style-type: none"> High pedestrian use. Medium CPTED vulnerability. Connects to bus stops on Gillon Street. Alternative routes available via PAW No. 31 (Essential). 	Non-Essential Recommend new directional signage, 1.5m footpath extension around bollards and trial fencing off concealment indentation.

