



REALLOCATING STREET SPACE FOR PEOPLE WALKING AND CYCLING

A CASE STUDY OF CASTLEREAGH STREET, SYDNEY

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INTRODUCTION

For the past 20 years, the City of Sydney (the ‘City’) has been re-imagining its streets as places for people; transforming streets from car-dominated to *a city for walking, cycling, and public transport*. Working within the existing street infrastructure, the City has been using a people-centred framework to assess how street space is currently used and allocated to determine how street space can be rebalanced for walking and cycling, whilst still maintaining core driving access, using a Vision and Validate approach within a Movement and Place practice (defined in the next section). This paper presents and evaluates a case study on Castlereagh Street, Sydney, which provided more space for people walking and cycling. This case study highlights the City’s pragmatic approach and provides lessons learned when working in a car-dominated and multifaceted urban regulatory environment.

This paper presents and builds knowledge about professional practice in observing, measuring, transforming, and designing city streets (referencing the approach posed by Bosselmann, 2008), working within the current multi-layered Australian urban regulatory and policy environment.

Photo Credit: Roy Ryu, Pexels, Cyclist Passing Sydney Harbour Bridge on [Sunny Day, Sydney, Australia, 2025](https://www.pexels.com/photo/cyclist-passing-sydney-harbour-bridge-on-sunny-day-31609917/).
<https://www.pexels.com/photo/cyclist-passing-sydney-harbour-bridge-on-sunny-day-31609917/>

The City's approach to transform Castlereagh Street aligns with other recent city transformation strategies and projects globally such as those undertaken in Lisbon, London, Paris, San Francisco and New York (see for example: Greater London Authority, 2025; Buehler & Pucher, 2021; C40 Cities Climate Leadership Group, 2019; San Francisco Planning, 2025; Urban Cycling Institute & Racelet, 2025; New York City Department of Transport, 2023). Lisbon, for example, began by setting a vision for people-focused, climate-resilient streets, and then worked to achieve this vision through pilot projects, modelling, and design iterations. The Eixo Central and Rua Morais Soares projects in Lisbon applied evidence-based methods to reallocate street space, balancing pedestrian, cycling, and traffic functions through data-driven testing and stakeholder engagement (Anciaes, Pinheiro, Somsen, & Henriques, 2022). The Castlereagh Street case study adds to this body of practice-based knowledge, providing a case study in a car-dominated urban centre.

VISION AND VALIDATE APPROACH WITHIN A MOVEMENT AND PLACE FRAMEWORK

Vision and Validate is a method that starts with a transport mode share vision for a place, and then decides the outcomes needed to deliver that vision, rather than using past travel behaviour to forecast future demand. Transport planning has traditionally been based, and is still largely based, around a modelling approach where planners use the existing transport base case, assume a future growth rate, and predict the future. This is known as Predict and Provide. Generally, the model will measure the number of people driving, assume more driving based on a growth rate, and then design infrastructure to facilitate this growth (NSW Government, 2024). A Vision and Validate approach begins with an overall vision for a place, in the City's case to be *a city for public transport, walking, and cycling*, and then designs the infrastructure to achieve this vision, usually by developing a range of design options able to validate, or enable, the vision (NSW Government, 2025b).

Movement and Place is the adopted New South Wales (NSW) Government transport framework. It is founded on the Link and Place method, which establishes that roads and streets have two competing functions: a movement function (referred to as a link) and a place function (Jones, Boujenko, & Marshall, 2007). Using this method, design solutions for a street need to consider both the link/movement and place users of that street with solutions varying *"according to the balance of significance of these two [user needs] at any location"* (Jones, Marshall, & Boujenko, 2008). Modified Link and Place frameworks have been applied intentionally to transport planning frameworks globally, including in Australia, the United Kingdom, New Zealand, and China.

In NSW, the Government's Movement and Place framework recognises foremost that streets must perform these two roles and that these roles have different objectives and priorities. To do this, the framework *"facilitates an iterative and collaborative process for the planning and design of movement systems and successful places"* (NSW Government 2025b). As part of this framework, the NSW Government adopted a Road User Space Allocation Policy, which provides a hierarchy of road users, with people walking and cycling at the top of the road space allocation framework (NSW Government, 2021). Movement and Place-based methods include visualising the road space allocation for each user group, considering the adjacent land use, and determining the required access needs for users and land uses.

WALKING AND CYCLING IN THE CITY OF SYDNEY

The City is the local government authority for central Sydney, NSW, Australia, and the surrounding inner-city villages. It is home to 237,000 people and to Australia's largest working population of 500,000 people per day (Australian Bureau of Statistics, 2024; idcommunity, 2025). The Sydney city centre comprises a cluster of financial and professional industries, along with residential, entertainment, tourism, retail, and cultural facilities. Providing the "invitation" to walk and cycle, quoting the public life expert Jan Gehl (Matan & Newman, 2016), is important to the City.

Walking and cycling are crucial modes on all days of the week, and all times of day. In the city centre, people make almost 1.3 million trips per day, of which around 94% are walking trips (Household Travel Survey 2018-2019; NSW Government 2025a). Since 2015, in the city centre, there has been a 12% decline in motor vehicles and a 11.4% increase in public transport use in the morning peak (Transport for NSW as cited in Gehl Architects, 2020), with around 82% of people accessing the city centre by public transport.

Compared to the greater Sydney area, residents in the City have low car ownership rates, with around 37% of households not owning a car compared to 11% in greater Sydney area (2021) (Australian Bureau of Statistics, 2024). 31% of City residents walk to work, and 27% use public transport to get to work, which usually includes at least one walking trip (Australian Bureau of Statistics, 2024). Cycling in the area has nearly tripled over the past 15 years, from 19,000 riders in 2010 to 55,000 riders during the peak periods in 2025, as measured through twice-yearly AM and PM three-hour peak period counts conducted over one day at 68 sites (City of Sydney, 2025a; **Figure 1**). This invitation includes infrastructure that makes it safe and possible to walk and cycle, along with the elements that make it comfortable and fun (**Figure 2**).

The City is planning for significant growth in walking and cycling. The number of people in the City's local area daily, including residents and workers, is projected to grow from the current 1.2 million to 1.7 million in 2036, and to 2 million in 2050 (City of Sydney, 2020).

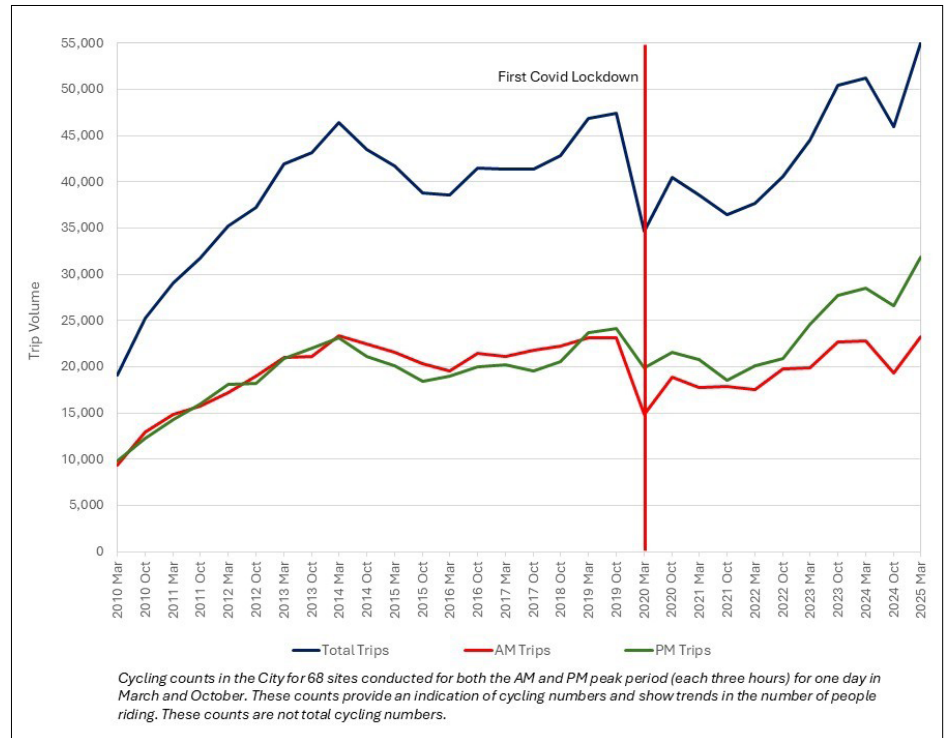


Figure 1: Cycling counts in the City of Sydney (City of Sydney, 2025a)



Figure 2: Hierarchy of walking needs (City of Sydney, 2024a); Source: Matan (2021), adapted from Pedestrians First¹² and Alfonzo¹³

The number of people riding e-scooters and e-bikes, the number of food delivery riders, and the number of share bike rentals have all increased. These are significant contributing factors to the overall increase in the number of people riding. These trips have also changed the way people ride, with more trips now occurring in the afternoon (4 to 7 pm) (**Figure 1**).

THE CITY'S VISION TO BE A CITY FOR WALKING AND CYCLING

The City's vision is to be *a city for walking, cycling, and public transport* (Strategic Direction 5, City of Sydney, 2025b, p. 64). A key objective to achieve this is the rebalancing of existing street space to be reflective of use and place: from motor vehicles to people, places, and planting. The City's 'A City for Walking' Strategy and Action Plan provides the framework to be a city where walking is possible, safe, comfortable, and, importantly, fun (City of Sydney, 2024a; **Figure 2**).

The City's Cycling Strategy and Action Plan priorities are to connect the bike network, support people to ride, and to lead by example (City of Sydney, 2018). The City's goal is for 10% of all trips in the city to be made by bike, and a network that is safe for a 12-year-old to ride alone. The City's Bike Network Plan shows the completed and proposed routes across the city (City of Sydney, 2025c). Since 2007, the City has built, or is planning, 46% of the local and regional bike network, equating to around 26 kilometres of separated cycleways, 66 kilometres of shared paths (paths shared between people walking and people cycling), and 46 kilometres of other cycling infrastructure.



Photo Credit: Pat Saengcharoen, Pexels, Cyclist in Sydney City Street at Dusk, Australia, 2025.
<https://www.pexels.com/photo/cyclist-in-sydney-city-street-at-dusk-31678359/>

Priorities to facilitate walking and cycling

To improve walking and cycling, several of the City's key priorities include:

- Reallocating street space to people walking and cycling (footpaths and cycleways)
- Facilitating access for people cycling on one-way streets
- Improving crossings for people walking.

The City has been undertaking this work on large scale transformations, such as the public domain works as part of the light rail and pedestrianisation of its main street, George Street, and the construction on new separated cycleways, to smaller interventions that make it easier to walk and cycle, such as extending footpaths to make crossing distances shorter, and advocating for reduced wait time at signals. To be *a city for walking and cycling* takes interventions at all scales, to make sure that the "experience envelope" of the city is easy, positive, and inviting for people to use these modes (Engwicht, 2005).

Reallocating street space to people walking and cycling

The provision of walking and cycling infrastructure has many co-benefits, including health, safety, economic, environmental, and social benefits (see, for example, Ding, et al., 2024, and Matan A., 2017). In established cities, such as the Sydney city centre, providing the necessary infrastructure for walking and cycling requires reallocating existing street space from motor vehicles to these modes. This is rebalancing the existing street space to reflect the use.

The City's focus on rebalancing street space is aligned with shifts of thinking occurring in other major cities, such as Paris, New York, and Barcelona, where street space is imagined not just as space for motor vehicles but as space for other forms of mobility (see for example: Buehler & Pucher, 2021; Matan & Newman, 2016; C40 Cities Climate Leadership Group, 2019). Cox maintains that *"Removing the unexamined and frequently unchallenged central obstacle [the space requirements of motor vehicles] allows a re-imaging of the urban space and realization that if car traffic is not made central, that street space is not a scarce commodity but sufficient for human scale use"* (Cox, 2021, p. 11).

The current distribution of street space throughout much of the city does not reflect the use. In the city centre, around 40% of street space is allocated to footpaths and public space, even though there are 5 times more people walking than driving on an average street (University of NSW research for City of Sydney, 2022). Some of the city centre streets carry 3 to 4 times more people walking than the adjacent motorways carry people driving (using 2019 data; University of NSW research for City of Sydney, 2022). While there are footpaths on both sides of the streets throughout most of the Sydney city centre, many of the footpaths are crowded, and have inadequate space for all the infrastructure required to be placed on the footpath (for example, electricity boxes, traffic signage, parking meters, along with walking supportive infrastructure such as seating, outdoor dining, and street trees).

The City has completed approximately 59% of the regional bike network; this uses 1–2% of the City's road space (City of Sydney, 2022). Separated cycleways are an important contributor to encouraging cycling (Crane, Rissel, Greaves, Standen, & Ming Wen, 2016). When the City builds new separated cycleways, it is common for the number of cycling trips on that street to double within one or two years, with separated cycleways experiencing between 3 and 8.5 times the amount of people riding within three years.

This growth is higher in the city centre, and in the well-connected sections of the cycleway. In 2017, 52% of the 1,500 respondents to the City's Active Travel Survey felt safe riding. In 2024, 79% of respondents riding felt safe, highlighting the impact of building cycling infrastructure (City of Sydney, 2024b).

Building the cycling network and expanding footpaths within an established urban area where street space is distributed to existing uses, is challenging, and requires complex decision-making and negotiations. Approval processes are often complicated. For example, in NSW, alterations on streets that impact traffic signals require approval from the state authority, along with local government approval. This means that many walking and cycling projects need to meet multi-layered approval and policy requirements. Furthermore, in Australia, moto-normative attitudes prevail, making reductions to vehicle travel and parking challenging. Many people still see streets predominantly as places for motor vehicles, making it difficult to prioritise people walking or riding. The layers of government and overlapping policies make it complex to deliver consistent, people-focused outcomes, particularly when space is already distributed.

Access for bikes on city centre one-way streets

One-way streets in the inner city create significant challenges for people riding bikes, restricting access to direct and safe routes. The Sydney city centre has many multi-lane, one-way streets used by buses, small trucks, and vans, making riding in mixed traffic uncomfortable and unsafe. These one-way streets often force riders to take longer, indirect routes and discourage riding. In some cases, one-way networks push riders onto busier routes with higher traffic volumes and speeds, further compromising safety and comfort. This lack of direct access disproportionately affects those using bikes for short, local trips, and reduces the appeal of riding as a convenient everyday mode of transport. To encourage bike riding, the City is creating safe, legal contra-flow access using protected bike lanes or regulatory signs on many one-way streets in our area.

Improving crossings for people walking

Many of the intersections in the Sydney city centre have traffic signals. While these signals enable people to cross the street, they are a major cause of delay for people walking, and waiting at signals can account for a considerable proportion of the time it takes to walk somewhere (Cohen & Almarwani, 2022). Inconvenient intersections, particularly those with long wait times, decrease how far people are willing to walk by some 10% to 20% (Tolley, 2018). In our area, a single turn in a path was found to be equivalent of adding 18 meters to a walking trip (University of NSW research for City of Sydney, 2022). For short walking trips, this adds to the perceived distance of a trip, reducing the distance people are willing to walk.

Reducing waiting time at signals increases safety for people walking. On average, global research shows that people will wait at signals for about 30 seconds (Miladi, 2021). After this time, the proportion of people who will undertake risky behaviour increases (Miladi, Waygood, Cloutier, Wang, & Yas, 2025; Brosseau, Zangenehpour, Saunier, & Miranda-Moreno, 2013; Ren, Zhou, Wang, Zhang, & Wang, 2011). The more legs people must cross, the riskier behaviour for each subsequent leg (Queensland Department of Transport and Main Roads, 2019). Additionally, people waiting at signals overestimate the delay and start feeling annoyed at around 6 – 22 seconds (Turner, Vallyon, Binder, & Hodgson, 2008). The longer people must wait, the more pedestrian congestion occurs, and the more storage space for people is needed on the footpath. Research of 9 intersections in the Sydney city centre in 2019 found that the average wait time across the intersections was around 70% longer than demonstrated acceptable wait times (Yeung, 2019). City data shows that there is a correlation between the proportion of people who cross against the signals and the combined duration of the red and flashing periods, with crossing against the signals increasing exponentially (Figure 3).

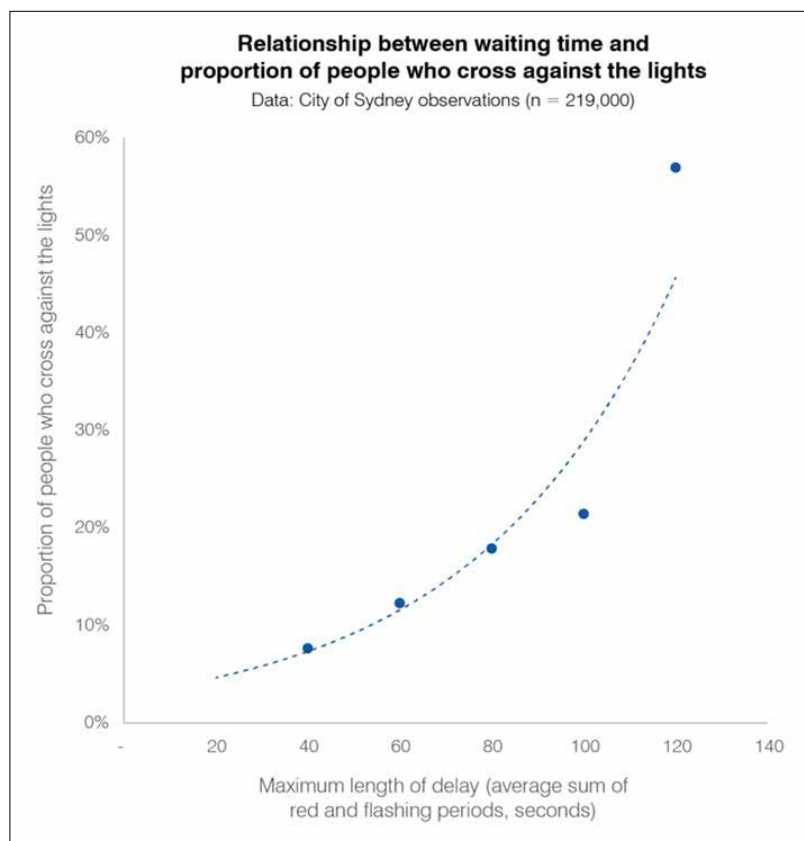


Figure 3: Relationship between waiting time and proportion of people who cross against the lights (City of Sydney data at 20 locations)

CITY OF SYDNEY'S APPROACH: VISION AND VALIDATE WITHIN A MOVEMENT AND PLACE FRAMEWORK, AND BUILDING WITHIN THE KERBS

To reallocate street space, in appropriate locations, from motor vehicles to people walking and cycling, along with providing access for people cycling on one-way streets, and to improve crossings for people walking, the City takes a Vision and Validate approach, based on a Movement and Place framework (defined in above).

This approach is supported by a pragmatic location-specific design and construction methodology, which includes building within the existing kerbs as much as possible, and maximising kerbside lane efficiency by time of day. The City's process is iterative and inclusive, involving ongoing engagement and feedback from the people and communities directly affected. This includes, where possible, using stakeholder feedback to inform the design and staging construction to minimise disruption to businesses, residents, and adjacent construction sites.

We also work closely with the State Government to facilitate outcomes in aspects of the transport system we do not control. For example, the City does not control traffic signals; we advocate to, and work with, the NSW Government to reduce wait times for people walking, and to prioritise safe crossing for riders, at traffic signals.

As most of the streets within the city centre are existing, with established land uses and access arrangements, the City's aim is to build cycleways within existing infrastructure, such as kerbs and bulbouts (kerb returns), as much as possible. To do this, the City also tries to manage street space by time of day for the highest value uses. For example, in the afternoon peak period, a kerbside lane can be used as a bus lane, while the rest of the day, the lane could be for short stay parking, and in the evenings, for taxis.

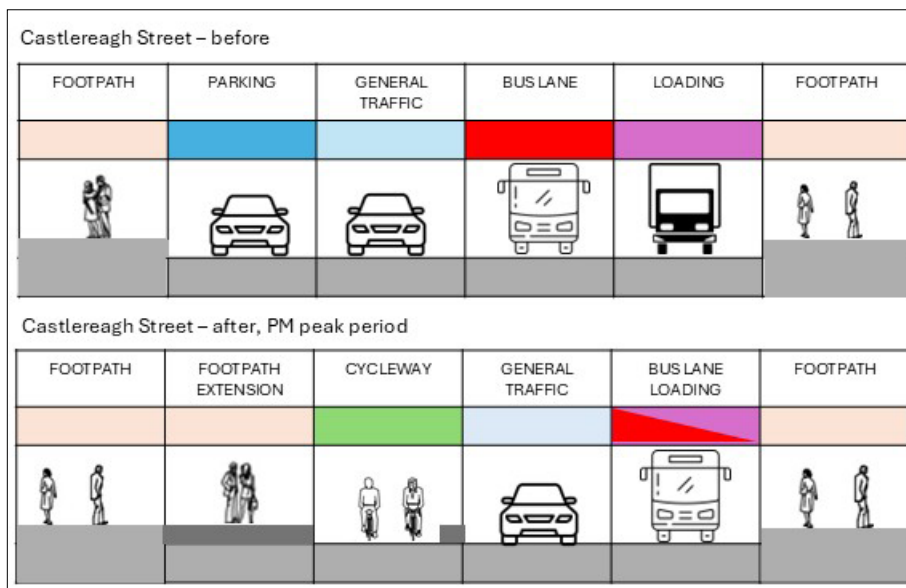


Figure 4: Castlereagh Street carriageway space allocation before (above) and after (below) showing the PM peak street period road space allocation



Photo Credit: Kate Trifo, Pexels, Black Sedan On Road, Sydney, NSW, Australia, 2020.
<https://www.pexels.com/photo/black-sedan-on-road-4019650/>

CASE STUDY: CASTLEREAGH STREET, SYDNEY

While the City has been working throughout the city centre to improve walking and cycling access and infrastructure, the recent implementation of footpath improvements and a two-way cycleway along Castlereagh Street is reflective of our method using a Vision and Validate approach embedded in a Movement and Place framework. The project on Castlereagh Street reallocated two out of four motor vehicle lanes for people, resulting in:

- One lane to widen the existing footpath by 2.6 meters (western side) for most of the project length
- One lane for a two-way separated cycleway (western side) between Liverpool and King Streets (where it connects into existing cycleways)
- One lane of general vehicle traffic
- One lane shared by time-of-day between loading and servicing vehicles and buses
- Streetscape upgrades, including new public seating and street trees (Figures 4 and 5).

Castlereagh Street is a one-way, north-south street, connecting the city centre towards the waterfront. It runs parallel to the City's primary main street, George Street. The corridor is home to diverse, evolving and complex land uses including a new Metro station (with driveway access to Castlereagh Street; opened late 2024), high-end boutiques and restaurants, hotels, high density residential, a synagogue, the only city centre fire station, along with business and commercial uses. It has numerous driveway and car park entries, including emergency vehicle access for the fire station, and a walking entrance to a major shopping centre.

Prior to the project, the distribution of space was not reflective of the use of the street; people walking made up half to three-quarters of trips on the project blocks but were only provided with around a third of the space, and four lanes were dedicated to motor vehicles (Figure 4). The key objectives of the project were: to provide more equal distribution of space for all of the people using the corridor; to improve the safety and connectivity of people cycling; to improve the comfort, safety and amenity for people walking; to enable the space to be used more efficiently by buses and loading; and to provide more space for economic activity, more street furniture, more street trees and to reduce the noise and temperatures of the street.

The City undertook an intercept survey on Castlereagh Street in 2020, prior to the project. Of the 123 respondents, congestion of road traffic (24%), congestion on the footpaths (9%), and noise (8%) were the key issues. 53% of respondents said the area lacked seating (Taverner Research for the City of Sydney, 2020).

The cycleway portion of the project was part of the City's Cycling Strategy and Action Plan, the NSW Government's Principal Bicycle Network, and nominated as a 'strategic cycleway network route' in the NSW Government's Sydney City Centre Access Strategy (City of Sydney, 2018; NSW Government, 2013). The City designed and developed the project in collaboration with the NSW Government. The NSW Government funded the cycleway portion.

The NSW Government constructed the first section of the cycleway, between Hay Street and Liverpool Street, in 2015. At that time, further construction of the cycleway north to King Street was not progressed, and community sentiment towards extending the project was not favourable.



Photo Credit: Adam J.W.C, Wikimedia Commons, Corner of King and Castlereagh Street, Sydney, New South Wales, 2009. https://commons.wikimedia.org/wiki/File:Corner_of_King_and_Castlereagh_Streets,_Sydney.jpg

Since 2015, several key transport changes happened that enabled the opportunity to reallocate street space to create a wider footpath and extend the cycleway on Castlereagh Street. These transport changes included the implementation of a light rail line and the pedestrianisation of George Street in 2020, which reduced traffic in the city centre (Transport for NSW, 2018), along with the consolidation of the bus routes onto Elizabeth Street from Castlereagh Street by the NSW Government. Changes to the bus routes resulted in the bus lane on Castlereagh Street only being needed for the PM peak period. This offered the opportunity to explore using the lane for other uses outside of this time. More recently, the introduction of a metro station on Castlereagh Street in 2024 meant that it was expected that 10% to 20% more people would be walking in the vicinity. Therefore, more footpath space was needed.

The Castlereagh Street project was completed in November 2024. Just prior to the opening, in October 2024, using the one-day AM and PM peak period counts, there were around 900 riders at the southern end of Castlereagh Street (at Goulbourn Street on the existing southern cycleway), 1,600 riders on the connecting Liverpool Street cycleway (at George Street), and 100 riders heading south on Castlereagh Street (at King Street) at its northern end (City of Sydney, 2025a).

The approach to Castlereagh Street: vision and validate

The vision for Castlereagh Street was for the street to be a street for walking and cycling, informed by the City's Town Hall Precinct Public Domain Plan (City of Sydney, 2021). The design needed to accommodate motor vehicle trips, particularly loading and emergency vehicles, but not provide for growth in use.

Given the vision of the project, using a Vision and Validate approach, motor vehicle trip forecasting and modelling weren't needed. The City undertook a number of key analyses to validate the vision:

- Road space visualisation. This was needed during the strategic design phase to demonstrate the existing misalignment between users of the corridor and road space allocation. This documentation was important for community engagement (discussed further below).
- Vehicle access requirements. This was needed to show that motor vehicle travel lane widths could be reduced, and that some vehicle turn movements could be removed, without hindering key access requirements.
- Bus use and access requirements. This was needed to demonstrate that the daytime bus lane was no longer needed, and that the lane could be used to accommodate parking for loading when it wasn't a bus lane. This was important as it enabled the kerbside lane used for parking on the western side of the street to be reallocated to footpath space.

All the intersections on the corridor are signalised. To be a street for cycling, intersections were modified to enable people cycling to travel in both directions. This added complexity at each intersection, potentially adding more wait time for motor vehicles and people walking. To avoid delays and improve safety for people walking, some turn movements for people driving were removed. Multi-staged signalised treatments were used at the intersections, similar to treatments used on other parts of the bike network. Footpaths were extended at some intersections to reduce the distance people needed to cross, and to increase the waiting space, making intersections safer and more comfortable for people walking across Castlereagh Street (the number of motor vehicle lanes and lane widths were reduced, and a cycleway was added).

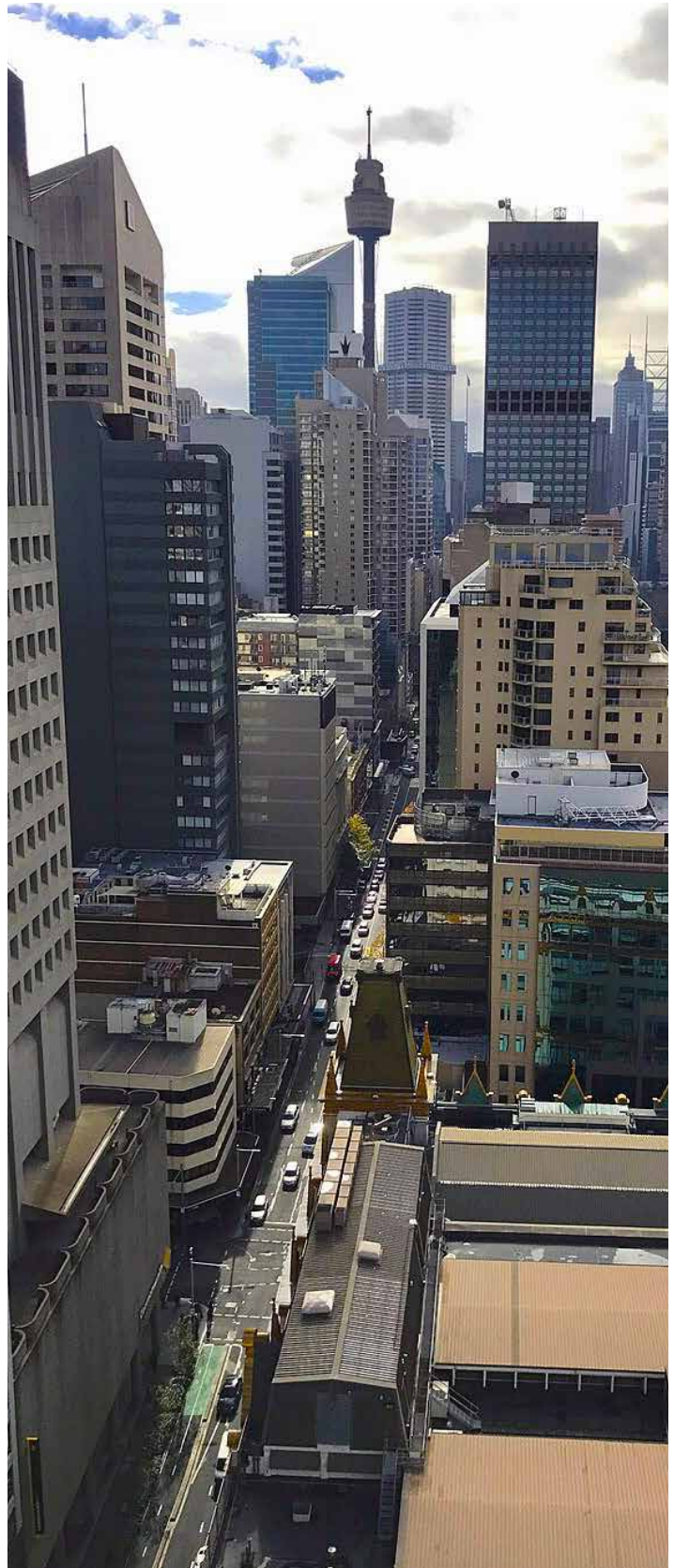


Photo Credit: Chris Olszewski, Wikimedia, Skyline in Sydney CBD and Castlereagh Street..., Sydney, Australia, 2017. https://commons.wikimedia.org/wiki/File:Skyline_in_Sydney_CBD_and_Castlereagh_Street,_Sydney_seen_from_John_Maddison_Tower.jpg

The approach to castlereagh street: movement and place

Using a Movement and Place approach, Castlereagh Street is an important place – a ‘place for people’. Post-metro opening, it has a high place function and minimal movement (Link) function. The design had to recognise that Castlereagh Street is a significant place, with many important businesses and destinations. Movement to the place was important, particularly for essential uses such as emergency vehicle access for the fire station, loading and drop off / pick up to the retail, hotel, and religious land uses.

The project looked at how people driving, walking, and cycling used the street to show how the existing street space should be allocated to accommodate current and future uses. The Castlereagh Street corridor is 11 meters wide at its narrowest. Following the Road User Hierarchy Policy (NSW Government, 2021), space was prioritised for people walking and cycling first, then buses and emergency vehicle access, with remaining space allocated for general vehicles (access not parking). Motor vehicles were the lowest priority.

The approach to Castlereagh Street: Build within the existing kerbs and maximise kerbside lane efficiency by time of day

Castlereagh Street is an established street with longstanding land uses and access arrangements. The design took a pragmatic approach to increase constructability and reduce project complexity, working with existing infrastructure by building the cycleway in lane two of the carriageway, enabling space between kerb bulbouts to be reallocated for people walking. Given the corridor width constraints, motor vehicle travel lane widths were reduced from 2.9m to 2.7m, enabling the cycleway and separator widths to be maximised so that the cycleway was safe and comfortable for people to use.

The design also used a time of day management approach, with a lane used for buses or loading depending on the time-of-day. 65 of the 103 parking spaces were retained and consolidated on the eastern side of the carriageway, except during the PM peak period when the lane is used as a bus lane.

Most loading and servicing activity in the city centre occurs before 3pm, and the bus access was most needed after this time (City of Sydney, 2022). Maintaining access for this essential use is important to the effective functioning of the city.

The design and construction of the Castlereagh Street project used innovation to reduce the construction time and, therefore, the disruption. The project manager developed an improved design and construction methodology for installing the cycleway separator kerbs, which enabled the separator construction in each block to be installed in one weekend, minimising disruptions to businesses. This was important to the project, as construction phases can impact negatively on local businesses, and the aim was to minimise this, where possible.



Photo Credit: Sander Dalhuisen, Two People Crossing The Street, Sydney, Australia, 2019. <https://www.pexels.com/photo/two-people-crossing-the-street-2566076/>

The approach to Castlereagh Street: community engagement

As with many cycleway and footpath widening projects, particularly if they reallocate space currently provided to people driving or parking, some business owners worry that the project will reduce patronage from people driving, *“and that any increased patronage from customers arriving by foot or bicycle will not offset the lost revenues”* (Volker & Handy, 2021, p. 402). Local business concerns about the cycleway were well known from the 2015 engagement. To help alleviate some of this risk, and to work through design responses, the City undertook consistent, proactive, and responsive community engagement with various stakeholders, particularly with local businesses and the NSW Government.

Formal engagement included a six-week survey with residents and businesses in 2022, with 132 submissions received, along with intercept surveys (discussed above). The submissions were mostly supportive with suggestions for improvements. There was ongoing direct engagement with key stakeholders, including the fire station, a hotel, and the synagogue, throughout the design, construction, and post-opening. Support from NSW Fire and Rescue was imperative to the project, and consistent ongoing engagement with this group was important.

In response to this engagement, the design was altered in specific locations to accommodate localised requirements. This included alterations to the design in front of the metro station for driveway access, using a raised platform to bring the cycleway up to road level at a hotel to accommodate a flush drop-off area, and using stencilling and stamping outside of the fire station so that riders were made visually and physically aware of the emergency driveway access.

Engagement continues. The City is planning to undertake 1-year and 5-year post-implementation intercept surveys, using the Healthy Streets survey methodology (see Healthy Streets, 2025), to measure perceptions and expectations. Along with this, the City will also undertake a focus group(s) with business owners to understand how attitudes evolve.

Early outcomes – nine months on

The cycleway and footpath opened in November 2024, which means they have been operational for around nine months at time of writing. Figure 5 shows before and after photos.

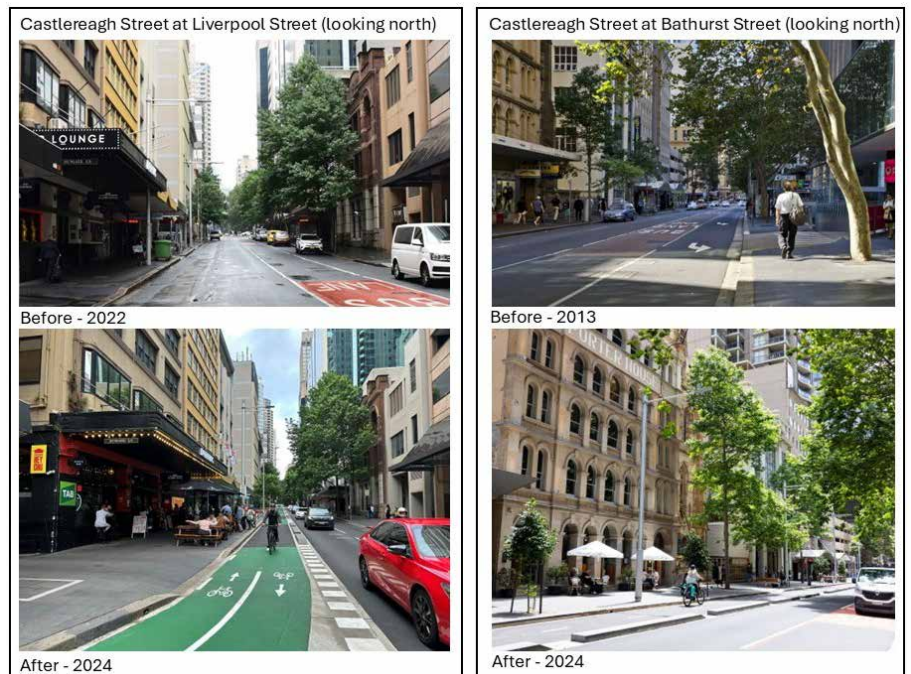


Figure 5: Photos of before (2022 and 2013; above) and after (2024; below) of Castlereagh Street, Sydney.

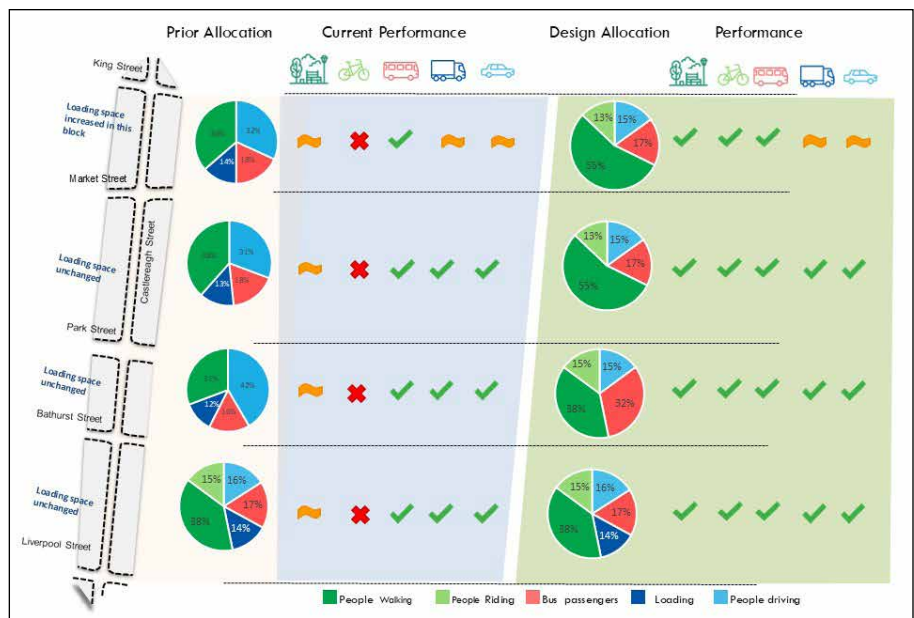


Figure 6: Assessment of the street space allocation along the Castlereagh Street corridor showing performance.

The project aimed to create a *street for walking and cycling*, including space for public life, such as outdoor dining, public seating, and street trees. Figure 6 shows the assessment of the reallocation of space, illustrating that space for people walking and public life went from 31%-37% to 38%-55% of the space along the corridor. The areas with limited increase in footpath space responded to specific land uses in that area, for example, space for emergency vehicle access near the fire station.

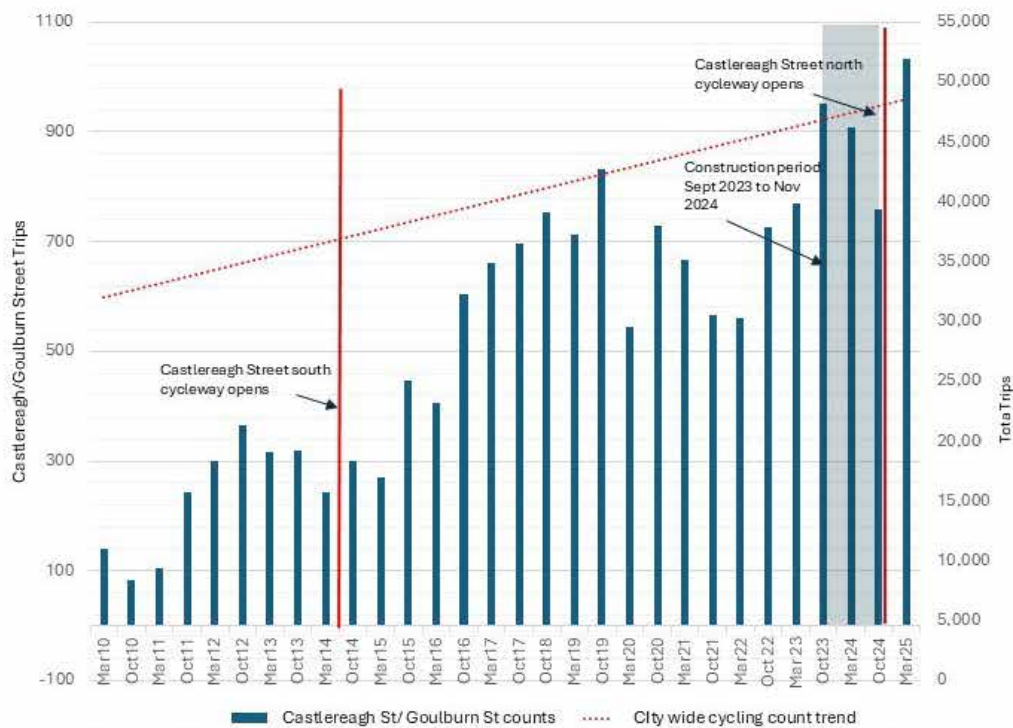


Figure 7: A comparison of the trend of cycling within the Sydney local area with cycling on Castlereagh Street cycleway (at the intersection of Goulburn Street; City of Sydney, 2025a)

Castlereagh Street/Goulburn Street cycling counts were conducted for both the AM and PM peak period (each three hours) for one day in March and October. The city-wide trend shows cycling counts across 68 sites, both the AM and PM peak period (each three hours) for one day in March and October. These counts provide an indication of cycling numbers and show trends in the number of people riding. These counts are not total cycling numbers.

The space for people riding bikes increased from 0% to 13%-15% of the space along the corridor (noting that cyclists could ride in the traffic lane prior). Space for people driving remained but was reduced from around 31%-42% to 15%-16% of the space on the corridor. The space used on the western side, prior for loading and parking that was reallocated for footpath space was offset by allowing daytime loading in the bus lane on the other side of the street. Overall loading space and time on the corridor increased because the bus lane on the eastern side of the street (between King Street and Market Street) was longer than the pre-cycleway parking spaces on the western side. Buses are still able to effectively operate along the corridor.

Based on the 3-hour AM and PM period one-day counts for October 2024 and March 2025, the number of people riding on Castlereagh Street at Goulburn Street has increased by 36% since the opening of the cycleway, and the number of riders using the new northern end of the cycleway tripled from 115 riders in the AM and PM peak to 335 riders. Using these same counts, the number of people riding in the broader local area increased by 10-20% compared to 2023 (Figure 7).

People spend 45 minutes on the street on average. When looking at visitations to the street, as measured through mobile phone data via provider Pathzz, there has been little change to the number of people or the demographics of people visiting the street (noting the limitations and aggregation of mobile phone data in dense urban areas and for short visits). This is attributed to the high numbers of people already visiting the street, and that there has been no real change in land use along the corridor. The transport accessibility of the area has changed with the opening of the Gadigal Metro Station. While granular data is not available, the metro station entrance near Castlereagh Street will likely have changed people's walking patterns and concentrated walking movements in this location, at least to some degree.

There is more space on the street for outdoor dining, with 5 outdoor dining requests implemented along the corridor since it opened. Based on visitations from Pathzz, there have been slightly more people spending time on the street in the evenings.

It is too early to determine the long-term economic impacts of the project on the land uses in the corridor. Early results, based on visitations, are in line with other studies of the impact of cycling and walking improvements. Volker and Handy (2021, p. 401) in their meta-analysis of walking and cycling projects in the United States state that, “taken together, the studies indicate that creating or improving active travel facilities generally has positive or non-significant economic impacts on retail and food service businesses abutting or within a short distance of the facilities[...]. The results are similar regardless of whether vehicular parking or travel lanes are removed or reduced to make room for the active travel facilities.” Unless the established land uses along the corridor change significantly, it is not anticipated that there will be a significant change in economic performance or visitation, as while the walking and cycling access and the place amenity have significantly improved, the area is part of the established fabric of the city centre, which consistently experiences large numbers of visitations.

Results of a study of another City cycleway found that, while “retailers initially believed the cycleway would hinder productivity and impact parking,” this view “dissipated after construction of the cycleway” (Crane, Rissel, Greaves, Standen, & Ming Wen, 2016, p. 48). We do not have comparable survey data of the Castlereagh Street cycleway; however, while space for people driving was reduced, there has been no real change in motor vehicle speeds before and after the street space reallocation, indicating that access for people driving was maintained. Access was maintained in the corridor for those who need to drive and park: service vehicle parking was retained as, was access for drop off / pick up. Crash data is not yet available for the corridor.

The most notable change in the corridor, other than the cycling access, was the streetscape upgrade, with the improvements enabling businesses to open to the street, and with the street taking on a ‘boulevard’ feel, with people using the seating. The design of the Castlereagh Street project responds particularly to the first three levels of the City’s Walking Strategy hierarchy of walking needs through increasing space for people to walk (*possible*), improving crossing, including reducing crossing distances (*possible and safe*), and providing streetscape upgrades, including 26 new seats, and doubling the number of street trees (*comfortable*). It facilitates an improved space for fun.



Photo credit: Paolo Continetto, Pexels, Pedestrians on a Crosswalk, Sydney, NSW, Australia, 2023. <https://www.pexels.com/photo/pedestrians-on-a-crosswalk-17431943/>

Lessons learned

The case study provides a microcosm of all transport and land use challenges in the city and provides an example of a project that reallocates existing street space for people walking and cycling, provides access for people cycling on one-way streets, and improves crossings for people walking. In addition, it shows the City’s pragmatic design approach, working with the infrastructure that is already there, and with the landowners impacted.

The lessons learned from the Castlereagh Street project include:

1. **Communicating the project foremost as a ‘public domain’ or a ‘walking’ improvement project is relevant for more people than when described solely as a ‘cycleway’ project. This framing helps people visualise the project.**
2. **Restricting motor vehicle turn movements can be effective in reducing the time people walking wait at signals to cross.**
3. **Reducing traffic lanes and traffic lane widths does not prevent access. Carriageway travel lanes can be used effectively by time of day. The eastern kerb lane is efficiently managed: parking for loading and servicing during the day and for buses in the PM peak period.**
4. **People are often resistant to change, and there are challenges in helping people to see the future vision when they are wedded to the current system, even when they might benefit. Visualisations of what you are trying to achieve are helpful, and simple metrics like the number of people and space allocated can be powerful. Going forward, we aim to continue to engage with people after the project to understand how sentiment changes once it is operational.**
5. **You can never change some people’s minds.**
6. **Conversations never stop; maintaining engagement with stakeholders throughout the whole project lifecycle can reduce conflicts and can improve the overall design.**
7. **Staging building and construction and negotiating with developers is an opportunity to deliver better public domain outcomes and earlier than a conventional whole of corridor approach.**
8. **Connecting the last remaining sections of the inner-city cycle centre network significantly increases overall network use.**

CONCLUSION

The transformation of Castlereagh Street into a street for walking and cycling highlights some of the key approaches and issues faced by the City to become *a city for walking and cycling*. The Castlereagh Street project is a successful example of a street space reallocation project that, despite impacting on people driving, did not need to use traffic modelling, utilising instead a Vision and Validate approach based in a Movement and Place framework. This approach required additional analysis and visualisation to validate the vision, along with an iterative design process that enabled the design to respond to concerns from key stakeholders. Early outcomes (9 months post) show that the project has significantly increased the space for walking, cycling, and public life, while maintaining key access for people driving, notably for emergency vehicles and loading. There has been no real change in motor vehicle speeds, indicating that reduced space for people driving has not resulted in delay or reduced performance. The number of people riding on Castlereagh Street has increased by 36% since the opening of the cycleway.

Reallocating existing street space from motor vehicles to people walking and cycling and to public space is challenging. Every project involves trying new ways of working, including new ways of listening to people, new ways of designing, and new ways of constructing. It is important to learn from and build on each project. More case studies, such as this one, highlighting the process and approach to rebalance existing street space in a car-dominated city, are needed.

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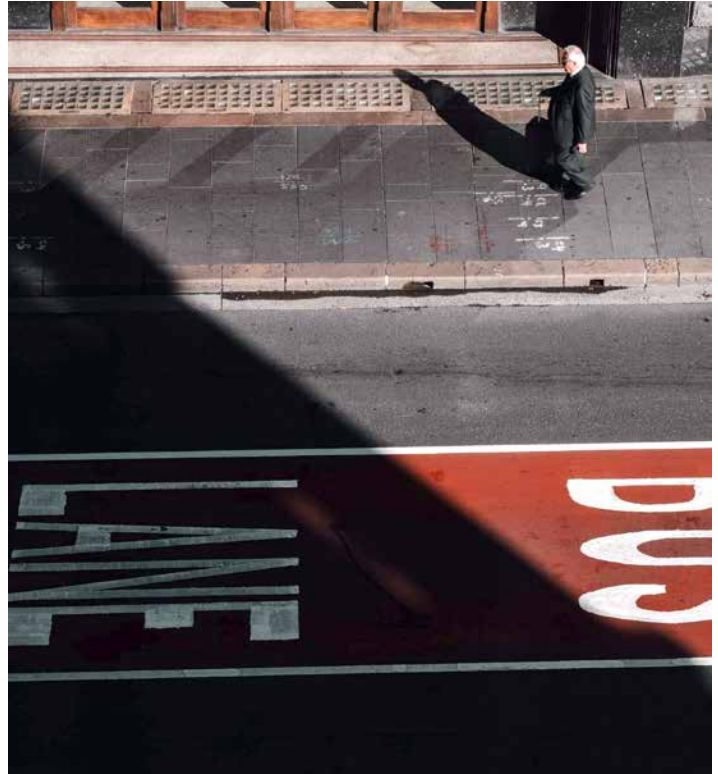


Photo Credit: Kate Trifo, Pexels, A Man Walking on a Sidewalk, Sydney, NSW, Australia, 2020. <https://www.pexels.com/photo/a-man-walking-on-a-sidewalk-4383953/>

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