

Rethinking Streets: Enhancing Public Spaces and Pedestrian Amenities in Liverpool, Sydney

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Abstract

This paper undertakes an analysis and provides strategic design recommendations to urbanise Liverpool City Centre, Sydney; by proposing the conversion of the existing fragmented car oriented space into one that is inclusive, pedestrian orientated public domain. Those include problems with car monopolisation and lack of facilities for pedestrians and cyclists, the "Rethinking Streets" project noted. The Complete Street project designs streets for all users, with four modes of transportation accommodated in the same right-of-way. In theory, measures like extending the pedestrian sphere, facilitating linear bike connections and updating streetscape elements as well as parking removal to ease through-traffic could be considered. These enhancements aim to promote a healthier environment, improve connectivity among major attractions, and support economic growth, aligning with Liverpool's vision as a regional hub in Sydney's Metropolitan Plan.

Keywords

Pedestrian Mobility, Urban Transformation, Complete Streets, Public Space Quality, Livability

Introduction

Streets are vital urban design elements that connect places and cultures, with their character shaped by innovative design and social activities (Georgescu et al., 2024). Liverpool is recognized as a strategic centre in Sydney's Metropolitan Plan, underscoring its significance in the region (Department of Planning (NSW), 2017).

The "Rethinking Streets" research emerged from a comprehensive analysis of Liverpool City Centre, which is currently dominated by vehicular traffic, limiting pedestrian and cyclist movement due to narrow footpaths and shared zones. The Liverpool City Council aims to enhance the City Centre's livability, and this project addresses existing challenges while advancing the Liverpool City Centre Vision (Liverpool City Council, 2020). This research identifies vital issues hindering Liverpool's potential, analyses current street elements, and offers design recommendations to improve public spaces and pedestrian amenities. An integrated approach balances the needs of vehicles, cyclists, and pedestrians, enhancing the area's environment,

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promoting economic sustainability, and improving connectivity among major attractions like Bigge Park and Westfield Shopping Centre.

The key objectives of this research are:

- To enhance movement quality in the Liverpool City Centre by balancing the needs of pedestrians, cyclists, public transport, and vehicles for improved accessibility.
- To transform Liverpool City Centre streets into vibrant, sustainable places that enhance connectivity, encourage activities, support economic growth, promote a healthier environment, and are designed for all users.

Liverpool City Centre holds great potential as an attractive urban environment for living and working (Liverpool City Council, 2020). Key recommendations for enhancement include developing a comprehensive bike pathway network to connect significant attractions and foster community interaction and expanding pedestrian footpaths around commercial and recreational areas Connecting Macquarie Street with Macquarie Mall, to create a more active central space. Less on-street parking will free space to improve traffic flow, more pedestrian routes and bikeways (Di Marino et al., 2024). Raised median islands are also proposed, which are intended to improve pedestrian safety, as well as the installation of street trees, planter beds and street furniture to improve overall aesthetic and environmental quality (Lai et al., 2024). Core to these strategies is re-opening up the city center and making it a place that brings some life into its heart.

The Background

Another common perception of streets as simply the means for vehicular movement, it belies cities and the need to provide rational responses at this time to move people rather than cars (H. M. Kim & Thai, 2024). Street is the soul of any city as it reflects urban living, so to make all those happen creating beautiful street helps in achieving a sought after social blend which further supports healthier communities (Waygood, 2020). Liverpool Situated 32 kilometers (20 mi) South West of Sydney's CBD Liverpool is an ever-growing region in Sydney. With the projected strong demographic and employment growth in Liverpool, Labor condemns the planning mess that will see Liverpool designated as one of the key CBDs in Metropolitan Plan for Sydney 2036 to serve south west Sydney and established a major business node by Liverpool City Council (Department of Planning (NSW), 2017).

Significance in Regional Context

Introduction to the Metropolitan Plan for Sydney which Identified Liverpool as a Regional City The transition in Western Sydney from single-centered urban model to multi-centered and an introduction of the metropolitan plan for Sydney was introduced (Department of Planning (NSW), 2017). This underground shift is organised in such a way that it allows what enables job creation and employment opportunities by way of providing well designed streets and open spaces that are supporting to encourage active transport options like walking, cycling (Bas et al., 2023).

Liverpool Growth

An increase in the Liverpool population of 170,915 through 2006 rising to more than double the population with over 284,596 people projected by 2031 and overtaking Greater Sydney at an annual growth rate of 1. Anti-car-bias, congested streets, activist state gets worse and boring WSR

follow suit (Liverpool City Council, 2020). The Metropolitan Plan could also bring as many as 31,000 jobs to Liverpool (Liverpool City Council, 2020). The growth is heavily tenanted by population growth and retail has also reordered 5,000m² retail floor space of shops, cafes and supermarkets, including a minimum of 20,000m² by 2036 in Liverpool City Centre. This will be good for local commerce as well as city-wide pedestrian activity (Fenton, 2005).

Liverpool City Centre Vision

Liverpool City Centre — with its diverse precincts, high-quality mixed-use developments and enhancements to transportation links — will be a vibrant part of the development (Liverpool City Council, 2020). This is highlighted by objectives oriented towards a pedestrian and cyclist-friendly built form, public transport accessibility and an ecologically sustainable landscape enhancing the overall urban environment (Jardim et al., 2023). Despite a clear vision for Liverpool City Centre, significant gaps exist in street design and connectivity (Liverpool City Council, 2020). Streets are crucial for linking facilities and enhancing urban life, yet current designs prioritize vehicular movement over pedestrian and cyclist needs (Oyama et al., 2024).

Central Theme – 'Street as Open Spaces'

The illustrated diagram of Liverpool has an area of total 1,536,000 sqm, which is formed by the Hoddle Grid. It provides 10% of the area to public open spaces which are dedicated to parks and green areas, and a further 20% of the area are open spaces in the form of streets, which are currently predominantly used as a median for reaching destinations (Di Marino et al., 2024).

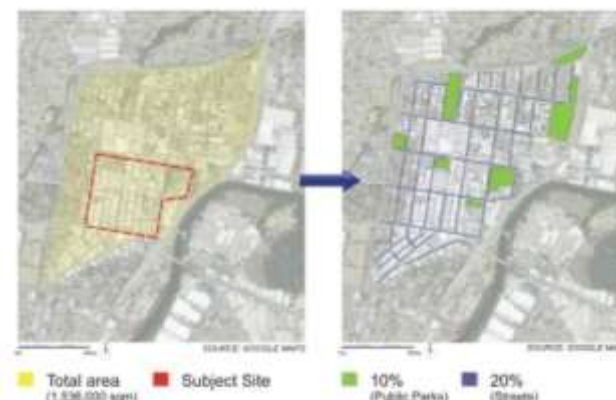


Figure 1. Liverpool area

Key Issues

This research seeks to enhance Liverpool's streets through the complete streets concept, which promotes user-friendly environments for retail, cultural, and leisure activities (Appleyard et al., 2021). Key issues include car dominance leading to congestion and unsafe pedestrian pathways, as well as extensive on-street parking that hinders pedestrian and cyclist movement (Sanchez-Sepulveda et al., 2024). Limited bicycle infrastructure and parking pose barriers to cycling, while narrow footpaths and inadequate crossings compromise safety (Ahmed et al., 2024). Additionally, major attractions are disconnected, necessitating improved connectivity to create a cohesive urban environment (Abbas, 2024). The current lack of essential streetscape features, such as street furniture and trees, diminishes public space quality and pedestrian activity (Wang et al., 2022).

Why Complete Streets Concept?

Complete Streets are safe, comfortable and convenient for use by people of all ages and abilities, with space allocated for vehicles plus ample accommodations for people walking and bicycling. The design is dependent on the context, density and their needs of the community (Appleyard et al., 2021).

Applying Complete Streets in Liverpool

Implementing the Complete Streets concept in Liverpool City Centre will:

1. Foster community engagement across all ages and abilities.
2. Alleviate traffic congestion and improve transportation options.
3. Reduce reliance on cars, lowering associated costs.
4. Enhance safety for pedestrians and cyclists through improved infrastructure.

Key Findings

After intensive Liverpool City Centre traffic analysis, narrow footpaths, limited cycling facilities, and plentiful on-street parking hinder pedestrian access. For pedestrian and bike safety and accessibility, Liverpool City Centre requires considerable renovations. To accommodate the growing population, widen footpaths, add elevated pedestrian crossings with diverse colors and materials for safety, and extend curbs at crossings to reduce crossing distances and make area for flora and street furniture (Dehghanmongabadi & Hoşkara, 2022). Dedicated bicycle lanes and increased bike parking are needed to promote physical health and connectivity to transit and commercial districts due to limited paths (Lee, 2021). Street trees and planters on Macquarie and Northumberland Streets improve air quality and health (Lai et al., 2024). Seats and trash cans are needed for public use. To create place for walkways and bikes, reduce on-street parking (Weinberger, 2020). Finally, raised medians on Elizabeth Street and Moore Street may improve pedestrian safety by smoothing traffic, reducing collisions, and adding streetscape elements (Cui et al., 2023).

Methodology

This research began the investigation with extensive site visits in Liverpool City Centre to observe and document business, retail, and residential sectors. This study examined roadway design and usage patterns to determine automobile, pedestrian, and bike traffic dynamics. After reviewing multiple articles on Sydney's future growth, Liverpool's regional importance was identified. Liverpool City Council papers were also examined to reveal local predicted development in several sectors. A thorough investigation of Liverpool City Centre's street components revealed architectural flaws, particularly in growing areas. A research on street design concepts to inform future design decisions was performed. Finally, a comparison of council case studies was performed. Based on their street design principles and practical uses, this comparison research may guide Liverpool's future street designs.

Results and Discussion

These results are important for Liverpool City Council since they form the city's urban character and identity, affecting citizens' interactions. The "Rethinking Streets" study promotes walking and cycling over driving; Social connection and well-being are promoted by public areas, which cover roughly 20% of the city (Waygood, 2020). Introducing street trees and green pots to improve air quality and lower temperatures is projected to promote urban economies by enhancing property prices and retail sales (Velasquez-Camacho et al., 2024). Active transportation and safe, accessible routes will also enhance physical wellness (Iamtrakul & Chayphong, 2023). The project addresses a growing population and improves pedestrian crossings and street lighting to make Liverpool a healthier, more livable city (S. Kim et al., 2014). Street frontages and attractive environs are used to rejuvenate business districts and create a dynamic and integrated urban landscape (Quayle & van der Lieck, 1997).

Conclusion

Due to its strategic location, the Sydney Metropolitan Plan named Liverpool a regional center. This neighborhood will develop in population, retail, jobs, and housing, affecting Liverpool City Centre. Liverpool City Council aims to improve Macquarie Mall, Macquarie Street into a "eat street," and Biggie Park. The "Rethinking Streets" idea incorporates whole streets in the City Centre's retail and commercial core to recognize their community value. This project supports City Council urban development and community interaction. The Council should create community- and stakeholder-driven action plans and thorough financial analyses. This research suggests studying project costs, finance, and implementation. To minimize streetscape disturbance, a complete staging method assessment is essential before replacing or removing highway features.

Recommendations

At the end of Macquarie Mall in Liverpool City Centre, Macquarie thoroughfare is a popular retail and commercial thoroughfare with access to the Liverpool Bus Interchange and Train Station. Although many businesses and cafés boost the area's vibrancy, extensive on-street parking, unused pathways, and hazardous pedestrian crossings restrict it. Project Rethinking Streets overhauls streets for safety and functionality. A 208-meter cycle track with 14 bike racks, a 75% reduction in on-street parking, and two elevated pedestrian crossings with expanded curbs are structural changes. Five three-person public benches and four street trees will improve community engagement and safety, while elevated platforms and new color and texture components will slow vehicles at pedestrian crossings. This initiative aims to liven up Macquarie Street.

Macquarie and George Streets' retail and business activity depend on Northumberland. Despite an eastern side vehicle parking structure, overstreet parking, no public seats, and dangerous pedestrian crossings exist. Reducing on-street parking by 32% would allow for public seating and greenery. Increased platforms facilitate pedestrian crossings. Structure upgrades include four elevated pedestrian crossings, curb extensions, 13 chairs, and 12 street trees. These steps aim to improve street life and safety.



Figure 2. Macquarie Street



Figure 3. Northumberland Street

George route, a busy retail and commercial route in Liverpool's City Centre, has extensive on-street parking, dangerous pedestrian crossings, and no street trees or bus shelter. The Rethinking Street project will reduce on-street parking by 45%, provide a bike track, pedestrian crossings, benches, street trees, and a bus shelter. These renovations aim to increase public space, pedestrian safety, and active transportation.



Figure 4. George Street

Little street landscaping and significant on-street parking congest Railway Street, a crucial Liverpool City Centre route to the bus interchange and train station. The concept suggests installing a bi-directional cycling track, street trees, planter beds, and elevated crossings to improve pedestrian and vehicular movement. A 65% reduction in on-street parking, a 161-meter bike track, an improved pedestrian crossing, 16 street trees, and 8 seats are major structural changes. These projects improve public spaces, reduce traffic, and increase safety.



Figure 5. Railway Street

Biggie Street, a busy Liverpool City Centre street, with few trees near TAFE. The Rethinking Street project includes elevated medians, street trees, a bi-directional cycling track, improved pedestrian crossings near Biggie Park, and covered public seating near TAFE. A 447-meter bicycle track, 21 bike racks, an elevated pedestrian crossing, 14 public seats, 32 street trees, and 65% less on-street parking alleviate congestion, improve public spaces, and increase safety.



Figure 6. Biggie Street

Liverpool City Centre's east-west connection Moore Street has significant traffic and no street cover, making navigation and pedestrian comfort difficult. In the Rethinking Streets project, an elevated junction at Macquarie Street and Macquarie Mall, street trees and planter beds for safety and traffic calming, and bus stops with shelters and seats are added. Traffic flow, pedestrian comfort, and public spaces will be improved by reducing on-street parking by 16%, raising the intersection, adding 47 street trees, and adding 19 benches.



Figure 7. Moore Street

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