

TRANSPORT AND URBAN DESIGN THE CASE FOR GREATER COLLABORATION

Author:

Jeanette Ward, Associate,
Abley Transportation Consultants Ltd
MET BE (Civil) NZCE CPEng MIPENZ

jeanette.ward@abley.com

Co-author:

Gemma Dioni, Senior Traffic Engineer
Christchurch City Council
BSc(Hons) MSc GIPENZ MCHIT

gemma.dioni@ccc.govt.nz

Abstract

Urban design, according to most definitions, is the design of towns and cities, streets and spaces. It is a collaborative and multi-disciplinary approach of shaping the physical setting for life in towns and cities; it is the art of making places in an urban context. So transport professionals are part of that right? Along with engineers, architects, landscape architects and planners, which are all long established professions. Yet there is a group of professionals called Urban Designers, who draw all these strands together – this is a more recent profession that was established around 30 years ago.

Transport projects often progress without urban design input as it is seen as “the bit of fluff at the end”. On the other hand often public space or development projects progress without transport input and opportunities can be missed to address the transport and movement aspects. Also, some transport professionals have had experiences where they have been put out by the urban designer who fronts up and talks about transport aspects, “isn’t that my role?”.

Based on the experience of the authors this paper explores what urban designers can add to transport projects and conversely what transport professionals can add to urban design/public realm focussed projects. Several case studies re-enforce the value of collaboration. Ultimately, all professions strive for the best sustainable outcome for urban environments and our communities so let’s work together!

1. INTRODUCTION

This paper was motivated by the collective experience of the authors, both of whom are involved in the planning and design of projects as the ‘transport professional’.

On the one hand the authors find that transport projects often progress without urban design input from the start. Some project teams regarded urban design as “*the bit of fluff at the end*”. This is likely due to a misconception that urban design is about the ‘look’ only.

On the other hand, the authors also find that public space or land development projects can progress without transport input until the end. Perhaps transport is viewed by some project teams as a quick check at the end to make sure that it meets the District Plan requirements. It might not be appreciated that early input can reduce rework later or that great opportunities can be missed using this late engagement approach.

Another common experience of transport professionals (having listened to the gripes of colleagues and peers) is when they have turned up to project meetings or workshops and felt put out by the urban designer who fronts up and talks about transport aspects such as the street cross section, “*but isn’t that my role?*”. Transportation professionals, however, are unlikely to front up and talk about urban design aspects e.g. “*the alignment of the street was designed to ensure the view shafts were maintained*”. Sometimes the focus on movement can cause urban designers to think ‘typical traffic engineer’. This tension is common as recognised by Kobus Mentz as recently as 2015 “*Transport specialists have yet to fully recognise the value of place as much as urbanists needing to recognise the value of movement; balanced solutions are hard to come by and the challenge continues*” (Kobus Mentz, 2015).

This paper will attempt to demystify ‘urban design’ in a transport context and describe the role of professionals called Urban Designers. Urban design and how this relates in practice to transport is then explored through several case studies. Finally, this paper will outline what urban designers and transport professionals both add to projects through collaboration. Several high-level recommendations are made to the transport, urban design and project management sectors. Recommendations for project teams to consider when progressing projects that impact on the built and natural environment are also made.

Figure 1 shows a street design workshop being attended by transport, urban design, landscape architecture, architecture and planning professionals - ultimately, all professions strive for the best sustainable outcome for urban environments and our communities so let’s work together!



Figure 1 – Multi-disciplinary street design workshop

2. WHAT IS URBAN DESIGN?

Urban design draws together the many strands of place-making - environmental responsibility, social equity and economic viability, for example - into the creation of places of beauty and distinct identity (Llewelyn Davies Yeang, 2000). Urban design is about adding quality to both the collaborative process of developing the built environment and to the built environment itself. It is about creating the right conditions to make places work for people. From the 1960's, a clutch of writers, urban planners and designers – notably Jane Jacobs, Kevin Lynch, Gordon Cullen, Christopher Alexander, Aldo Rossi, Ian McHarg, Jan Gehl and others, became influential in shaping what would increasingly become known as urban design (Carmona et al, 2010).

Urban design has in the past been regarded as a component of urban planning and policy, landscape architecture, architecture, economics and transportation planning. However increasingly, it is recognised as a practice in itself that draws together the disciplines involved in the design and development of the built environment. The urban design role also requires an understanding of other disciplines that contribute to well connected, well designed places including transport and engineering.

Urban design covers a wide spectrum in terms of context and scale from the city-wide plan to neighbourhood design, and to the finer design detail of an individual development as illustrated in **Figure 2**. The considerations range from the level of connectivity between neighbourhoods, the structure and layout of blocks and streets, to the more intimate relationships between public and private space that contribute to identity, make places safer and work economically.

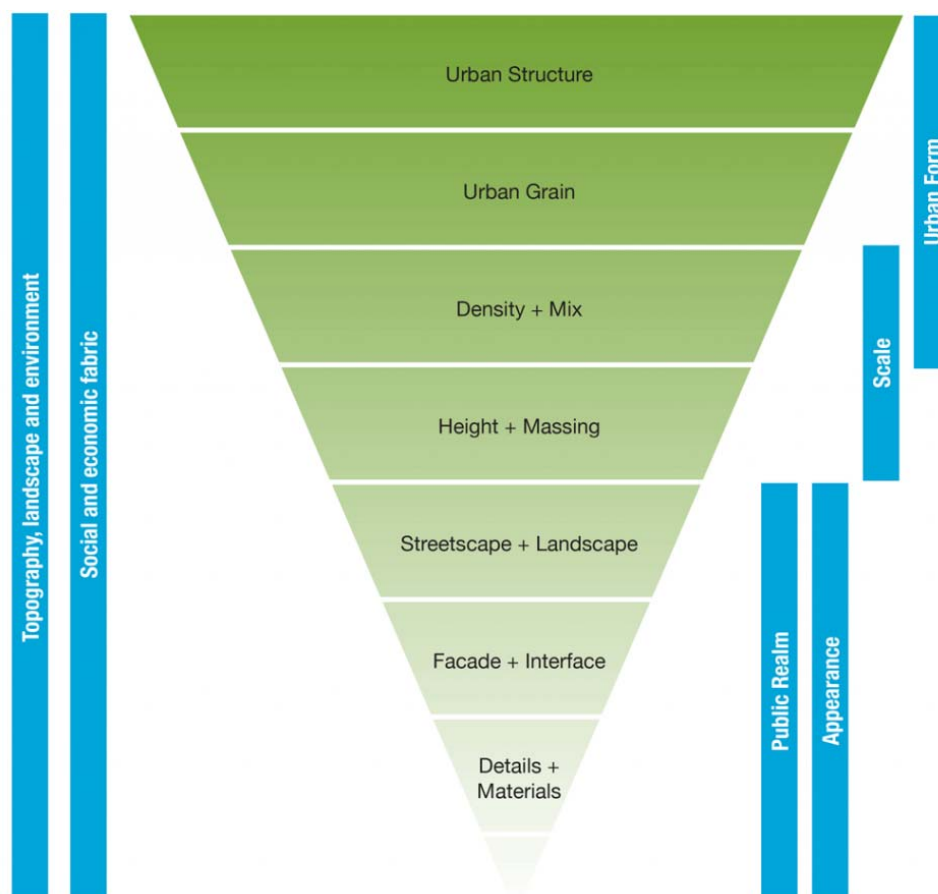


Figure 2 - Hierarchical relationship between the elements of urban design
(source: <http://urbandesign.org.au/what-is-urban-design/>)

Historically there were two traditional approaches to urban design, 'aesthetics' and 'social usage'. The former concentrated on the visual qualities and aesthetic experience of an urban space, and the latter considered the way in which people use space, and perceptions and a sense of place (Carmona et al, 2010). Contemporary urban design has evolved from the earlier traditions to cover both the physical and aesthetic (buildings and spaces) with the behavioural element of how people use and move through spaces and activities undertaken in this space.

The components of good urban design are illustrated in **Figure 3**. The urban designer will also recognise that the qualitative is at least as important as the quantitative, for example places that take into account only the quantitative do not necessarily result in comfortable places that people want to be in or part of.

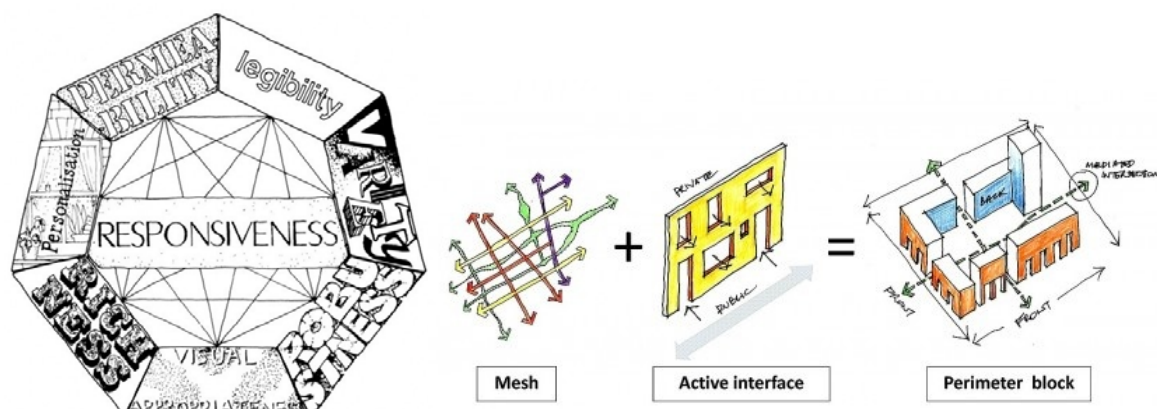


Figure 3 - Component parts of good urban design (Bentley et al and Bentley
(<http://www.vitruvius.com.br>)

The built environment should provide its users with an essentially democratic setting, enriching their opportunities by maximising the degree of choice available to them (Bentley et al, 1985), therefore the built environment needs to be responsive. The design of a place affects the choices people can make also at many levels, it affects where they can go and where they cannot go, how they understand the environment, how people use a given place and the experience they gain from being in that space. For example, will a building with a blank façade enliven a street or public space? No, there is a relationship between the private space and building edge to the public space or path. Lynch recognised that 'paths' and 'edges', were two of five elements (including landmarks, nodes and districts), that formed mental maps, a way users understood their surroundings in consistent and predictable ways, which also helped users with wayfinding.

Transport professionals will generally have some understanding of aspects such as permeability and legibility, and in New Zealand are designers of a large portion of the paths (includes streets and ways people travel). Urban designers will consider the wider essential design qualities of robustness, variety, richness, based on context and an understanding of urban form which includes the other four physical elements identified by Lynch so can add great value to transport projects. This involves looking beyond the boundaries of the road corridor, to create quality urban design and successful towns and cities.

However, as one of the more traditional approaches to urban design concentrated on the visual and aesthetic/artistic look of a space, this is what could have led to professionals working on a transport project considering urban design as the 'fluffy bit' at the end of a project. For example, focusing only on the patterns and finish on a bridge and not whether the bridge achieves a balance required to make the urban space work as a whole, connections to and around the bridge, the context of where the bridge sits and the effects on the community. Therefore, collaboration between transport designers and urban designers early in the process could lead to a more positive asset for the community that is safe, useable, encourages active travel and is attractive but also responds to the local setting.

3. TRANSPORT ASPECTS OF URBAN DESIGN IN NZ

Streetscapes, including roads, paths and carparks make up a large part of the public realm. They form an important part of a places character, not only in how they look and feel but their role within the network. This has been recognised for some years with many transport planning and street design focused manuals, as opposed to pure traffic engineering guides such as Austroads, being developed both internationally and here in New Zealand. 'Link and Place - A Guide to Street Planning and Design' (Jones et al, 2007) in the UK is an example of a manual that offered a new approach to urban street planning and design, based around the dual function of streets as Links and as Places. More recently the NACTO Urban Street Design Guide (NACTO, 2013) has been developed and charts the principles and practices of the America's foremost engineers, planners, and designers.

In Christchurch, there has been considerable collaboration over the past few years between transport and urban design including the Streets and Spaces Design Guide (CCC, 2016) produced for Christchurch Central City, the Cycle Design Guide and the Suburban Centre Masterplans. The development of these involved workshops and collaboration between disciplines including transport planners and designers, engineers, urban designers, landscape architects, and town planners.

The New Zealand Transport Agency have developed an urban design guideline titled 'Bridging the Gap' (NZTA, 2013) with the purpose of "*creating transport solutions for a thriving New Zealand*". Unfortunately, the title of the guide and cover photograph may lead people to think it is purely a bridge design guide. The guide outlines the following ten fundamental urban design principles that should guide the development of transport projects throughout all phases.

1. Designing for the context
2. Integrating transport and land use
3. Contributing to good urban form
4. Integrating all modes of movement
5. Supporting community cohesion (avoiding severance)
6. Maintaining local connectivity
7. Respecting cultural heritage values
8. Designing with nature
9. Creating a positive road user experience
10. Achieving a low maintenance design



These principles are a good basis for considering the urban design aspects of transport projects and highlight why projects need both the transport professional and the urban designer. The guide also outlines an Urban Design and Landscape Framework/Master Plan process that would facilitate the integration of the disciplines involved in the project. Transport professionals are often involved in the development of such frameworks and master plans.

In general transport professionals have for some years appreciated aspects such as integration of modes and connectivity however context is more than the strategic context or adjacent land use that is generally outlined in the transport professional's commentary. It is also the character and sensitivity of the landscape in which the project lies. This is where transport professionals can be hindered by matters such as legal requirements/industry standards and this can lead to them being seen as the 'bad cop'. Several examples of regulation related issues are outlined below.

Figure 4 shows a recently completed separated cycleway in Christchurch with a range of parking restrictions to suit the adjacent business needs. This has resulted in signage clutter that detracts from the improved streetscape intended. A challenge to the transport industry is how can we communicate the restrictions clearly to drivers whilst contributing the streetscape.?



Figure 4 – St Aspah Street, Christchurch

Figure 5 shows an intersection with 20 traffic signal poles that caused a public stir when they were installed. It caters for trams, cars, pedestrians, and people on bikes. The law (Traffic Control Devices Rule) states that poles should be yellow or grey but most authorities specify yellow. Grey has been used in some locations such as Queen Street in Auckland. In this type of low speed environment maybe grey poles could lessen the impact on the streetscape.



Figure 5 - Tuam/High Street Intersection, Christchurch

Shared spaces have been an example of the transport profession adapting to a street form new to New Zealand through addressing of details such as legal requirements and ensuring the space also works for mobility impaired pedestrians. **Figure 6** shows an example of a shared space in Auckland where the street considers the needs of all users whilst also providing a place where people want to spend time.

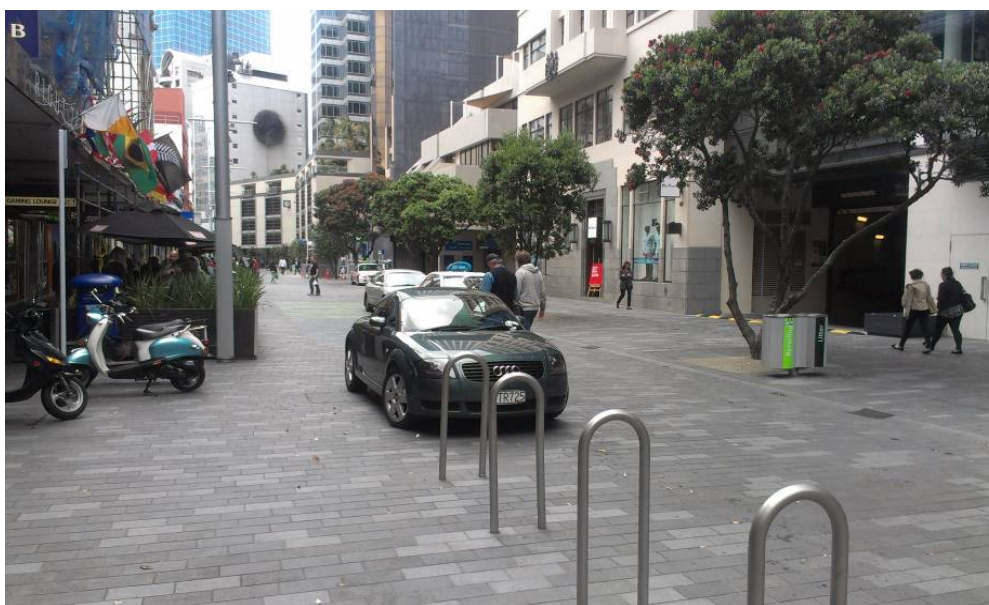


Figure 6 – Fort Street, Auckland - shared space example

4. CASE STUDIES

This section outlines several design case studies that demonstrate that transport/public realm projects benefit from multi-disciplinary teams. The final case study outlines a secondment arrangement that allowed one of the authors to gain a deeper understanding of urban design. The case studies relate the public realm / appearance elements of urban design as shown in the hierarchy in Figure 2.

4.1 Case Study 1 - Colombo Street, Christchurch

Background

The initial urban design philosophy for Colombo Street between St Asaph Street and Lichfield Street, in an early version of the central city street design manual, was based on designing a slow environment (30km/hr) conducive to shared street space for cycles and vehicles, and the provision of wide footpaths for pedestrians. The benefits of shared space are widely reported and were understood by the project team, however separation also has benefits when building a city-wide cycle network and striving to become a cycle city. The two methods aren't mutually exclusive both are needed to support safe cycling and creating a sustainable city. **Figure 7** (left hand diagram) shows the original cross section.



Figure 7 - Original proposal and refined cross-section

Design

Colombo Street is a key cycle route, and targeting the 'Interested but Concerned' user group is important. The classification of this route as a key cycle route was a primary factor in selecting whether separation or integration of people travelling by bicycles and general traffic was selected. The 'interested but concerned' group of people that 'would like to ride more. But, they are afraid to ride. Survey after survey and poll after poll has found again and again that the number one reason people do not ride bicycles is because they are afraid to be in the roadway on a bicycle' (Geller, 2012). There is a need for cycling to triple in use in Central City to help reduce the projected 2041 traffic volumes.

At the scheme design stage, however, a review of the forecast traffic volumes highlighted that traffic volumes on Colombo Street would be too high for shared lanes, particularly along the two blocks between St Asaph Street and Lichfield Street where there will be increased car travel to access the Lichfield car-parking buildings (approximately 1000 spaces combined).

The expected traffic mix in Colombo Street between St Asaph and Lichfield Street will be cyclists, cars, commercial delivery vehicles, and buses in the section from Tuam Street to St Asaph Street. It is anticipated that there will be a higher number of large vehicles in both the short term and medium term as the vertical re-build continues.

The predicted daily flows for Colombo Street are approximately 8,500 vehicles per day south of Lichfield Street. Guidance from several sources (CROW manual, Austroads, Queensland Government Design Guide) recommend that even on low speed environments when the traffic volumes exceed 5,000 vehicles per day some form of cycle separation is advisable.

Therefore, shared lanes could not be recommended as the preferred option particularly when trying to encourage cycling in the Central City. Separated cycle lanes over the section of Colombo Street between St. Asaph and Lichfield Streets were therefore considered. If the existing kerb lines were retained in the two blocks from Lichfield Street to St Asaph Street, space for 1.75 m wide Copenhagen style cycle tracks, which includes shy lines from the footpath kerb and the outside kerb could be provided (see right hand cross section in **Figure 7**). See **Figure 8** for before and after images of the street.



Figure 8 - Colombo Street Before and After

Outcome

The outcome still contributed to a positive urban space, as shown in **Figure 8 and 9**, but provided an enhanced space for cycling in central city and provided an important connection for multi-modal transport journeys from the new public transport interchange.



Figure 9 - Colombo Street outside the Interchange

4.2 Case study 2 – Gerald Street – Lincoln Town Centre

Background

The design objectives for Gerald Street were developed based on the vision of the draft Lincoln Town Centre Plan, “*retain the traditional village character of the town centre as it grows*”. The project was led by an urban designer from the Selwyn District Council. The transport design team worked very closely with the urban designer through series of design meetings to ensure the design was aligning with Plan and any potential land use changes and opportunities to work with private land owners.

Design

Because improving cycle movement along the street was one of the key design objectives, the preferred type of cycle facility was established prior to developing the cross-section options. A protected cycleway on each side of the road was selected to best meet the objectives and therefore it was known that at least one side of the street would lose car parking. A parking survey was undertaken to better understand the parking demand and a parking management plan developed to support the transition to a reduction in on-street parking. The parking loss was considered acceptable by the council as a plan to create shared car park areas to the rear of the businesses in partnership with private land owners has been on the table for some years.

A series of design options were developed and assessed by the consultant team and council and the preferred option was presented to Council in a workshop to gauge their support, this was forthcoming. The preferred option was developed into scheme plans. Along with the scheme plans the consultation material was designed to help people visualise the plan, by including artist’s impressions of the street, see **Figure 10**.

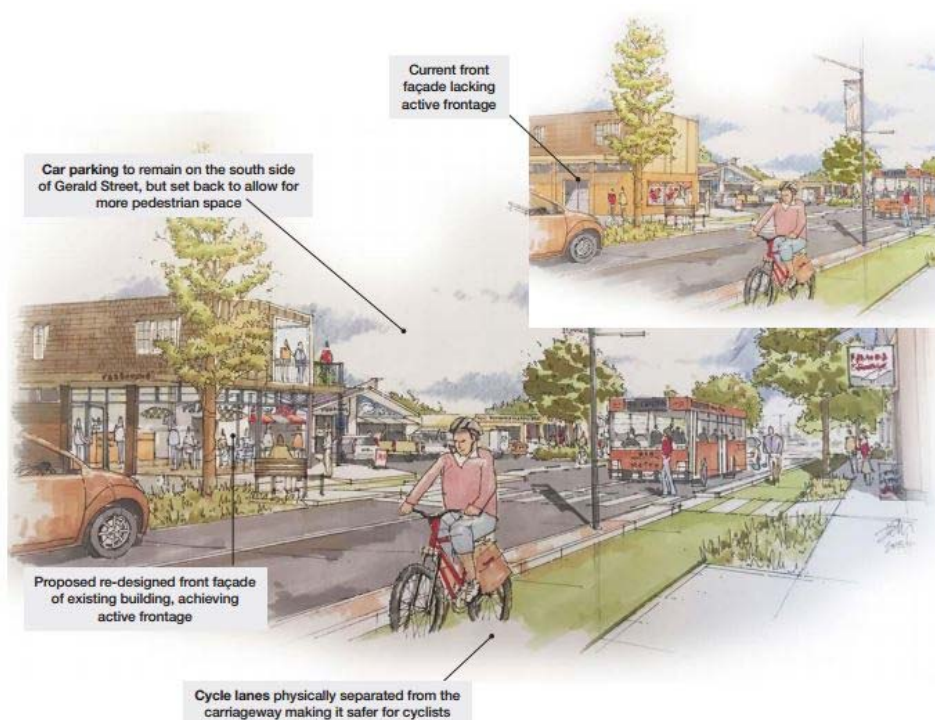


Figure 10: Extract from consultation material (Source: Draft Lincoln Town Centre Plan)

Outcome

This design process achieved a good outcome as there was a collaboration between the transport consultant team and the urban designer. The urban designer appreciated the technical limitations and supported the recommendation to develop a parking management plan to help address aspects that were likely to cause concern with business owners.

4.3 Case Study 3 – Improving the understanding and value of Urban Design (Job shadowing)

Background

As a lead designer for Council's Transport Capital Programme (the co-author), there is a need to understand the wider environment in which transport projects sit. To extend an understanding and a personal interest in urban design, a job shadowing arrangement was created with the Christchurch City Council Urban Design Team. As part of the agreement, it was also intended to provide the opportunity to have a transport engineer in situ in urban design to further aid the understanding of transport requirements in the Urban Design team's projects.

The experience

The following objectives underpinned the job shadowing:

- Provide the opportunity for Council staff to develop a practical understanding of related disciplines;
- Enable a heightened degree of cross disciplinary learning, understanding and knowledge transfer;
- Support staff retention and identification of career directions and opportunities;

The job shadowing ran from 14 March to 24 June 2016, with up to 8 hours of time allocated to the Urban Design Team per week.

During the shadowing, experience in urban design in respect to work areas included resource consent processes for medium density multi-unit residential developments, a new school proposal, anchor projects and transitional city projects, combined subdivision and land use proposal, and central city apartments. In addition, attendance at the Christchurch City Council Urban Design Panel to listen to the conversations around proposed new developments from different perspectives by professionals from the landscape architecture, urban design, architecture and property economics sectors.

Outcomes

The key benefits of the placement included:

- Understanding what the Urban Design Team does, including the range of scales of the work.
- Increased understanding of terminology and approach.
- Increased consideration in transport work of the treatment between public and private space.
- Greater consideration of the bigger picture i.e. influencing capital programme staff to think more strategically in regard to their projects to improve all aspects of connectivity and the public realm.

It also highlighted a number of tensions between the disciplines, particularly around parking. To achieve good outcomes on development sites particularly around the high-density accommodation, where the required parking numbers and efficient arrangements on site were difficult to achieve, there would be a need for the occasional reliance on on-street parking. However, where the developments were located along collector and arterial routes it could not be guaranteed that public on-street parking would be available in the future if improvements were required on the corridor for cycleways, public transport improvements or pedestrian crossings. This again highlights the need for early collaboration between urban designers and traffic engineers to ensure that objectives around urban mobility set by Council are met.

Whilst these improvements would lead to greater transport choice for residents or businesses, if there are missing links in the overall transport system these benefits are unlikely to be taken up, and again re-enforces the need for transport and land-use decisions to be taken together in planning for cities or even neighbourhood areas.

5. DISCUSSION

Urban design is not just about the ‘look’ of a project. Urban design is the art of making places for people. It includes the way places work and matters such as community safety, as well as how they look. It concerns the connections between people and places, movement and urban form, nature and the built fabric, and the processes for ensuring successful villages, towns and cities (DETR/CABE, 2000). Input from an urban designer should not be left to the end of the project because of a lack of understanding about what urban design is and what it encompasses.

Transport is not just about the compliance with the District Plan or the width of roads and traffic lanes. Again, input from a transport professional should not be left to the end of a project. Early transport input can enhance public realm projects and private developments by ensuring the movement network is designed to achieve safe, accessible and attractive streets and spaces.

Working together and appreciating each other’s value is the key to good design and subsequently good outcomes to create successful and towns and cities. **Table 1** outlines the value of urban design and transport input.

Table 1 – Urban designer and transport professional inputs

Urban Designers add to projects	Transport Professionals add to projects
<ul style="list-style-type: none"> • Context, setting and character • Consideration of urban form • Spatial awareness that considers aspects such as future land use potential • Challenge transport professional thinking • Bring together many facets of a project in a framework/master plan approach • Solutions around place making and addressing amenity with a Landscape Architect 	<ul style="list-style-type: none"> • Sound technical knowledge • Deliver the movement functions of all road users in a corridor • Identify safety implications and outcomes of a proposal • Delivering reality outcomes from a vision • Practical aspects including parking and access but in consideration of the bigger picture • Develop traffic/parking management alternatives to support the outcome

An example of how a greater understanding of each other’s offerings can be facilitated in New Zealand is through interest group collaboration. An interest group representing those involved in urban design is the ‘Urban Design Forum’ (UDF). The membership of this group includes urban designers, landscape architects, architects, surveyors, engineers, planners and transport professionals. In several centres UDF and IPENZ Transportation Group hold joint events (see **Figure 11**); this helps to gain a better understanding of each other’s industry and also encourages collaboration and cross pollination of ideas.



Figure 11– UDF and IPENZ Transportation Group site visit

6. RECOMMENDATIONS

Recommendations for project teams to consider when progressing designs that impact on the built and natural environment are outlined below. This is also important for project managers to understand this as they are often responsible for setting up the project teams and may come from neither an urban design or transport background.

Recommendations for transport professionals regarding design guidance and innovation that will help contribute to better urban design outcomes are also made.

Finally, several high-level recommendations are made to the both transport and urban design sectors regarding education, training and collaboration.

Project team structures and processes that:

- Ensure urban designers and transport professionals are working together from the start
- Take a workshop approach, and not only seeking help when things go wrong, but working collaboratively and openly, instead of defending territory
- Facilitate each profession understanding of the non-negotiables for example traffic lane widths, radii to accommodate vehicle types, landscape treatments.
- Work beyond the boundaries of the road corridor
- Allow urban designer and transport roles be carried through to detailed design.

Design guidance and innovation

- Councils produce multi-disciplinary guidance not just focussed on transport elements
- Strive for flexibility around infrastructure when safety is not impacted
- Think innovatively to achieve good design outcomes

Education, training and information sharing

- Urban design aspects are taught in transport related qualifications (and vice versa) to allow appreciation when entering the industry
- Seek out training opportunities that enhance deeper understanding of urban design/transport
- Consider secondments or job swaps to facilitate cross work experience
- Encourage information sharing and networking to build good industry relationships

REFERENCES

- BARROS, P. (2012) *Interview with Ian Bentley for Vitruvius Magazine*
<http://www.vitruvius.com.br/revistas/read/entrevista/13.050/4287?page=2>
- BEETHAM, J. (2014) *Re-Cycling the Streets: Exploring the Allocation of Public Space for Transport*, Thesis, Available:
<http://sustainablecities.org.nz/wp-content/uploads/JBeetham-Recyclingthestreets-thesis.pdf>
- BENTLEY, I. ALCOCK, A. MURRAIN, P. McGLYNN, S. SMITH, G (1985) *Responsive Environments, A Manual for Designers*
- CABE/DETR (2000), *By Design. Urban design in the planning system: towards better practice*,
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7665/158490.pdf
- CARMONA, M. TIESDELL, S. HEATH, T. TANER, O. (2010) *Public Places Urban Spaces, The Dimensions of Urban Design (Second Edition)*
- CHRISTCHURCH CITY COUNCIL (2016) *Streets and Spaces Design Guide*,
<http://ceraarchive.dpmc.govt.nz/sites/default/files/Documents/streets-and-spaces-design-guide-june-2015-full-document.pdf>
- GELLER, R (2009) *Four Types of Cyclist*
<https://www.portlandoregon.gov/transportation/44597?a=237507>
- LLEWELYN DAVIES YEANG, (2000) *Urban Design Compendium*
https://udc.homesandcommunities.co.uk/urban-design-compendium?page_id=&page=1
- JONES, P., N. BOUJENKO AND S. MARSHALL. (2007). *Link and Place: A Guide to Street Planning and Design*. Landor Press, London.
- MENTZ, K (2015) *Transport-specific urban design*
http://www.urbanismplus.com/wp-content/uploads/2011/07/Transport-Specific-Urban-Design_Kobus-Mentz_September-2015.pdf