TRAFFIC IN TOWNS, THE LOSS OF URBAN RESILIENCE AND THE CASE OF AUCKLAND'S CIVIC CENTRE

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There are cogent arguments supporting the idea that resilient urbanism requires successful streets. Successful streets in city centres require a balance between efficient traffic movement and spaces for pedestrians on which urban vitality and economies depend. This balance was fractured in the 1940's with the growth of car ownership, and traffic solutions prioritising vehicle movement. Responding to these issues in 1963, the Buchanan Report, *Traffic in Towns* advocated building motorways in towns, but in such a way that these circled what were called 'environmental areas'. Auckland enthusiastically embraced motorway construction from 1955, and proposals to build a new civic centre at this time were seen as an opportunity to improved traffic flow in the inner city. This included the insertion of a new circular street, Mayoral Drive, cutting across the previous small scale grain of blocks and streets. The success of this street 50 years since its construction is assessed using urban design criteria. The conclusion drawn is that apart from two small areas, Mayoral Drive remains a largely unsuccessful street at the heart of Auckland, with a configuration that remains difficult to remediate from both a private and public investment point of view.

Keywords
successful streets, traffic, quality urbanism, modernism, civic centres

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INTRODUCTION

Ewing and Clemente (2013) begin their book *Measuring Urban Design* asserting that 'in terms of the public realm, no element is more important than streets'[1]. Successful streets in the context of city centres are those that facilitate necessary traffic movement, but prioritise pedestrians to create public realms that attract people, enhance opportunities for social interactions, and provide a framework for necessary economic activities at a range of scales[2]. Ehrenfeucht and Loukaitou-Sideris argue that successful street depends on the quality of the sidewalks as distinct public space, and the extent to which this encourages pedestrian foot traffic[3]. Resilient urban centres require good streets to achieve and sustain good social and economic outcomes.

However, understanding the important relationship between traffic movement, pedestrian activity and urban vitality become fragmented in the 1940's with the rapid rise of private car ownership and shaping cities to better accommodate traffic movement. City centres increasingly became more hostile places for people, which in turn triggered critical responses[4]. Concerned with increasing traffic congestion and pedestrian safety in the United Kingdom in 1942, Alker Tripp observed that a 'formidable...conditioning factor' in cities was modern road traffic, and called for co-ordinating 'the technique of town planning and road traffic control[5]'. A more comprehensive response to this relationship was articulated in a UK government study, *Traffic in Towns*, published in 1963. Led by Colin Buchanan, the remit was to 'study the long term development of roads and traffic in urban areas and their influence on the urban environment[6]'. The Buchanan Report came to the view that 'the future of the motor vehicle...is assured',7 and went on to advocate that the UK should not only follow of the United States lead in building motorways *between* cities, but also to build them *in* cities. Recommended was the 'canalization of longer movements on to properly designed networks serving areas within which...environments suitable for civilised urban life can be developed.'[8] This involved the establishment of what were called 'environmental areas'[9] able to sustain quality urban life, surrounded by major roads dedicated to traffic movement. Envisage as 'urban rooms', the environmental areas were seen as places where 'people can live, work, shop, look about, and move around on foot in reasonable freedom from the hazards of motor traffic...'[10] While the Report declared the motor vehicles 'indispensable' to the modern Motor Age, its significance was a search for a 'balance' between planning for motor vehicles and maintaining quality spaces for pedestrians in 'environmental areas'.

Typical to many cities around the world, Auckland was early to respond to both building an urban motorway system and making inner city road improvements for more efficient traffic movement. Decisions to invest in Auckland's motorways stem from what Mees and Dodson argue to be 'one of the most extreme automobile oriented transport policies pursued by any major city between the 1950s and 1980s'.[11] This was driven by the 1955 *Master Transportation Plan*[12] opposed at that time by New Zealand Railways advocating the modernisation rail system and investment public transportation. The decision to invest in motorways was taken by a Technical Committee dominated by road engineers, who offered little in the way of justification of their decision. This, Gunder suggests, had broader motives related to:

— a complex set of values partially imbedded in American liberal concepts of material progress; the unquestioned value of growth, including the perception that the 'unlimited' land of the 'new-world' is only of worth when developed; and, foremost, individuality—as exemplified by the artefacts of the personal car and 'freeways'. [13]

Mees and Dodson reinforce this argument by pointing to the way in which the 1955 *Master Transportation Plan* was bolstered in pictorial form:

— with eight full-page photographs showing traffic congestion in Auckland, which are then followed by are followed by eight pages of photos of freeways and multi-storey car parks from American cities. A powerful impression is created of a contrast between a backward Auckland and an American ideal of modernisation. [14]

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Concerned with the fact that Auckland's population was growing faster than forecast, led to the subsequent appointment by the regional authority of the American international transport engineers, de Leuw Cather to reassess the city's transport plans. As Mees and Dodson observed, this moved the justification for motorways beyond an 'insistent rhetorical tone' to the deployment of computerise transportation modelling, and as Gunder further observes, added 'American-predicated value-goals of material progress and 'development'...masqueraded as value-free scientific and engineering expertise'.

Not only did Auckland build a motorway system that facilitated subsequent car-dependent, low density suburban sprawl, but also a number of micro-scale arterial road constructions intended to prioritise vehicle movement and improve traffic flow in central city locations. A mid-20th century decision to proceed with the building of a new civic centre was seen by the city as an opportunity to improve traffic flow in this part of the CBD. The outcome was the construction of a new street, Mayoral Drive, circling around the proposed civic centre, effectively enclosing the 'civic heart' of Auckland in an 'environmental area'. This paper reports on an analysis of Mayoral Drive to understanding why it has failed to achieve urban vitality as a street fifty years after its construction.

CREATING A 'CIVIC HEART'

Ian Morley observes that the field of civic design is a relatively unexplored domain within urban planning, despite manifest ways in which colonial authorities sought to 'express local pride and notions of nationhood'.[15] The first permanent civic building in Auckland was constructed in 1887, followed by the Town Hall in 1909, adjacent to the city market.[16] Creating a civic centre and square in this location was an early aspiration for the city, evident in a 1968 history written by the town planning division: '...since the erection of the Town Hall in 1909 particular attention has been paid to the area around it as the possible site of a Civic Centre, the focal point of civic life, and the one place able to be called the "heart" of the City'.[17] Several proposals followed including the 1911 one by Charles Read, and a winning entry to a 1923 competition by Gummer and Ford (see Figure 1), along with further amended proposal through to the 1940's, but none of these were realised.[18]

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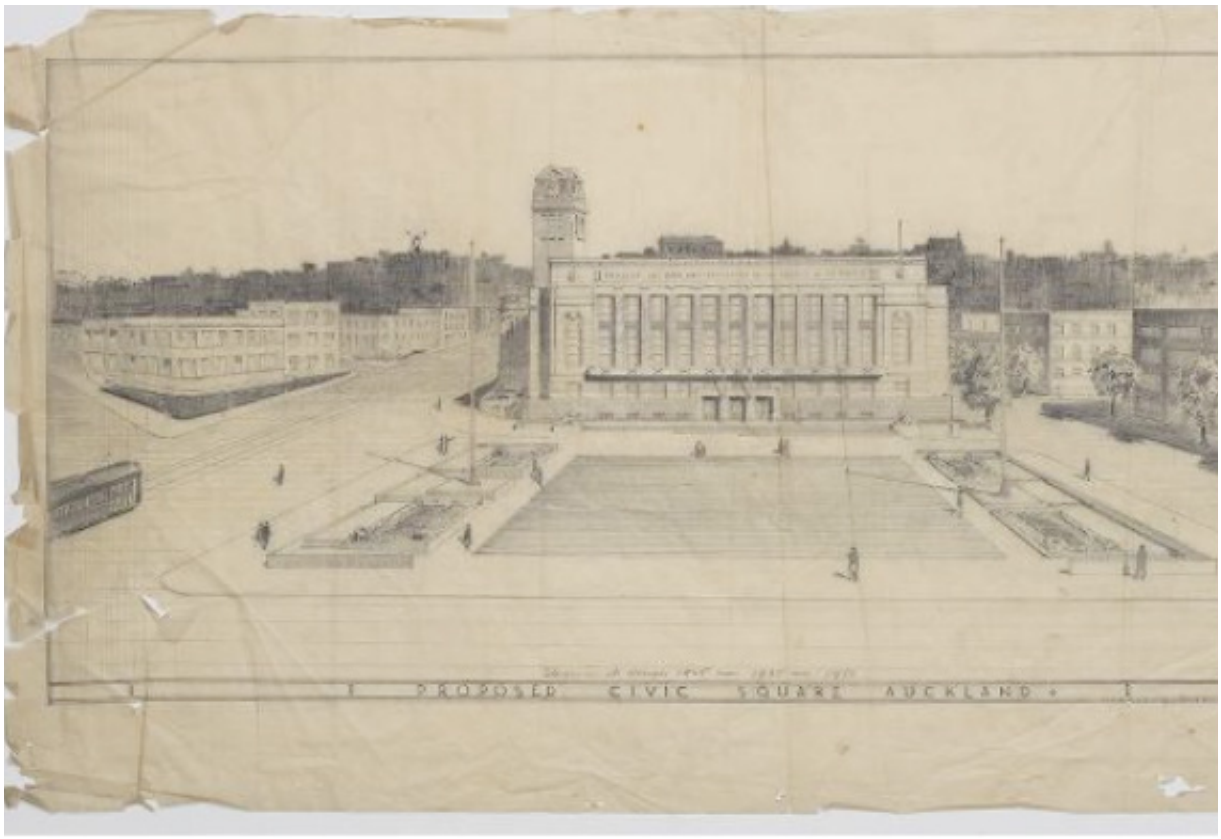

FIGURE 1 Gummer and Ford's proposed civic centre and city square for Auckland

New impetus came in 1945 following an agreement with the New Zealand Government to combine the requirements for both the central and local governments in the same civic centre. Despite the potential for a cooperative approach, the process led by the government, turned out to be antagonistic both over the design and financial responsibility. Whereas the pre-WW2 proposals were all neo-classical in character, the post war schemes were all heavily reflective of modern architecture at the time. In part this was consequence to the appointment of T.K Donner as city architect in this year, and the European modernism advocated by him and the Ministry of Works at that time. The initial scheme called for the demolition of significant buildings, including the 1909 Town Hall and the 1929 Civic Theatre. In their place, nine slab blocks containing civic offices, a new civic theatre and underground parking garage was proposed, surrounding a new city square (see figure 2).

Rival alternatives schemes prepared by the city council and the government's Ministry of Works followed, until there was acceptance of a somewhat compromised scheme 4 (see Figure 3), that become the basis for the development from 1951. Essentially this divided the interests of the city and government between sections of the site, the one government building realised (the Bledisloe Building) having commenced construction before resolving what constitutes a poorly considered masterplan and development process. The city proceeded with its administrative building designed by the city architect in the form of a tower, rather than a slab block, followed by the more controversial civic theatre in the 1990's[19].

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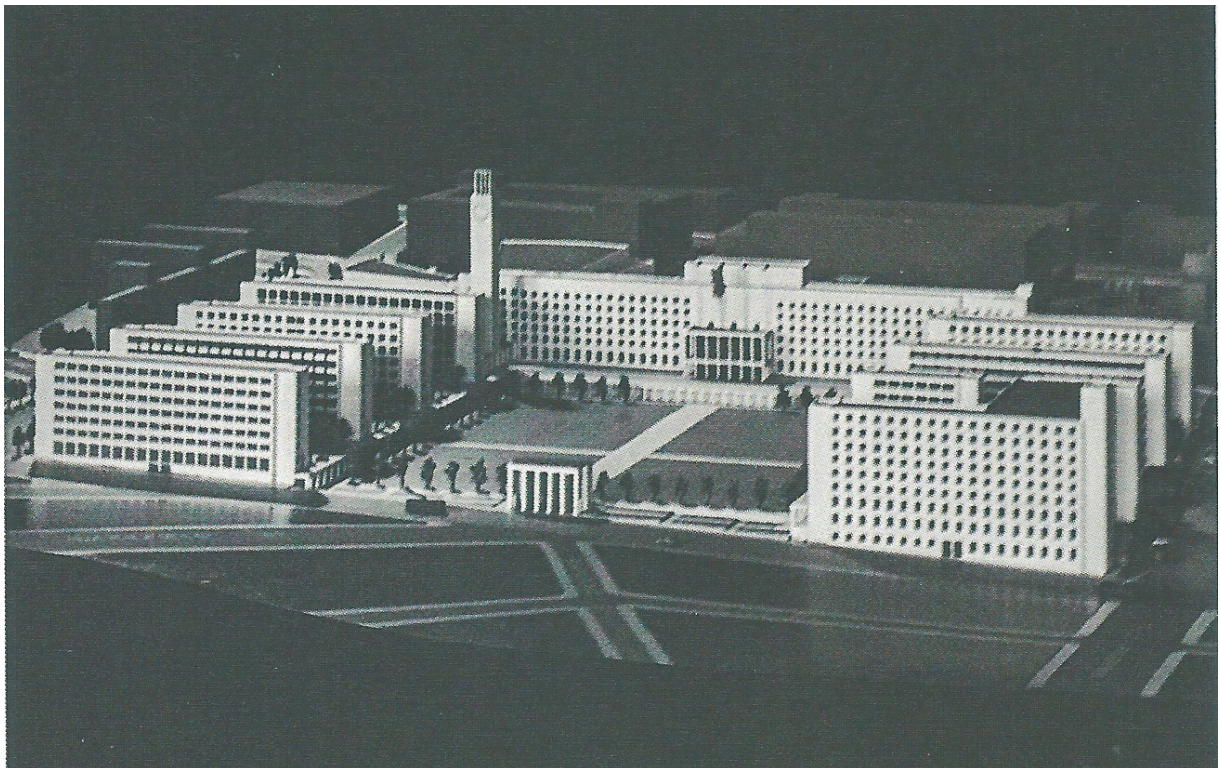

FIGURE 2 The government's Ministry of Works first proposal for the Auckland Civic Centre, 1946.

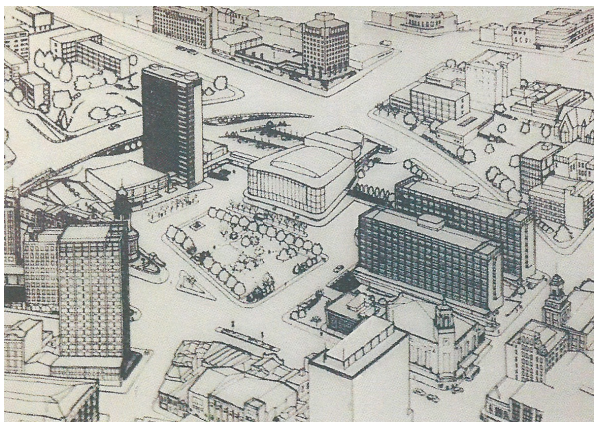

FIGURE 3 The fourth civic centre proposal, 1951, retains the 1909 town hall. The intention to include the new street (Mayoral Drive) to the west to the civic centre in this proposal is very evident in the agreed scheme. Only one of the slab blocks for government office was built.

FIGURE 4 The city engineer's plan for Quadrant Road (later renamed Mayoral Drive) and its extension to the south and east of the civic centre.

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ACCOMMODATING TRAFFIC MOVEMENT AROUND A CIVIC PRECINCT

Among objectives in various proposals was the city engineer seeing the civic centre construction as an opportunity to improved traffic movement in the CBD. The scheme 4 adopted (see Figure 3) clearly shows a new street, Quadrant Road (later renamed Mayoral Drive), curving around the proposed civic centre. The city engineer also pushed for this new road to be extended though commercial properties to the south and east of the civic centre, to complete a loop.

The route of Mayoral Drive as proposed (and constructed) is shown as an overlay on a 1942 photograph of this part of Auckland (see Figure 4). This new road also provided a connection along Wellesley Street to the planned motorways. The thinking behind the road engineering followed what was seen by the city town planning division as modern thinking about civic centre design in post WW2 United Kingdom:

— *the modern trend in the planning of administrative centres as evidenced by the latest reconstructions schemes for devastated areas in English cities is towards the formation of 'Precincts' by running the main thoroughfares round the area and arranging the buildings and access thereto so as to discourage 'through' traffic with the area*[20]'

Consequently, what was added to the 1951 masterplan for the civic centre, was the creation of a civic precinct, around which ran an arterial road, avoiding as suggested any through traffic. However, to complete the road loop also required extension across commercial properties to the south and east of the civic centre, providing access to the planned motorways along Wellesley Street. To achieve this vision required large scale engineering works and building demolitions. Exiting roads running across the designated civic centre site were closed and removed (as shown in Figure 4). The most significant closure was that of Greys Avenue that converged with Queen Street to define the wedge shaped site of the Town Hall. The natural topography also required the construction of vertical retaining walls along the inner side of the new street, and in parts of the outer side. In addition, to maintain access to a park to the south of the Town Hall (Myers Park) a bridge was required. The inclusion of retaining walls along much of the street edge resulted in a number cross streets being severed (shown in figure 4). Consequently, the finer grain of streets and urban blocks that previously existed in this part of the CBD were lost and replaced with a large block surrounded by a busy road – the 'canalisation' of traffic movement and creation of 'environment areas suitable for civilised urban life' later to be advocated in the Buchannan Report.

ASSESSING THE URBAN LEGACY

While there is agreement on the role of streets in contributing to good urbanism, urban design practices tend to be less rigorous on methods of objective analysis related to perceptual urban qualities. There is, however, a growing literature on such methods. Ewing and Clemente (2013) for example, propose a methodology to assess the quality of street spaces that incorporates the physical features (such as footpaths and street widths, traffic volumes, the level pedestrian activity, etc.) and less tangible perceptual qualities (such as imageability, legibility, sense of enclosure, etc.)[21]. The first way in which Mayoral Drive was assessed as a street and public realm, was to identify key physical features defining its qualities from a detailed field survey. The street length, close to one kilometre, was subdivided into 13 segments, each approximately 75 metre in length. The dominate features from the perspective of a pedestrian are: signalise pedestrian street crossings, access to parking crossing the footpath, the vertical retaining walls creating differences of level between the street and adjacent sites, imposed horizontal separation between the footpath and adjacent building, street frontages with retail activities, severed street intersections, and adjacency to open car parking areas. The outcome is recorded in table 1 in terms of the presence or absence of these features, and also shown in Figure 5 for each of the street segments surveyed, and graphically shown in Figure 5.

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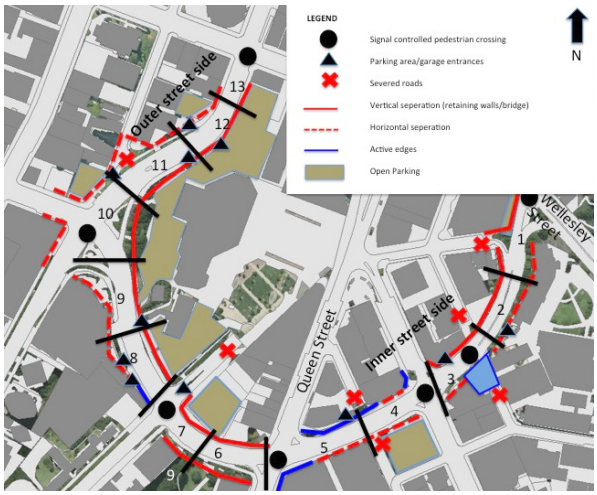

FIGURE 5 Analysis of the physical characteristic of Mayoral Drive, identifying the 13 analytical segments over a 2014 figure-ground map, for the inner and outer street sides.

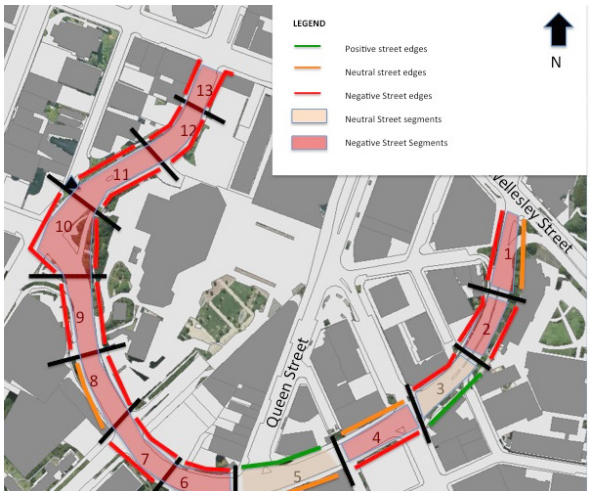

FIGURE 6 Analysis of pedestrian street attributes for the inner and upper sides of Mayoral Drive, and summation for each street segment.

Dominant are vertical retaining walls largely to the inner parts of the street to adjacent land located a lower level, a large number of entrances to parking garages and parking lots cutting across footpaths, and the large area of land still used as open car parking, despite the central city location. Horizontal separation refers the lack of connection between streets and adjacent building despite the potential for this to exist, and again this features strongly. Also very visible are the streets where connection was severed by the construction of Mayoral Drive. Signalised pedestrian crossings are fairly frequent although with the exception of one in segment 3, they are primarily intended to control traffic flow. Only four of the 13 street segments have activities such as shops and building entrances interacting directly with the street. Overall this suggested a poor street environment, but to further validate this conclusion a second method was deployed.

- Ensuring that streets encourage are 'assembled' (concentrated) rather than 'disperse'.
- Ensuring that pedestrian movement is prioritised over traffic.
- Ensuring that street possess attributes able to 'invite' people, rather than to 'repel' by having no walls, short distances, low speed, single level and face-to-face orientations).
- Quality street conditions that engender a sense of pedestrian 'protection' (feeling safe, secure and few unpleasant sensory experiences).
- Quality street conditions that engender a sense of comfort (easy to walk, stand, sit, etc.)
- Qualities that engender 'delight': human scales, good climatic exposure (sun, wind) and positive sensory experiences (trees).
- Active street interface with adjacent buildings, raging from most 'active' (15-20 doors/100m) to 'inactive' (0-2 doors/100m).

Using the seven successful street attributes identified by Gehl above, the street conditions on the outer and inner sides of Mayoral Drive were assessed for each street segment. This involves a scoring system ranging from 1, where the attribute contributes very negatively towards the pedestrian experience, to 5 where this is very positive. Table 2 below provides the outcome to this assessment. For the inner and outer street edges, scores are group into three ranges: negative (score of 16 or less), neutral (score between 17 – 26), and positive (more than 27). Only two street edge segments scored in the positive range (segments 3 and 5), while five scored in the neutral range. The majority of street edges in the segments score in the negative range.

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STREET SEGMENT NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13
Signalise ped crossing	■		■	■	■		■			■			■
Parking access points		■	■		■		■	■	■	■	■	■	
vertical walls/bridge	■	■		■		■	■	■	■	■	■	■	■
horizontal separation	■	■	■		■		■		■		■	■	
active street fronts			■	■	■								■
closed street intersections	■	■	■	■			■				■		
Adjacent open car parking	■			■		■	■	■	■	■	■	■	

TABLE 1 Ground survey of physical characteristics of Mayoral Drive by street segment.

This is also shown graphically in Figure 5, where the street edges in red indicates negative (poor) street qualities. Also visible, is the fact that most of the inner edge to Mayoral Drive has negative conditions, in part the result of the retaining walls along most of the road length. Table 2 also shows a summation of both the inner and outer street edge scores, to provide an indicative overall rating for each of the street segments (also graphically show in figure 6). With the exception of two segments, the entire street length has scores in the negative range, indicating poor quality from a pedestrian perspective. It is interesting to note that a new café established on the ground floor in segment 7 failed within a few months due to the lack of pedestrian traffic.

The two exceptions are important for different reasons. Segment 3 is adjacent to the Auckland University of Technology campus, and new buildings running on the outer edge of Mayoral Drive have attempted to address street geometry. Moreover, a previous street connection has been transformed into a new small public space providing an entrance to adjacent buildings and the campus beyond. A dedicated pedestrian crossing also existing in this location, linked by public staircase to the severed street below.

The second exception is segment 5 that is located at an intersection with Queen Street, the main shopping street in the central business district. Buildings on each side of the street at the intersection have ground floor shops and cafes, and residential and commercial development above. Part of the commercial energy at this point spills over into this part of Mayoral Drive.

Jan Gehl in his *Cities for People* set out key urban design principles for successful street design as a 'toolbox' with seven key attributes, namely[22]:

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	OUTER STREET SIDE								INNER STREET SIDE								
Street segment no	assemble/disperse	traffic/pedestrian	invite/ repel	quality protection	quality comfort	quality delight	active inactive	**Tot Outer St side**	assemble/disperse	traffic/pedestrian	invite/ repel	quality protection	quality comfort	quality delight	active inactive	Tot inner St side	**tot street segment**
1	3	3	2	3	2	3	1	**17**	1	1	1	1	1	1	1	7	**24**
2	2	2	2	3	2	1	1	**13**	1	1	1	2	1	1	1	8	**21**
3	3	3	5	4	4	4	4	**27**	1	2	1	1	1	1	1	8	**35**
4	1	2	1	2	2	1	1	**10**	3	2	3	4	3	2	3	20	**30**
5	2	3	1	3	3	4	3	**19**	4	3	4	4	4	3	5	27	**46**
6	1	3	1	2	1	1	1	**10**	1	1	1	1	1	1	1	7	**17**
7	2	3	2	2	1	1	2	**13**	1	1	1	1	1	1	1	7	**20**
8	3	3	3	4	3	3	3	**22**	1	1	1	3	2	1	1	10	**32**
9	1	1	1	1	1	1	2	**8**	1	1	1	2	1	1	1	8	**16**
10	1	1	1	1	2		1	**7**	2	2	2	3	2	2	1	14	**21**
11	1	1	1	1	2	1	1	**8**	1	2	1	2	1	1	1	9	**17**
12	1	1	1	1	1	1	1	**7**	1	1	1	1	1	1	1	7	**14**
13	3	2	2	3	3	2	3	**18**	1	2	1	1	1	1	1	8	**26**

TABLE 2 Scoring of pedestrian street attributes (1 = most negative, 5 = most positive), for the inner and outer sides of Mayoral Drive, and the summation, by street segments as shown on figure 6.

CONCLUSIONS

Taking Ehrenfeucht and Loukaitou-Sideris position that successful streets depend on the quality of the footpaths as distinct public space, and the extent to which this encourages pedestrian foot traffic, the assessment of Mayoral Drive points to a highly unsuccessful street. To the extent that resilient urban centres require good streets to achieve and sustain good social and economic outcomes, we also conclude a failure in this this regard as well, especially when compared to recent success in enhancing retail activity in adjacent streets and areas.[23] More surprising is that these poor conditions created in the mid-20th century have persisted to the present time. In part the issues arise from the way in which the civic centre is designed as set of pavilion buildings disconnected from the street frontage, and in this case, also separated by level differences. These conditions are much the same as those characterised by Roger Transik as 'Lost Space' where 'urban development treats buildings as isolated objects sited in the landscape, not as part of the larger fabric of streets, squares, and viable open space'[24]. Moreover, almost the entire length of Mayoral Drive following around the civic centre surprisingly, given the economic value of land, remains open car parking. The outcome in one sense is not surprising, given that Mayoral Drive as conceived in the 1950's was essentially a traffic conduit, compared to far beter approaches to street design in this century. Nevertheless, Mayoral Drive will continue to be difficult to transform into a successful street, whether by public or private initiatives.

Not addressed in this paper, is the civic centre and city square (Aotea Square), but is analysed and discussed in another conference paper, where its own failings are reported [25]. Thus the civic centre of Auckland as a whole, driven by the fractious urban design and planning process in the 1940-50s, has failed to create a successful civic centre, city square and urban street. This leaves one to speculate on whether selecting one of the pre-WW2 proposals might have led to a far better and more resilient solution.

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Image Sources

Figure 1: University of Auckland Library
Figure 2: Auckland Libraries Archive
Figure 3: Auckland Libraries Archive
Figure 4: Auckland Council GIS viewer with overlays by the authors
Figure 5: Authors
Figure 6: Authors

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