Abstract
A number of articles have been written on the relationship between cities and suburbs around the globe. However, surprisingly few studies have been undertaken on Australian cities. This paper is an attempt to examine city development and a series of evolving processes occurring in residential areas in Melbourne, Australia. The paper begins with an archival-based discourse on how Melbourne has formed its structure. It is followed by succinct comparative observations among Melbourne, European and US cities. The key findings are: (i) Melbourne extended urban rail lines into open countryside to create new suburbs, particularly in the “land boom” of the 1880s. Melbourne’s basic city function as transit-oriented was made at that time. (ii) The city saw sprawling tendencies, throughout the 1960s and 70s, and was moving towards a car-based city like those commonly observed in the US. (iii) Melbourne is, at the moment, located somewhere between an Asian or European transit-oriented city and an American automobile reliant city. These physical differences of city structure are affected by precedent economic, socio-demographic and cultural elements.

Keywords: Residential Areas, Suburbs, Inner City, Melbourne, Australia

1. Introduction
There are trends of continuing urbanization in many cities, most of which have already experienced urbanization to some extent. Such dynamic tendencies are to be seen more remarkably in Asian countries. Numerous attempts have been made to explore a synthetic method in the field of architectural planning in terms of relationships between cities and suburbs. Furthermore, these issues are directly connected to fundamental elements, such as reviving the inner city, for an attractive and sustainable urban space.

There are numerous articles examining inner cities and suburbs around the world and these include international comparative research studies. What seems to be lacking, however, is that surprisingly few studies have so far been made on Australian cities. Furthermore, many local researchers in Australia analyze Australian cities as having followed a US cities’ pattern. Nevertheless, in recent years articles indicating that there are at least as many similarities with European cities have also been presented. Australia has unique social backgrounds such as having formed a multicultural country and its exploring position among Asia, Europe and other countries. It follows that studies from a non-Australian point of view would be useful not only for Asian countries, but for other countries around the globe.

This paper is an attempt to examine city development and the evolving process of residential areas in Melbourne, Australia. It comes within the scope of this paper to trace the historical socio-demographic tendencies and to grasp the actual conditions of residential areas: inner cities and suburbs. Therefore, a closer study of these issues, which would be called for regarding a viewpoint of sustainability, is not necessary for my purpose here. I begin with a discussion on the city structure of Melbourne according to the timeframe from the commencement of colonization to the present. I then launch into a discourse on similarities and differences among Melbourne, US cities and European cities. A brief summary concludes the paper.

2. Evolving Residential Areas in Melbourne
This section examines how residential areas have been developed. My own viewpoint here is to survey the evolving processes of residential areas with tracing economic and socio-demographic backgrounds in Melbourne. The purpose is to describe these processes through multifaceted elements because basic and diverse studies are considered a more urgent task than detailed and narrow-focused research. Very few
studies have been made on Australian cities and this paper aims to be one of the fundamental andintroductive reports for further urban study. Here I develop my arguments with three paragraphs in chronological order: (i) in the nineteenth century, (ii) the first half of the twentieth century and (iii) since the end of World War II. A succinct comment concludes this section.

2.1 Melbourne in the Nineteenth Century
It was during the period of the industrial revolution when the British started moving and settling in Australia. The construction of Melbourne city commenced in 1835. The first railways were built in the mid-nineteenth century, the networks centered on the capital cities and reinforced their dominance, while little development was to be seen in smaller cities on the fringe. Forster (1995: 8) argues that the reason for this was the extreme concentration of economic capital and the administrative function of the colony in capital cities like Melbourne. It naturally followed that much of the manufacturing industry was also drawn to the capital cities when it developed in Australia later in the nineteenth century.

Throughout the nineteenth century, there were two remarkable incidents to be noted. In the first place, gold was discovered in the state of Victoria, resulting in a gold rush creating a massive influx in the population. For the decade from 1851, the population of Melbourne city grew some fourfold from 2,900 to 12,500. The other incident was the “land boom” which was the time when economy was flourishing. Mees (1994: 3) describes the reason: British investors changed their targets from industry to development in the US and Australia. These investors obtained much benefit for some decades until 1870s, yet such benefit was also decreasing as time went on. This capital investment from the UK, therefore, boosted economic development in Australian cities, especially in Melbourne. This land boom lasted until the 1890s.

During the boom experienced in the 1880s, Melbourne became a classic example of public transportation and suburban development. It consisted of the two elements: a relatively high-density “walking city” at the core and surrounding “village suburbs” existing mainly along the railway lines (Mees, 1994: 4). The city center at the core had both many slopes and an accurately organized grid, for Melbourne simply adopted a master-plan made in the UK (Nishimura & Hattori, 2000: 115). The figure 1 shows the city blocks of Melbourne in 1837.

The figure 2 (A) illustrates the shape of this city structure. In this walking city and village suburbs, industrial land are located at the heart while commercial areas are expanded along the public transit lines. Residential areas were surrounding these commercial areas. (Mees, 1994: 4)

2.2 The First Half of the Twentieth Century
The federalization of Australia in 1901 changed Melbourne into a city of international significance. Melbourne was the capital city of Australia until 1927 and the population at that time exceeded half a million. Forster (1995) illustrates the situation at that time: “…It was during the 1920s that manufacturing became a major economic force in Australia. It had an expanding domestic market to serve under the protection of the newly created federal tariff system, and generous amounts of capital investment from Britain… Growth was particularly strong in Sydney and Melbourne which formed (as always) the largest domestic markets and labour pools… The domestic
production of Munitions during World War II caused further growth, and the 1947 Census showed that, for the first time, more Australians had manufacturing jobs (28 per cent of the workforce) than worked in primary production (18 per cent)... “ (Forster, 1995: 13)

In that way, Melbourne continued its economic growth as a driving force in Victoria. Gilbert (1989: 33) indicates how Melbourne developed its city structure:

By the 1920s, the “village suburbs” were joining together to form “fingers” of growth following rail lines (which were electrified by 1923). Closer to the city, the spaces between the “fingers” were being filled in at low densities as a result principally of the expansion of electric tram services and buses (Gilbert, 1989: 33)

The figure 2 (B) shows the structure of the transit city, which was developed as above. In this public transport city, you can see an expansion of commercial and industrial areas at the heart and an extension of residential areas. This basic structure, however, retains the characteristics of a walking city and village suburbs.

2.3 After the World War II

The end of World War II was the beginning of the “long boom,” which lasted until the 1970s. This is characterized by the increase of population and economic growth. Between 1947 and 1971, the population almost doubled in Melbourne from 1,340 to 2,500 thousand. Another point is that Australia began accepting massive amount of immigrants from abroad. This is symbolized by the term “multicultural,” which was first used in 1972 when the Whitlam led government gained power. It was also the time for Australia to find its position on the world map again, for UK joined the EC in 1973. Two factors, foreign immigrants and baby-boomers, maintained the increment of Melbourne’s population growth. See Table 1 for the components of population growth in major cities in Australia from 1947 to 1971.

Table.1 Components of Major City Population Growth 1947-71(%)  

<table>
<thead>
<tr>
<th>City</th>
<th>Natural increase</th>
<th>Net internal migration</th>
<th>Net overseas migration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>45.6</td>
<td>-1.8</td>
<td>56.1</td>
<td>100</td>
</tr>
<tr>
<td>Melbourne</td>
<td>43.8</td>
<td>-0.1</td>
<td>56.3</td>
<td>100</td>
</tr>
<tr>
<td>Brisbane</td>
<td>40.4</td>
<td>26.3</td>
<td>33.3</td>
<td>100</td>
</tr>
<tr>
<td>Adelaide</td>
<td>32.5</td>
<td>12.5</td>
<td>55.0</td>
<td>100</td>
</tr>
<tr>
<td>Perth</td>
<td>36.4</td>
<td>15.5</td>
<td>48.1</td>
<td>100</td>
</tr>
</tbody>
</table>


Forster (1995: 15) argues: Post-War Melbourne saw development of its urban area until early 1970s. Under the “long boom,” there emerged a new direction towards an “automobile city” instead of the former “transit-oriented city.” See the Figure 2 (C) for the form of an automobile city.

In this car-oriented city, commercial and industrial centers are prone to be scattered all over the area. People mainly access these locations with their own cars. In 1945 there were roughly 100 cars per 1,000 persons in Australia, while there were almost 500 cars per 1,000 persons by the early 1970s. Under such a situation, the public transportation system had a bad spiral between the decrease of customers and the paucity of investment.

Melbourne showed some tendencies towards decentralization during the 1960s. Mees (1994: 5-8) indicates that many governmental departments, sports associations and educational institutions relocated their head offices to suburbs. These shifts, therefore, reflects the low living status in the inner city. MMBW [What does MMBW stand for], in 1951, asked whether people would like to move from their current residences. A “yes” response was most frequently counted in the inner city. Their first favorable destination, however, was the inner suburbs, not the outer. (MMBW, 1953: 53)

2.4 Emerging Trends

Decentralizing trends, which were so eminent twenty years ago, are now weathered. No more governmental buildings are moving to suburbs. The Australian Rules Football finals are still held at the MCG (Melbourne Cricket Ground), which is located in the inner city. Elite schools are longer shifting their campuses to the suburbs. Besides, the release of 1996 census results in Australia has raised a few eyebrows about some new and unexpected trends in cities and regions. The most worthy of these is that the inner city population is increasing. This can be explained by the concept of “café society,” which is related to the shift of economic system.

The Australian economy, as well as those in other countries, has become more and more connected to the global market. Its market, to some extent, is moving to an information economy. Melbourne, as the second largest city in Australia, has been flooded on the global market as a “world-city.” Sydney has had a massive inflow of finance, multinational corporations and tourists. Melbourne is under reformation towards a more inter-state and international economy. This is symbolized by the increase of jobs created in the channel of finance and real estate. Furthermore, such waves are to be seen in not only these areas but also in employment sector. Reynolds and Porter (1998) show this economic change and the key to success in the information economy in Melbourne:

Over the last twenty five years in Australia, part-time work has increased by 250 per cent and full-time work by only 50 per cent... In an information economy, proximity to other specialists not only helps the capacity to do work but also assists
in the challenge to obtain new work. Often new opportunities are communicated by word of mouth. The inner city, with its concentration of professional workers in a variety of occupations, plus the café infrastructure supports this and offers an ideal venue for the exchange of opportunities. (Reynolds and Porter, 1998: 65)

In Melbourne, such a café society is based in the inner city and offers opportunities for success. Many offices, their workers and their residential areas are, hence, attracted to the Central Business District.

2.5 Summary
This section traces how the city function has been developed in Melbourne from its beginnings. The most remarkable point to note is that Melbourne’s basic city shape and structure as a public transport city was set by the time of the land boom in the 1880s. Trends towards an automobile city and the decentralization of residential areas starting in the 1960s did not change the foundation of this long-consistent nature. As the Figure.3 indicates, Melbourne has two types of residential areas at the moment: areas based on transit and ones on car-ownership.

3. Comparative Observations
The previous section discussed Melbourne’s city structure and the evolution of residential areas. This section will develop a discourse on comparative observations among Melbourne, European and US cities.

3.1 European Cities and Melbourne
The first urban rail for commuting in the world was opened in 1836 in London. Accordingly, in 1863, the London subway commenced. Hall (1989: 31-37) describes the period from 1890 to 1910 as the most significant phase:

The American entrepreneur Charles Tyson Yerks constructed a series of deep underground rail lines with recently-developed electric traction and tunneling techniques. The Yerks’s lines facilitated development of a characteristic feature of modern London between the World War I and the WWII. It was a dynamic population movement from the crowded inner city to the new suburbs. Such suburbs were made by an extension of subways into rural areas. These processes happened during the time when houses were the most available throughout history. London had expanded massively by WWII to form a circular area with a radius of 12-14 miles (19.2-22.4km). The outward growth of the built-up area was hampered because of the “green belt” established by the Great London Plan of 1944.

Continental European cities looked quite different. In Paris, bourgeois kept living in the city. Therefore, the needy exiled to suburbs and there, “immigrant families… are stacked in high-rises, far from workplaces and shops.” (Hornblower, 1991: 16) The same pattern was seen in Rome, Barcelona, Vienna and Sweden. “Since 1950 new towns have sprouted around Stockholm… high-rise, high-density, low-amenity… suburbs such as Vallingby, nine miles (14.4km) west of the city centre… with their immigrant concentrations and strong emphasis on public transport…” (Jackson, 1986: 7) Yet, suburbs were dependent on inner cities for “high-order” urban functions such as comparison shopping and tertiary sector employment.

![Figure.3 Population and Transport Networks](source: ABS (1991), Social Atlases)
Many European cities were making their physical characters as transit-oriented although these cities each have distinctive qualities. Melbourne, which is the second oldest in so far as urban commuting rail lines are concerned, has a remarkable difference from European cities. Mees (1994: 3, 4) points out that the difference is in the order of development and transportation:

That is, whether or not there had been residents already in the suburbs when the rail was extended into these areas. As for European cities, there were some people living out of the city. In Melbourne, nevertheless, there were few people living in the suburbs due to its new historical feature. In US and European cities, “rapid transit” followed development, although urban rail lines were extended into open countryside to create new suburbs in Melbourne, particularly in the land boom of the 1880s.

The other difference is the developed residential densities mainly in the suburbs. It was approximately 50-60 persons per acre (0.20-0.24 person/km²) in Melbourne in the latter half of the nineteenth century while 500 persons per acre (2.0 person/km²) in British cities. In Melbourne and other Australian cities, there were no inheritances as residential areas originated before the Industrial Revolution in Europe. As a result, the same number of people covered more space in Australia.

3.2 US cities and Melbourne

Typical US cities can be considered as two kinds of areas, which were made at different times. The city covers pre-automobile urban areas and Lucayo (1992) argues that these “cities” have characters such as high-density (considerably higher than in Australian cities), falling population, less car oriented and the home of ethnic minorities. One can no longer find high densities once associated with these areas, but many of these inner areas still have slums and are homes to the ethnic minorities. “The other America” is sprawling, car-dependent, protestant and mostly white. These new suburbs are well explained by the concepts of “edge city (Garreau: 1991)”:

The first wave of edge city is suburbanization of urban area. Next, huge shopping malls appear in the suburbs. In the third and last wave, suburban areas with multi-functions (edge cities) appear. Cities such as Buckhead in Atlanta, Covina and Santa Monica in California fall into this category. The distinguishing features of the “their wave suburbs” are very low population densities, dispersion of retailing, service and job opportunities and decentralized and multi-directional movement. There is a large degree of independence from the frequently declining old “downtown.”

Melbourne, as well as other Australian cities, had similar tendencies. Yet, they did not go as far as the ones in US “edge” cities. Melbourne has become more car-oriented, but not an entire automobile city. This is also highlighted by the fact that average gasoline use per capita is lower in Australian cities than US cities. Mees (1994) argues that the main reason for this is the original nature of Melbourne city as transit-oriented:

About three quarters of urban areas in Melbourne have been developed since the end of WWII. Therefore, they reflect post-war economic, social and cultural conditions. Nevertheless, the fundamental form of the city was made by the 1880s (Mees, 1994: 6-7).

In typical American urban areas, there is a fine line at the end of compact “old” cities. Commuting suburbs are small areas around the railway stations. “New” car-based cities have grown into the places where there were no developed sites. Housings were dispersed at random in rural areas while new shopping centers were built from nothing on a new land. There were networks of circular and radius freeways and no transport limits. On the contrary, Melbourne had expanded to Frankston (43km by rail) and to Ringwood (25km) by WWII (Mees, 1994: 7). Post-war development was not the first stroke on a blank canvas, but the final coating on an already-drawn picture. Frost (1991: 146) describes Melbourne as “the prototypical New Frontier city,” referring it to the type in which high incomes and good public transport enabled nineteenth [are sure you don’t mean 20th century] century population growth to be accommodated by outward growth, rather than redevelopment at high densities.

3.3 Summary

In this section, I develop my arguments in terms of how the city structures have been established in Melbourne, European and US cities. Public transport cities in Europe and automobile cities in US are succinctly looked into. Melbourne formed its city structure as transit-oriented in the 19th century although there were differences of densities compared with European cities. Accordingly, Melbourne did not see an extreme polarization of cities as in the US when there appeared post-war automobile waves. Residential areas have still been kept in the corridors along the railways while they have been entirely dispersed in US cities.

4. Conclusions

In this paper I have developed my arguments on Melbourne’s city function as well as its historical experiences. In so far as socio-demographic conditions are concerned, Melbourne has many parallels not only with the car-based US cities, but with the transit-oriented Asian or European cities.

The key findings are: (i) Melbourne extended urban rail lines into open countryside to create new suburbs in the early half of the 19th century. Accordingly in the 1880s, the city established its basic city structure as transit-oriented. That was how Melbourne accommodated the huge population growth in the 19th...
century. These processes were similar to the ones in European cities such as London, although densities were much lower in Melbourne. (ii) The city of Melbourne saw sprawling tendencies and was moving towards a car-based city like ones in the US through the 1960s and the 1970s. Yet, the basic city form was still kept with many residential areas formed along the railway corridors. The critical fact was that Melbourne already had its basic shape as a transit-oriented city while the US cities did not. (iii) As a result, Melbourne is, at the moment, located somewhere between a public transport city in Asia or Europe and an automobile city in the US. That is, Melbourne did not follow the same pattern as the US cities, where conventional public transport has almost no role.

This paper has demonstrated these basic characteristics of the city of Melbourne by tracing precedent economic, socio-demographic and cultural elements. Furthermore, urban study on each issue is a needed task in the future.

Acknowledgements
My special thanks are due to Professor Shige Kazuhiko SUGIYAMA (Osaka City University) and Dr. Darko RADOVIC (The University of Melbourne) for helpful suggestions and comments. I gratefully acknowledge helpful discussions with Amy CHAN on several points in this paper. I also wish to thank Lee MACAULAY for reading the entire text in its original form and for his valuable advice.

Endnotes
1 Mees (1994: 3) points out that the influence of North American thought on Australian transport commentators and planners can hardly be overestimated. “They commonly analyse Melbourne as if it followed the North American model. The form of post-War growth is said to explain the decline of public transport since the 1950s.” He argues that examples of this view include Beed, 1981; Newton & Johnston, 1981; Forell, 1989; Odgen, 1992 and the 1979 Melbourne & Metropolitan Board of Works report The Challenge of Change.

2 This paper adopts these concept of this three periods. These categories are also used by Forster (1995) and are to be considered reasonable regarding social backgrounds.

3 These figures are derived from Forster (1995: 9)

4 The Figure.2 (A) is my visual interpretation of the structures of the walking city and village suburbs described in Mees (1994: 4). The Figure.2 (B) and (C) are drawn from Forster (1995: 21

5 and 6 These figures are derived from Forster (1995: 18)

7 For further details of world city, see Friedmann, J. (1986) The World City Hypothesis, Development and Change, 17, pp. 69-83, Friedmann, J. Where we stand: a decade of world city research in Knox, P. and Taylor, P. (1995) World Cities in a World-System, Cambridge: Cambridge University Press. In these articles Friedmann develops his arguments on an interlocking system of production and markets, the global economy and urbanization. Among his seven hypotheses, 4 and 5 are most remarkable here. Hypothesis 4: “World cities are major sites for the concentration and accumulation of international capital.” Hypothesis 5: “World cities are points of destination for large numbers of both domestic and/or international migration.”

8 The map illustrates the population of Melbourne using data collected in the 1991 Census of Population and Housing. Numbers of people per square kilometer are shown according to each Census collection district. Tram and Railway lines are derived from Nishimura, Y. and Hattori, S. (2000: 115).

9 These figures are derived from Forster (1995: 11)

10 Newman, P. and Kenworthy, J. (1989) argue that average gasoline consumption in U.S. cities was nearly twice as high as in Australian cities, four times higher than in European cities and ten times higher than in Asian cities. They insist that physical planning policies, as well as gasoline price, income and vehicle efficiency, explain these differences.

References
4) Lucayo, R. (1992) “This Land is Your Land,” Time Australia, 18/5/92, 28-33