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THE CONTRIBUTION OF SOCIAL SUSTAINABILITY ON LIVABILITY OF PEDESTRIAN STREETS IN URBAN SETTLEMENTS: AN EXAMPLE OF SANTA MONICA, LOS ANGELES

***Tina Davoodi and Abolfazl Dehghanmongabadi**

Department of Architecture, Faculty of Architecture, Eastern Mediterranean University, Famagusta, North Cyprus

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ABSTRACT

During the last two decades, social sustainability in communities has become an interested topic among urban scholars and researchers. Unfortunately, there is no pervasive study that has been carried out to evaluate the impacts of social sustainability on the livability of public spaces in urban settlements. Especially, pedestrian streets are an important part of open spaces that have significant contributions to creating a better quality of life, lowering atmospheric emissions and increasing rates of walking in urban settlements. However, the livability of pedestrian streets are not the concern of social sustainability studies. Thus, to fill this gap, this research attempts to investigate the role of social sustainability on the enhancement of the livability of public spaces particularly pedestrian streets. In this regards, this research has employed three important common determinants of social sustainability (Social Equity, Safety, and Social Interactions) plus quantitative analysis to assess the effect of social sustainability on the sample of the 3rd Pedestrian Street in Santa Monica, Los Angeles. Consequently, the results show social sustainability has a significant role to increase the livability of pedestrian streets.

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INTRODUCTION

During the last century, rapid urbanization and economic distribution are changed the structure and expectation of public life. Accordingly, public spaces emerged as the most significant sector of our towns and cities throughout the world which make available the perfect scenes for providing alternative activities. The significance of public spaces is increasing recognized to addressing the social, environmental, cultural and economic issues which nowadays are gripping the human communities. Hence, it can be mentioned public spaces play a prominent role in both the sociological and economical life of the communities. Recently, there is an emergence of new types of public spaces, which currently are created in various urban context as a key social resource. Furthermore, the creation of public spaces within the urban context helps create a serene and comfortable place that is free from any form of monopoly and open for use to the entire community. Besides, the emergence of current public spaces are often a part of regeneration framework on its own has been seen as not sufficient enough to produce a pleasant and well used public space.

To achieve sustainability in a city the public day to day spaces has to be well designed, properly managed, well serviced, safe and made active by several forms of economic, cultural and social exchange. People generally have the idea of public space as spaces, streets, squares, green spaces, and pedestrian thoroughfares. A well planned out space has the ability to enhance social interaction; social mix up and social creates that sense of social belonging and can further strengthen the communal bond.

A pedestrian street is that part of the public right of way which creates a different path for people travelling on foot. It has been proven that taking a recreation walk is beneficial health wise. It is also paramount that a pedestrian street should possess certain aesthetic qualities, be safe at all times and accessible (Zegeer, 2002). Involving the use of greenery, civic and commercial spaces along pedestrian paths goes a long way to strengthen interaction between the different age groups, sex, and even race of people in the society (Clark et al., n.d). According to above notes, the focus and aim of this study is investigating the role of social sustainability through livability of Pedestrian Streets in urban environment. Furthermore, due to the main aim of this study, three quintessential criteria of social sustainability are chosen include social equity, safety and social interaction, to evaluate the influence of social

***Corresponding author: Tina Davoodi**

Department of Architecture, Faculty of Architecture, Eastern Mediterranean University, Famagusta, North Cyprus

sustainability on livability of Pedestrian Streets by focusing on the sample of successful “3rd Street” as Pedestrian Street which located in Santa Monica area in Los Angeles city. Hence, this study is guided by one basic research question:

1. What is the role of social sustainability to enhance livability of pedestrian streets in urban environment?

The most important objectives of this research which are based on the main aim and question will be clarified in separate parts that are mentioned in the following:

- Understanding the Pedestrian Street
- Understanding the meaning and background of sustainability;
- Explaining the meaning and main criteria of social sustainability;
- Describing the key criteria of social sustainability.
- Clarifying the fundamental criteria related to social sustainability that must be considered to have successful and livable Pedestrian Street.

Accordingly, this research is designed in several parts. The initial sector is to converse about the Pedestrian Streets. The second part is to explain the meaning and background of Sustainable Development and Social Sustainability. The third part has focus to evaluate the example study. The final part provides concluding notes.

<p>Social Equity (Chambers, Conway, 1992), (Sachs, 1999), (DFID, 1999), (UNSD, 2001), (WACOSS, Barron, Gauntlett, 2002), (McKenzie, 2004), (Davidson, Wilson, 2009), (Colantino, 2008), (Bramley, 2006), (Magis, Shinn, 2009), (Colantonio, 2009), (Cuthill, 2010), (Dempsey et al., 2011).</p>	<p>Accessibility: (parking area, public transport, pub services), (McKenzie, 2004), (Dempsey et al., 2011), (Barton, 2000a, Burton, 2000b), Emma (2005), (Winter and Farthing, 1997), (Smith, 2000).</p>
<p>Safety (Chambers, Conway, 1992), (UNSD, 2001), (Spangenberg, 2004), (Choguill, 2008), (Dempsey et al., 2011), (Glasson and Wood, 2009), (Colantino, 2008), (Weingaertner, Moberg, 2011), (Colantonio, n.d).</p>	<p>Lighting, Barriers, Traffic signs (World Health Organization, 2013), (Rowntree, n.d) (Zegeer, 2002).</p>
<p>Social Interaction (WACOSS, Barron, Gauntlett, 2002), (Choguill, 2008), (Bramley, 2006), (Glasson and Wood, 2009), (Dave, 2011), (Dempsey et al., 2011), (Weingaertner, Moberg, 2011), (Davidson, Wilson, 2009).</p>	<p>Social Participation (Forrest, Kearns, 2001), (Putnam, 2000), (Talen, 1999), (Littig, Griessler, 2005), (Davidson, 2009), (Woolcock, 1998).</p>

Figure 1. Selected Social Sustainability Criteria (Source: Based on previous studies, Created by Authors)

The methodology of research

This study is designed to be a documentary research. The methodology of the study is based on theoretical methods.

The study will begin with a literature review on concept of pedestrian streets, sustainable development and social sustainability which this part will be involved theoretical work through documents on previous studies and researches. After that social sustainability will be defined and main criteria and measurement dimension of social sustainability will be explained. Furthermore, in next part a sample study will be evaluated by focusing on three selected criteria of social sustainability from various studies which done in the past. Accordingly, social sustainability will be measured through those criteria (Figure 1). To evaluate this criteria of social sustainability, Google Map, photos and previews studies on the 3rd street will be used. Besides, to measure social equity authors have used the measurement of accessibility that can be an empirical indicator to measure, especially in Pedestrian Street. In this regards, the authors have evaluated accessibility from, “parking area, public transportation and pub services”. In addition, to evaluate Safety “lighting, barrier and traffic signs” and for social interaction “social participation” are considered. Thus, the research will be used qualitative research techniques.

Pedestrian Streets

Different factors influence the decision to converting a street into a pedestrian space such as accessibility; traffic issues, allocating land uses and economical spaces. The sociological dimensions of the pedestrian street are the key elements of the urban space (Jou, 2011). Pedestrian street by restriction fully or partly on motor vehicle can avail the opportunity for key individuals who passes through them, individuals with disabilities and those ones that are prefer to go on bikes “the dual possession of both social and movement space, walk able streets connect buildings and activities across space” (Carmona et al., 2003). Creating pedestrian walkways is one of the key means of reforming and organizing the street movement and influencing the urban environment of the city positively. This has being proven to be successful mainly in Europe where several revitalization projects have been successfully carried out like closing or restricting main streets to traffic and constructing elaborate and expensive pedestrian malls (Carmona et al., 2003; Jou, 2011).

The pedestrian movement has gone through different strata of development to get to where it is today. For example, the proposals made on Pedestrian Streets in the 1950s and the 1960s was geared towards reducing the negative effects of the cars. In the 1960s and the early parts of 1970s, they focused their efforts in attempting to design and create elaborate well landscaped areas around the malls, which was geared towards creating a more comfortable pedestrian area for the needs of users. The pedestrian streets are made of three basic elements, namely: physical space, interactive space and leisure space. These three elements possess equal level of importance and all make up one system (Moudon and Vernez, 1987). Pedestrian routs are the best way of bringing live to an environment especially within the urban context canhelps prolong the presence of people and interaction there (Asl et al., 2012). Pedestrian paths goes beyond just been seen as key aspect of the urban context, but can as well be seen a means of prolonging the urban life, hence they are perceived as a timeless component of contemporary cities (Woolley, 2003).

The pedestrian streets of our time are considered as a vital aspect of the urban area and common spaces in cities reasons being the human factors and creation the dynamism and increasing the social communication in communication age. These factors sever several functions such as leisure, rest, playing and entertainment which increases its attraction, as an urban space so much (Asl *et al.*, 2012).

Overview on the Concept of Sustainability and Social Sustainability

The Concept of Sustainability

During the last five decades of this century, many researchers and scholars have stated anxiety that the world is damaged away from sustainable development. Accordingly, the concept of sustainability has become a very significant purpose in national and international discussion (Goodland and Daly, 1996; Doughty and Hammond, 2004). In 1972, the first reference to sustainability in global scale was published by the United Nation Conference in Human Environment in Stockholm (Drexhange and Murphy, 2010). After that this concept was developed and used in conference of united nation on environment and development in Rio de Janeiro. During this conferences sustainable development is defined as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, p. 45).

This definition has three main ideas or keywords involves development, requirements and future generation. Based on this definition of sustainability, people have a moral responsibility to look after earth and hand it on in good direction to coming generations. Generally, sustainable development is such a development process which consider generating, preserving and increasing life quality of all human in all eras (Mobaraki, Mohammadi, Zarabi, 2012; Laghai, 2010; Berke and Conroy, 2000). Moreover, during the two last decades, the concept of sustainable development has developed and increased its interconnection to economic and social elements of development. Accordingly, sustainable development is an interface and balance between environment, economic, and social sustainability. However, there is a reality that if sustainable development wants to have future must be able to attract people and appearance in their emotions and behaviors as well as adapted people values. Accordingly, environmental, social and economic dimensions are major pillars of sustainability, which different criteria can be used to measure each pillars (Figure 2) (Kahn, 1995; Nurse, 2006). Consequently, this research due to its own main aim and objectives will focus on social sustainability in the next part.

Social Sustainability

According to above notes, social sustainability is one of the main pillars of sustainability concept which plays a crucial role in communities. The criterion of social sustainability has been defined in a different way by various studies. For instance, according to Sachs (1999) there are three basic ones; employment, homogeneity and equity. Moreover, Littig and Griebler (2005) refer to empirical definition of social sustainability as satisfy set of human needs, social justice and human dignity.

Element	Criteria
Economic Sustainability	Growth Development Productivity Trickle Down
Social Sustainability	Equity Empowerment Accessibility Participation Sharing Cultural Identity
Environmental Sustainability	Institutional Stability Eco-System Integrity Carrying Capacity Biodiversity

Figure 2. Main pillars of Sustainability and their own Criteria (Source: Kahn, 1995)

Besides, according to Roufechaei *et al.* (2013), social sustainability affords the opportunity to gain good education, enhance general wellbeing and interaction in the society. Thus, for improving of social sustainability, the upgrading and making the community safe, comfortable as well as other human contributions such as knowledge, motivation, skills and health results in the total well-being of the society are essential (Lombardi, 2001; Parkin, 2000). Furthermore, in this regards many researches have been done in the area of deriving the signals of social sustainability in human communities (Figure 3). Accordingly, based on notes above, three fundamental criteria of social sustainability include *social equity*, *safety* and *social interaction* are selected by authors towards achieving and answering the main aim and question of this research. Hence, in the case study, these three important criteria will be used for evaluating the role of social sustainability in livability of pedestrian streets. Hence, these three main criteria will be clarified in the following.

Social Equity

The effect of social sustainability in public spaces can be measured by social equity criteria that most of sustainability studies imply some elements of equity (Agyeman & Evans 1994). Hence, to evaluate the influence of social equity the researcher selected three elements that they are include car parking, public transportation and local services, which they are independent of age, sex, physical abilities and income of people. Moreover, based on the accessibility measurement of a city which is well designed, should possess access to shops, educational infrastructures and other facilities in walk able distance. However, well aesthetically designed public spaces located wrongly and without proper connection to basic amenities such as transportation systems, shops and other urban infrastructure can render the space useless and empty. Jenks *et al.* (1996), states that a city can attain social sustainability by through proper accessibility by support of public transport and walking and cycling that would enhance better access to facilities of inner urban areas for residents (Burton, 2002).

Safety

Different authors suggested various measurement of safety in public spaces include lighting, traffic signals and physical barriers. Hence, proper illuminations can enhance visibility of pedestrians at night, especially at pedestrian paths. This solution has been connected with major drop in the number of

Author	criteria
Chambers and Conway, (1992)	Equity, Livelihood, Capability to withstand external pressures, Safety nets.
(Sachs, 1999)	Equity, Democracy, Human Rights, Social homogeneity, Equitable income distribution; Employment; Equitable access to resources and social services.
DFID, (1999)	Equity, Inclusion, Poverty, Livelihood.
UNSDS, (2001)	Equity, Health, Education, Housing, Security, Population.
WACOSS, Barron, Gauntlett, (2002)	Equity, Diversity, Interconnectness, Quality life, Governance, Democratic.
(Spangenberg, 2004)	Income, communication and participation, education, social contacts, social security, distribution of income and assets.
McKenzie, (2004)	Equity to access : (health,education,transport,housing,recreation).
Choguill, (2008)	Citizen participation, Social interaction, Feeling of belonging, Interpersonal relations among the neighborhood residents, Collective action, Mutual support, Access to facilities and amenities, Safety.
(Colantino, 2008), (Davidson , Wilson, 2009)	Identity, sense of place, culture, empowerment ,participation ,access, Health , Saftey , Social capital , Demographic change , Social mixing and cohesion , well-being , happiness , Quality of life.
(Bramley, 2006) (Dempsey, Power, Brown, Watkins, 2011)	Social equity, access to facilities and amenities, affordable housing, social interaction/social network, safety and security, satisfaction with home, pride/ sense of place, stability (turnover), participation in collective group and civic activities.
(Glasson, Wood, 2009)	Social networks, community contribution, a sense of place, and community stability and security.
(Magis,Shim, 2009)	Equity , Human well-being , Democracy governance , democratic civil society.
(Colantonio, 2009), (Cuthill, 2010)	Equity; inclusion, adaptability; security, Social Justice; social/community well-being; human scale development; engaged governance; social infrastructure; community and/or human scale development; community capacity building; human and social capital
(Woodcraft, Woodcraft, Hackett, Caistor-Arendar, 2011)	Amenities and social infrastructure, Social and Culture life , voice and influence, space to grow.
(Dave, 2011)	Access to facilities and amenities; amount of living space; health of the inhabitants; community spirit and social interaction; safety; satisfaction with the neighborhood.
(Dempsey et al., 2011)	Social interactions; participation; community stability; pride and sense of place; social equity; safety and security
(Weingaertner & Moberg, 2011)	Accessibility; social capital and networks; Health and well-being; social cohesion and inclusion; Safety and security; fair distribution (income, employment); local democracy, participation and empowerment; cultural heritage; education and training; equal opportunities; housing and community stability; connectivity and movement; social justice; sense of place; mixed use and tenure; attractive public realm.
(Colantino ,n.d)	Identity, Sense of place , culture, Empowerment, Participation, Access, Health, Saftey, Social capital, Demographic change, Sociale mixing, Social cohesion, Well-being, Happiness, Quality of life.

Figure 3. Researches have been done through area of deriving the signals of social sustainability (Source: Authors)



Figure 4. Location of Santa Monica city (Source: URL1)

nighttime pedestrian crashes (World Health Organization, 2013). Besides, it further increases visibility for car users, especially at night. When lighting is sufficient at night, it gives a sense of security to the people especially for those who are alone (Worpole and Knox, 2007). Comfort and safety can be significantly increased by good quality placement of lighting. In public environment in nighttime, pedestrian activity lighting gives feeling of security. In shopping district or in downtown areas with high concentrations of pedestrians, it is quintessential to make available pedestrian level lighting. Furthermore, pedestrian streets should always allow free flow movement for everyone using the street including the disabled and emergency vans should be able to access the street. Additionally, traffic signals makes openings in the traffic flow and letting people easily cross the street. Enough time should be given for pedestrians to cross. Time sequencing of signals can drop the length of time given for each cycle for people crossing on foot crossing to unsafe length. Pedestrian actuation should strictly be employed when pedestrian crossing is not so consistent and should be generally used by all especially the disabled (Zegeer, 2002).

in different dimensions, as verbal or non-verbal, intimate or scary, short or lengthy of any other form. Social interaction could take place amongst people and subgroups and interactions. It could also be towards a common goal or divergent. Social interaction is an important and aspect of our lives. One of the places where mutual interaction occurs most easily is along the pedestrian street. Walking by foot creates a conducive euphoria for socializing, verbal interaction as well as for meeting people and enjoying ceremonies, which movement by vehicle cannot meet them. Interacting in a social environment is both beneficial to young and the elderly (Eubank-Ahrens 1987; Ohlenschlager, 1990). Different types of events both in traditional environment and contemporary urban environment are hosted on the pedestrian streets, where people can meet each other and enjoyed of their time together. However, social interaction can be enhanced by social events, social performances, cultural shows, and events can extensively increase the happiness and vitality, and greatly attract people from the surrounding environments. Besides, the potential of pedestrian streets to increase commercial activities and their economic benefits should not be neglected – not just

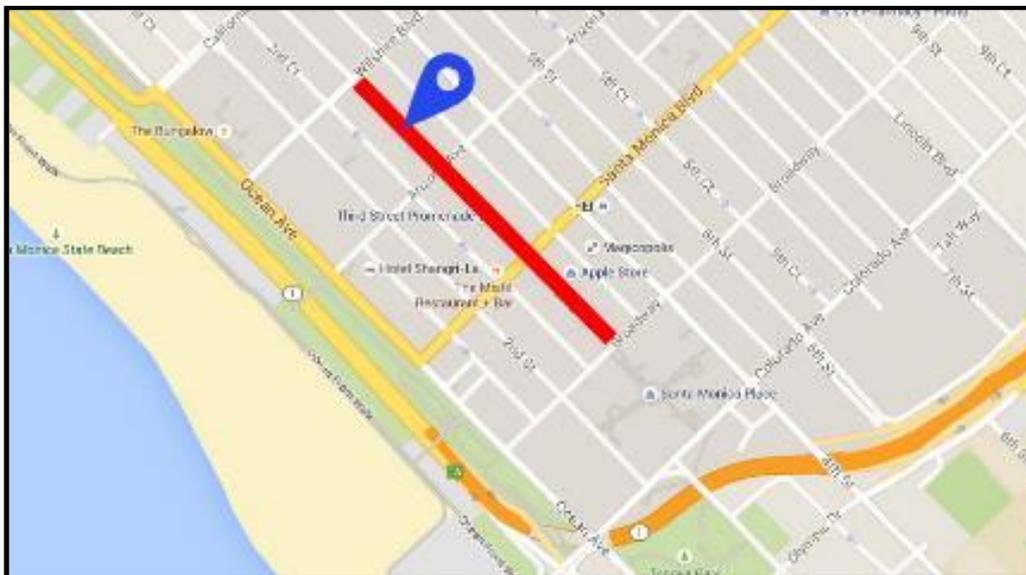


Figure 5. Location of 3rd street in Santa Monica city (Source: URL1)



Figure 6. The 3rd Street in the 1950s (Source: Pojani, 2005)

Social Interactions

Talen (1999) defined social interaction as the means of integrating through interaction and socializing amongst the citizens of a society. This afore mentioned interaction can be

in terms of outside relaxing space for the public, bars and restaurants, but also events such as night shopping, outdoor music and theatrical performances, and night-time street performances (Department for Communities and Local Government, 2012)

Example Study

Location and History

Santa Monica is a beachfront city that located in western Los Angeles Country, California, United States (Figure 4). The example study of this research is 3rd street which is major shopping street in Santa Monica city (Figure 5). This street during 1950s was very busy Commercial Street, free for cars (Figure 6). A significant change has occurred in 3rd Street during 1958 when president of the Chamber began the creation of a unique organization named The Santa Monica Tomorrow Committee for the purpose of “*looking ahead and planning for the future*” (Pojani, 2005). In 1960 three blocks of this street were converted into a pedestrian mall that new body concluded for this street to return the engine of commerce in downtown of Santa Monica (McGuigan 2003a). Los Angeles Times, (1986) stated that designing a pedestrian shopping area in the 1960s was going to put out traffic congestion from this area (Figure 7).



Figure 7. The condition of 3rd Street in the 1970s (Source: URL1)

After a while, this street became nothing more than a row of empty shops, which had been suffering for years from a pattern of decline (McGuigan 2003b). In 1963, it was basically out of use for any type of event and the most of shops would close at 5.00 pm. Only a handful of restaurants and bars were still opened. Basically no housing or mixed-use buildings within this street. Accordingly, in 1990, San Francisco-based Roma an architectural group preplanned the 3rd Street. The landscaping was such that the City planted palm and jacaranda through the path way, proper lighting, placed wrought-iron benches and trash receptacles, erected plazas at edges of the three blocks, and containing fountains and topiary dinosaurs (Figure 8).



Figure 8. The condition of 3rd Street after the 1990s (Source: URL1)

Evaluation of the 3rd street from selected criteria of social sustainability

Social Equity: accessibility to parking area, public transportation and public service

From accessibility perspective, the estimation by Google Map shows 3rd street is accessible to parking areas since the walking distances from parking areas around this street is six minutes by average. Likewise, the estimation by Google Map shows the average walking distances of public transportation to the 3rd Street is four minutes. This lower walking distance implies the equitability of public transportation in the 3rd Street since, people with different income levels; age and sex are able to visit the 3rd Street (Figure 9). Likewise, the estimation by Google Map shows the average walking distances of public transportation to the 3rd Street is four minutes. This lower walking distance implies the equitability of public transportation in the 3rd Street since, people with different income levels; age and sex are able to visit and access to the 3rd Street by public transportation systems. In addition, with considering lower walking distances from welcoming to the end by only eight minutes and existence lots of pub services along of the 3rd Street, perfect condition of pavement and furniture, and paying attention to children, disabled and elders people. It is possible to conclude this street is highly accessible to all kinds of users in all category of ages (Figure 10).

From the safety viewpoint, 3rd Street by providing lighting for the welcoming and exit from the street, designing trees by lighting continuous and using lights of restaurants and bars till midnight can create safety feeling for pedestrians (Figure 11). Additionally, in accordance with rules of municipality, outdoors restaurant in the 3rd street are confronted by banning alcohol services. This salient feature can create distinctive safety feeling for pedestrian during the transition in the night-time. The needs for safety transition of pedestrian in 3rd Street can also satisfy by fence or barriers. By placing non-removable traffic barriers, cars would not allow to go through the area and abundant numbers of pedestrians can walk with highly safety feelings (Figure 12). Traffic sign also, as an alternative tool for safety transition of pedestrian is existed in the injection of 3rd street. Accordingly, the different pavement from other sides is used for junctions point make more readable for drivers. Additionally, there is sign for disable people and small ramp for exit and entering the site (Figure 13).

Social Interaction: Level of social participation

From social interaction perspective, social participation has significant impact on social sustainability from various ways.

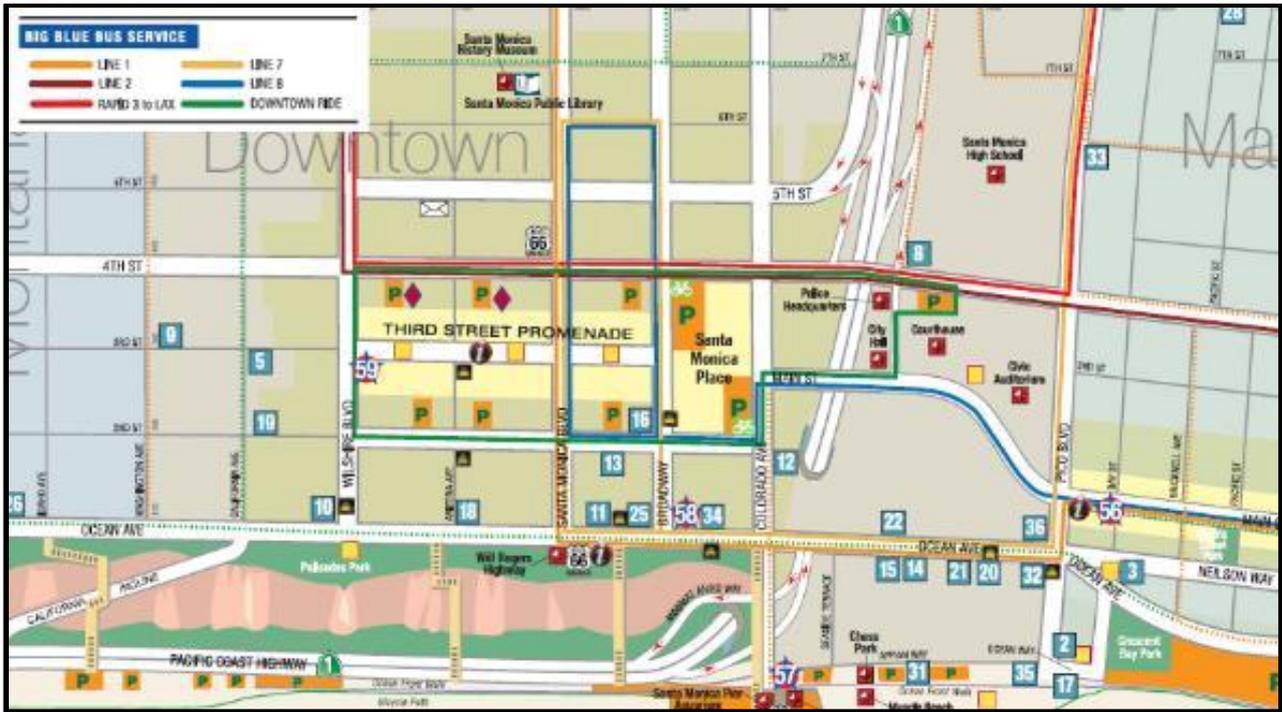


Figure 9. The Location and access of Parking Areas, public services and public transportation around 3rd street (Source: Pojani, 2005 and URL2)



Figure 10: Quality of Pavement, Furniture and accessibility in the 3rd street (Source: URL1)



Figure 11. Quality of lighting in the 3rd street (Source: URL1)



Figure 12. Non-Removable Traffic Barriers in the 3rd Street (Source: URL1)



Figure 13. Different pavement in junction points (Source: URL1)



Figure 14. Social Activities to Increase Social Interaction in the 3rd Street (Source: URL1)

Firstly, there are many social events in the 3rd street such as playing guitar singing dancing, festival and etc. These events help people to have more social interactions with each other. Secondly, 3rd Street by proper landscaping creates “soft” spaces, which lead to gather of pedestrian, sitting, participations and, in overall; it will result to increase social interaction. Thirdly, leisure opportunities through green spaces and the outdoor activities by restaurant or café bar can have positive impact on the social interaction of the 3rd Street (Figure 14).

Conclusion

Since lively public spaces have significant contribution to the interaction of people in a society, therefore, the increasing the livability of such places particularly the Pedestrian Streets can play important role to enhance sustainability of a society. It also the empirical previous findings show improving social equity, safety and social interaction which are major determinants of social sustainability. Generally, the potential of society for being sustainable and livable will increase. According to the example study findings, lower walking distances by supporting the appropriate location and accesses to parking area, public transportation and pub services, increasing the level of safety with fence, lighting and traffic sign for pedestrian and enhancing more social interaction by events and leisure facilities, can enhance the level of social sustainability, which has positive and direct effect on the livability of the 3rd Street. Consequently, this can be good explanation to justify why 3rd Street is becoming a livable pedestrian street and socially equitable.

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