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Characteristics to making street side walk. Case Study for Enghelab Street (Between Vali-e ASR and Razi Street)

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Abstract. Walking has always been one of the most important and fundamental needs of human beings. Nowadays, whit the increase in population in urban areas, less attention is paid to walking. Pedestrians and Pedestrian-walks are no longer prioritized as before in urban spaces and the quality of them has been decreased. According one of the main future predicaments is distancing urban spaces from human values and their needs, in a way that lack of quality in Pedestrian walks has contributed to less social roles of the citizens. What they call for, in a way that lack of quality in Pedestrian walks has contributed to less social roles of the citizens. One of the other hand, people requirement for having quite places away from the hustle and bustle of the humans city and cars, and holding the culture, art and their background have become more valuable. In the capital city of Tehran, due to the large population and traffic and their need for traveling in motor ways and streets rather than pavements, the separation gap between the humans and the human city has been intensified. This study the necessity of considers, transformation, conversion of a part of the pavement in "Enghelab" street to Pedestrian- walk and sidewalks with a view to the descriptive- modulation and content - analysis and the collection of information from relevant books and internet research. Besides, qualitative approach such as observation, place- visit, compatibility of regulations, conducting surveys and reasoning analysis have been taken in to consideration. In order to improve the current situation of the pass-way in the northern part of the citytheatre . According to the result of the survey, most of the people who commute regularly from this place, believe that this route shod be transformed to a lively route with the action human presence.

Keywords: Pedestrians- Space quality- Human city- Enghelab street- City- theatre

1. INTRODUCTION

Walking is the beginning, human beings are created to walk and all events in life happen when we walk among others. Life, with all its variety, begins when we are on our feet (Gel, 1392:19). Pedestrian walks, in citizen's minds, are not only the lines which connect different points of a city, but also the most rudimentary part of our life and urban liveliness. After the invention of cars and vehicles, urban spaces, which had been defined by human measures and the slow movement of Pedestrians earlier, were designed later by new measurements compatible to cars and their fast movements.

This issue, has caused many Problems for peoples activities and their presence as citizens of a social community, therefore lack of people presence in town as pedestrians equals losing the concept of having an actual liveliness and exuberance of the liveliness and exuberance of the life of its citizens therefore in other to sustain such urban qualities special attention should be paid to pedestrians and appropriate waking spaces. Pedestrian walks in combination with variable urban functions turn out to different new forms every day they become alive and more vitalized with people walking there, with the youth, women, men, the elderly, with the cozy café in the corner or the shold of an old tree in which we or you may have a drink and listen to the birds or with a sidewalk in front of a restaurant in which we have a meal and watch the crowd. Pedestrians walk give urban. Life a new and significant meaning. They are and can be the place for new experiences and new bonds between people in urban life (Planning references, spring 1382, no 4:4).

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As time passes, human presence has become less in urban spaces. In developed countries, different strategies and solutions have been thought of to use cars safely and accurately. Therefore pedestrians felt safer and more peaceful and in harmony with cars and vehicles. But in developing countries like Iran, unfortunately there haven't been any special and according to statistics. More than twelve people are killed in our cities on a daily basis (Ranjbar and partner, fine arts, no 42:48).

Urban space is phenomenon that makes it known externally and objectively to the consumers the information that is conveyed from the urban space is not only physical or visual, but they are sensed through all sensed. Therefore the view of an urban space includes all of the information from that space that is perceived from our senses and is processed by them: information from the form, function and the meaning of those spaces (Pakzad, 1391:118).

Basically, the number of pedestrians in cities is more than the number of people who take cars or other vehicles because not only some people travel an foot due to the short traveling or any other reason, but Also there may be some other people who take public transportation or personal vehicles regularly but may occasionally have to walk a distance on foot. If pedestrians are not able to use pavements with narrow width or other obstacles in a way they should, then they will have to use a part of streets to do so and that will worsen the traffic (Hossein zade and partner, regulations and design standards Sidewalk).

Side walk are considered to be parts of the main urban traffic network and place for citizens rest, entertainment and walking. Disorganization of the pedestrian can be due to the urban design of the streets.

Priority of cars over the Pedestrians and the false assumption of side- walk in urbanization, and many cause these problems:

Lack of identity and intimacy in urban areas.

Lack of presence of disabled people in urban areas.

In northern parts of the city or up- town. The function of side-walk is more like a crossing path but in southern parts of the city or down-town, they are considered as places for peoples community and public gathering, that requires special attention (Ardeshir Moghim por bizhani, ordibehesht 1392).

Another instance of this disorganization of side-walks in Tehran is that they're not inappropriate for disable people, which has not been considered in designing and building these paths. Hence, according to the mentioned problems and issues in "Enghelab" street (the distance between Valie asr junction and "Razi" street) and also the current potential of this place while exploring the area, we can find solutions in order to have a quality advance in This sidewalk. One of the most important issues in this path is the fences that surround all over the sidewalk to prevent pedestrians from crossing the street, and pedestrians are directed to pass from the subways unwillingly and sometimes they ignore it and cross through the fences in to the street, which is not a beautiful scene. Another issue is the neighboring of this street with one of the most important cultural and historical centers of Iran, the city theatre, and also many students of Tehran University pass through this way, and even from other universities, that need a beautiful view to see. Another essential matter that is a positive point and gives the designer freedom of choice is the suitable

width of the sidewalk which requires an appropriate designing. Another subject that we can mention here is the inconvenient and ordinary covering of the ground and the connection with the surface of the road-way in connecting joints. The movement of creating sidewalks and designating areas to pedestrians in cities has been one of the urban management objectives for a long time. In this article the quality of the northern side way of the "city- theatre" has been measured and studied in order to improve the quality and create a positive cultural, social and commercial benefit.

2. RESEARCH METHODOLOGY

This article includes studying the rules and regulations about designing. Pass ways with a view to the descriptive- modulation and content analysis and the collection of information from Books and Internet research. Besides, qualitative approach such as observation, place- visit, compatibility of regulation, conducting surveys and reasoning analysis have been considered with the aim of improving the current situation of the pass way in the northern side of the city- theatre.

3. THE HISTORY OF FORMATION OF PEDESTRIAN WALKS:

Restructure of pedestrian walks is shown in the chart No.1. The history of formation of side-walks refers back to the time of "Gaius Caesar". He had to the traffic of the carriage inside the city because the crowd streets and constant collision of Pedestrians and vehicles, exepct for some necessary constructing purposes (Moris, 1374:68). This movement spread out from several limited towns in Europe in to the whole continent and then to the u.s and later to the whole world. In Iran, also, there have been valuable experiences recently in this matter in cities like Tabriz, Mashhad and Tehran. The studied sample of them in Tarbiat Street by Bahareh Sahaf nia, is one of the successful experience in developing social satisfaction and quality improvement of urban areas (Rafieyan, 1390:43).

1940s	 The first street and areas specifically for pedestrians in European cities The first trial of Traffic- free zone in cities of Roterdom and stokholm 				
1950S	Restrictions of traffic and walking areas all over Europe.				
	ban of traffic of cars in to historical and business centers and creating public spaces in most European cities				
Since1960s	 Creating walking areas in different parts of the world like the us (150 pedestrian walks in the us) in Europe and Germany, England and Netherland. 				

Chart number 1. Restructure of pedestrian walks (pour mohammadi, 1389).

4. THE CONCEPT OF PASS- WAYS (PEDESTRIAN WALKS)

Pass ways are the place for the presence of citizens and their participation in their collaborative lives .these areas are agreeable to various groups of citizens. In other words the pedestrian-walking- zone- aims to ban the entrance of cars and vehicles in favor of the walking area (Documents Housing and Urban Development, 1375:1). In addition to the communicative role these pedestrians are convenient and safe place for social entertainment and sightseeing (Abzar, 1384:16).

4-1. Review of influential factors on special quality of sidewalks:

Side walk art place for presence of citizens and their participation in their collaborative lives. There for their existence in the city will enhance the mental image of citizens about their town.

These sidewalk should be agreeable to various groups of citizens with different feelings, beliefs and perception of the spaces, different aging groups and Physical abilities .the current social life and live lines is the fundamental feature of the pass ways. This space should also harmonize itself with the events happen inside. So flexibility is another important feature of pedestrian walks and what guarantee the presence of citizens in these areas is the safety of the place (Pakzad, 1386:282).

4-1-1. liveliness:

There are two qualities which contributes 10 the liveliness of side-walks: variety and permeability of the space. One strategy to reach variety in these areas is designing the way in purpose of the slow movement of Pedestrians (Habibi, 1383:48). Urban emblems that are inspired and defined by the somatic features of the city or the present situation and texture values, escalate the readability or and will from a symbol. For instance, paying attention to variable and comprehensible details of the viewer along with the unity, sustainability of physical parameters will be a reminder of collective memories, such as a dome or some cisterns which are places for hanging out of residents and an important symbol sign for others.

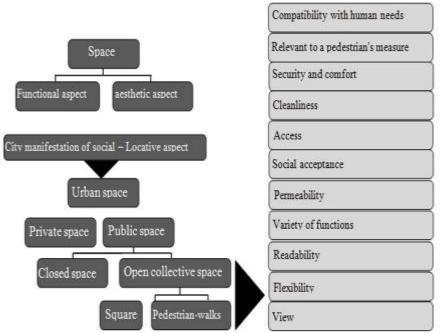


Diagram 1. Analytic diagram of influential special dimensions on the quality of pedestrian- walks. (Abas zade and partner, 1391:4).

Other factors leading to liveliness and variety of pedestrian- walks are creating variable. Utilizations suited to each part of the way. Establishing social service stations which is followed by the continuous presence of citizens and also applying pleasure activities, variety of furniture along the way and harmonization of lightning and the emphasis of lightning on the particular, elements and structures (pakzad, 1386: 282-285).

Since per suits and activities alter easily based on the needs, time,...Flexibility should be taken into consideration when a pedestrian- walk is designed. Using variety of applications by creating and providing walking movements in Pedestrian walks will feed this purpose (Bentley and partners,1382).

4-1-2. permeability: It provides access to different places and freedom of choice for people. Now and again, permeability is one of the main features in gaining desirability, it should be considered in the first step of the designing process (Bentley and partners, 1382).

4-1-3. readability or legibility: Normally, part of the right to choose a place is in correlation with readability. In fact it determines how much people are able to comprehend or get the picture of the place (Bentley and partners, 1382). Generally, beauty and cleanliness of the pass-way will increase the possibility of the presence of people in the area.

4-1-4. safety and security: The active presence of people In the city is an important factor in the increase of safety and security in urban areas, which is vital for its survival and lack of these features may result to a decrease in the quality and the sense of the city. Pedestrian should be safe and secure from the cars and motorcycles and strict control should be imposed on their community (Mojtahedi Sistani, 1387).

- > There are seven general features for safe and secure area (Salehi,1387):
- ➢ Convenience
- > Appropriate construction for various pursuits
- > Possibility of supervision and observation for the public
- Productive of sense of responsibility respect and ownership
- Equipped with physical and safety facilities
- Flowing of human pursuit

To sum up the theoretical basics of this research, the reviewed elements of liveliness, legibility permeability, safety and security are shown in the following diagram (Abaszade and partner, 1391:5):

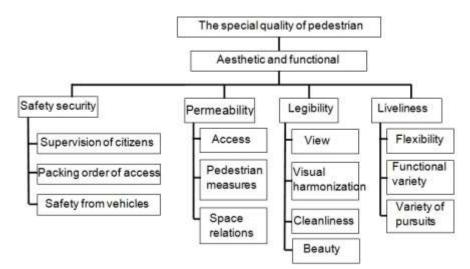
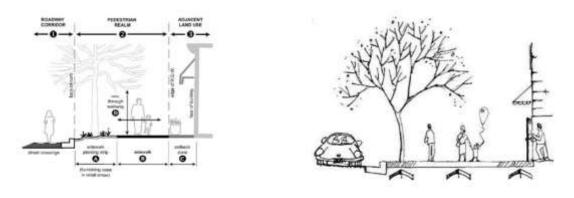


Diagram 2. Analysis of factors affecting the quality of the sidewalks. (Abas zade and partner, 1391: 5).

4-2. fundamental of designing pedestrian- walks (realms).

In the picture below you can see a pedestrian walk consist of three parts: road- way corridor, pedestrian realm and set back zone for the purpose of watching the shop windows.



Picture (1). Components of a city sidewalk (Atari, 1392:2)

Picture (2). a graphic photo from pedestrian

General standards for creating pedestrian walks are defined as following (Bemanian and partner, 1391:8): Putting enough emphasis and locating a pedestrian area bowed on maximum relation with the local texture.

- > Creating necessary facilities on the side of the area and providing suitable permeability.
- Maximizing variety of functions in the pedestrian zone with respect to the fact of compatibility and harmonization.
- > Putting emphasis on human measures in all levels of locating and designing details.
- > Maximum use of plants, water, and natural elements and suggestive furniture
- > Protection of valuable historical. Structures in the area.
- > Considering natural and artificial views, specifically at the end of the area.

4-2-1. designing and refining the pedestrian walks:

In relation to this subject, considering some fundamentals and standards can help to anticipate some problems of these areas. Some important points are mentioned below in order to apply these rules (Bemanian and partner, 1391:9):



Picture (3) sidewalk (Google)



Picture (4) sidewalk (Google)



Picture (5) sidewalk (Google)

Business people and shop Keepers should agree with applying such plan.

Providing parking spaces outside of Road-way in necessary, in a way that citizens are not forced to walk to the area more than 150 meters. Creating varieties of pursuits in order to dynamic the area. Coordinating between the width of the side-walk and the traffic role in rush hours, controlling the traffic and facilitating it, safety and comfort of pedestrians with the accurate use of functions. Creating visual balance in weight, texture, form and the view of the two sides of the sidewalks in height and width of the sidewalks in which the proportion of the height of the sides to the width of the way is 2 to 1 and results in narrowness and tightness of the space. Other elements such as tabrizi trees, Acacia trees, elm trees and also some equipment furniture like shadings, porticos and wide pictures can be used. Creating visual balance with the mixture of colors and the green coverage of the area and harmonization of forms of the furniture. Considering appropriate shadings along the way of the side – walk. (Shopping of trees is more preferable). Creating open spaces with suitable distances along the way in order to create a context for social relations ,short stops and resting for the elderly ,children and disabled people and provide them with benches, short walls and suitable planting areas.

- > Using planting to reduce de sound pollution in noisy places.
- > Considering facilities and places for fire- plugs, emergency vehicles, etc.
- > Providing taxi station and places for cars to stop and take passengers near the side -walk.
- > Considering suitable shelter for protecting the pedestrian in bad weather conditions.
- > Designing specific lighting for the side -walk for the safety pedestrian in the way.

Considering similar and harmonized urban furniture along the way (1392)

4-2-2. Parameters of pedestrian-walks (Khoshi, 1392:6):

- Width of the path: the path should be wide enough to provide four theoretical zones: edge, furniture, crossing and border.
- Appropriate access for disabled people in order to make sure that they benefit equally from the access to their workplace shops and public transportation, certain decisions should be made.
- Reasonable walking distance: the distance which can be walked without difficulty to reach the destination is 305 to 610 meters 5-10 minutes walking.
- > Pedestrian safety: this factor is influenced by special measures, size and lighting.
- Visual attractiveness and social identity: An appropriate design should develop the sence of intimacy and privacy. Public open areas such as plazas, squares and buildings views in the streets, all are influenced in the attraction of a walking zone.
- Noise and weather: the frontage of the side -walk next to the road-way protects the pedestrians from unpleasant area of the road way.

4-2-3. essential points in designing the pedestrian-walks:

Pedestrian walks are instruments for group activities particularly regarding to urban finance, environmental quality and social health from many aspects, shopping centers in modern Times Equals medieval plaza. Generally, pedestrian walk should be viewed as a total system including the followings (fruin, 2004):

- Elimination of all transportation vehicles except for emergency vehicles, from the walking zone.
- Creating the adjacent street system (to compensate for the loss of the road way capacity).

- Providing adjacent access to transit, personal cars, and emergency and civil service vehicles.
- Providing neighbor parking that can compensate for the loss of the space in streets, moreover, creating, extra parking space nears the walking area.
- Publicizing and advertising programs based on refining buildings, creating scenery, maximizing lightings, facilities for pedestrians, advertisements and special events (1391-Karimi moshaver).

5. SUCCESSFUL SAMPLES OF PEDESTRIAN WALKS:

5-1. Copenhagen:

The first industrial city in the world that reacted against the destructive effects of development of motorism, was the Copenhagen, the capital city of the Denmark. In early 1960 in the peak of mass flow of cars in to towns and the new suburbs. Political leaders of this city made some difficult and fatal decision (Ansari niA, 1383). The city, Copenhagen, nova days is dependent even less than ten percent than the last century on cars, on official states that Copenhagen has turned to a people centered town from a car- centered town. The central walking areas of this city have risen six times during on forty year program since 1960 s until the late years of the last century.

Ten stages of the transformation plan of Copenhagen into one of the longest pedestrian centered cities of the word are as below:

- > Transforming streets into walking only-routes.
- ➢ Gradual decrease in traffic and parking.
- > Transforming parking areas in 70 public squares.
- Reserving the compact scale.
- Respect to human scale.
- Inhabiting people in the core centre.
- Encouraging /or promoting college life.
- > Conformity of the view of the city with changes of seasons.
- ➢ promoting cycling
- making bicycles available



Picture (6) Copenhagen sidewalk

Picture (7) Copenhagen sidewalk

Picture (8) Copenhagen sidewalk

Tarbiat Street is located in a neighborhood with this name in down-town and the southern part of the old bazzar. The eastern part of the street was transformed into a walking-only path with business and entertainment.

Tarbiat pedestrian-walks, connects two essential points: Saat square and the old bazzar. This path is so human, dynamic and alive which prospers social life and is considered as stage of a theatre. Play it, and in other words, is both a pass-way and destination. The walking path of people is designed. According to their movement and has introduced the old texture and valuable and attract elements has been able to lead anyone unfamiliar with the texture and make them familiar with the social life in it (Ghorbani, 1389).

Here are same essential points in designing this path (Ranjbar, 1389):

- Being located in the center of the city
- Availability in emergency cases
- Variety of applications and trades.
- > Variety of spaces and environmental attraction using green areas and waterfalls.
- Partial variety of flooring
- > Considering disable people specifically in designing the space.
- Discipline the road way by anticipating level parking for residents of imam Khomeini street.
- Sample standing of the side-walk Enghelab street (distance from Vali- e asr junction to Razi street)



Picture (9). Tarbiat sidewalk

Picture (10). Tarbiat sidewalk

Picture (11). Tarbiat sidewalk

6. SAMPLE STANDING OF THE SIDE-WALK ENGHELAB STREET (DISTANCE FROM VALI-E ASR AND RAZI STREET)

This side walk is located in the northern side of "daneshjo" park in Tehran. This street is one of the most important cultural, social, political and commercial centers of Tehran.



Picture (12). 11regeon, Tehran

Picture (13). 11regeon, Tehran Picture

Picture (14). 1 area, 11 regeon, Tehran Picture (15). Arial

In transportation system of Enghelab street, BRT buses have been applied To speed the transportation. Regarding the day to day increase of population and location of Enghelab street in the political, cultural, historical and commercial center of the capital, locating this system in this place has only accelerated the transportation, however the human scale of the city and streets are places in which people should meet and take together and have peace and enjoy their time.

If we glance at the early twenty first century, new global challenges can be observed which emphasize the necessity of more attention to the Human aspect. Having access to the scenery of live, safe resistant and healthy has become a public and urgent appeal.

These four key purposes will be reinforced by the increase in paying attention to pedestrian's cycles and urban life in general.

In addition to the various problems made due to the BRT Stations and underground pass ways, the sidewalks are in critical situation in this area. Some of these problems are mentioned below according to the "SWOT" chart.

- Losing valuable cultural values.
- Replacement of cars and motor vehicles instead of human aspect resulting in fast- paced community and also pedestrian's avoidance to study.
- Motor bikes crossing in side- walk
- Lack of furniture and other necessary equipments.
- > Lack of beautiful scenery to the city theatre: the cultural heart of Iran.
- Lack of appropriate and organic flooring
- Lack of suitable coverage for installation works.
- Protective fences to prevent pedestrians from going to road ways.
- > Lack of suitable junctions in cross- roads and lack of continuity of the path.
- Using the width of side-walk for selling up the exhibition booths in a disorganized and unexpected way.
- > Lack of harmonization of the texture of the "Daneshjo" park.
- > Entrance of stairs in to the surface of the side- walk with no attention to disable people.
- Lack of suitable green area to inspire the sense of liveliness and to reduce the air and sound pollution.
- > Assembly of felons and resting alongside the park.



Picture (16). North of city theatre pedestrian, (ref: Author)

The mention problem has contributed to an unpleasant situation all along the way .The citizens are still Crossing this side-walks without paying attention to the surroundings and people which separate them far from each other. The condition of this sidewalk which is located near the most important cultural center of the country the city theatre is similar to an ordinary side-walk. Not only n particular artistic design or model is observed there, but also none of the international standards are applied in it. Sometimes the travelling paths in this street are so chaotic and crowded that become more exhausting, the unpleasant condition of the paths has negative physical and mental effects on citizens and make people escape from the place and take their own car. Therefore they ignore some of the environmental stimulation such as historical attractions and memorable places and....



This ignorance will lead to destruction of the street trough time and nobody will react against it. As a result, these valuable places will be last gradually with no effective complaints (Atari, 1392:9). Regarding the studies and research about this place, the sidewalk needs to be transformed to an appropriate pedestrian area.

6-2. proposed strategies:

- Applying cycling paths: If walking and biking are part of natural daily activities, people will trend to a healthy city. Since a considerable part of population tend to use their cars and have become less physically active, we are witnessing a growth at health problems.
- Replacing tramway with vehicles with fossil fuels: perhaps the readers may doubt that this. May create problems for pedestrians, but this will be managed well regarding to the previous cases in san francisco, port land, oregon, milwaukee, wisconsin, and seoul, in which abolition of wide streets decrease traffic. (Gel, 1392)
- Construction of subways for vehicles along Vali- e ASR Street, considering metro subway, to preserve the direct path of pedestrians.

- > Removal of iron fences and replacement of gardens between sidewalk and street.
- Placing cultural elements and appropriate perspectives for pedestrians. Especially in the northern side.
- > Construction of pause spaces along the path for different applications.
- Change flooring: flooring must be designed regarding to the local territory and organic material which can be removable and constructed easily. Also, this flooring must be
- > Appropriate for blinds and disabled people.

6-3. Data analysis:

Regarding to the findings of this research, we use the result of questionnaires: to study fortes and foibles of this project.

 Table (1). fortes and foibles of northern side walk of city theatre

Internal factors		Fortes		Foibles	
		1- 2- 3- 4- 5-	City theatre as a cultural symbol. A proper space for ceremonies Enough width of side walk. Enough access Suitable applications cultural, artistic, historical, training and political	3- 4-	Cut of side walk by fences. Lack of proper furniture. Undesirable perspective at north of street Unsuitable entrance to Daneshjo Park. Lake of proper space for chandlers. Lack of notice to disabled people.
External factors			03		<u> </u>
1-	WO People only use this path for their daily affairs due to interruption of path, so they don't notice cultural values.	1-	SO a place for aggregation near the cultural places	1- 2- 3-	Opportunity Proper visual quality Proper spaces for development Proximity with embassies and cultural organizations.
WT		ST			Threats
1- 2-	Passing passengers across fences and endangering them and no proper perspective Rapid movement with no attention to the site	1-	Possibility of creating sidewalks in this path and using existing potentials.	1. 2.	transportation and it's priority to pedestrians.

Foibles

Cut of side walk by fences. Lack of proper furniture. Undesirable perspective at north of street Unsuitable entrance to Daneshjo park. Lake of proper space for chandlers. Lack of notice to disabled people.

Fortes

City theatre as a cultural symbol.

A proper space for ceremonies Enough width of side walk. Enough access Suitable applications cultural, artistic, historical, training and political internal factors External factors Opportunity Proper visual quality Proper spaces for development Proximity with embassies and cultural organizations. SO a place for aggregation near the cultural places WO People only use this path for their daily affairs due to interruption of path, so they don't notice cultural values.

Threats

Development of vehicles transportation and it's priority to pedestrians. Security places near the site ST

Possibility of creating sidewalks in this path and using existing potentials.WT Passing passengers across fences and endangering them and no proper perspective Rapid movement with no attention to the site

6-4. views of citizens about this space:

The goals of those who pass from this path.

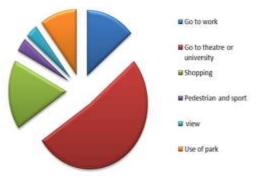


Illustration 1: Goals of people

In response to complementary business in this path, citizens mostly selected cultural items and biking.

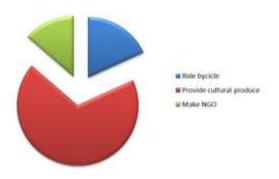


Illustration 2: complementary businesses

In response to direct passage from side walk at the cross, citizens selected removal of automobiles and replacement of tramway.

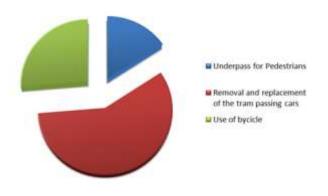


Illustration 3: Pass ay from side walk.

7. CONCLUSIONS

The northern side walk of city theatre is one of the paths toward cultural artistic and educational centers. Because of enough with and suitable potential, this path can be converted to a compatible standard with local culture and art, to prevent destroying it and converting to a usual route. The results of interviews show that people desire to use this path for walking and biking. Regarding to the proposed strategies, we can delete automobile passage (road way) and transfer it to a subway. Also we can replace tramway with fossil- fuel cars. Thus, we will have a safe clean and secure side walk, and street which hopefully will lead us to have a human city.

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REFERENCES

- [1] Gehl, jan (2013), "Human city ", translated by: Ghaffari, Tehran, Royal publications.
- [2] Pakzad, jahanshah (2012), "theoretical fundamentals and urban design process ", 5th edition, Tehran, shahidi publications.
- [3] Karimi, Moshaver, Mehrdad, Negin Taji, Samad(2012), "designing side walk in Tehran with focus on social needs", Tehran, management of it and documents.
- [4] Pour ahmad, A, Haji sharifi, A & Ramezan zadeh lasbouee, M, (2012), "measurement and comparison of sidewalk quality in haft-hoz and moghaddam districts of Tehran", Journal of geographical space preparation, Golestan university, Yr 2, No:6;
- [5] Bazvandi, F & Shahbazi, M, (2014), "Role of validity in creation of urban space. Case stady: sidewalk of Sephah-salar street in Tehran", City perspective researchers, Yr:1, No:1, spring and summer 2014;
- [6] Abbas zadeh, Sh, Tamri,S (2012), "Analysis of effective components on improvement of quality of sidewalk to increase social communication. Case study: Tarbiat and vali-e asr street in Tabriz", Quarterly of urban studies, No: 4, Autumn 2012.
- [7] Attari, Zahra, Medi, hossein, Sidewalks, place for the citizens (Case study Bedside vice Tehran), The first National Conference on Geography, Urban Planning and Sustainable Development, (2013), http://www.civilica.com