

# Al-Madeinah Grand Mosque as an Urban Catalyst

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## **1. Abstract:**

The growing demand on visiting Al-Madeinah Al-Monawarah and its Grand Mosque was the motive for expanding the Grand Mosque and eventually changing its surrounding urban area. The study aims to investigate the interrelationship between the Grand Mosque and its neighboring urban areas in terms of land use, housing capacity and urban activities. The surrounding plazas act as an intermediate space between the mosque and its neighboring urban areas. They are the most livable, usable and active urban component of the central area of the city. The analysis of relationship between the mosque and its surrounding urban is expected to be very beneficial for developing the urban area that will be subject to big changes in its urban components, capacity and land use.

To achieve the research objectives, spatial analysis of the Grand Mosque and its surrounding plazas in terms of uses, capacities, spatial characteristics of different components and demand during different peak times. Moreover, surrounding urban areas were investigated in terms of number of users, attracting targets and their distant from plazas. The research concludes some urban design guidelines that govern land use of surrounding area in addition to proposals for the interaction are between the Grand Mosque and its surrounding urban (plazas) to ensure successful, livable and balanced.

**Keywords:** Islamic city, Grand mosque plaza, Al-Madeinah Al-Monawarah.

## **2. Introduction:**

Mosque is one of the key components of Islamic city. It plays important role in the Muslims' community daily life both spiritually and physically. In addition to this, it is the center of Islamic culture (Ibrahim 1993). Mosques are designed places to accommodate worshipping and praying as their primary purpose in addition to receiving religious training and socio-cultural activities. (Yılmaz 2005). (Ziad Aazam 2005) argued that Mosques are categorized into four different categories. These main categories are socio-religious, formal-functional, art-historical and urban-contextual parts. This paper is interested in the urban-contextual of the Grand Mosque at Al-Madeinah Al-Monawarah. This mosque presents the first example of the Grand Mosque concept as the heart of the Islamic city. It was the first center of Islamic state, where Muslims used to hold their meetings and gatherings to discuss their daily life issues. (Rabah 2002) Moreover, In the Islamic civilization, that spans more than 14 centuries and spread over diverse geographies, the mosque was integrated and active element in shaping and maintaining the Muslim society. (Norhanis 2014)

The Grand Mosque at Al-Madeinah Al-Monawarah has been the heart of Al-Madeinah Al-Monawarah city and its cultural and political center for centuries. It hosted all the Muslims' social, cultural, commercial and spiritual activities within its building and attached open spaces. (Serageldin 1996) It is the second Islamic sacred mosque in the

world. There is huge demand on visiting this Mosque, where prophet Mohamed (Peace Upon Him) was buried. It receives more than eight million visitors every year. Increasing the capacity of the central area of Al-Madeinah Al-Monawarah city and enhancing the provided services are part of the Kingdome vision for 2030. Urban development is part of the efforts for development. The research suggests that there is unbalance in the demand, activities and livability of subzones of the central area of Al-Madeinah Al-Monawarah city. The spatial characteristics of the Grand Mosque and the inter-relationship with its surrounding urban are the main causes of the imbalance. This research is interested in analyzing the integration between this mosque and its context to achieve more active livable urban environment.

### 3. The Grand Mosque components and their spatial characteristics:

Al-Madinah grand mosque started as the house of the prophet with a large court yard directed to the south towards the Kabah at Makkah city. The Prophet was buried in the mosque. The mosque acts at the time of the Prophet as an administration and community center and continued as such for years. (Ziad Aazam 2005). Yılmaz claimed that, necessary components with appropriate areas should be provided in order for the functions to be executed wholesomely and comfortably (Yilmaz 2005). This was the reason that the mosque was subject to several modifications and expansions through its 1400 years old.

#### 3.1. The Grand Mosque

The existing Grand Mosque is built on 88000 square meter. It is one floor building with usable roof. The roof is dedicated for male praying areas. Figure 1 shows ground floor plan, where most of the plan area is dedicated to male praying areas. Female praying areas are located to the north while the visit area is located at the south. Entrances are distributed around the four sides of the mosque. Vertical circulations are also distributed around the perimeter of the mosque. Chart in figure 2 presents the percentage of different uses' areas.

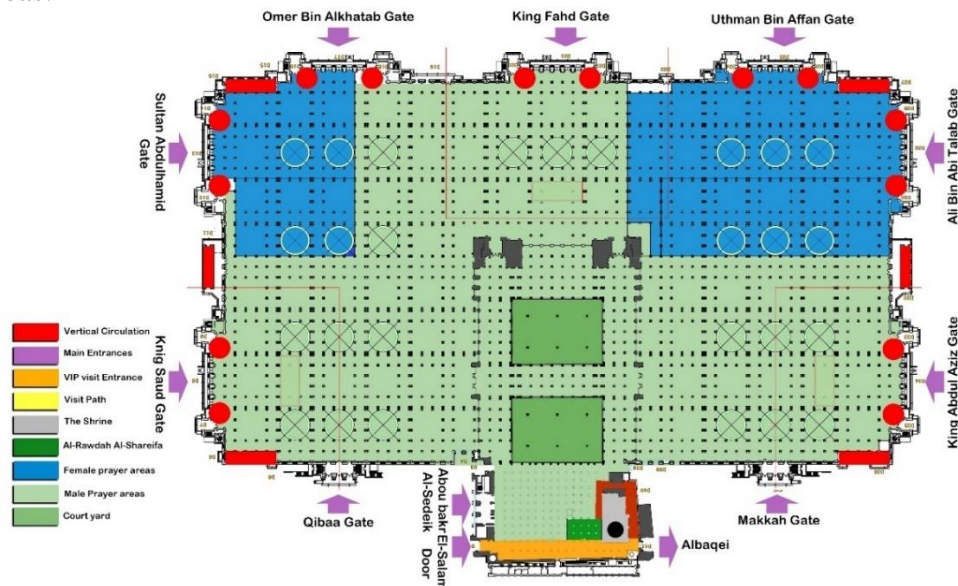


Figure: 1 Entrances and uses distribution of Grand Mosque ground floor.

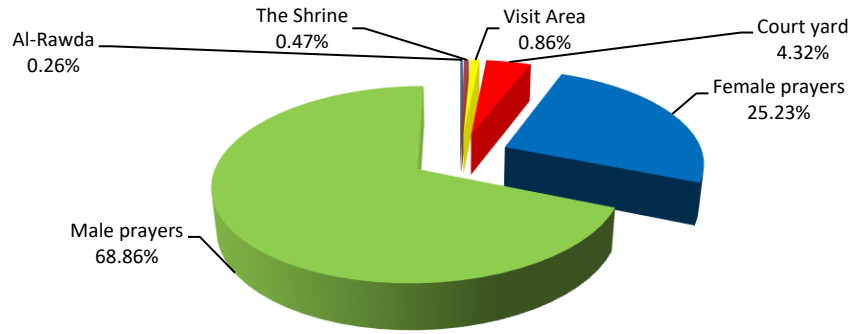


Figure: 2 Percentage of ground floor different uses.

### 3.2. Surrounding plaza:

Plazas have been genuine component of Islamic city urban fabric. All the early Islamic Era mosques do have plaza or courtyard. It has been one of its main functional elements. It hosted all the social, commercial and spiritual and other activities of local Muslim's community. Plazas' shape, size, and hosted activities differ according to the mosque category and importance. (James 1987). Grand mosque surrounding plazas serve different functions and contain many services that support religious and cultural activities. Figure 3 shows that Al-Madinah grand mosque is surrounded by plazas. This plazas act as a buffer area with 120 to 160 meters width, with total area of 240.687 m<sup>2</sup>. 35% of this area cannot be used for praying because of religious constrains. The figure also shows services' blocks equally distributed around the plaza. These blocks contain staircases and escalators that lead to underground toilets and car parking area. Distribution of mosque main doors and plaza gates are also shown in the figure. It can be noticed from the chart in figure 3 that northern plaza does have the biggest number of entry gates. Some of these gates were not opened during the survey.

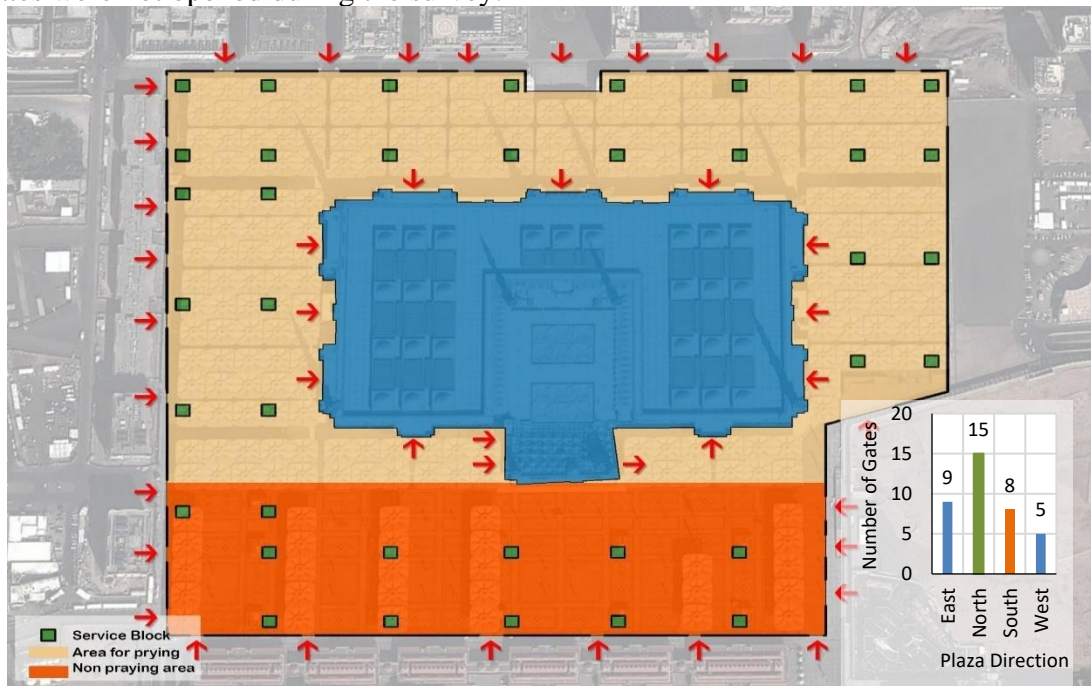


Figure: 3: Layout showing plazas' usable gates & mosque doors.

### 3.3. Activities hosted in the plazas:

At the early Era of Islam, the rituals were not the only social practices that took place at Al-Madinah mosque. The prophet had his house there so as the poor immigrants from Makkah had a place devoted to them. The open court of the mosque was also a place for the community gathering, administration and community activities. Ziad Aazam 2005

From the survey, the grand mosque's plazas accommodate several activities that differ over the season and across the day. During Ramadan lunar month, the researchers documented activities like praying, walking through, seating, socializing, and even eating. Figure 4 presents two photographs showing some of these activities. It also shows, that the plaza is shaded with a moveable shading devices.



Figure: 4 Activities within surrounding plazas

### 4. Urban context:

Al-Madinah grand mosque's surrounding urban area is defined by the first ring road with depth ranges between 260 to 500 meters. Radial roads lead to the area and the huge underground parking under the grand mosque plazas. The main functions of buildings within the central area are hotels, commercial and services. It was noted from the survey that, there is no hotel at all to the eastern side of the plaza. Since all the hotels at this side of the plaza were demolished during the ongoing grand mosque expansion.

The map in figure 5 shows the function of the land use. From of the map shown in figure 5, built up areas' percentage out of the gross area were calculated and results were as follow:

Northern area	33.5 %
Western area	21 %
Southern area	29 %
Eastern area	50 %

From the figure 5, It can also be noted that the eastern side is totally unused and Al-Baqee cemetery occupy 50% of its area. In the same time, the western side's built up area constituting only 21% of the gross area where hotels were located away from the plaza's edge. Despite that hotels built up area at the north constitutes 33.5% of the northern side, they are well situated in relation to the plaza, praying direction and female prying areas within the mosque as shown in figure 6-a. Southern area has service buildings and hotels that uses just 29% of its gross area. Photo in figure 6-b show the service buildings separating the hotels from the southern plaza.



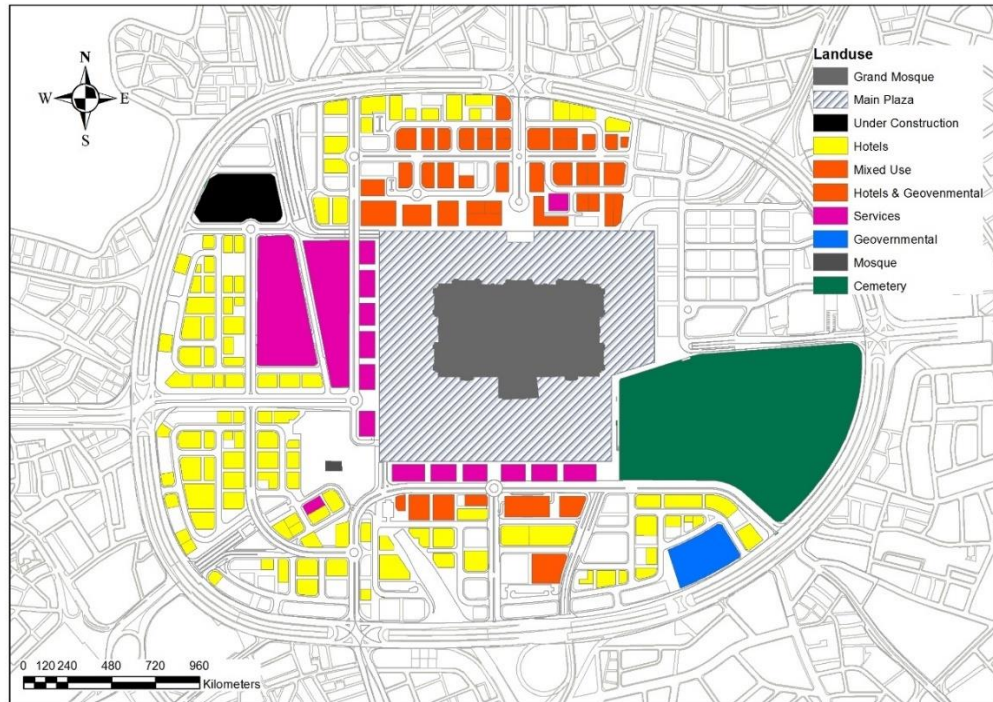


Figure: 5 Central area land use



Figure: 6-a Hotels are very close to northern plaza and mosque doors



Figure: 6-b Service buildings separating south plaza from hotels.

The researchers conducted a survey for hotel prices around the plaza. Survey was conducted off season. Results showed that the northern side has the highest prices with average 529 S.R while the average of southern side was 306 S.R and the western side average was 275 S.R. the map in figure 7 shows the capacity of the hotels in the central area. The chart within figure 7 concludes the four directions total capacity. The biggest capacity found at the north with 60,234 beds, while west area was the lowest with 47,181 beds and the south has 49,788 beds. It should be noted that east side does not have any hotels at all.

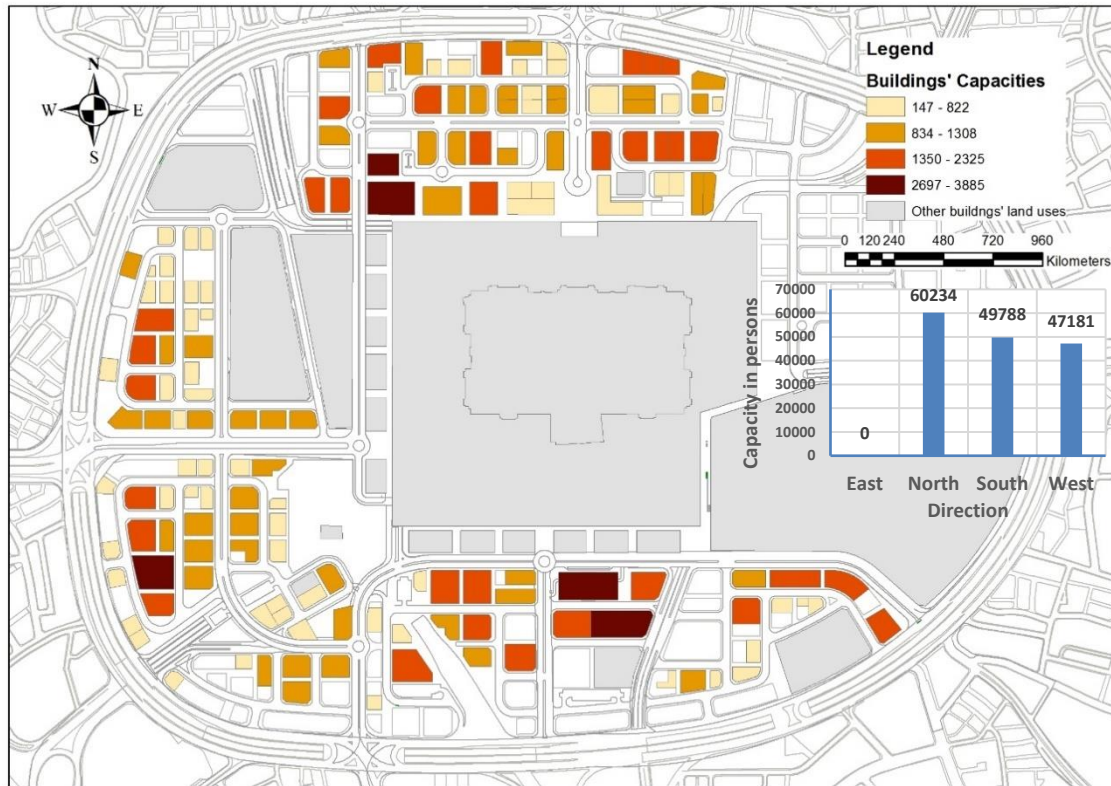


Figure: 7 Central area map showing hotels according to their capacities and location

##### 5. Pedestrian and traffic distribution within central area:

In unpublished study conducted by excellence center in crowd management at Umm Al-Qura University during pilgrimage in 2012, (Excellence Center 2012) pedestrian and traffic counting within the central area were part of this study survey. The survey was accomplished during the lunar month of Ramadan as one of the busiest seasons of the year. It started one hour before the Maghreb prayer and extended to six hours till the end of Ramadan night prayers. This is the peak time of Ramadan days. Figures 8, 9 concludes the results. These results can be briefed in the following:

- Northern side is the most active one where results shows that 51,739 visitor passed through the plaza gates. In the same time 21,880 visitor crossed the ring road toward the outer city urban areas. It should be mentioned that the same study proved that 42% of cars leaving the central area goes through the northern direction.
- In western side 20,352 visitors counted crossing the plaza gates. This is the second lowest number of users. Results shows that out of this figure, only 1,354 visitor crossed the ring road toward the outer city urban areas. In the same time, 26% of the cars left the central area through the western direction.
- Southern side has the least number of visitors leaving through the plaza gates with 11,853 visitors. Number of visitors left the central area toward urban areas outside the ring road was even more than this figure with total number of 12,459 visitors. It worth mention that the least number of cars has left the central area through this direction with 14%.



- Eastern side prove to be active side despite the fact that there are no hotels within this area where 14,422 visitors used the gates of the plaza to get out in this direction. In the same time only 4,660 visitors left the central area in this direction. As for leaving cars in this direction 18% of the cars left the central area in this direction.

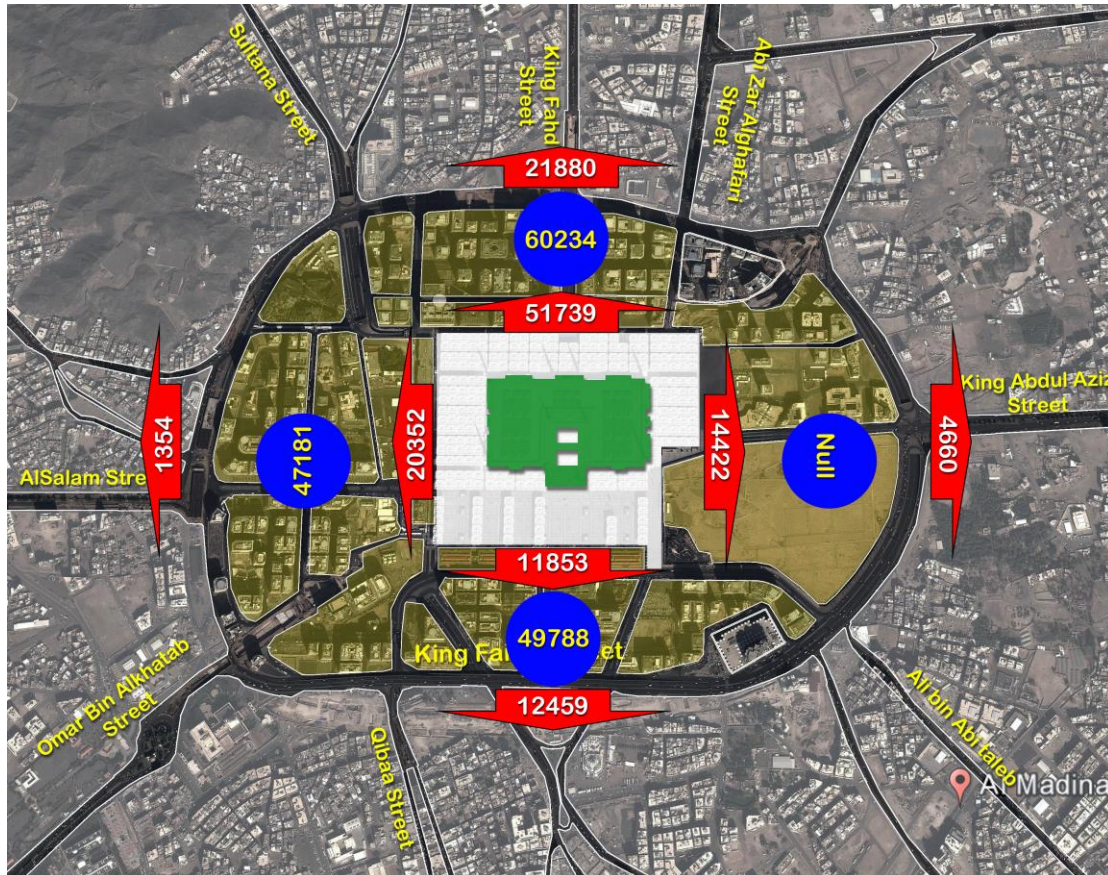


Figure: 8 Pedestrian on axis leading to central area during pilgrimage season

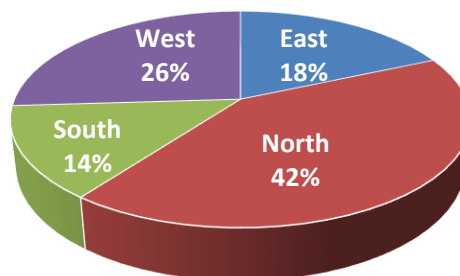


Figure: 9 Percentage of cars moving out from the central area

Figure 10 presents comparison between pedestrian counts on plaza gates toward the four directions of the plaza during the survey period. It shows:

- Fewer number of visitors getting in than the visitors getting out. This is because the visitors come over longer period than the covered by the survey.
- More than half of the visitors used the northern gates of the plaza. While the southern side of the plaza has the least number of users. This is even less than the eastern side where the cemetery blocks all the plaza side.

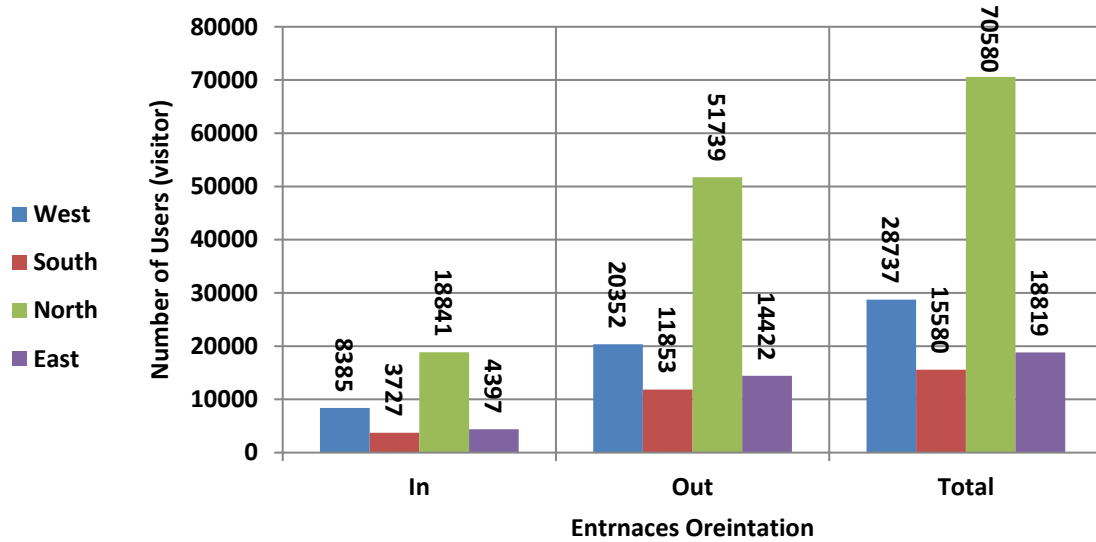


Figure: 10 Pedestrian counts on plaza gates toward the four directions of the plazas

## 6. Discussion:

To understand the mosque as a building type, it is not enough to analyses the mosque in terms of its physical and symbolic architectural components (as promoted by art historians (Grabar 1987) nor historically as a place of events and social process (as portrayed by Muslim scholars). The mosque configuration should be viewed in relation to its spatial categories and contained social activities. The effectiveness of the plaza within urban fabric of city is function in its relationship to the rest of the city urban components and the city other main functions like markets, residential and recreational areas. (Middleton 2006) The analysis showed that the four plazas enclosing the grand mosque and their surrounding urban areas were unbalanced in terms of their number of users, activities and livability. The reason for this is the grand mosque space configuration, the surrounding urban land use or even both.

The northern side (plaza and adjacent urban area) is the most active one. This is mostly because the female praying areas are located to this side of the mosque. Families prefer to rent at this side because of easy access and direct link between the plaza and the adjacent hotels. Based on the fact that families prefer to rent at the northern side of the mosque, large malls and food courts are located at this side of the plaza to grab as much of visitors as they can. The plaza at this side is usable as praying area. Moreover, the urban fabric at this side is more interesting than the other sides.

Urban area at the western plaza has a great potential to develop and evolve as the northern side. It has the second active plaza because it faces one of the female praying



areas and the visit area entrance as well. Moreover, the plaza at this side is usable as praying area. Unfortunately, hotels at this side of the plaza were badly located (at the outer ring road edge) and separated from the plaza with large services' blocks and roads. Comparing the number of users with the mosque internal space functions, it can be noted that the southern side (Al-Qibla direction) is the least side in the activities. Several reasons can be mentioned in this regard. Southern plaza cannot be used as an extension for internal praying areas. It is also away from the female praying dedicated areas. There is a row of services' buildings and two ways street separates hotels from the plaza. The visiting area (Al-Rawdah, and Al-Mazar) located at the southern part of the mosque, but it was noticed that it has no impact on the activities either within the plaza or its surrounding urban area. At the eastern side of the plaza (cemetery side), authorities located a bus station. This activated this plaza and increased number of its users, despite the fact that it has no usable buildings at all.

## **7. Conclusion and recommendations:**

Location of female praying areas has a great impact on the surrounding urban activities. This is why the researchers suggest extending female praying areas along the eastern and western side of the mosque. Imam praying location prevent southern plaza from being used as a praying area and impacts its usefulness. This is why the researchers suggest to create praying area for Imam at the southern edge of the plaza. Separators like roads and large block service buildings reduce the effectiveness of the western and southern sides of the plaza. So, the researchers suggest enhancing the southern and western sides of the plaza by encouraging more commercial services at these sides and eliminating separation of urban fabric from plaza sides to enhance the interaction between both of them. Moreover, encouraging hotel with five stars' rate will help in attracting more visitors at these sides.

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