Urban Acupuncture and the ecological transportation hub, Ramallah, Palestine

Technical Report · January 2016

DOI: 10.13140/RG.2.1.3692.0403

3 authors, including:

Salem Thawaba
Birzeit University

GIS Project

Urban Acupuncture and The Ecological Transportation hub

Professor
Dr. Salim Thawaba

Majd R Buirat
Rawia Nazzal

Dec. 2015

ACUPUNCTURE IN RAMALLAH CITY NEIGHBORHOODS,

Ecological Transportation Hub and City Park

Majd R Buirat and Rawia Nazzal

Introduction

Urban Acupuncture, a term foiled by Barcelonan architect and urbanist Manuel de Sola Morales, aims at identifying weak or sensitive spots in the city that are left untreated or marginalized in terms of social, economic and ecological factors. Those spots are then treated using urban acupuncture by developing small scale alternatives to help release the stress of the city, similar to that of traditional Chinese acupuncture, and by that creating a rebel effect that functions on a larger urban context. [1]

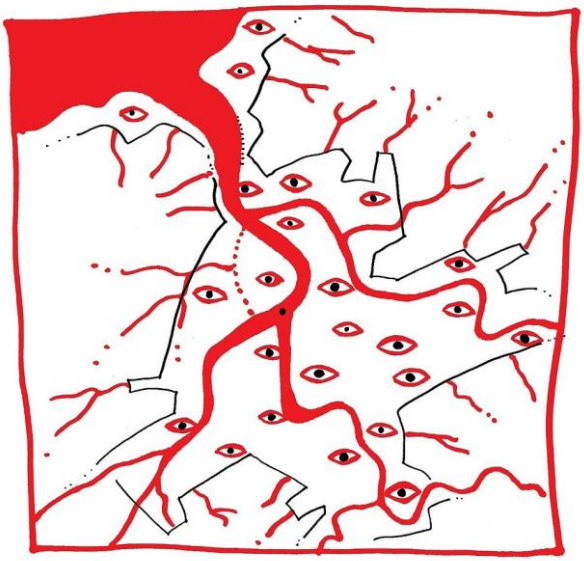

Figure 1: Taipei Organic Acupuncture. Drawing Marco Casagrande, 2010.

This project will address the identification of the one of several parcels of public lands of the city of Ramallah for the design of an ecological public transportation hub within the existing city fabric. This parcel shall function as a part of the series of spots selected within the city in order to achieve a sustainable urban environment.

Using the GIS data present about the transportation of the city of Ramallah, the types of lands, and their locations will help us in pinpointing the main spot for the transportation hub in the city that can be of use to our study. “GIS helps highlight the transportation system's reach, coverage, modal relationships, key corridors, and relationship to our nation's economic activity and environment”. (Office of the Assistant Secretary for Research and Technology, 2012)

[1]Hoogduyn, Rick (2014), *Urban Acupuncture, Revitalizing urban areas by small scale interventions* (Masters’ Thesis) , retrieved from http://www.diva-portal.org/smash/get/diva2:832526/FULLTEXT01.pdf

The site

The site of our project will be Ramallah City (Figure 2), it is a very important social, political and economic center in Palestine. The city of Ramallah, in the process of high urbanization that has led to a massive urban sprawl. Ramallah is located in the center of the West Bank, 16km away from Jerusalem, 67km from the Mediterranean Sea, and 52km from the Dead Sea. The governorate of Ramallah – Al-Bireh is located on an area of 855km2 (almost one sixth of the West Bank's total area) and is about 830-830 m AMSL.

Ramallah currently hosts many important economic activities including Tourism, Industry, and Cultural activities. Ramallah houses many of the important hotels of the country and several parks; such as Al-Hambra Palace Hotel, Movenpick hotel, and Grand Park Hotel, Al-Muntaza Park, Al-Bayyara Parks, and Ein Kenya Natural Reserve. As for industry and economy, Ramallah contains many manufacturers, and most headquarters for many companies and organizations, such as insurance companies, telecommunication companies, and local and international NGO's, it also accommodates the head offices of 15 of the 21 regional, national and international banks that operate in Palestine. Moreover, Ramallah contains many centers for cultural activities, ranging from cinemas, theaters, and many cultural centers and forums. [2]

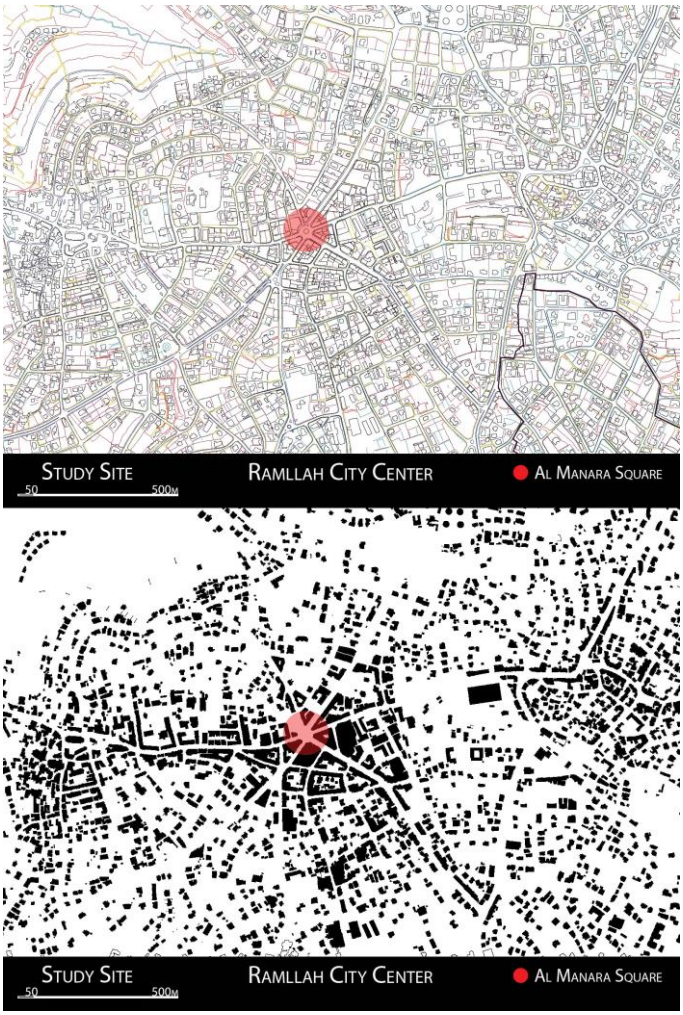

Figure 2: Study Site: Ramallah City
Image: Author

As such, Ramallah holds as a very important center in Palestine, leaving it crowded and urbanized. The project of "Acupuncture in Ramallah City Neighborhoods" attempts to address the need for a smarter more socially aware and sustainable city by pinpointing marginalized, left or dead spaces using

[2] http://www.ramallah.ps/ar_page.aspx?id=63XxFHa2209018713a63XxFH (accessed October 27th/2015)

geospatial analysis and applying such interventions to those spaces that may cause a ripple effect of social and economic change.

GIS and Urban Acupuncture

In this project, we will attempt to find the required parcel, its relationship to the existing parks and public spaces, transportation hubs, and congestion areas. The study will be based on the collection of the data regarding the network of roads, land parcelation, Bus and public transportation routes, public parks and spaces, and population density. (Figure 3)

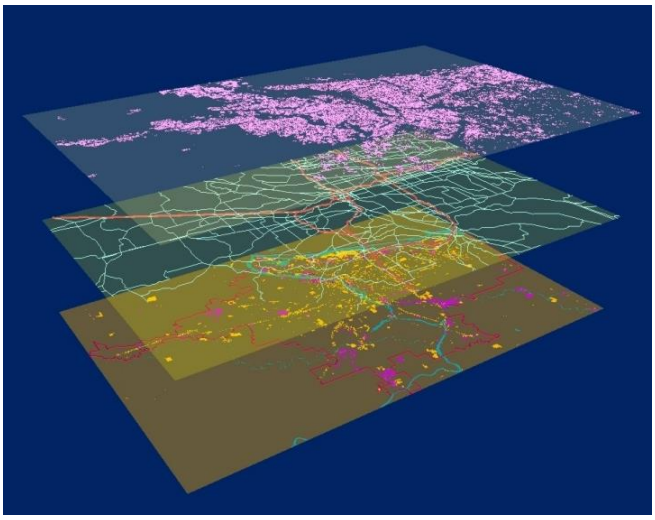

Figure 3: Overlay of transportation network with city parcels
Source: http://www.meipokwan.org/Gallery/Urban.htm

The data used will be both Spatial and attribute data, it should be able to provide us with charts, tables, and vector and raster images that can help in the analysis of the transportation infrastructure of the city.

Methodology

The research mainly questions the need for a central transportation hub to relieve the congestion of the city, and the need of more public parks and spaces.

According to the research, the required data is:

- Data regarding the parcels and their types and areas,
- Master Plan of the city; zoning (functions) data of the city with spatial computations (areas),
- Transportation infrastructure data; Types of Roads, traffic on such roads, physical properties, etc…,
- Public transportation routes within the city,
- Locations of transportation hubs and their uses;
- Public and open spaces within the city; Public squares, green spaces, shopping areas, etc…
- Population density.

With this data, we will be able to run a query that would allow us to find the best fit area for an ecological transportation hub that can help with the high traffic and population congestion in the city that are caused by the process of rapid urbanization of Ramallah and act as a public park within the network of the city.

Process and Data Analysis

After the data collection phase, we began studying the existing infrastructure of the city in terms of parks and traffic congestion and its relation to the existing transportation hubs. Figure 4 shows the existing transportation system and its relationship to existing routes it uses.

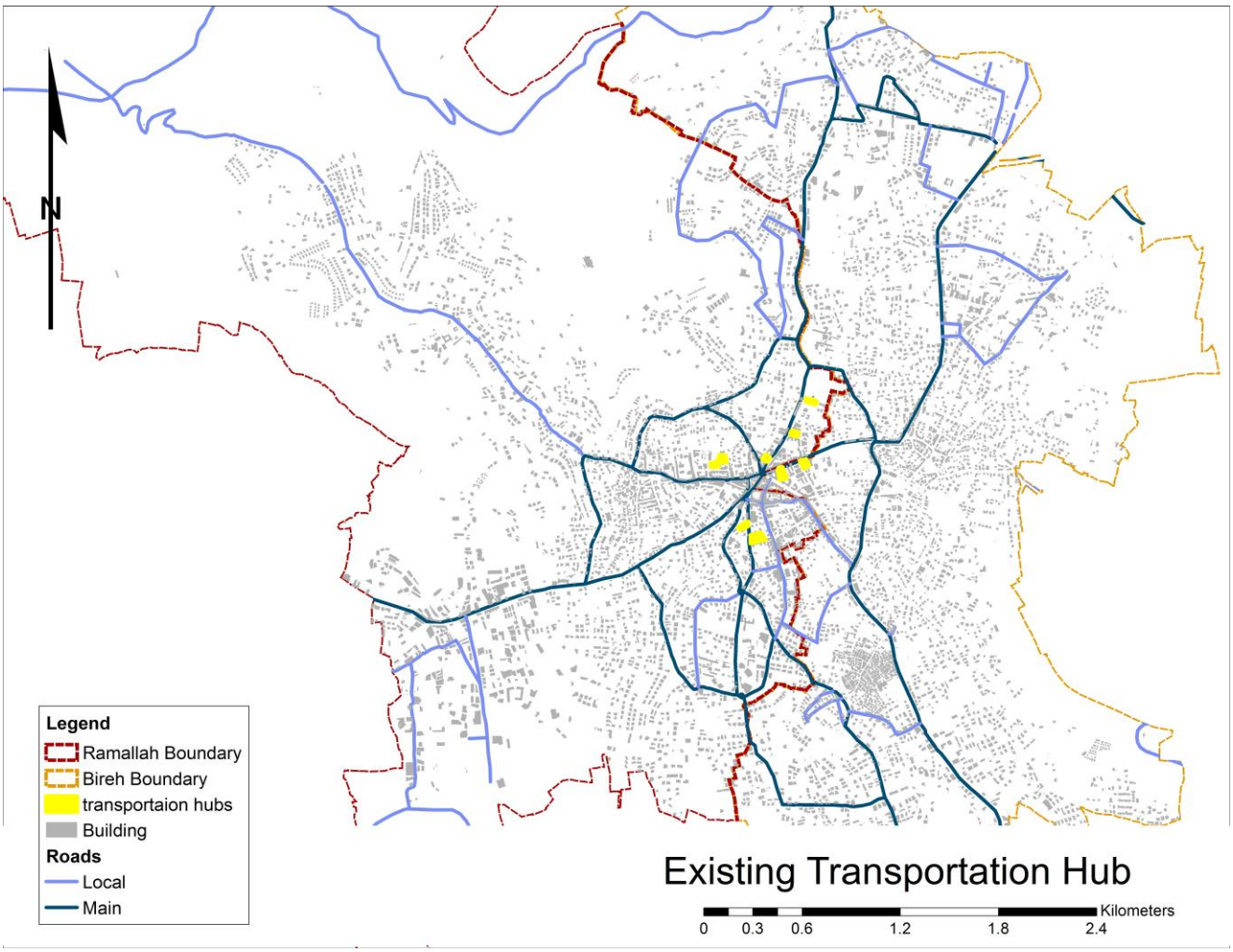

Figure 4: existing transportation system and its relationship to existing routes (Author)

Afterwards a layer of the spots of traffic congestion was overlaid to understand its relation to the existing hubs (Figure 5). According to the map, most congestion areas fall close to the existing transportation hubs and privately owned Taxi structure.

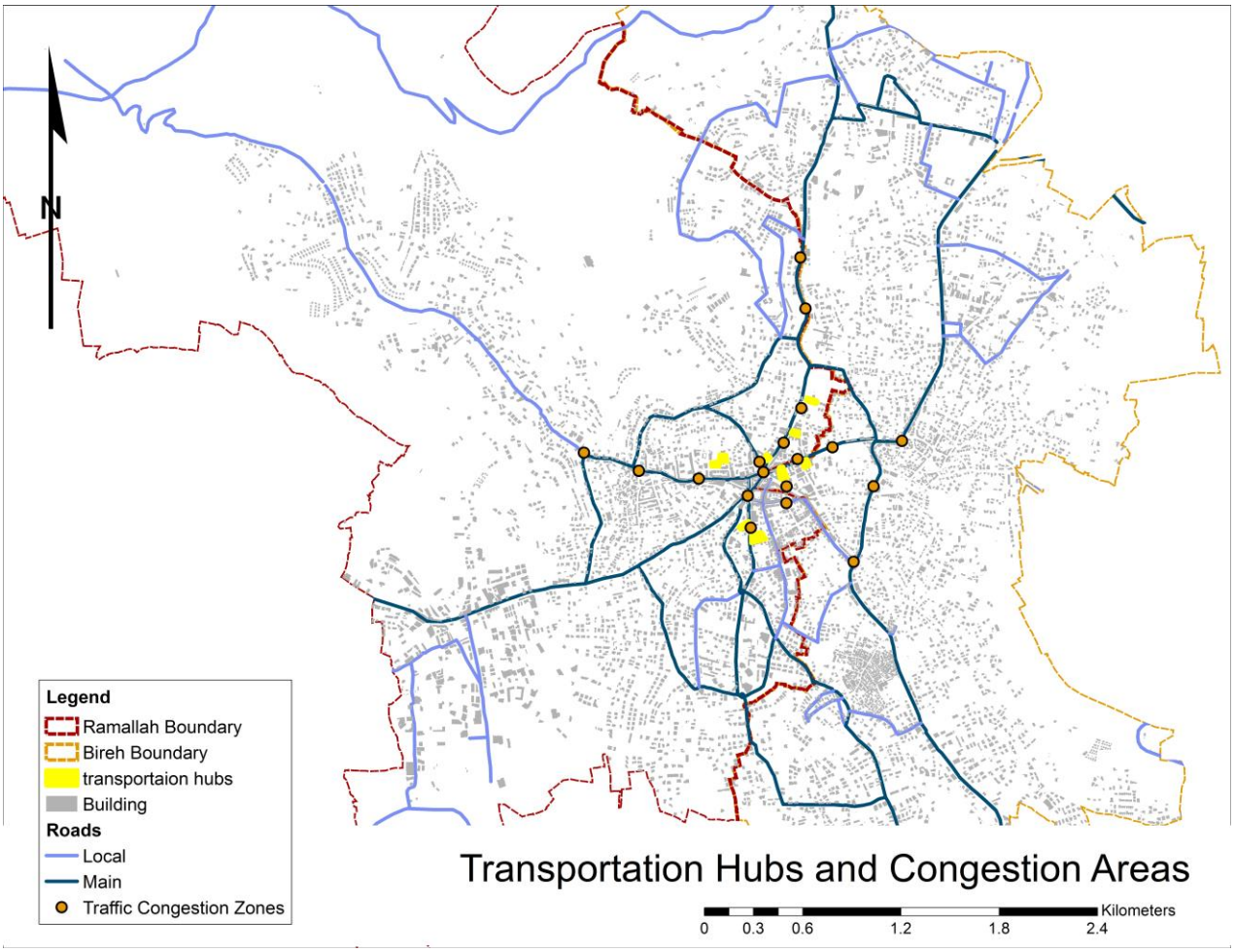

Figure 5: Existing transportation system and areas of traffic congestion (Author)

Then, a layer of the existing public parks was overlaid in order to study their relationship to the city and the transportation system (Figures 6 and 7). According to the maps, the parks are distant and not utilized by the transportation hubs for public use, thus they can be inept. Such analysis helps us understand how to integrate the existing parks and transportation systems within the design. Public parks can function in coordination with the transportation systems to liven up the city and offer spaces for the public to use on their way or while waiting for their transport. Also, by looking at the maps in figure 8, it is clear that the public parks spaces are not enough for the existing built-up of the city.

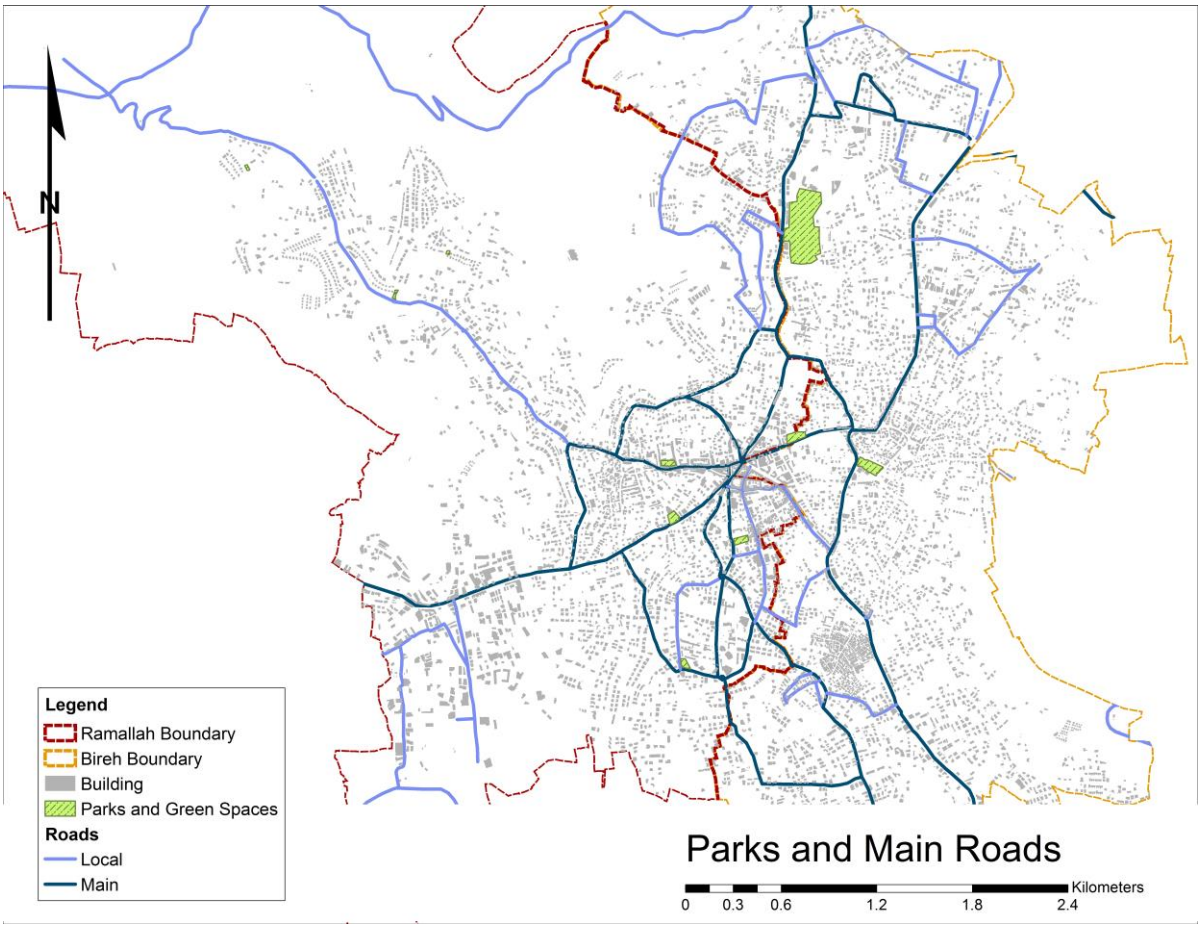

Figure 6: Existing transportation system and public parks and spaces (Author)

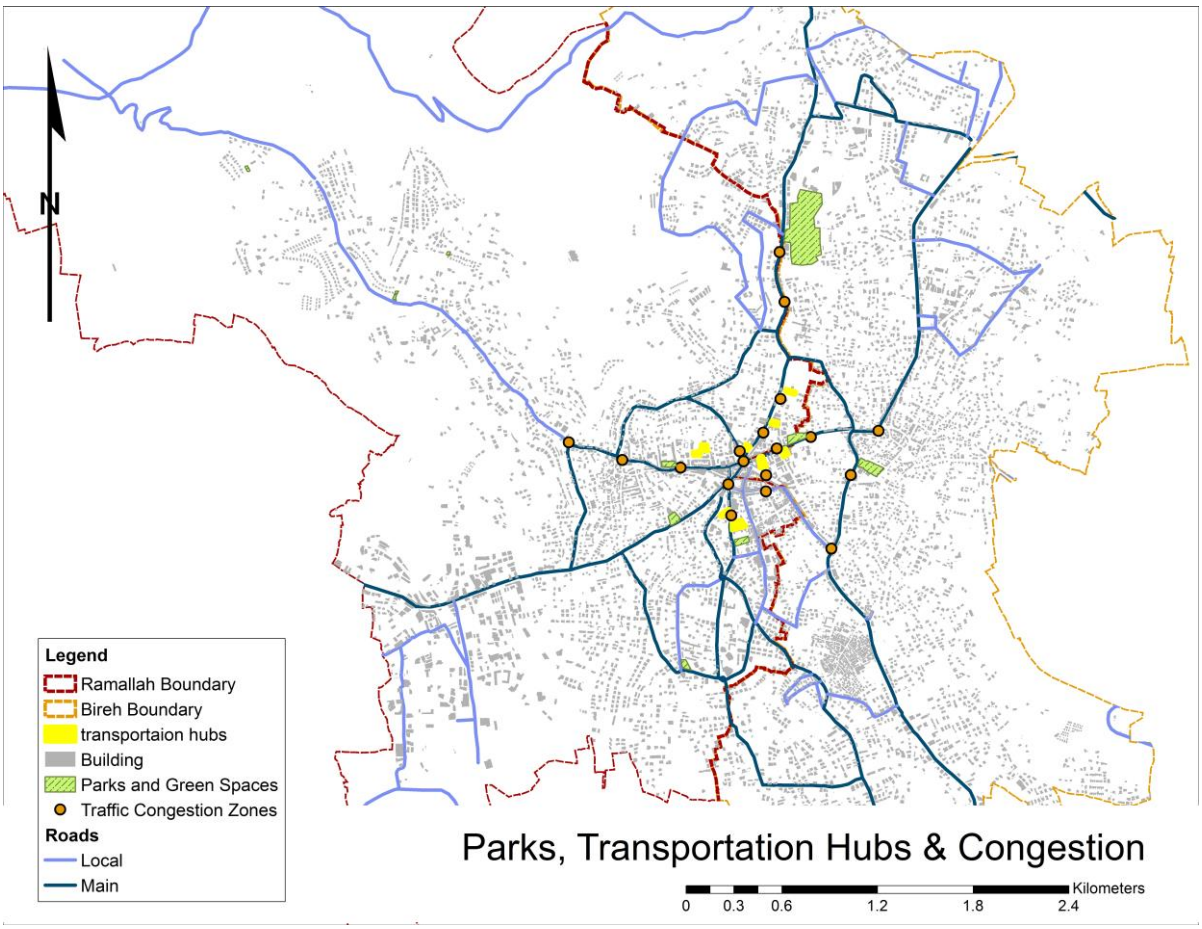

Figure 7: Existing transportation system, traffic congestion, and public parks and spaces (Author)

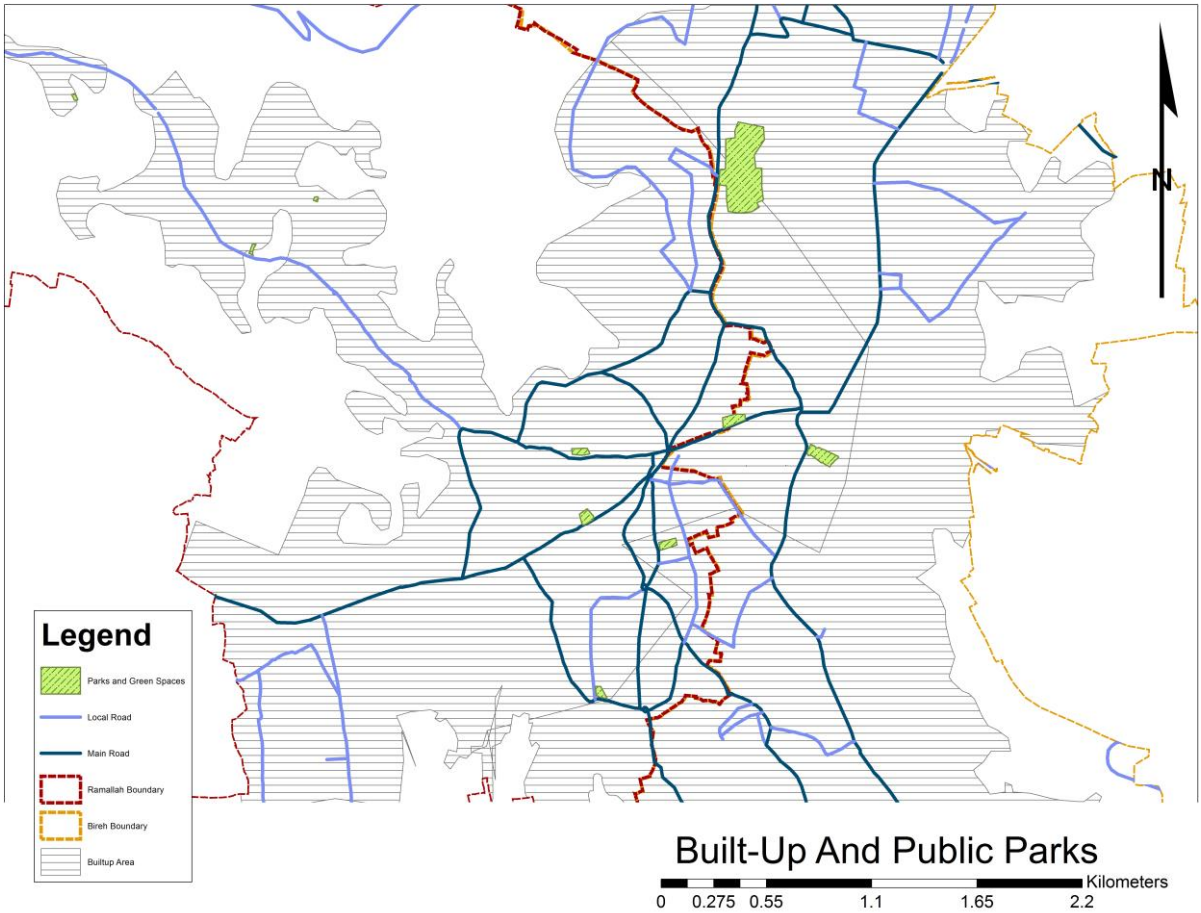

Figure 8: Built-up area and public parks and spaces (Author)

Afterwards, we studied the urban population density and its relation to the parks and open spaces and transportation hubs (figures 9, 10, and 11). These maps show that the existing hubs and parks and placed within areas of very high to high population density; which is ordinary since spaces of high density form as centers in need of more public facilities. Yet as mentioned before, those are not enough and/or are misplaced causing traffic congestion rather than relieving the city.

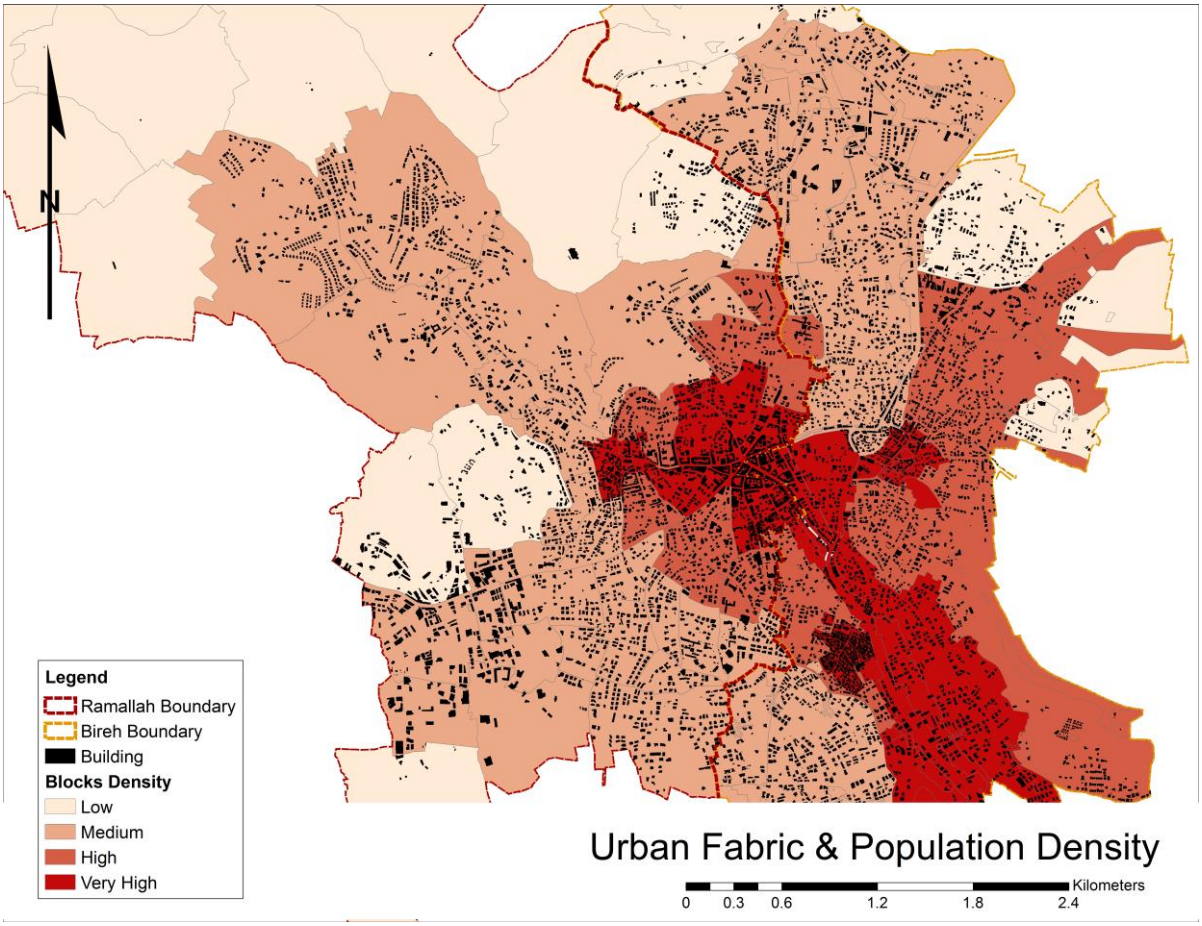

Figure 9: Urban fabric and population density (Author)

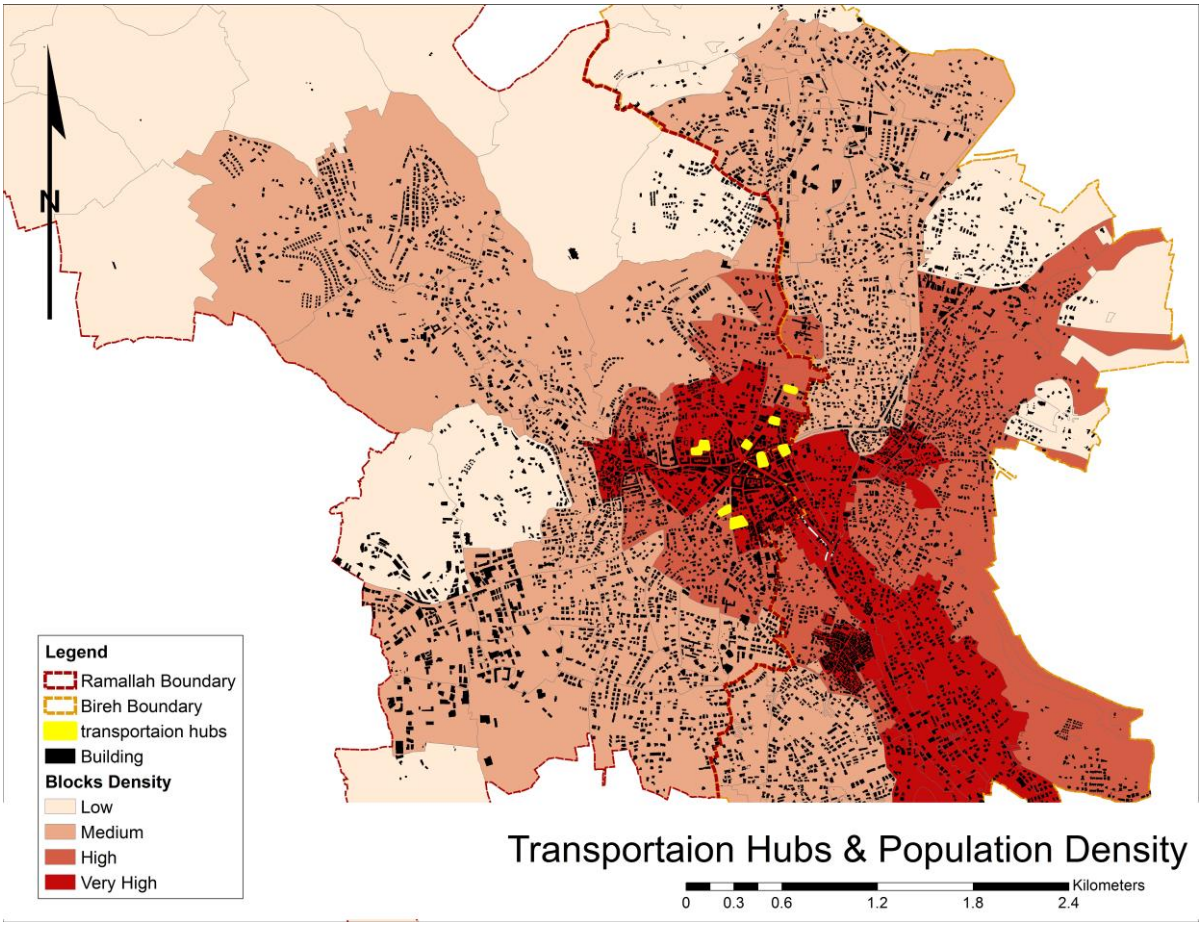

Figure 10: transportation and population density (Author)

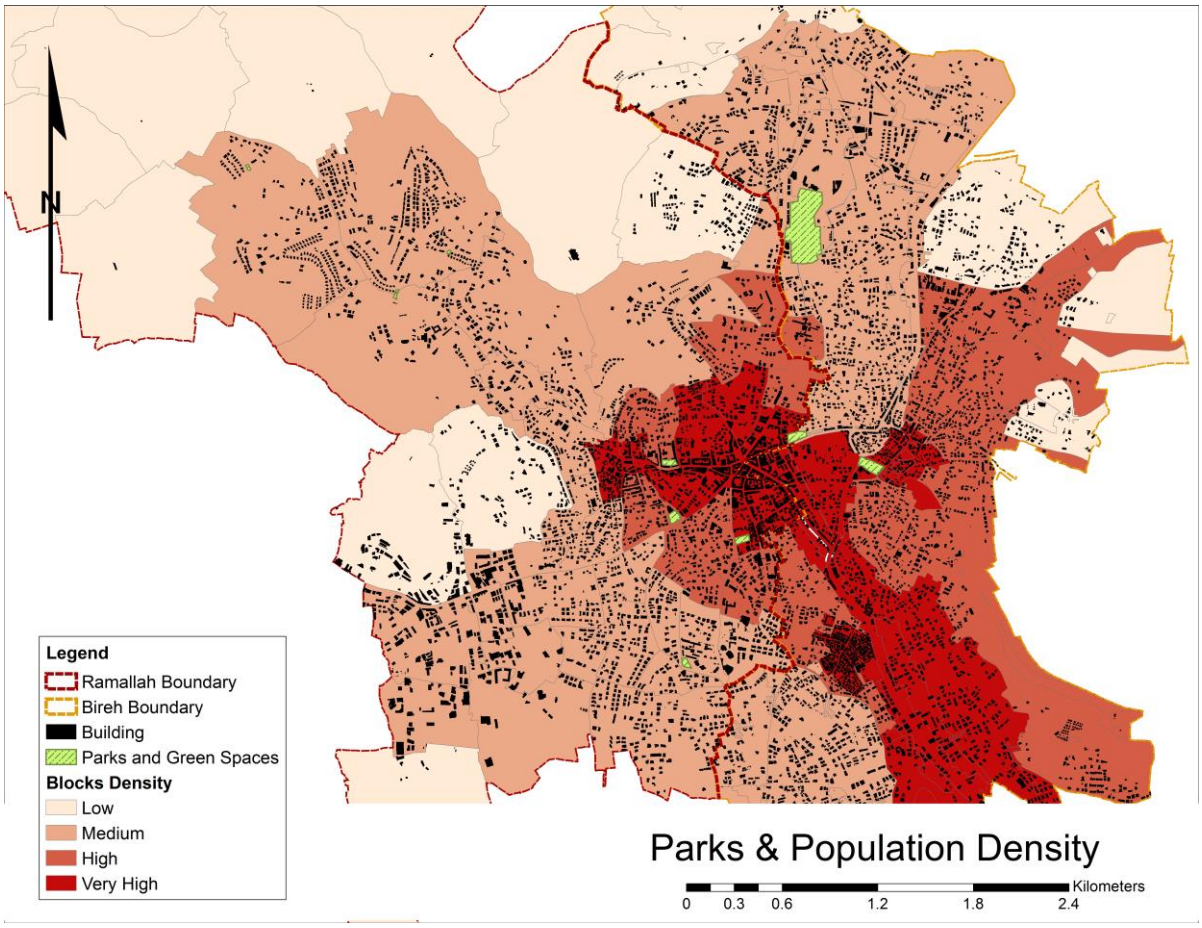

Figure 11: Public Parks and population density (Author)

According to our analysis and design approach, we proposed the creation of a central transportation hub replacing the existing ones. This hub with be integrated within a city park that hosts several functions such as a market, a playground, etc... This will help in relieving the stress and congestion within the city center.

Finding the best location

After studying the existing structure in terms of public parks, transportation system, and the traffic congestion of the city, we began looking for the spot that works for the design of an ecological transportation hub and park.

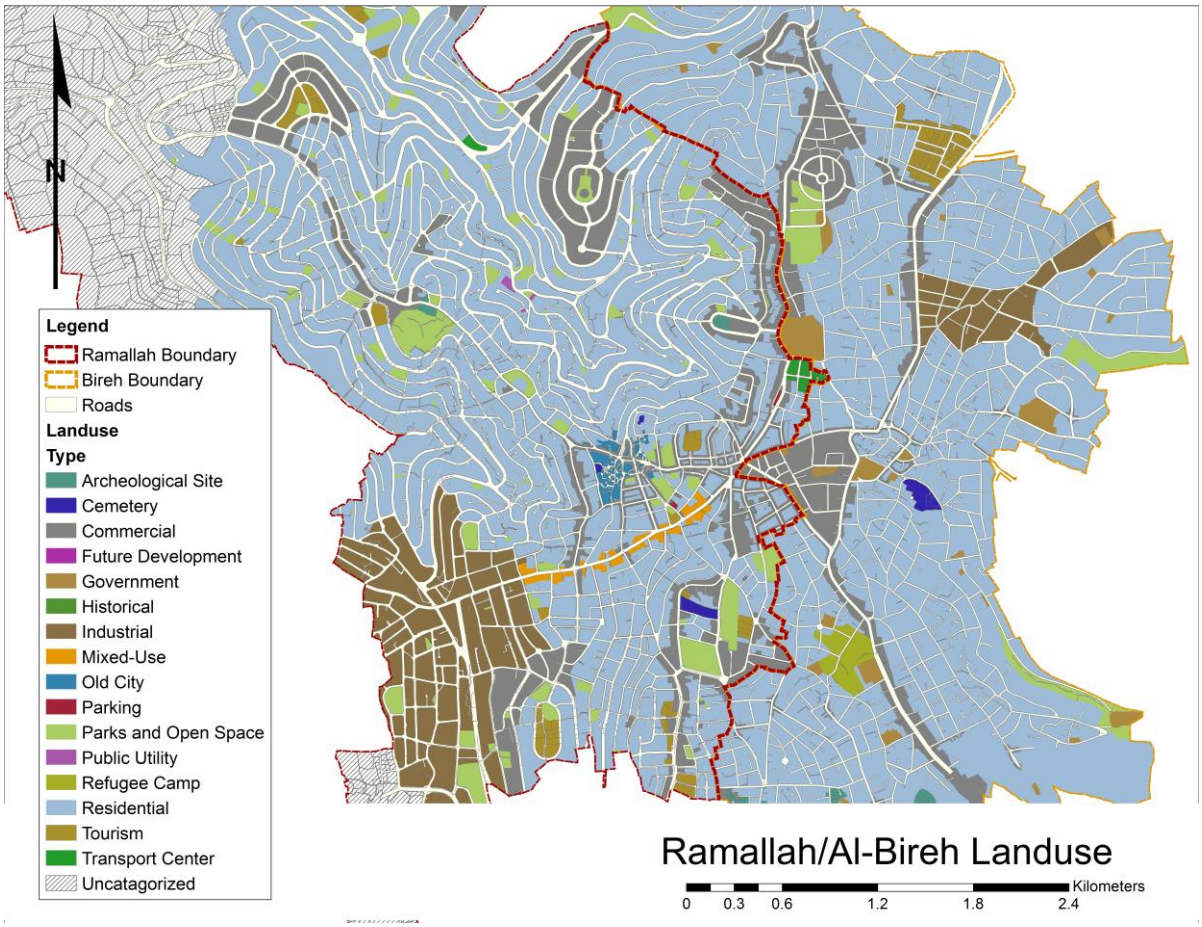

Figure 12: Ramallah/Al-Bireh Masterplan (Author)

In order to locate the best spot, we had laid out a criteria within our design approach and compared it with the masterplan of the city. (Figure 12)

The parcel must be;

- Public land; not privately owned,
- Empty land; not containing any structures,
- Within a distance of maximum distance of 30m from main roads,
- Has an area ranging between 10,000 to 30,000 m^2,
- Within range of highly populated areas.

First, we located parcels that are not privately owned and that be used for the creation of a public space using the master plan of the city of Ramallah/Al-Bireh (Figure 13). Second, we discarded the lands that were occupied with any existing structure by overlaying it with the buildings of the city (Figure 14). Third, filtered the lands that were in a 30m range from main roads in the city (Figure 15). And finally, we filtered the lands that are within the area range for the design (Figure 16).

After that, we ended up with several lands that are viable for the design, as such we had to filter out the most crucial spots in the city. Those spots would fall within the areas of high density and traffic congestion (Figure 17).

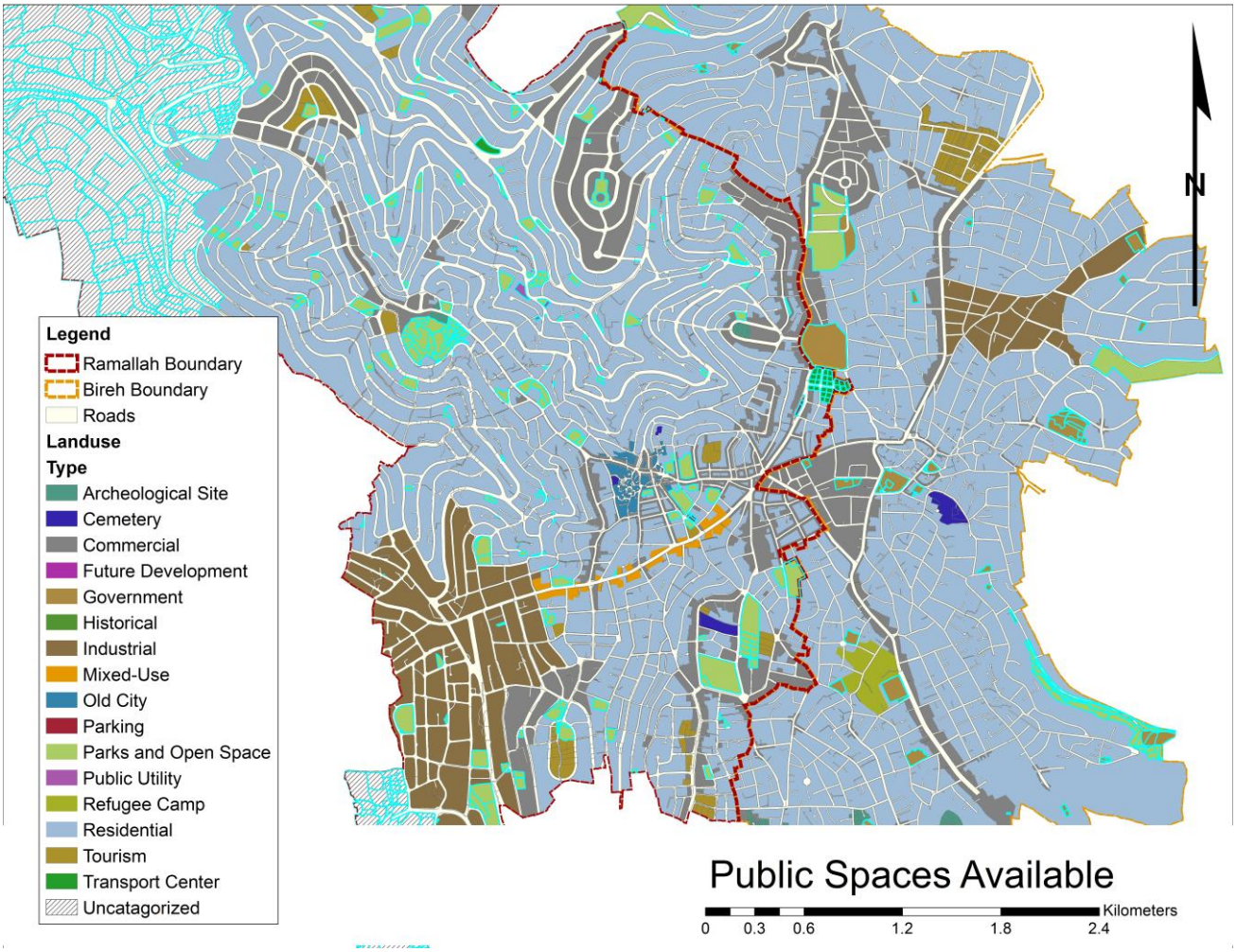

Figure 13: Lands that are not private according to the Master plan of Ramallah (Author)

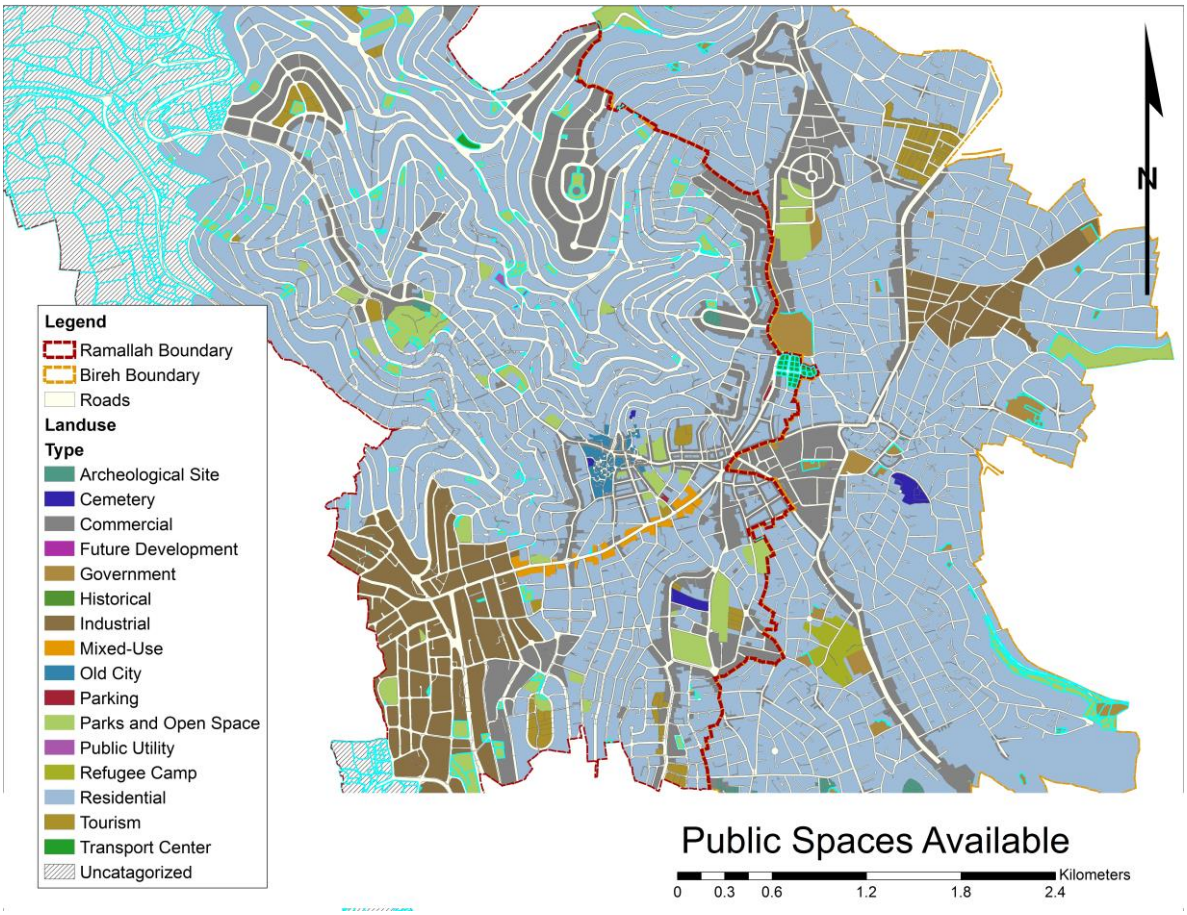

Figure 14: Empty Public Lands (Author)

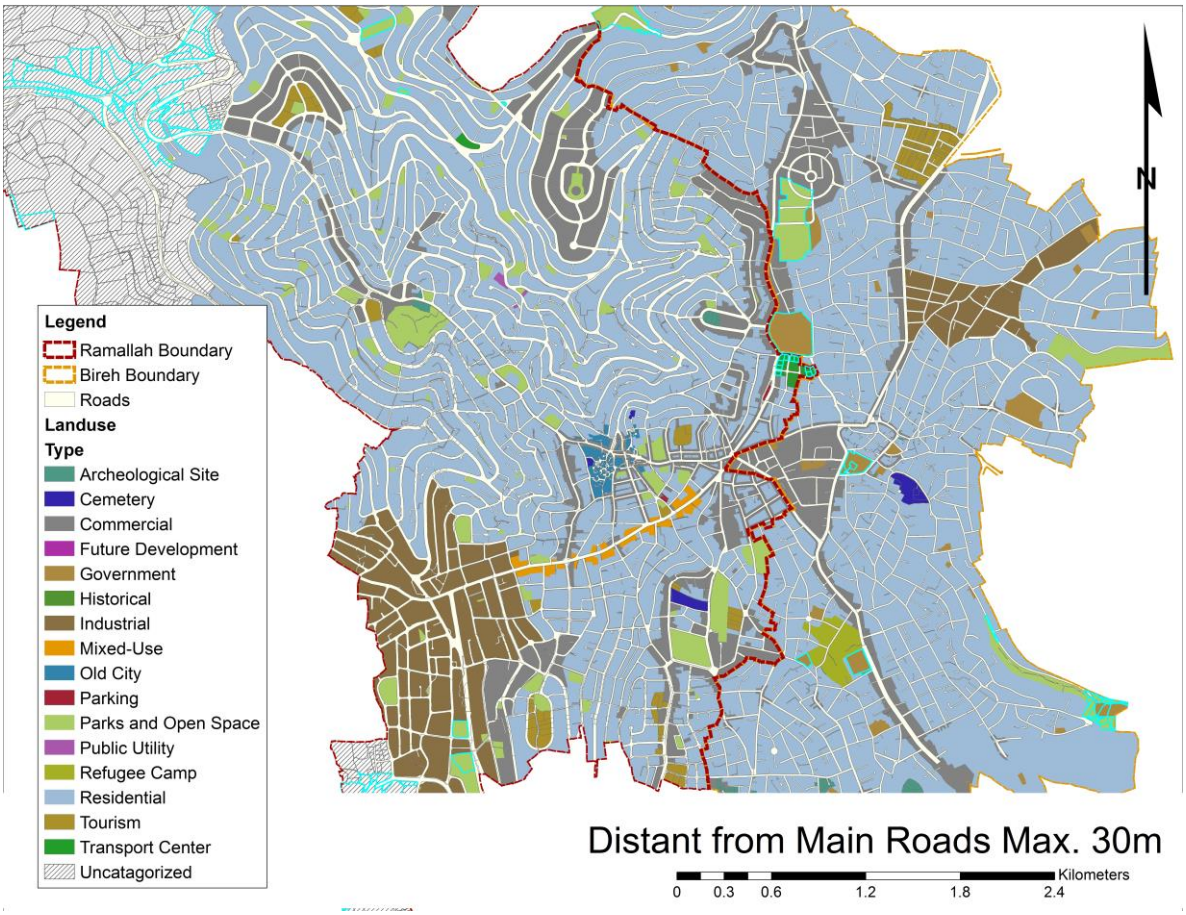

Figure 15: Lands that are in a 30m range from main roads (Author)

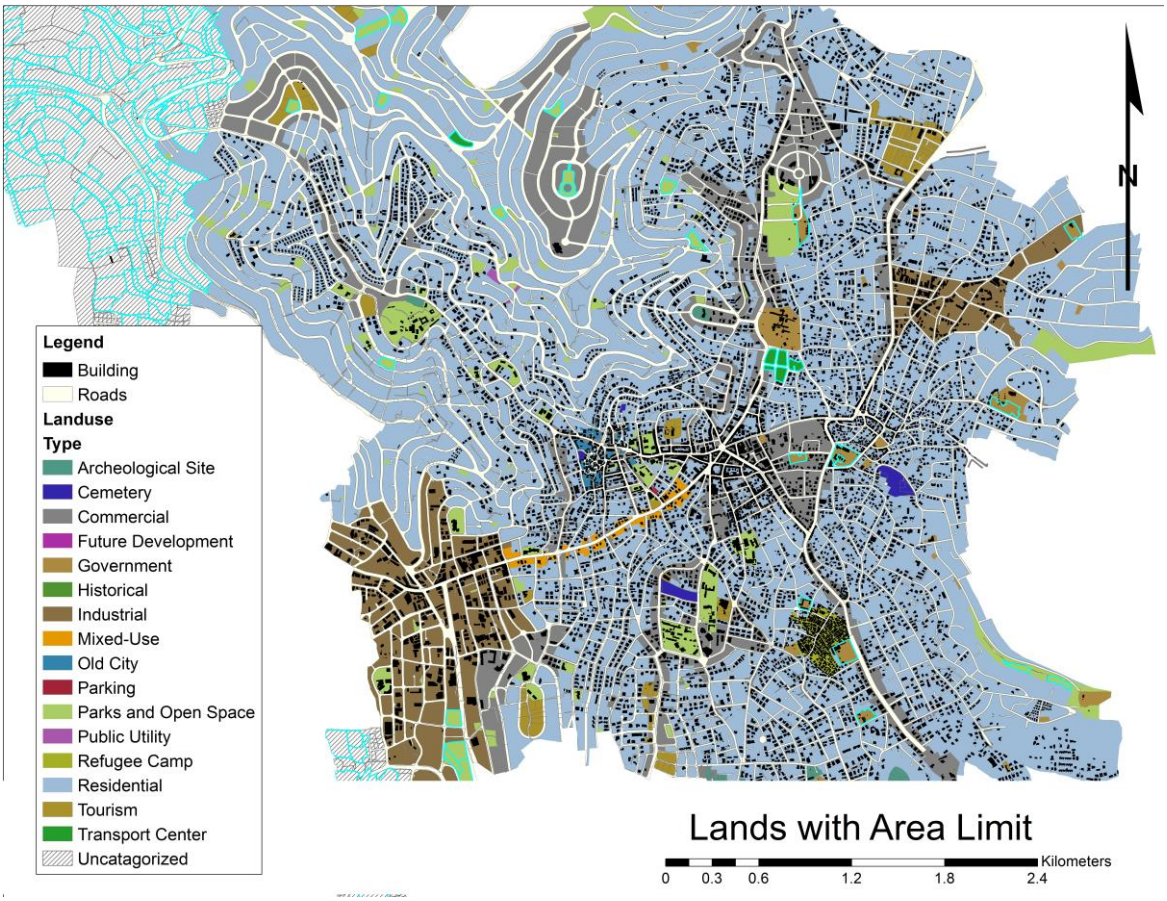

Figure 16: Lands with area range of 10000m² and 30000 m² (Author)

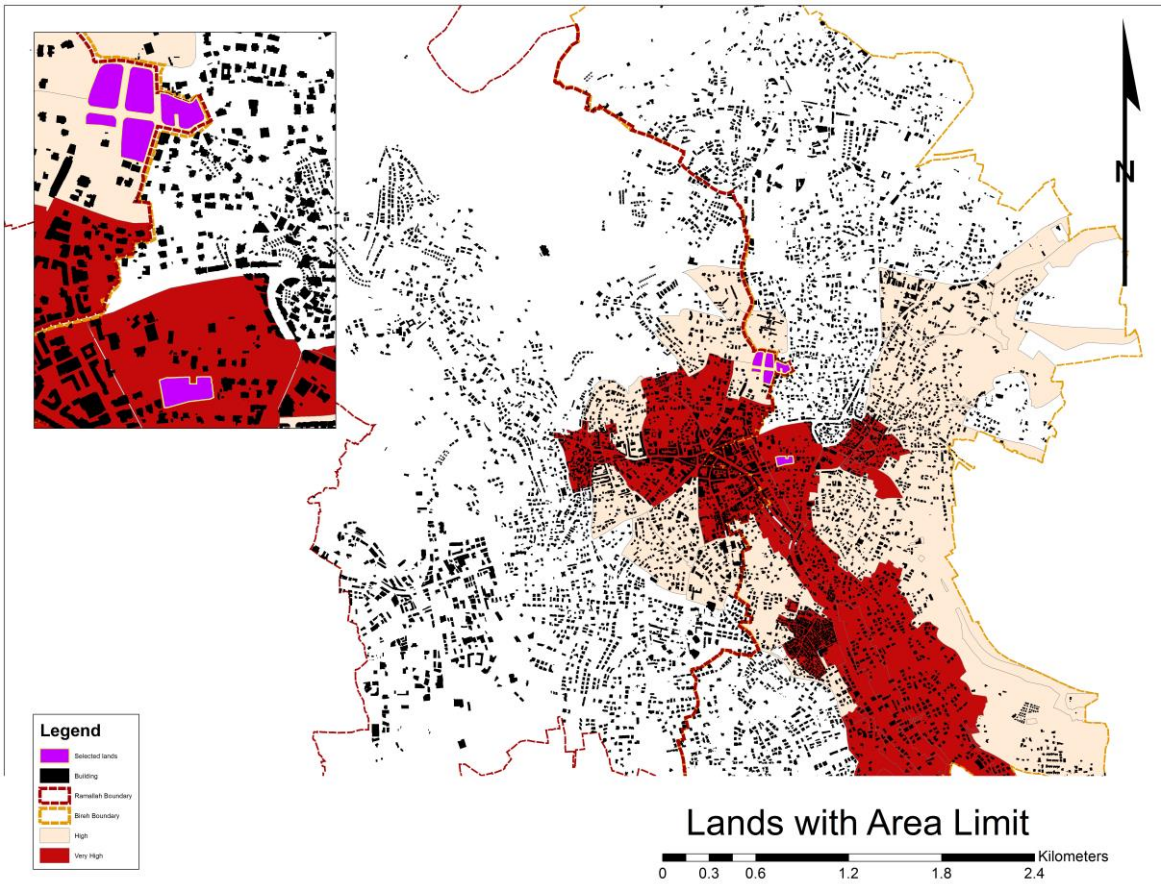

Figure 17: Lands within areas of high density (Author)

Result

Eventually, we were left with two sites that can work well according to the criteria placed and the design approach. We then chose one site according to our understanding of both sites which was the one near the presidential quarters on the Irsal main street (Figure 18). This land acts as a part of the existing parks and can replace several of the existing transportation hubs to form a centeral transportation hub and city park.

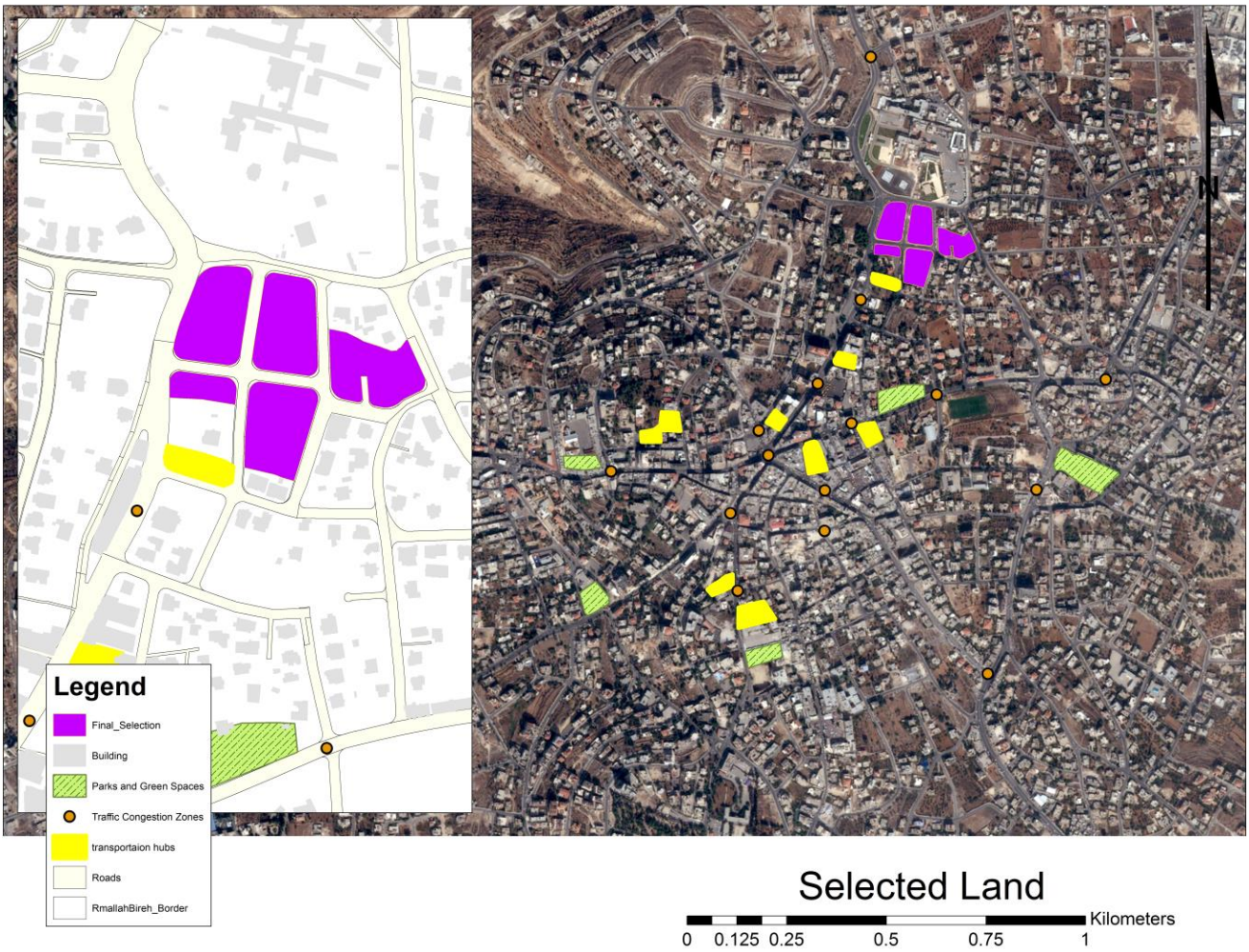

Figure 18: The land chosen for the design (Author)

References:

- Office of the Assistant Secretary for Research and Technology, 2012, U.S. Department of Transportation, 1200 New Jersey Avenue, SE.
- Hoogduyn, Rick (2014), *Urban Acupuncture, Revitalizing urban areas by small scale interventions* (Masters' Thesis) , retrieved from http://www.diva-portal.org/smash/get/diva2:832526/FULLTEXT01.pdf (Accessed October, 27th/2015)