



GLOBAL JOURNAL OF RESEARCHES IN ENGINEERING: J
GENERAL ENGINEERING

Volume 21 Issue 3 Version 1.0 Year 2021

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4596 & Print ISSN: 0975-5861

The Role of Jordan Hijaz Railway Development in Community Support and Tourism / A Paradox through Urban Options

By Reham Al-Asmara

Abstract- The study seeks to highlight the urban and architectural characteristics of Hejaz railway that were constructed during the Ottoman rule, especially the impacts of development of track through proposing investments along the track for a selected area. The research used the descriptive and analytical approaches, through reviewing and analyzing the urban and the activities of local people revealed an evolution of communities located along the railway and identify the pattern of urban. This research concludes as a result of a lack of supervision and awareness that the development of the railway will improve the social life by providing job opportunities and will enhance the economy sector through encouraging tourism. With various recommendations give an opportunity to get more contribution in the economic and touristic development, therefore, this will generally achieve more benefits for the country.

Keywords: jordan hejaz railway; urban design; tourist attraction; cultural awareness.

GJRE-J Classification: FOR Code: 291899p



Strictly as per the compliance and regulations of:



The Role of Jordan Hijaz Railway Development in Community Support and Tourism / A Paradox through Urban Options

Reham Al-Asmara

Abstract- The study seeks to highlight the urban and architectural characteristics of Hejaz railway that were constructed during the Ottoman rule, especially the impacts of development of track through proposing investments along the track for a selected area. The research used the descriptive and analytical approaches, through reviewing and analyzing the urban and the activities of local people revealed an evolution of communities located along the railway and identify the pattern of urban. This research concludes as a result of a lack of supervision and awareness that the development of the railway will improve the social life by providing job opportunities and will enhance the economy sector through encouraging tourism. With various recommendations give an opportunity to get more contribution in the economic and touristic development, therefore, this will generally achieve more benefits for the country.

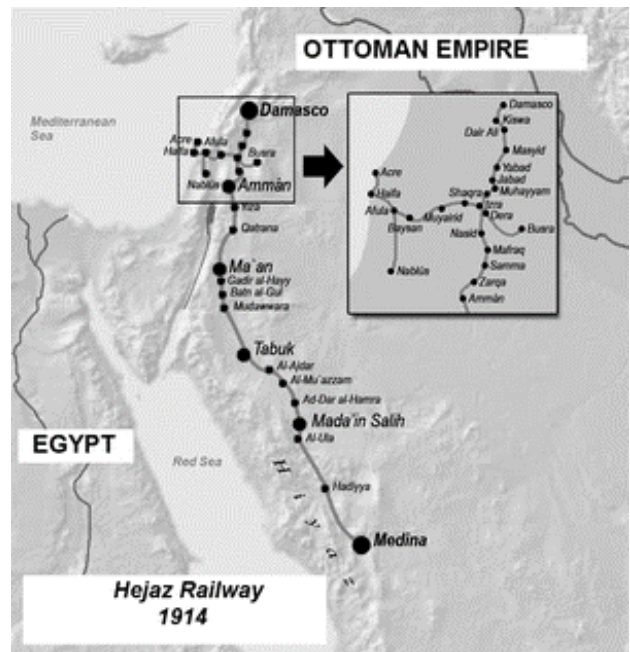
Keywords: jordan hejaz railway; urban design; tourist attraction; cultural awareness.

I. BACKGROUND AND OVERVIEW

Jordan has been home to some of humanity's settlements and towns. Historically, the most significant of Alhijaz routes start at Damascus in Syria, and also it is a direct continuation of the ancient trade route connecting Arabia to the Levant (Petersen A, 2012).

At the end of the 19th century, and during several previous centuries, the main link between the Ottoman administration and the Hejaz residents were the gifts and the donations from the Sultan of the Caliph to religious figures, the sheiks of the tribes, and the population of sacred cities.(Valeev, Abidulin, & Ayupova, 2017).

The railway is shown in the figure one reached Ma'an in 1904, the castle of Al Mudawwara in 1906, and in 1906 a celebration was made for the occasion of accomplishing 1000 km of the line. In 1908, the railway between Al Madina and Damascus was 1465 km long. (Daradkeh, S. M. 2013).



(Source: author, 2019)

Fig. 1: Hejaz railway development contribution aspects

The construction of the railway had an impact on the areas that passed through, the societies, and the local people. These impacts represent in commercial and economic renaissance in many cities in Jordan from Ma'raq Governorate in the north to the south; (2) the emergence of new urban communities across the Jordanian territory, especially around the locations of the main stations of the railway; and (3) strengthening the social links between the cities located alongside the railway, especially around the stations. Today, most of the railway stations are stand-alone, but a few of them are in the capital that are active places for the local community and touristic visits.

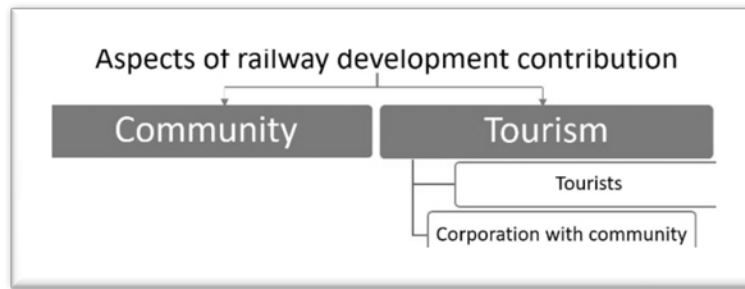
Most of them are well-preserved, and some have been exposed to bad attitudes on the campus of the railway from local communities.

It is, therefore, become necessary to shed light on the axis of urban and its impact on society and the architectural environment by indicating the influence of the development of the Hejaz railway on the existed development or urban communities.

Author: UCL Institute for Environmental Design and Engineering, The Bartlett, UCL Faculty of the Built Environment, UCL.
e-mail: reham.alasmar.20@ucl.ac.uk

Moreover, this research describes and analysis urban characteristics: connectivity, visibility and views, and the activities that are available along the track,

considering the aspects of development contribution, as shown in figure 2.



(Source: author, 2019)

Fig. 2: Hejaz railway development contribution aspects

UCL Depth map has the aim of further research. It performs 'isovist integration analysis; that is, to apply the same analysis to isovists that Axman and Peshhad previously utilized to axial lines and convex spaces.

All these three types of analysis are very similar: first a map is created of the spatial units, be they isovists, lines or polygons; then, a spatial network is generated from the components either by explicitly stating links or calculated from overlap or adjacency. (Markhede; Carranza, 2007).

II. RESEARCH PROBLEM AND SIGNIFICANCE

Jordan Hijaz Railway is considered one of the heritage urban landmarks in Jordan. Its importance has declined as while as its active role in tourism development incorporation with the local community.

The railway campus is attacked by residents due to a lack of interaction with the area and a lack of awareness of how to invest it.

There were many types of research about Jordan Hejaz railway stations without considering surroundings and its relation to the community.

The research highlights options for the development of the urban role of the railway in an attempt to improve its overall contribution. Also, the research helps to provide sufficient results, as it depends on using UCL Depth map software to optimize spatial layout efficiency.

III. RESEARCH ISSUES AND OBJECTIVES

The eventual objective of the research is to achieve the best development options for the Hijaz Railway in Jordan. However, to achieve that objective, several purposes have to be developed, therefore provide comprehensive final information. Then goals are around two aspects regarding Figure 1:

- On the one hand, the role of railway development aims to reduce attacks from the local community on the campus of the railway and its visitors emerging from the lack of awareness of the cultural

importance of this landmark and to transform the attitude of the community from its undesirable act to an active role attempting to change their behavior, in addition to the possibility of suggesting investments that provide job opportunities and activities in some selected points of the plan.

- On the other hand, the development process aims to enhance the role of the railway and its link with its visitors, tourists, and local people, and their interdependence. And work to provide views in Junctions to enrich the experience through the journey. Also, it seeks the possibility of participation of the Hijaz Railway Corporation in one of the proposed development projects.

IV. RESEARCH METHODOLOGY

The research-based on descriptive and analytical approaches used to achieve the main objectives of this research. Further methods and tools were used, such as literature reviews related to the field of study, photographing, map reading, field visits, and visual observation. The study is not limited to the main stations of railway but also to an urban cluster located within the boundaries and surrounding, and it is based on selected study area extended from Em-Horan to Amman station. The research contributes to associating the gap in the relationship of the community with the railway in that there are negative attitudes, and there are no guidelines for investment.

The method used:

1. Surveying existing conditions and identifying the specifications and data for the study area by analyzing the main aspects influencing urban morphology and citizen life in Jordan. And defining obstacles and constraints resulting from misuse or misunderstanding by the local community.
2. Propose investment projects within the study area based on their role in society and the tourism aspect.

3. Analyzing the efficiency of investment projects on the role of railway development on people and the surrounding community. The analysis of visual and spatial network by using UCL Depth map software.

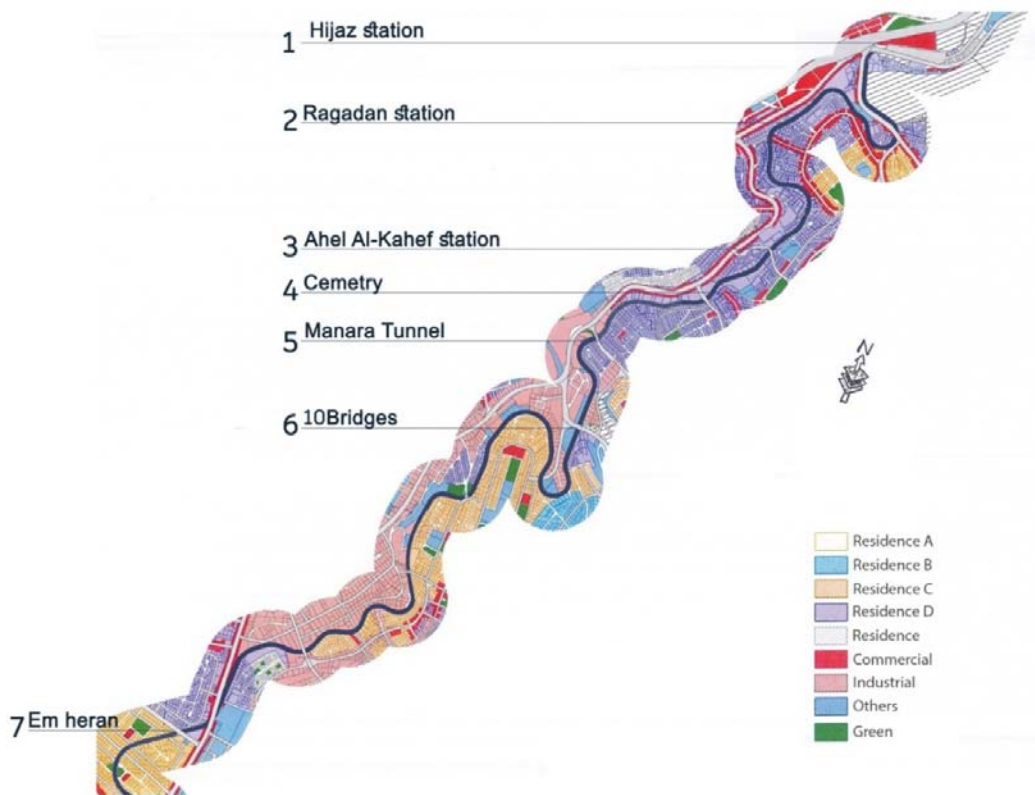
a) *The analysis of the study area*

The study area extends from Em-Heran Al qasr station to Amman station, as shown in figure 3.



(Source: edited by the author, 2019)

Fig. 3: Study area – Alqasr to Amman station



(Source: edited by the author, 2019)

Fig. 4: Hejaz railway from Em-Horan to Amman station land-use and landmarks

All aspects affecting the railway in its current state analysis are in terms of the land-use, the street network and its relationship with the railway and the landmarks that the user may overlook, as well as studying the obstacles to which the railroad is exposed, and that may need improvement.

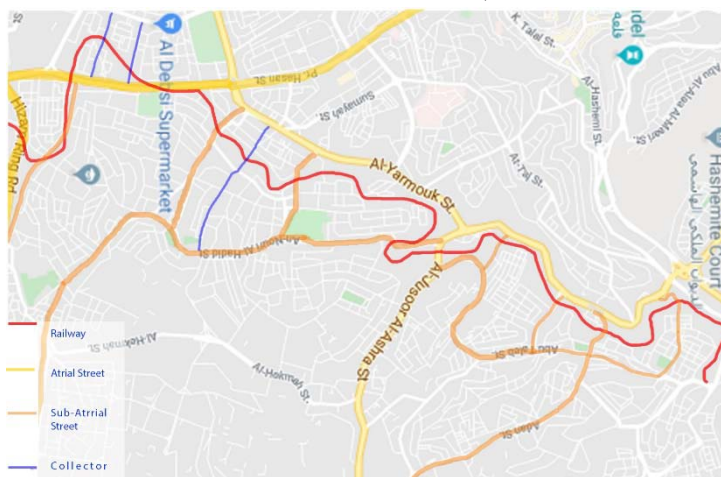
The land use of surroundings reflects the activities available for the community and the way of interaction with a railway. The views are available for users as tourists or community through their journey or the residents' regular use.

Figure 4 illustrates the land use of the study area selected to determine the best solutions for development.

Another issue to consider is street network and hierarchy within a selected area regarding railway track to define intersections with activities available in intersections to provide positive solutions that motivate community role.

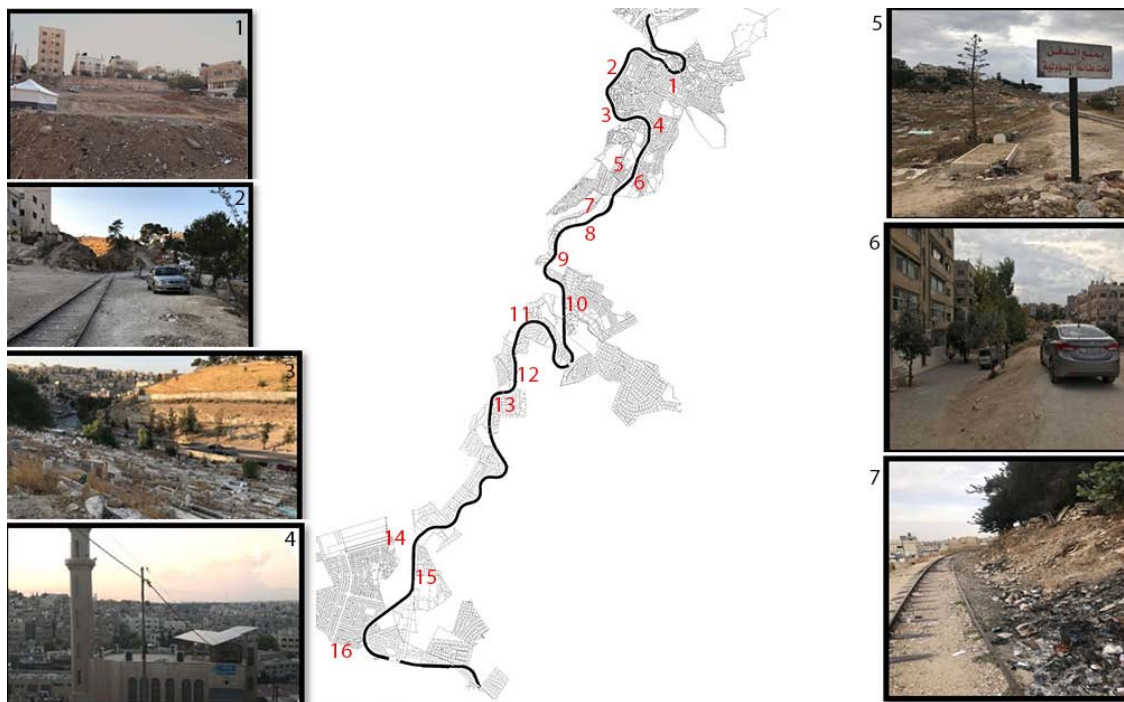
Visual aspects along the Hejaz railway track where users experienced is a key contributor to enhance their way of experience. The features distribute within the chosen area are illustrated in figure 6 to stimulate their importance according to the type of investment project proposed.

The topography and building distribution may consider valuable factors to be analyzed before any decision, which is also shown in Appendix A.



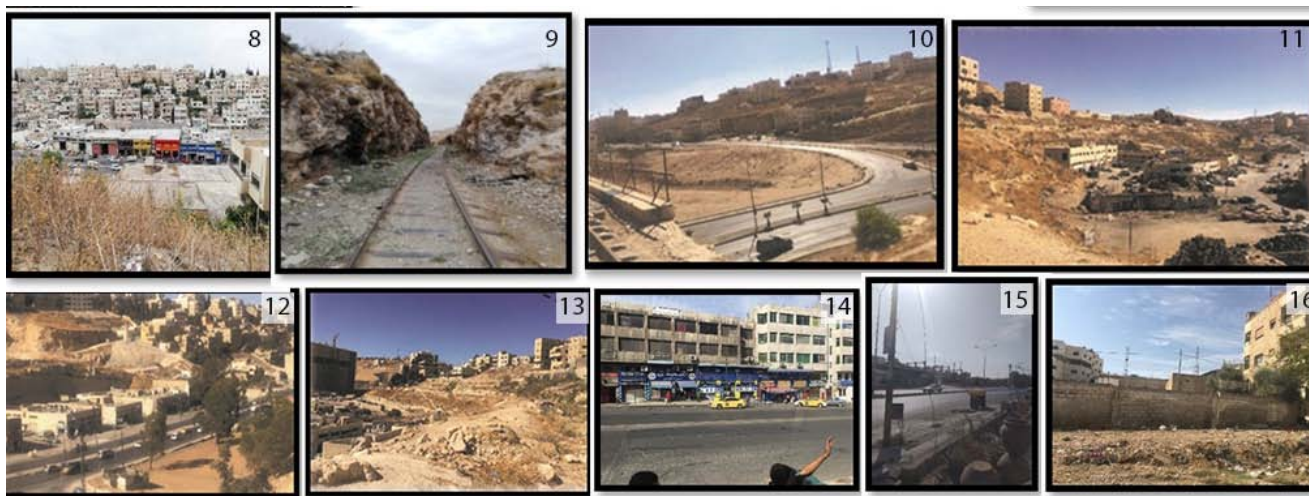
(Source: edited by the author, 2019)

Fig. 5: Street hierarchy - Study area/Alqas to Amman station



(Source: edited by the author, 2019)

Fig. 6.1: The Landmarks along the selected area of the Hejaz railway



(Source: edited by the author, 2019)

Fig. 6.2: The Landmarks along the selected area of the Hejaz railway

b) *Obstacles and Constraints*

The railway campus is under attack as a result of abuse by the local community. It includes a host of assaults, such as building construction, excavation, the presence of cemeteries, and the use of land for some vegetations. The research focuses on railway and street intersections as it detects the vehicle as an obstacle on the track and around it. Table 1.1 below illustrates some kinds of obstacles that are available along the chosen area.

c) *Proposed options for development*

Along the track of railway where there are some difficulties, proposed investment projects are supposed to implement for tourists and community.

The selected area was formed by how its different spaces are associated rather than the places designed in the design process or through experience.




Many solutions and proposed projects of investments that research study is based on analysis before selection and simulations using syntax analysis of UCL Depth map software to check validity and accuracy. Views, shops, exhibitions, and galleries are the kind of projects selected to use in some areas of urban place to indicate the impact on the existed development or the emergence of new urban activities that were not previously established.

Figure 7 illustrates the investment projects selected and its definite locations based on the analysis of selected zone and categorized into three categories to be invested by local people and used by both local and tourists.

The commercial shops as an investment project type are located on different points along the railway urban. Where the other two places are nominated regarding their constructive view to be a station for tourists and other locals to have a good experience through their journey. And gallery station is another

function proposed for local people to showcase some of their hand-made and traditional works, which are considered a good option to provide job vacancies for locals and let them deal with the railway as a place relate to rather than they attack.

Table 1.1: Study area barriers classification.

Obstacle type	Example
Buildings	
Cemeteries	
Excavation	
Vegetations	

(Source: edited by the author, 2019)



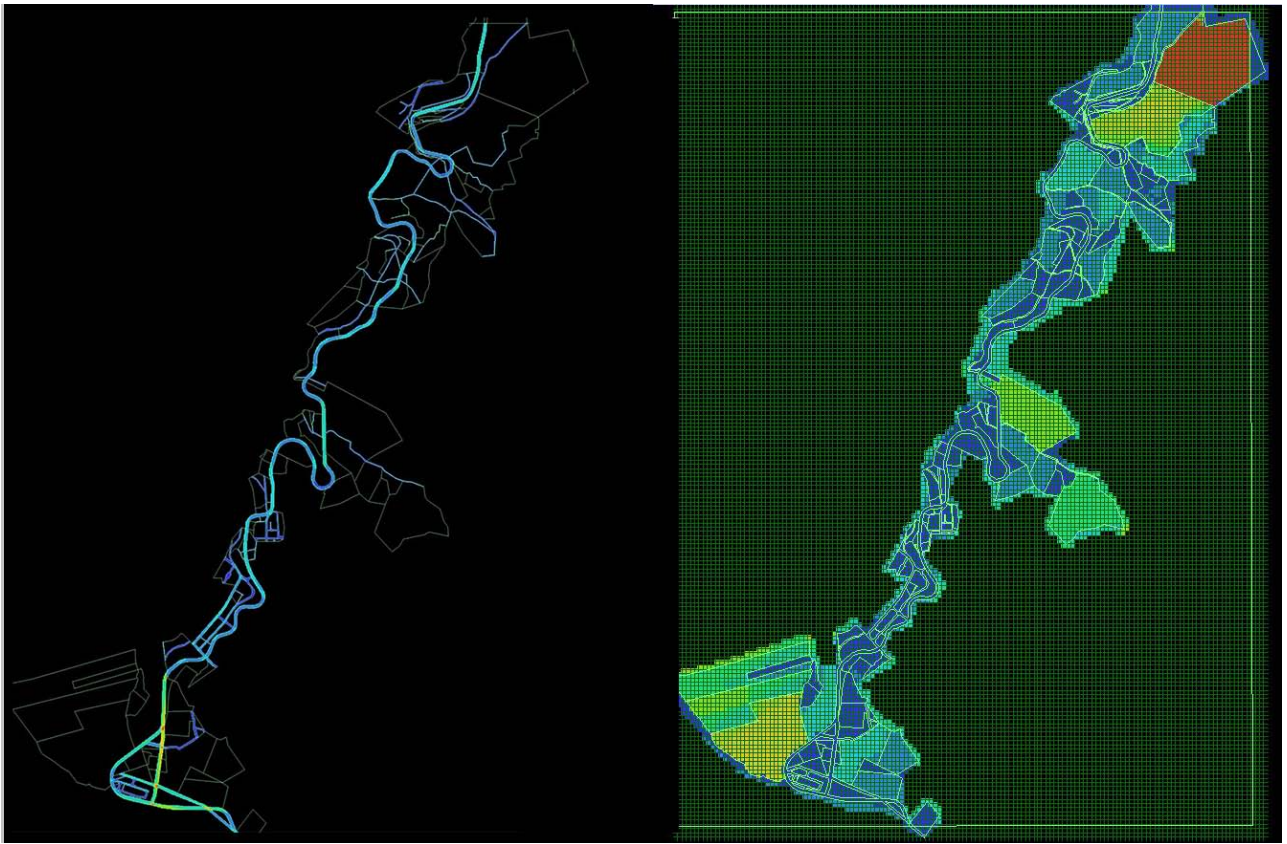
(Source: edited by author, 2019)

Fig. 7: Proposed development projects – Alqas to Amman station

d) Space syntax using UCL Depth map software:

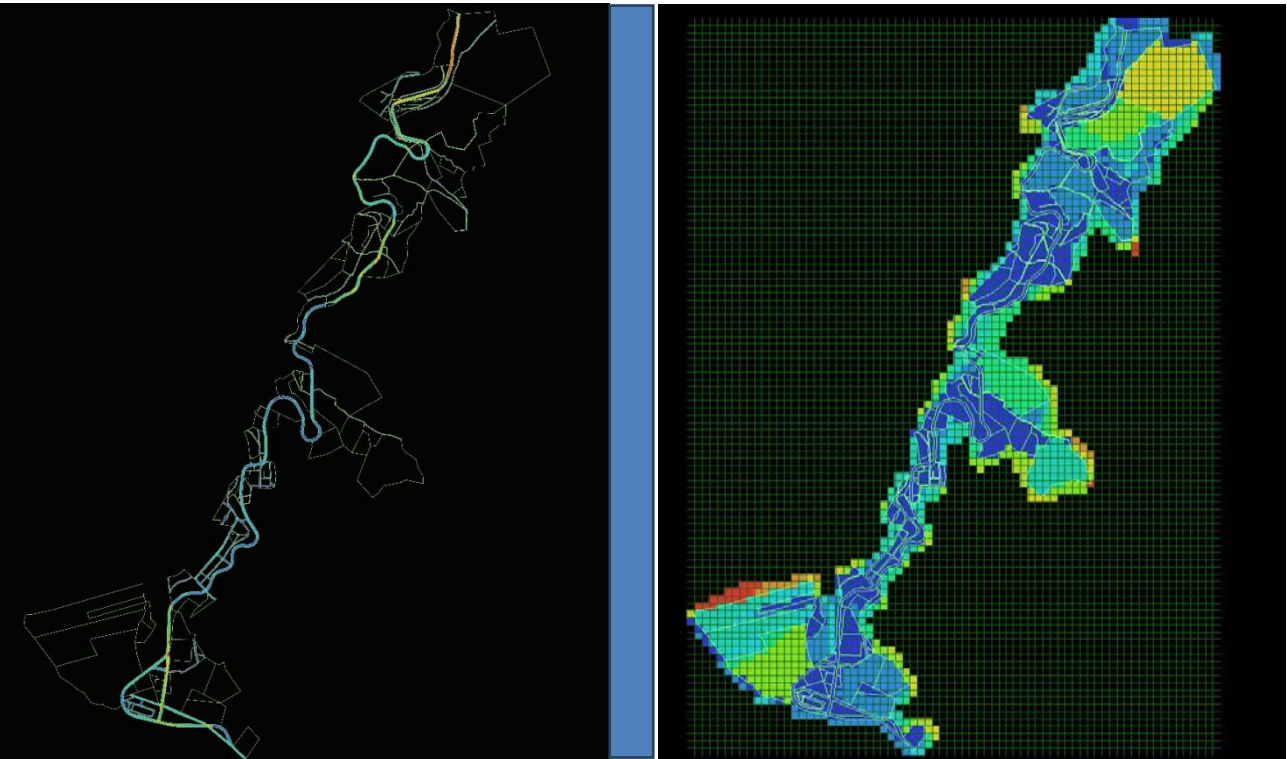
To address the Connectivity and Visibility along with selected study area for users in an existing situation of railway track and after development, the research will employ the following methodology from theoretical base to analytical one:

1. Study an existing plan and make a simulation for connectivity and visibility for the surrounding area of the railway using UCL Depth map (figure 8).
2. Apply proposed development projects along the roadway, as mentioned in figure 6, that will enhance different points and transform them into active ones. Where all of them are considered a beneficial solution for various problems and attacks happen regarding undesirable attitude of the community.
3. To clarify the validity of proposing such projects, other simulations using UCL Depth map are made to illustrate the impact of development on urban plan and users' experience and are applicable to predict the validity of such an assumption.



(source: the author)

Fig. 8: Visibility analysis (isovist) and connectivity by UCL Depth map X software



(source: the author)

Fig. 9: Visibility analysis (isovist) and connectivity with stops by UCL Depth map X software

V. RESULTS AND DISCUSSION

1. Based on the analysis of the plans in the selected site, there are abuses of the population on the campus of various types, and that is the result of a lack of supervision and awareness.
2. The Hijaz railway intersects with a network of streets along the plan, with a diversity of land use.
3. The railway passes lands along with different uses and different views, the choice of which type of investment partially depends on it.
4. There is misuse within the railroad campus from the local community, such as the areas used as parking lots or areas planted by vegetation, which all are because of the lack of awareness about regulations and the importance of such heritage sites.
5. It is offering a set of proposals for investment projects along the railroad to provide local job opportunities and increase their awareness and adding a new experience that can be valuable over time.
6. The project is the first offering of its kind in the region based on this principle of developing the surrounding urban area, not only on the study of the stations to be the beginning of future investment projects.
7. Based on simulation by the program, after identifying investment points as stopping points along the railway track, it proposed points represent strengths on the site in terms of accessibility.

VI. CONCLUSION

1. There are development options for the Hijaz Railway urban fabric design in Jordan.
2. The railway development reduces attacks from the local community on the campus of the railway and its visitors.
3. Most Important aspect of being considered is increasing awareness of the cultural importance of this landmark.
4. Transformation of the attitude of the community to an active role will change their behavior.
5. It is suggesting investments that provide job opportunities and activities in selected points of the plan mentioned previously.
6. Provide views in Junctions to enrich the experience through the journey because it increases the participation of the Hijaz Railway Corporation in one of the proposed development projects.

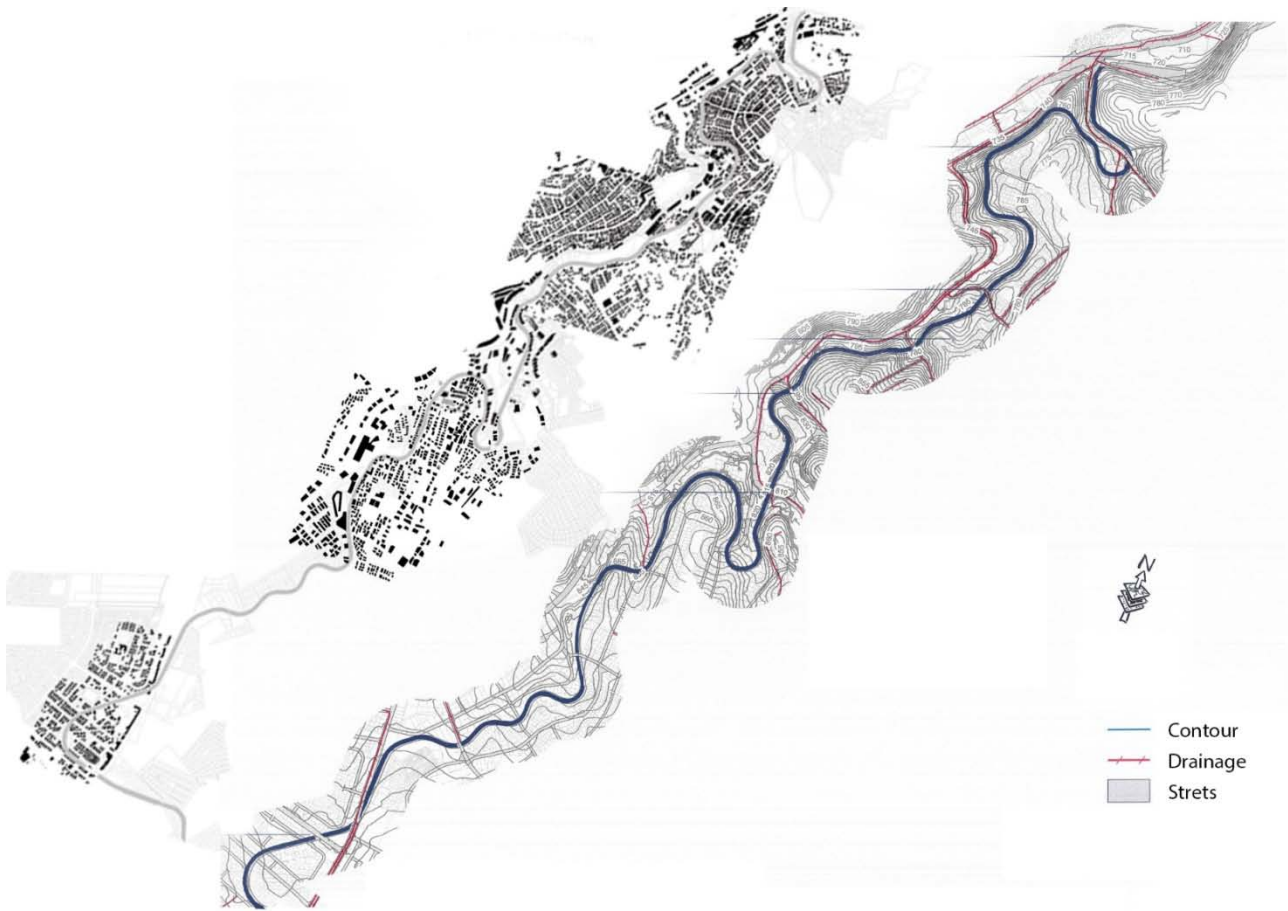
REFERENCES RÉFÉRENCES REFERENCIAS

1. Alhusan, A (1999), Mafraq Governorate and its Surrounding through Ages. Amman: al-Arez Press.(in Arabic)
2. Alhusan A, (2008), Hejaz Railway line / Southern Section –Jordan. Amman: Ministry of Culture. (in Arabic).

3. AlJaloudi, O (1994), Ajloun District (Qada') (1864-1918). Publications of the Committee of History of the Levant. Jordan University. Amman. p. 150. (in Arabic).
4. Almasri, A. Al-Waked Q. (2016) Inspection and Numerical Analysis of an Ottoman Railway Bridge in Jordan. *Advances in Materials Science and Engineering* 2016. 1-7.
5. Bakhit A, Pascual and Mundy, (2013). Trans Jordan in the early Ottoman era. In: Myriam Ababsa (ed.), *Atlas of Jordan*. Presses de l'Ifpo, pp. 188-197.
6. Daradkeh, S. (2011). Hejaz Railway (Dialectic of Challenges and Success) Historical Reading in the course of work". *al-Bayan journal*. al-Albayt University. Volume V, 3rd issue. p 29. (in Arabic)
7. Daradkeh, S. M. (2013). The Hijaz Railway. In *Atlas of Jordan*. Presses de l'Ifpo.
8. Henrick Markhede, Poble Carranza. (2007). *Spatial Positioning Tool (SPOT)*. Researchgate.
9. Mahmoud A. (2011). The emergence and development of urbanization along the Hejaz railway. *Al Bayan Journal*. al-Albayt University. Volume V. 3rd issue. p. 191. (in Arabic).
10. Petersen A. (2012). The Medieval and Ottoman Hajj Route in Jordan: An Archaeological and Historical Study. *Council for British Research in the Levant. Levant Supplementary Series*. Volume 12. pp 12-19.
11. SI metric. (2019, may 1). Retrieved from BTU conversions: <https://www.simetric.co.uk/sibtu.htm>
12. The Jordanian Ministry of Planning and International Cooperation. 2012. *Development plan (2012-2014) for Mafraq Governorate*. Amman.
13. Valeev, R. M., Abidulin, A. M., & Ayupova, N. I. (2017). The Project of Hejaz Railway Construction: A Historical and Historiographic Review .*European Research Studies Journal*.

APPENDIXES

Appendix A: Figures



(Source: edited by author, 2019)

Figure 1: The topography and drainage system