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PROTECTING THE RICH HISTORY OF THE LAHORE INFLUENCES OF BUS RAPID TRANSIT (OLT) ON HERITAGE MONUMENT CHAUBURJI, LAHORE

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ABSTRACT

This research strives to revive the significance of Chauburji, one of our magnificent heritage monuments'. Exceeding population and massive transport issues have forced the government to imply new city developmental projects which could cause problems regarding conservation and restoration of several historical monuments. Unfortunately, Chauburji is one of them. Accordingly, this paper tracks the present incarnation of the monument and the influence of the orange line on it during and after the development of mass transit Orange line construction. This paper also addresses the key reasons for the protection and reconstruction of Chauburji with respect to the project of Orange Line Metro Train. The findings will help us hold a glimpse into our glorious historical past.

Keywords: Heritage Monument, Chauburji, restoration, Mass transit Orange Line

INTRODUCTION

Throughout Indian Subcontinent, from the beginning of Imperial Mughal Empire, their cherished pastime was designing and creating gardens. Mughal emperors of the subcontinent, provided the concept of several styles of garden including formal and informal garden, tomb-garden public-garden, and garden surrounding palace from 1526 to 1857 A.D. Heritage Monument Chauburji Gateway, situated on Lahore Multan Road, was the entrance to a wide garden claimed to have flourished in Mughal times. Late settlers possibly named it "Chauburji," which is interpreted as "four towers," as the site stood as a majestic entry to an all-embracing garden. The Chauburji Gateway, Mughal's only grand entrance during the rule of Shah Jahān, today a landmark in Lahore, Pakistan. The monumental landmark was built in A.H. 1056. (1646 A.D.), it has similar name as Sahiba-e Zebinda also known as Begum-e Duran. There lies a controversy in literature exists about the sovereign noblewoman who laid foundation of gateway, according to some sources Jahanara Begum, laid foundation and according to some Zebunissa.

A remarkable remnant of Ancient Lahore city, Chauburji springs the glorious sensation of historic era. Chauburji gateway is presently located on Lahore Multan road in south of old Lahore (refer figure no. 1). Once upon a time, Chauburji lied on the roads western side, adjacent to Ravi River, because before the 18th century Ravi River flowed around Lahore Fort, but then its course changed. The walled city is now a days on this route. Individuals might see in the attached illustration, precisely as captured by soldiers of British army. At present, the primary objective of massive gateway seems to be a monumental structure. The deteriorating Chauburji structure, with majestic charisma, standing lonesome at the now renowned Chauburji roundabout; an intersection of almost seven major roadways, bounded by advertising boards and tiring heavy traffic of Multan Road. Dr. Ajaz Anwar has explained the location in his writing as the genuine prototype of Chauburji is the Hyderabad Deccan Char Minar, which was built in 1591 AD by

Muhammad Quli and serves as a triumphal arch at the intersection of four roads going to the four quarters of the old city. (Anwar, 1985).

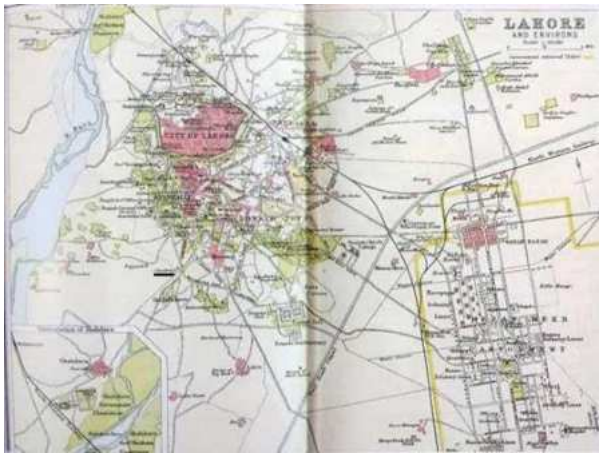

Fig.1 A map of Lahore and its environment

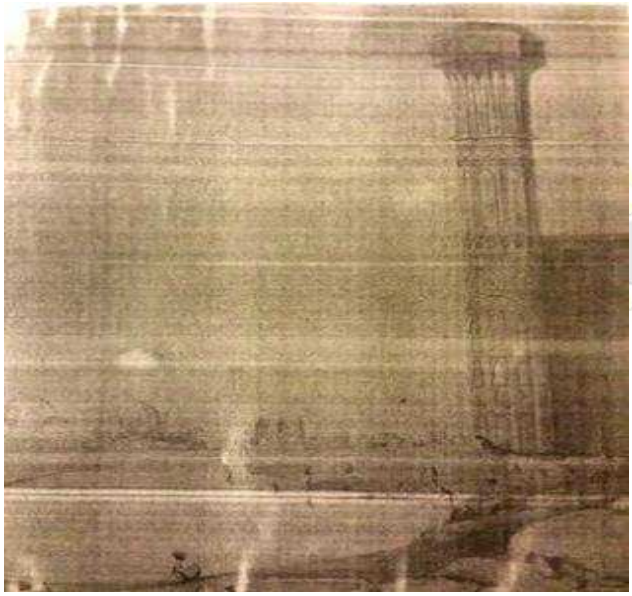

Fig.2 An illlustration of British Soldiers

Fig.3 An Old Aerial View of Lahore

History

The monumental landmark, Chauburji Gateway, located on Multan Road, was in truth a massive gateway leading to a garden that nowhere exists today. Because of its four corner minarets it was named as “Chauburji” (the four minarets), one out of which that lied at the northwest corner was reportedly lost due to negligence. On its eastern archway the fragmentary inscription reports that the garden was built in 1646 A.D. metaphorically referred to the person as "Sahib-e-Zebinda, Begum-e-Dauran" (bestowed with gracefulness, the lady of the era) and one was granted to the Mian Bai the royal maid. The connection is definitely to Begum Jahan Ara, the elder offspring of Imperial sovereign Shahjahan, she was designated 'Begum Sahib' for imperial purposes, in year 1631 she became “Lady of the age” afterwards the demise of her beloved mother. The two letters by Emperor Aurangzeb addressing Jahan Ara begum confirm the presence of Jahan Ara Begum’s garden in the city of Gardens, Lahore. Local customs link Begum Zebinda with begum Zebu Nisa, skilled offspring of Emperor Arurangzeb it refers Mian Bai as domestic slave of Begum Zebinda. Nevertheless, the practice was wrong, because when the garden was created Zebun Nisa Begum, born in year 1639, was only an eight-year-old child. Mian Bai, the royal slave is not identified to historians, but the possibility of her being a lady-slave is not refuted by fragmented engraved inscriptions on the massive gateways south-western corner, which indicates that the magnificent garden was designed by the pride of women Mian Bai (Fakhrun Nisa).

The Department of Archaeology, Government of Punjab owns and maintains this dilapidated Mughal gateway. The total area marked as protected of 0.16 acres of Chauburji monument is classified as a Category I protected monument under the Antiquity Act 1975 issued Notification No.47, dated 9th January 1913. The minaret at north-western side collapsed (refer to fig. No. 4) after a major earthquake in 1843. Cracks developed in the central arch at the west elevation. However, the restoration work in 1960’s done by Department of Archaeology has repaired the monument as far as fairly possible (refer fig. no. 5) the majestic gateway today appears just like it would have been in Mughal rule under Aurangzeb. Subsequently, the monumental gateway was taken

over by Department of Archaeology, it made every attempt to conserve the monuments within the limited human and financial capital available. The Government of Punjab has now been contemplating the development of a management strategy for its preservation, protection, and sustainable maintenance.

However, the Lahore Rapid Mass Transit Network carried out a feasibility study by the Government of Punjab to resolve traffic congestion problems due to overcrowding in Lahore Region, to ensure healthy, reliable, convenient and accessible public transport and to meet potential demand for transport. The priority of preference for the implementation of these lines was primarily focused on the passenger demand forecast. "The four following corridors were recommended for Lahore City:

- Green Line: Ferozpur Road (Kahna to Shahdara) 27 km (Completed)
- Orange Line: Ali Town to Dera Gujran 27.1 km (being executed)
- Blue Line: Jinnah Hall to Green Town, 20 km (Future)
- Purple Line: Data Darbar to Airport, 19 km (Future)" (The Project for Lahore Urban Transport Masterplan in the Islamic Republic of Pakistan, March, 2012)

Green line BRT has been constructed and in operational phase, construction of second stage Metro train is underway, prime focus of which is conservation of Chauburji Gateway. Five landmarks or monumental sites are listed on route of metro train. One among these listed sites is Chauburji Gateway. The LRMTS Orange Line (OL) serves as south-northern rail starting from Ali Town at Raiwind Road, Lahore finishing at Dera Gujran with full length of almost 27.1 km with 26 stations on the line including 24 elevated and 2 underground. The platform at Chauburji is elevated. The orange line 's impact on this protected heritage site will be during and after the construction of BRT project.

Significance of study

Urban development projects undertaken by the Government may impact the historical monument's cultural value, usage, and function. This research thus records the monument condition and effect of orange line development on Chauburji.

Architecture and Present condition of Chauburji monument

The building's primary architectural distinction is its vibrant mosaic decoration that beautifully embellishes the corner octagonal minarets along with whole façade. The octogonal minarets stand elegant throughout the coved platforms that once housed arched pavilions, regardless of height. The frame above the main-vault is engraved in blue enamelled letters of Ayat-al-Kursi, a portion of Holy Quran. At the end of engraved inscription, 1056 (1646 A.D.) is also mentioned.

Documentation and Building Condition in Year 2015:

Owing to the passing of time, human negligence and other ambient activity, the monument endured a great deal and damaged its numerous sections as shown by the structure. Nevertheless, there is a need to sustain the current structure by incorporating various degrees of interventions. In similar old fashion, the splintered terraced floor work of monuments central corridor and lateral rooms can be conserved or re-placed with fresh and the putrefied brick work substituted with a newly restored brickwork. The finely polished Kankar lime plaster along with pucca qalai work also help in restoration within the gateway. Loose tile work on the base of the plaster can be installed in its original position.

Fig.4 An elevation of Chauburji

Fig.5 A view of Chauburji Monument

Fig. 6 Broken Mosaic Work (Kasikari)

Fig. 7 Lost Mosaic Work

Fig. 8 Blend of Mughal Architecture with Islamic

Fig. 9 Loss of Sandstone Jali Work

Condition of Monument in 2017

As a magnificent monument, Chauburji was termed as a famous historical landmark in Lahore. Owing the construction and development of the orange line train, the famous landmark is in threat in aits existing crumbling state. The Mughal gateway, due to human negligence, aging time, hazardous conditions, and changing environmental conditions, has agonized a great deal and has lost different architecturally significant elements, as is acknowledged from the existing structural evidence.

- The decayed and dilapidated condition of terraced floor of central passage and adjacent rooms.
- Dilapidate and missing brick work on the exterior and interior walls.

- Missing Kankar lime plaster
- Loose mosaic work present at some places is missing along with lost mosaics tile work on turrets and walls.
- On entrance and the central main chamber of Chauburji missing and dilapidated condition of Ghalib kari work.
- A large sewer runs near the monument, damping the lower half of the heritage site.
- Due to dilapidated rainwater sprouts and rainwater seepage upper portion of monument is also damp.
- Missing red sandstone jail.
- Cracks in minaret M1, M2, M3

Fig.10 Column of Orange Line Train infront of Chauburji

Fig.11 Lost Mosaic Work on Minaret

Fig.12 Dilapidated Minaret

Fig.13 View of Orange Line Train from top of Chauburji

Fig.14 Scaffolding on Minaret of Chauburji

Fig. 15 Lost nMosaic Work and Dampness on base of turret

Significance of the Gateway Chauburji

Today, a circular stretch of flora surrounds the old gateway. The gateway was formerly bright enamelled and embellished with blue and green encaustic tiles and a fresco of remarkable beauty, with elegant proportions. Chauburji's surviving kashikari (tile mosaic) is one of the best in the world. Despite the loss of many of its ornate features, the monument remains a shadow of the majestic entryway it once was. It's a truly magnificent edifice. (Lari, 2003). Due to architectural features of the Chauburji Gateway Design, public access, historical fabric, ornamental style, accessibility of the passer-by as a landmark in the city adds prominence to the significance of historic magnificent gateway.

The UNESCO operational guidelines define credibility as capability to identify the worth assigned to any identified protected heritage property depending on the degree to which sources of knowledge regarding the meaning might be deemed reliable or else factual. Over time, Chauburji 's legitimacy has been compromised through inadequate protection, non-existence of preservation, illegal infringement of the monument's neighbouring areas along with movement and disruptions of frequent traffic. A degree of legitimacy, though, can be well observed in the terrific form, design, morphology, material usage and intricate fabric of the colossal building. There exists a significant aspect of veracity in the essence and experience that Chauburji has retained as a significant and cherished urban icon amid present pressure and infringements.

Chauburji preserves much of its original iconic fabric, even though the Archaeology Department carried out substantial maintenance work on one of its turrets. The decoration work was still preserved though in bad condition. The Chauburji 's original location as a garden has been lost. It has stood for many years surrounded by an oval patch of green area circled by a road creating the renowned Chauburji Chowk that is a least of almost 12 meters ranging to a distance of almost 50 meters from adjoining thoroughfare. Integrity aims to enhance and retain green setting. The grand Mughal gateway has legal protection legislated under Punjab Special Premises Ordinance along with this it is further protected under 1975 Antiquities Act.

Orange Line Metro Train's Impacts on Chauburji Monument

Impact is termed as the variation in the resources, values, morals or values primarily related to any sort of human activity. Any type of effect, either good or bad, that takes place on a heritage resource triggered by external action is an impact. The following might be the types of impact on the monument.

- Indirect impacts
- Direct Impact
- Beneficiary impact
- Residual impacts
- Cumulative effects
- Spatial scope of impact
- Severity of impacts
- Intensity of impacts

Chauburji, the massive gateway will be largely impacted all through construction phase as well as at Operational phase when Metro Line Orange train is on its elevated tracks and in the stage of running. Subsequently, evidence of crack appearance has already been developed in certain spaces of the Mughal gateway. A sewer line that passes closely at approximately a distance of 15 feet from the monuments main structure, resulting in dampness in the cracks as well as the lower half of gateway.

Current Impacts around the Orange line rail alignment

- Chauburji chowk
- Heavy Traffic obstructions
- Sewer line passing nearby
- Visual impedance of monument

Orange Line Train Proposed Work for Chauburji Gateway

Tracks Elements Arrangement

- Elevated/viaduct on piers

Construction work on Site

- Formation of Site
- Piling (dry auger and ion of piers)
- Construction of the station of Viaduct structure

Construction Phase Impacts

- Chauburji Gateway is a prominently significant monument.
- There are different forms of impacts during the construction phase which will be cumulative and indirect. These impacts will be momentary in nature.
- For track construction erection of piers through Pile Boring has been proposed
- Erection of an elevated via duct and station is also involved.
- In the construction phase, its severity will be high due to the fabric risk. This risk is due to noise, dust, machine vibration, decreased access, and risk of fire.
- Spatial effect on the East Façade will be highly threatening (53 ft).

Impacts after Construction

- The monument Chauburji would also be impacted during operating process.
- The operating characteristics involve the raised railway line and station.
- Throughout operations various types of impacts will also occur.
- Such effects have both cumulative and indirect consequences.
- Noise, and vibrations caused by machinery and the visual obstruction will determine impact severity.
- The impact becomes permanent during operational process.

Expected Impacts Analysis

From analysis, the following impacts are expected on the monumental heritage gateway lying in front of the passenger rail corridor are:

Impact Analysis During Construction

1. **The Vibration due to Piling, Heavy Vehicles and Machinery**

- "The acquisition of land will lead to the loss of infrastructure, trade, disturbing people and altering existing land use,"
- Throughout erection of the Orange line train Vibration from movement of heavy Machinery, Piling for columns construction, and movement of heavy vehicles are involved that could inflict significant harm.
- According to National Cooperative Highway Research Program (2012), heavy construction equipment, notably pile drivers and other impact devices like pavement barkers, generate seismic waves that travel along the earth's surface and down into the soil. Vibrations in the ground may be felt as a result of these surfaces. This equipment's vibrations might cause damage to the monument, such as cracks, tilting, and subsidence. (Chatti & Zaabar, 2012)
- When seismic waves travel away from a source of vibration, rock, and soil particles over which the waves pass excite and allow particles to oscillate.
- To order to prevent disruption to existing structures, the “German Standard 4150” and the “US Federal Transit Administration (FTA”) called for “short-term shaking from 0.12 to 0.40 to or 3 to 10 m/sec at the foundation level of the heritage system as extremely susceptible to vibration."
- Excavation work and foundation construction can be a cause of soil slippage on the ground level displacement triggering the vibration and movement of the contiguous historical building.
- Building condition and maintenance are critical considerations when determining vulnerability to vibration damage which must be considered while establishing vibration limits. "Threshold damage vibration level is defined as the highest level of vibration at which no cosmic, minor, or major damage occurs.”

2. Historical Fabric Damage

Throughout the erection of the orange line train operations, the deterioration of the adjoining buildings and the modern development of the Train line will trigger harm to the traditional Chauburji structure and heritage foundations. In addition, the activities of the cranes in this scenario may lead to the damage of intricate designs of the heritage building outer fabric and intricate minarets.

3. Damage due to Dust and Debris

Air Pollutants mainly dust is one of the sources of harm to the fragile heritage buildings leading to the decay of subtle building materials during the entire process of construction. Excavation work and the construction phase will infer major damage effects to the environment of historic building.

Soiling is termed as the noticeable contamination of the exterior of the structure, internal furnishings and fittings owing to the deposition of dust particles. Dust can likewise induce a chemical assault on certain materials and the deposition of surface dirt can deplete or raise or the moisture content on building's surface, rock dust is said to be of high pH in nature and may be chemically reactive on a broad variety of surface of heritage buildings.

Fragments and Debris occurring at the construction site leads towards the drains, through the sprouts and drains of the neighbouring building and can even harm the foundation of the structure.

After Construction Impact Analysis

i. **Visual Barrier by Elevated Train track**

Visual integrity is a key determinant in the preservation of historic monuments. "Visual integrity" can relate precisely to panoramas, perspectives, and views. Visual integrity is also interpreted to imply the heritage 's capability to preserve visual distinctive character and clearly validate its association with its surrounding neighbourhoods and environment. Th term Visual impact relates to the immediate effects of changes on the views because of the presence of an obstruction or interference; the cumulative influence on visual convenience, whether deterioration or any sort of improvement, and the responses of spectators who might be impacted. This could include the response of passers-by, ranging from people looking at monument from street level to the people at the elevated train level, tourists to the historical protected site, and also the view taken from any site or building to the elevated alignment sections during the operational phase will have insignificant effect constraints resulting from the entrance of small station.

The two significant considerations relevant for determining the visual impact are: primarily, the altitude of the raised train track in reference to sight lines ranging to and from the historical monument, secondly, the actual visual character of the protected historic building in its context. This visual character applies to importance and nature of current interpretations of responsive receivers inside the visual envelope (the zones where observers or spectators could be impacted, region in which the projected new construction is partly or entirely apparent to its visual receivers).

As the height of elevated Orange line train track is almost 47 feet and the height of Chauburji monument's minaret ranges to 64 feet. When passengers look at the monument from the elevated train level, difference between eye level of the train's passenger and the heritage gateway is almost 10 feet that is much lower and does not give the whole view of Chauburji gateway as the historical building and the elevated track of orange line train is 53 feet in distance.

Secondly, the architectural nature of the site and the entire vision of the landmark is obscured due to elevated track while approaching from any adjacent road either Multan road or Lake road as a car passenger or some any other automobile user.

ii. Impact from the Noise of Stations, train operations, and related activities.

The noise produced due to the trains running on the raised viaducts of Orange line becomes audible and may be experienced at an attenuated degree by people outside or within a structure subsequently the noise has gone over the building's glass, doors, windows, and walls.

Heritage Buildings are prone receivers and the ambient noise concentrations in the immediate setting shall conform with those set down by the "Ministry of the Environment, environmental quality Standards for Noise Management (S.R.O 1062(1)/2010)."

As the historic structure stands near by the functioning raised via ducts such that the monument may be harmed by the passing of time. Since the vibration report depicts that the entire procedure of the train is benign for the majestic gateway, the influences will be observed after the operational phase.

iii.200 feet "Buffer Zone" loss

The intention of creating a buffer zone surrounding any heitage sites and buildings is to stipulate security by restricting what could and could not be achieved in the vicinity of valuable heritage resource sites. This strategy is representative of federal and provincial antiquity regulations as a "200-feet protected controlled zone". Though, this safety precinct cannot be maintained in metropolitan areas; for several decades, many of the heritage monuments under consideration have been bounded by legal, residential buildings, highways, industrial , and otherwise typologies, which have not been prohibited by antiquity legislation. The utility of the 200-foot rule is, however, mainly as a legislative method for the question of actions undertaken in the vicinity of protected built heritage sites and monuments.

Subsequently, the distance between the Orange line train track and Chauburji monument is almost 53 feet creating a negligible buffer zone between the monument and elevated viaduct.

CONCLUSION

On the basis of the deliberations and investigations there is no doubt that perhaps the Orange Line Metro Train Project would accommodate for a large portion of Lahore 's population, but it has also posed a critical issue: the infringement of the right to culture and its convergence with the capacity to development. The project jeopardizes and endangers the existence of the Lahore's majestic protected Cultural Heritage site Chauburji Gateway. This disregard toward heritage has endangered our cultural identification. If modern development continued to progress with same pace and direction, in near future we would not be able to recognise our glorious past. This is an alarming situation. A city is known by its historical monuments and culture. But in future we would be able to see city nut not is identification. The way modern development has eased our lives, on the other hand it has seized our heritage values. Chauburji is the next victim which is ready to engulf the heritage beauty during construction and even in operational phase of Bus Rapid Transit Orange line metro train project.

Lahore was famous as "the City of Gardens" but now these gardens are limited merely to gates. Chauburji was one of these gates to a garden. Now the garden is no more only remains of the gateway exist in dilapidated condition after the construction of elevated viaduct of Orange line metro train posing major threats mentioned when in operational phase. We should value our heritage otherwise it would lose its value and identification.

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