

## **BRITISH RAILWAY ARCHITECTURAL LEGACY IN LAHORE: HISTORY, IMPORTANCE AND BUILDINGS' PRIORITIES FOR CONSERVATION**

A. Khan\*, S. Arif\*, O. Nadeem \*\*, and A. Anwer\*

\*Department of Architectural Engineering and Design, UET, Lahore, Pakistan.

\*\*Department of City and Regional Planning, UET, Lahore, Pakistan.

Corresponding Author E-mail: arifuet@hotmail.com

**ABSTRACT:** This research focuses on the importance of the Railway buildings built during the time of British Colonial Railway (1862-1947) in Lahore. It identifies the Overall Condition of various building types considering the Age, Architectural Assessment, Structural Assessment, Deteriorating Level and Building Integrity. Subsequently, the buildings are evaluated to determine the priorities for conservation considering Building Condition, Age, Use, Importance and Intervention during past. The research will invite the attention of the academia, railway administration and other stake holders within and outside the Pakistan to conduct similar studies in other cities of Pakistan where railway heritage is demanding for an immediate attention. The paper concludes that representative of each category of railway buildings built during British period in Lahore and other area of Pakistan must be documented, conserved and protected before this important heritage disappear from scene for ever.

**Key words:** Railway, Heritage, Club, Institute, Conservation, Documentation, Railway station, Power House, Bungalow, Quarter, Barrack, Railway Headquarter, Railway Church and Walton.

### **INTRODUCTION**

The railway was one of the major and important components of the British Indian Empire which played vital role in defense, commerce, agriculture, socialization and the modernization of Indian society. These vast objectives of railway led the establishment of large railway network in almost every city of the India. In Pakistan (came into existence in 1947) the railway was first started in Karachi in 1861 by constructing a line between Karachi and Kotri. At this stage it was intended to connect all important towns with Karachi port to facilitate the import of raw material from India to European Textile Industry and to create immediate access of Army to all places of importance. Resultantly with the construction of various lines, all major towns were brought close to Karachi port and at the same time these were also interconnected with each other. The line between Lahore and Amritsar was opened in 1862 creating a linkage between political and commercial capital of the Punjab Province. On the other end, Lahore was brought close to Karachi through railway line between Multan and Lahore and subsequently from Multan to Kotri through water transit with Indus Flotilla. The steam boats with the names of Indus Flotilla worked successfully between Multan and Karachi till the establishment of railway lines from Multan to Kotri.

However where the railway station was established there number of buildings for administrative and residential purposes were constructed. The present building stock of Pakistan railway is comprised of large number of such buildings which were built by the British

railway administration during 1862-1947. There is no other example in India as well as in Pakistan which is comparable with the building types and quantity as built by the railway during British period in India. Similarly in many cities of Pakistan the area occupied by the railway network has no comparison with any other single organization.

Lahore being political capital of various dynasties in past and also having important location got special attention of British administration for establishment of railway. Within two years after the establishment of first railway line in India during 1853, the proposal to establish railway linkage between Lahore to Karachi and Lahore to Amritsar was initiated by the Governor of Bombay in 1855. Subsequently, Mr. William Brunton, S.E, Punjab Survey prepared the design and forwarded the case of establishment of railway in Lahore to Sir James C. Melvill, Chairman and Directors of the "Scinde" Railway Company on 15th July, 1857. The Punjab railway company started the work and it Commenced on 08-02-1859 with earth breaking ceremony by Lord Lawrence the then Governor of the Punjab (Jaland,1860 ). The railway facility was formally opened on 01-03-1862 and allowed for public on 10-04-1862 between Lahore and Amritsar (Andrew, 1857). In 1886, Lahore was selected as headquarter of North Western Railway. This had opened a large opportunity for further expansion of railway in Lahore. Resultantly the largest network of Indian railway workshops was also established in Lahore during the first decade of twentieth century. This vast network of railway gave birth to variety of building types in Lahore for various functions which include Railway Stations, Administrative

Buildings, Workshops, Churches, Power Houses, Clubs, Institutes, Schools, Markets, Co-operative Stores, Vegetable Gardens, Barracks, Quarters, and Bungalows. Many of these buildings still exist and represent the history of British period in Lahore in terms of construction technology, construction materials, architectural trends and socio-cultural requirements of British in their Indian Empire. Among this colossal stock of railway buildings there are three categories; some had disappeared, some are about to disappear and majority has satisfactory condition. The middle type needs immediate attention. Moreover the buildings of high value in terms of age, architectural importance and historical value are required to be documented and in some potential cases a little effort can place them on world heritage sites (Arif, 2013).

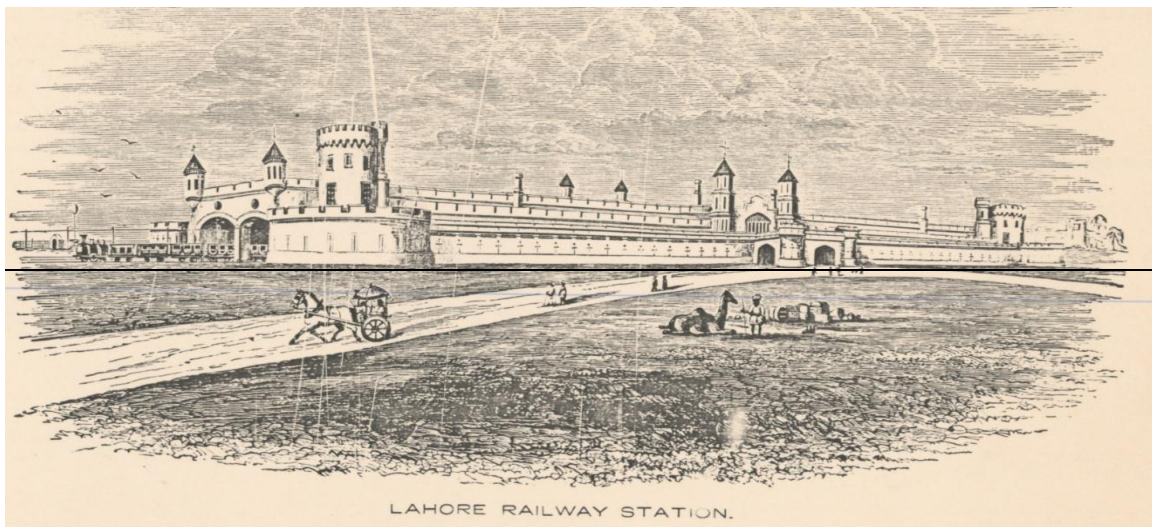
**Research Methodology:** The methods applied for research is divided into various stages before conclusion. The first step is “identification of buildings” through maps, old record, drawings and subsequently the verification through physical survey at site. In second step the buildings are placed in their relevant type with respect to original use. In third step the building types were studied in depth to get their representative samples. In fourth step Age of each sample was marked and their Architectural Assessment, Structural Assessment, Deteriorating Level, and Building Integrity were evaluated. This process led to define the overall condition of the buildings as ‘Good’, ‘Average’ and ‘Poor’. In fifth and final step Priority for conservation was obtained by taking in account the Age, Use, Importance and overall condition.

**Identification and Importance of various buildings:**

With various developments in railway network in Lahore,

the buildings and other infrastructure increased significantly which include Railway Stations, Workshops, Churches, Power Houses, Clubs, Institutes, Schools, Administrative Buildings, Barracks, Quarters, and Bungalows. The following sections are giving an overview of major railway buildings in Lahore which were built during the time of British railways in Lahore (1862-1947).

**Station Buildings:** Lahore Railway Station built in 1862 has greater magnitude, scale, architectural, structural and historical importance in other station buildings in Lahore. The building of this station is unique in its form and architectural character and has no precedent in India. As the this project was planned during the year 1857 when the Indian Empire of British was under serious threat, therefore, in addition, to providing railway facility it was intended to provide safety for train, railway infrastructure at station and also to act a safe place for European during any rebellion in future. Furthermore, its location at few yards from walled city was purposely made to guard and control the activity of Indian in case of revolt as the city was the most potential site for originating such event. Two heavy iron gates at entry and exit points were once the special safety measure in this building when there was only arrival and departure platforms. Similarly the double corridor and watching towers were also part of safety scheme (Davies, 1860). This building has been expanded continuously since its construction. Its importance in terms of its age (150 years), form, brick masonry, urban expansion of Lahore, unique architectural character and its other multifaceted functions during colonial rule are demanding for its longer survival.



**Fig.1: Lahore Railway Station 1862**

**Railway Workshops:** A large network of railway workshops belonging to British period in Lahore is still existing and spreading over an area more than 100 acres. In the beginning, the workshops were planned and constructed near railway Station but with the expansion of railway network in Lahore as well as in other parts of Punjab the demand for wagons and carriages was significantly increased which led the expansion of workshops on a large area at new location in Mughalpura during 1908 [Fig.2]. These workshops were the largest in India and played a significant role in providing employment to Indians at large scale and giving Lahore as status of Industrial Town. A large number of people shifted to Lahore and formed settlements near workshops. According to Latif, in 1892, the workshops were constructed on large area with the cost of Rs 250, 0000 where 4000 workmen were daily employed including European foremen, Eurasian and Parsi mechanics but

majority was the natives of Punjab (Latif, 1892). The Railway Workshops also became the main instrument in setting the foundation of Technical institutes in Punjab and other areas of British India. The Maclegan Engineering College in Lahore during 1921 which later became West Pakistan University of Engineering and Technology Lahore in 1862 was established in the vicinity of railway workshops (Whittaker, 1928). However, besides the historical importance of these workshops in Lahore, their steel structure was interesting. A large number of old steel trusses covering long span and jointed with rivet-bolt system still exist in the workshops of Mughalpura. The historical and technical importance of railway workshops in Lahore and other parts of British Punjab demand that these should be documented and protected through its representative samples.



**Fig. 2: Railway Workshops at Mughalpura during 1924-25**

**Power Houses:** One power house is identified in the vicinity of workshops at Mughalpura built during the year 1908. The most striking feature of this setup is its chimney which is excellent examples of brick masonry built before 105 years. The design of the chimneys resembles with various chimneys in England. It is the highest brick masonry structure constructed so far in Lahore. The chimney at Mughalpura Power Station is 225 feet and this brick masonry structure was constructed without a single piece of steel. This chimney survived successfully under various critical conditions of wind pressure earthquake shocks in Lahore. It is still standing with good conditions and holds unique status among the building stock of Lahore built in Brick masonry.

Although power house is not working at present but this structure have lot of potential for various adaptive reuses without any major intervention to support it for longer life. With some little effort this chimney can be assigned the role of Solar Chimney for power generation.

**Educational Buildings:** The railway established various institutions in technical and general education near work and residential areas during different times but the emphasis was mainly laid to improve and reinforce the technical side of staff. The sons of natives' artisans were preferred for admission in technical schools. In this regard the first technical school was established in 1889 behind the general railway stores near railway station

where iron shed were erected for the purpose. In 1892 the classes were shifted to new buildings and presently this building is under the possession of Government College of technology at railway road but structural and architectural intervention had completely faded the original building (Orange, 1910). The school for technical education was transformed and it finally appeared in the form of Walton Training School in 1930 on an area of 150 acres with school building, hostel, and play ground and staff residences. The school complex is located at Walton in Lahore. This building was designed

by Ronald William Harvey Vallis, the consulting architect of North Western Railways. The chief interest of whole complex is a school building which holds central clock tower emerging among the slopping roofs as a part of an impressive architectural composition. In the area of general education the building of architectural importance was constructed in 1889 near railway station and at present its location is on Grand Trunk Road. This building exhibits Brick work of fine quality and excellent workmanship.



**Fig. 3: Walton Training School Previously North Western Railway Training School built in 1930 (L) and Saint Andrews High School built in 1889 (R). Photo by Authors 2002.**

**Churches:** There was large number of European staff in railway for whom the churches were constructed in the vicinity of work area. Among these one has disappeared which was constructed near railway station in early days of railway in Lahore. The others two are still existing; one near railway headquarter and other near railway workshops at Mughalpura. The 'new railway church' near 'Central Offices' (presently Pakistan Railway Headquarter) was planned in 1908 and foundation stone was laid in 1910. There were three well known consulting

architects of their time to government of British India who worked on design and various details of this church. The most striking feature of this building is its tower which is about 75 feet high and surviving for the last 103 years. Although the building was constructed in English brick masonry but its plinth and arch level were finished with carved stones giving unique character to this building (Begg, 1911).

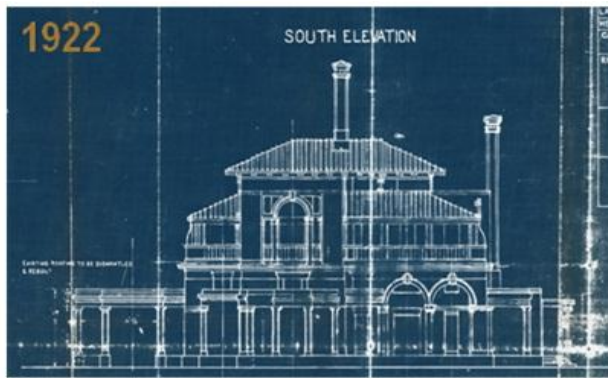


**Fig. 4: Railway Church built in 1910 near Railway Head Quarter Building Photo by Authors in 2010**

**Housing:** Railway Established three housing in Lahore during British time which includes Station Colonies, Workshops 'Colonies, and Mayo Garden. The First was

for subordinates whereas latter were constructed for Officers. The railway colony near railway station was almost under the occupation of Europeans and there is no

other example of housing of such scale of Europeans in Lahore and other cities of Pakistan. This housing holds unique status in terms of land uses physical planning, sanitation, climatic considerations, class and ethnic segregation. The railway was the first in Lahore which introduced self contained and sustainable housing in Lahore by providing social centers, sports grounds, dairy form, vegetable gardens, co-operative stores, and many other communal facilities. The railway housing was the first in Lahore where sanitary roads were introduced which were exclusively built for the movement of night soil conservancy carts and servants. The garden city concept in planning which was introduced in England during the end of nineteenth century was long before the basis of railway housing in Lahore (Arif, 2013).



**Fig. 5: Bungalow of North Western Railway Agent at Mayo Garden, Lahore. Original Front Elevation in 1922 (Left) and photo by Authors in 2001 (Right)**

**Railway Institutes:** It is identified that there were four Institutes in railway colonies which include; Punjab Railway Institute 1863, Carson Institute 1907, Griffin Institute 1910 and Burt Institute 1913. The impact of the Institutes on social composition of railway employees was very healthy and significant. These were bonding agent among the European community of railway colonies. An institute was generally comprised of spaces such as Theater, Ball Room, Library, Bar Room, Swimming Bath, Tea and Coffee Room and etc to meet the social and cultural requirements of the Europeans. The European staff was use to come daily in these institutes after long working hours to spend some time in their own cultural environment. The large Ground consisted of many acres and pavilion was another feature of the institutes for various sports and games. After the closing of British railway administration in Lahore these social and cultural centers of British in Lahore had under went to various in-appropriate reuses which brought major intervention giving lot of damage to originality of the buildings but still the buildings hold their own statement and demand for reinstatement. A proper study for adaptive reuses for these buildings can make these structure sustainable.

The building of railway institute built in 1863 near railway station for British mechanics and foreman is still standing with 150 years age. Although various reuses has been changed many features of this building but still there is space for its survival. The buildings need immediate attention for documentation and suitable adaptive reuses. The Burt institute has completed the age of 100 years in 2013. This building is under serious threats of irrelevant reuses and the major intervention has taken place but still there is room to protect it and there could be several adaptive reuses which could provide breathing moment to this building. Similarly the Griffin institute near railway workshops at Mughalpura had completed 100 years in 2010 and this building is also under state of dilapidation and requires documentation and appropriate adaptive reuses.

**Administrative Buildings:** It is identified that there are large number of railway administrative buildings of British Period exists in Lahore. These buildings were built for various administrative setups at headquarter and divisional levels during the last decade of nineteenth century and first quarter of the twentieth century. The head Quarter of North Western Railways which was known as “Central Office” is large complex of various

blocks at Empress Road presently known as “Headquarter of Pakistan Railways”. Similarly there were two Divisional Headquarters such as Lahore Division and Workshops Division which still exist with the same names. The building complex for the former was located near railway station (1924) whereas offices of the later were established near central workshops at Mughalpura in 1908. These buildings were first of their nature in Lahore and introduced new concepts for administrative buildings in Lahore.

**Categorization and Priority for Conservation:** The overall condition of the each building type is determined on the basis of evaluation in respect of Age, Architectural Assessment, Structural Assessment, Deteriorating Level and Building Integrity. In case of Age the buildings having more than 150 years old were placed in Category ‘A’, buildings within the age of 100-150 years were placed in Category ‘B’ and Category ‘C’ was meant for the buildings less than 100 years old. Architectural and Structural Assessments were made through visual survey categorizing the buildings as ‘Good’ ‘Average’ and

‘Poor’. Similarly the Deteriorating Level was marked as ‘High’, ‘Medium’ and ‘Low’. Building Integrity was also determined through visual survey of representative samples and marked as ‘Intact’ ‘Loose’ and ‘Damage’. In evaluation process ‘A’ was marked as high, ‘B’ as medium and ‘C’ as low. The overall evaluation of a building decides condition of any building as Good, Average and Poor. Figure 5 provides a detail analysis and results regarding condition of representative samples.

While determining the priorities of buildings for conservation, the overall condition, Age, Use, Importance and Intervention were major criteria for evaluation. The rest of the process was same as it was observed in deciding overall condition of any building. Figure 6 provides a detail analysis and results regarding priorities for conservation of buildings.

It reveals from results that Lahore Railway Station, 3 Room Bungalows, Office of the Divisional Superintendent Workshop, Punjab Railway Institutes and Workshops are required immediate attention for documentation and subsequently the conservation.

Building Type, Representative Samples and Evaluation	Age			Architectural Assessment			Structural Assessment			Deteriorating Level			Building Integrity			Overall Condition		
	A for > 150 B for 100-150 C for < 100			Good	Average	Poor	Good	Average	Poor	High	Medium	Low	Intact	Loose	Damaged	Good	Average	Poor
	A	B	C	A	B	C	A	B	C	C	B	A	A	B	C	A	B	C
Evaluation	A	B	C	A	B	C	A	B	C	C	B	A	A	B	C	A	B	C
Lahore Railway Station	●	○	○	●	○	○	●	○	○	○	○	●	●	○	○	●	○	○
Barracks	Single Layer	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Double Layer	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Quarters	2-Room Row Type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	2Room Combined Type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	3Room Combined Type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	3Room Isolated Type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	4Room Isolated Type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Bungalows	5Room Isolated Type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	3Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	4Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	5Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Administrative Buildings	6Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	7Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Strangers' Home	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Finny Wing	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Bagley Wing	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Walton Block	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Hight Block	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Educational Buildings	D.S. Lhr. Div.	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	D.S. Workshop	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Railway Technical School	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Clubs and Institutes	Saint Andrews High School	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Walton Training School	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Punjab Railway Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Burt Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Religious	Carson Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Griffin Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Railway Church	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Power House	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Steel Water Tanks	Mughalpura Power House	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	High Service Water Tanks	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Workshops	Overhead Water Tanks	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Railway Workshops	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Fig. 6: Overall condition of the Buildings on the basis of Age, Architectural Assessment, Structural Assessment, Deteriorating Level and Building Integrity

Building Type, Representative Samples and Evaluation	Age			Use		Importance		Intervention		Overall Condition			Priority for Conservation		
	A for > 150 B for 00-150 C for < 100			Original	Adaptive	Architectural	Historical	Major	Minor	Good	Average	Poor	A	B	C
	A	B	C	A	B	A	B	A	B	C	B	A	A	B	C
<b>Evaluation</b>															
<b>Lahore Railway Station</b>	●	○	○	●	○	●	●	○	○	●	○	○	●	○	○
<b>Barracks</b>	Single Layer	●	○	○	○	●	●	○	●	○	○	○	○	○	○
	Double Layer	○	●	○	○	●	●	○	○	○	○	○	○	○	○
<b>Quarters</b>	2-Room Row Type	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	2Room Combined Type	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	3Room Combined Type	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	3Room Isolated Type	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	4Room Isolated Type	●	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Bungalows</b>	5Room Isolated Type	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	3Room Bungalows	●	○	○	○	○	○	○	○	○	○	○	○	○	○
	4Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	5Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	6Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Administrative Buildings</b>	7Room Bungalows	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Strangers' Home	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Finny Wing	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Bagley Wing	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Walton Block	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Hight Block	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Educational Buildings</b>	D.S. Lhr. Div.	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	D.S. Workshop	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Railway Technical School	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Clubs and Institutes</b>	Saint Andrews High School	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Walton Training School	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Punjab Railway Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○
<b>Clubs and Institutes</b>	Burt Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Carson Institute	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Fig. 7: Building Priorities for conservation on the basis of Age, Use, Importance, Intervention and Overall condition.

**Conclusion and Recommendations:** British Railway Architectural heritage in Lahore possesses a large variety of building types which falls under the age 100-150 years. This heritage is more valuable in terms of Historical and Architectural importance because there were many buildings which first time appeared in Lahore and provided foundations for future buildings of Lahore. This heritage required an immediate attention from academia, railway administration and government sector. It is recommended that an organization should be establishment to work for protection and conservation of this heritage and to add a wonderful chapter in the history of Lahore and Pakistan. The major task of the organization must be the identification and listing of buildings, their condition and age and subsequently to select the representative samples and finally to decide for priorities for protection and conservation. It is important that the majority of the buildings particularly the residential buildings and Railway Institutes are about to reach on their last leg and if an immediate attention will not be paid for their protection then an important chapter of British Railway Architectural Heritage in Pakistan will disappear very soon.

**REFERENCES**

Andrew, W. P. The Punjab Railway, W.M.H. Allen and Co., London, 11-12 (1857).

Arif M. K., Architectural Analysis of British Colonial Railway Residential Buildings in Lahore, PhD Thesis, University of Engineering and Technology Lahore-Pakistan, 45-149 (2013).

Begg, J. Annual Report on Architectural Work in India for the year 1911-1912, Calcutta Government Printing Press, India, 2-3 (1912).

Davies, R. H., The Report on the Administration of the Punjab Territories for the year 1860-61, Government Press Lahore, para 80: 73 -74 (1860).

Juland, D., Report on Railways in India, George Edward Eyre and William Spottiswoode, London 18-19 (1860).

Latif, S., Lahore: Its History, Architectural Remains and Antiquities, New Imperial Press, Lahore 287-290 (1892).

Medley, J. Punjab Railways Institute, Professional Papers on Indian Engineering, 1863-64, Thomason College Press, Roorkee, India, 244-245 (1865).

Ryan, C.C., Indian State Railway Magazine, 646-652 (1930).

Orange, W.H., Educational Buildings in India, Superintendent Government Printing, India, Calcutta, 164-165 (1911).

Whittaker, H. Calendar., Maclagan Engineering College, Lahore, Government Printing, Lahore, 1-7 (1928).