# TECHNICAL PAPER 7

# CONNECTIVITY AND FREIGHT

# 7 CONNECTIVITY AND FREIGHT

## 7.1 TRANSPORT SECTOR PERFORMANCE AND PROBLEMS

Transportation is a non-separable part of any society which exhibits a very close relation to the life style of people, the range and location of activities accessed, and the goods and services consumed by them. Transportation has been a major factor in development and prosperity of communities. It is because connectivity, accessibility and mobility, the core functionalities of any transport system have always played an important role in shaping communities. Other facilities like availability of food and water, etc., has also been a major factor, yet the role and contribution of transportation is evident from the formation and size of communities, especially urban centres. The prime reason advocated in this regard is the time space organization of households, goods and facilities which underline the need for transport system to provide sustainable links for completion of various activities listed below;

1. **Consumption activity:** It refers to consumption of normal goods and services in society, at least to a defined level.
2. **Saving activity:** It is the ability to accumulate savings and pension entitlements as well as to own property providing security outside the labour market and fulfilling individual and social aspirations.
3. **Production activity:** It is the ability to engage in economic or social valued activities such as paid employment, education, training, etc.
4. **Political activity:** It is the effort to improve or protect both the immediate and wider social and physical environment such as voting and membership of political parties, etc.
5. **Social activity:** It refers to social interaction with family or friends and with a cultural group or community.

Inadequacy in connectivity to the desired destination inflicts disadvantage among individuals; thus, imposing social exclusion upon them from their desired afore-mentioned activities and consequentially from economic prosperity.

In Punjab, multiple initiatives have been undertaken within transport sector to improve connectivity and ensure accessibility of people residing in various districts. However, these initiatives could not fully transform the transport sector of Punjab into a catalyst for its socio-economic growth because of multiple reasons.

The Government of Punjab being well aware of the uneven development landscape across the province resulting in social exclusion for people is committed to ensure inclusive growth and shared prosperity for all. Accordingly, this connectivity and freight chapter of the underlying PSS considering ***People, Land and Technology*** as the props for a sustainable transport and freight system aims ***to enhance the functional linkages and connectivity of provincial growth corridors and nodes in province***; thus, making Punjab competitive in regional and international markets through improved accessibility and mobility.

### 7.1.1. Roads

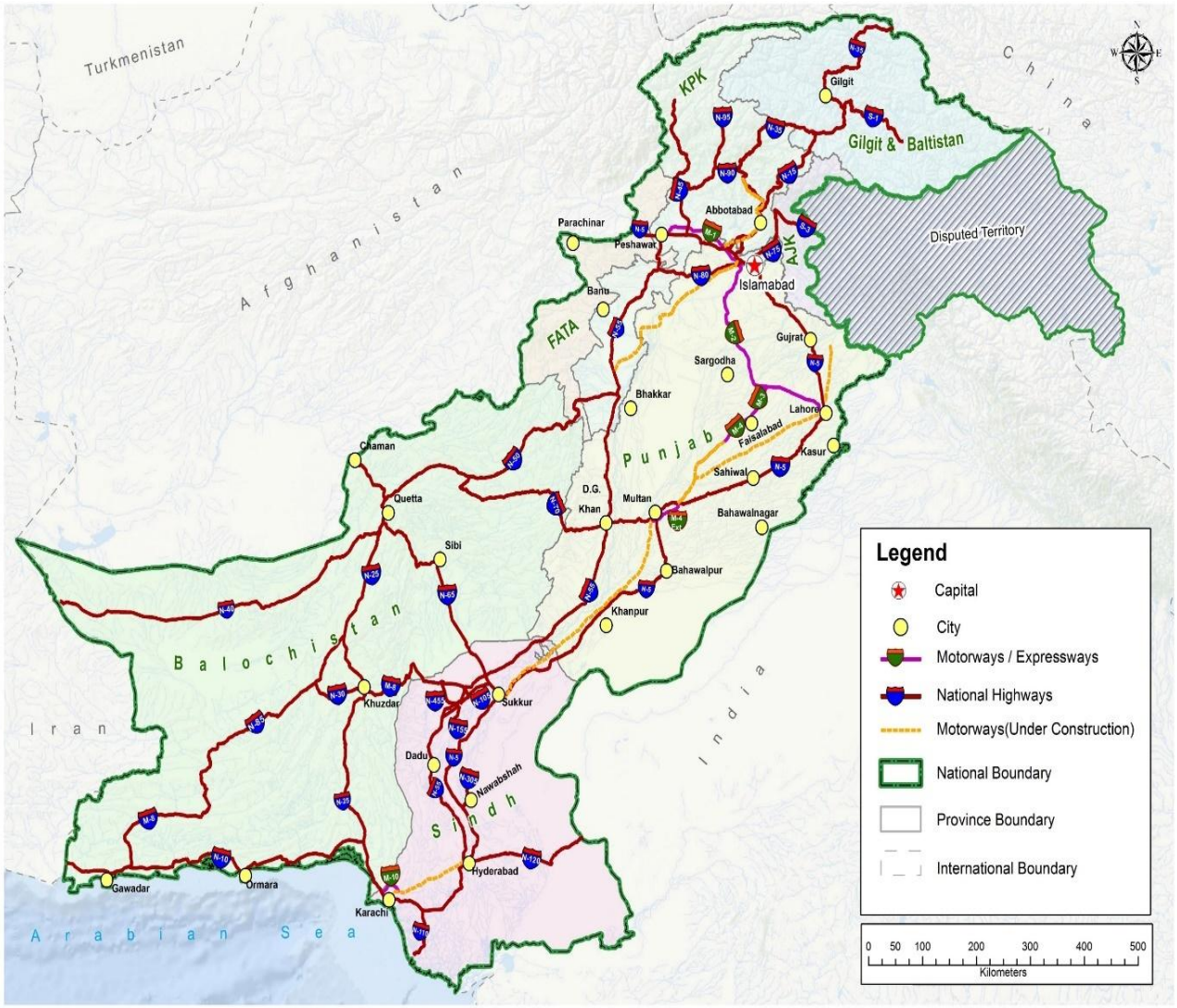
#### Background

Total length of the road network in Pakistan at present is more than 263,000 kilometres (km). This network is further classified as Motorways, National and Provincial Highways, District Roads and Farm to Market Roads. The length of the National Highways is more than 12,000 km; whereas, Provincial Highways have a length of around 93,000 km. The remaining roads are classified as Secondary and Local Roads including District Roads and Farm to Market Roads (Economic Survey of Pakistan, 2017).

Punjab, being the most populace province of the country has the longest road network. Total length of roads in Punjab is around 76,234 km. Further, sub-classification of these roads includes approximately 2,062 km of National Highways, 553 km of Motorways, 10,519 km of Provincial Highways and 39,029 km of Secondary and Local Roads including Farm to Market roads and Sugar Cess roads. In addition, around 970 km of Motorways are currently under construction in the province as shown in the Figure7.2.

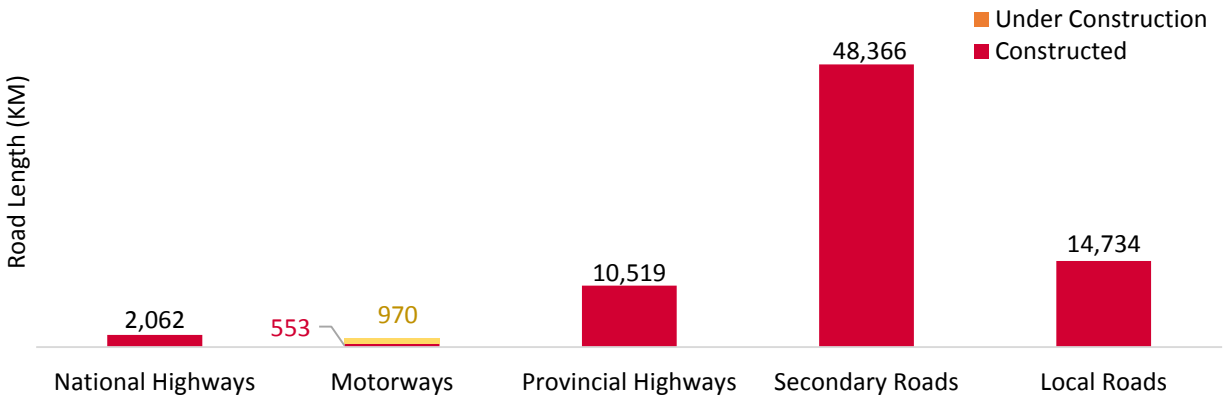
Consequent to rapid growth in population and urbanization, the number of motor vehicles registered in the province has also increased drastically over the years (Figure7.3). In 2015, Punjab had 14.5 million registered motor vehicles. Private vehicles, consisting mainly of Motorcycles and Cars, account for more than eight five (85) percent of the motor vehicles in the province. Further, Figure7.4 reveals that motorcycles account for seventy-seven (77) percent of total vehicles, followed by motorcars which account for twelve (12) percent of total vehicles. Differing to private modes, the share of public transport and commercial vehicles is less than one (1) percent i.e. 0.7 percent and 0.4 percent respectively.

**Figure7.1: Road network of Pakistan**



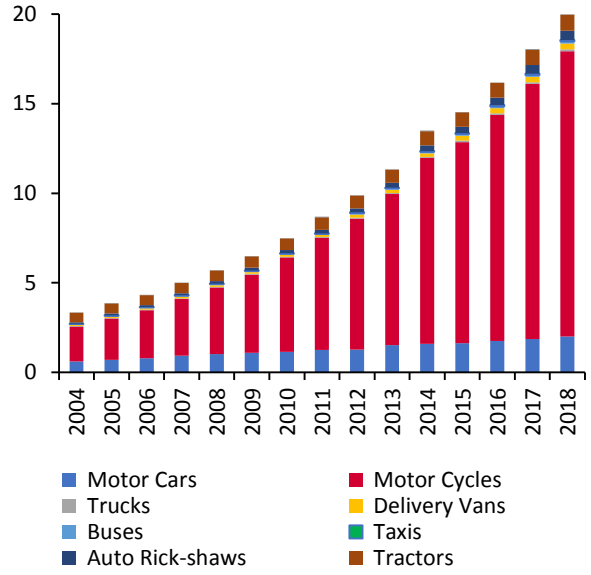

**Source: National Highway Authority**

**Figure7.2: Road network of Punjab**



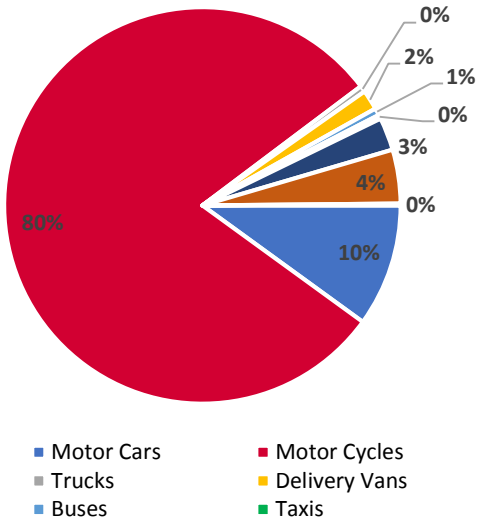

**Source: Punjab Development Statistics, 2016**

**Figure7.3: Motorization in Punjab**




**Source: Excise Taxation and Narcotics Department, 2018**

**Figure7.4: Modal split of vehicles in Punjab**




**Source: Excise Taxation and Narcotics Department, 2018**

### Spatial distribution of road network in Punjab

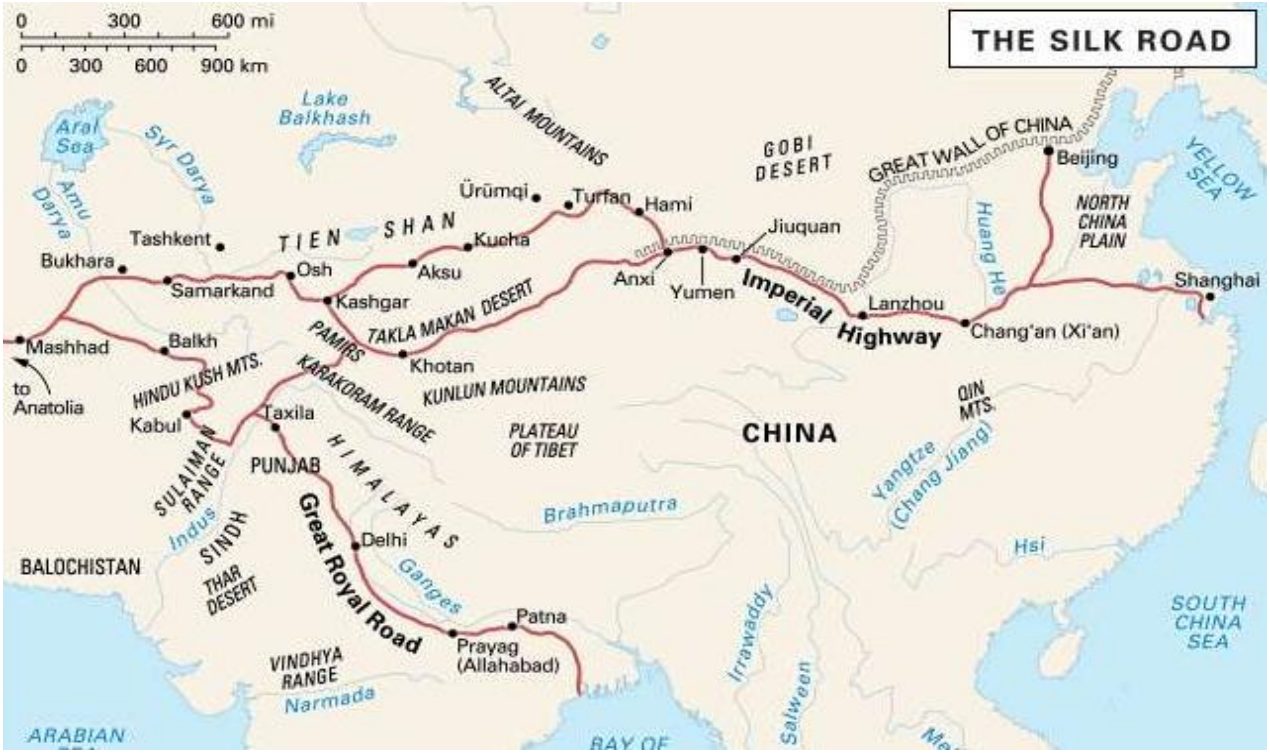
Development and spatial distribution of the Punjab Road network is influenced by two major factors. These are occurance of natural water channels i.e., rivers and geo-stratagic location of Punjab within the South East Asia region.

All the natural perennial rivers in the Punjab are located on the Eastren side of the province and flow from North to South. Historically, the the trade carvans moved along these rivers. Thus, identical to other human setllements in the region and around the globe, all major cities of Punjab have developed primarily along the water channels.

Likewise, the geo-stratagic location of Punjab within Pakistan and in the South East Asia region makes it a vital transit node for access to China, Iran, India and Central Asian States. The same is evident from the history i.e., Punjab had served as both transit node and corridor within Silk Route. The Grand Trunk (GT) Road which connects Lahore with Peshawar within Pakistan and finally terminates in Kabul, Afghanistan is one of Asia's oldest and longest major roads used for trade purposes. Notably, GT road connected all then major cities and towns located along the river channels. Thus, for more than two millennia, GT Road has linked the Indian subcontinent with Central Asia through Punjab facilitating trade along the Silk Route as shown in Figure7.5.

Consistent to the development pattern of the cities, the road network over the years also followed the identical development pattern. Table7.1 shows the growth of road network over time in Punjab.

**Figure7.5: Historic silk route**




**Source: Encyclopaedia Britannica**

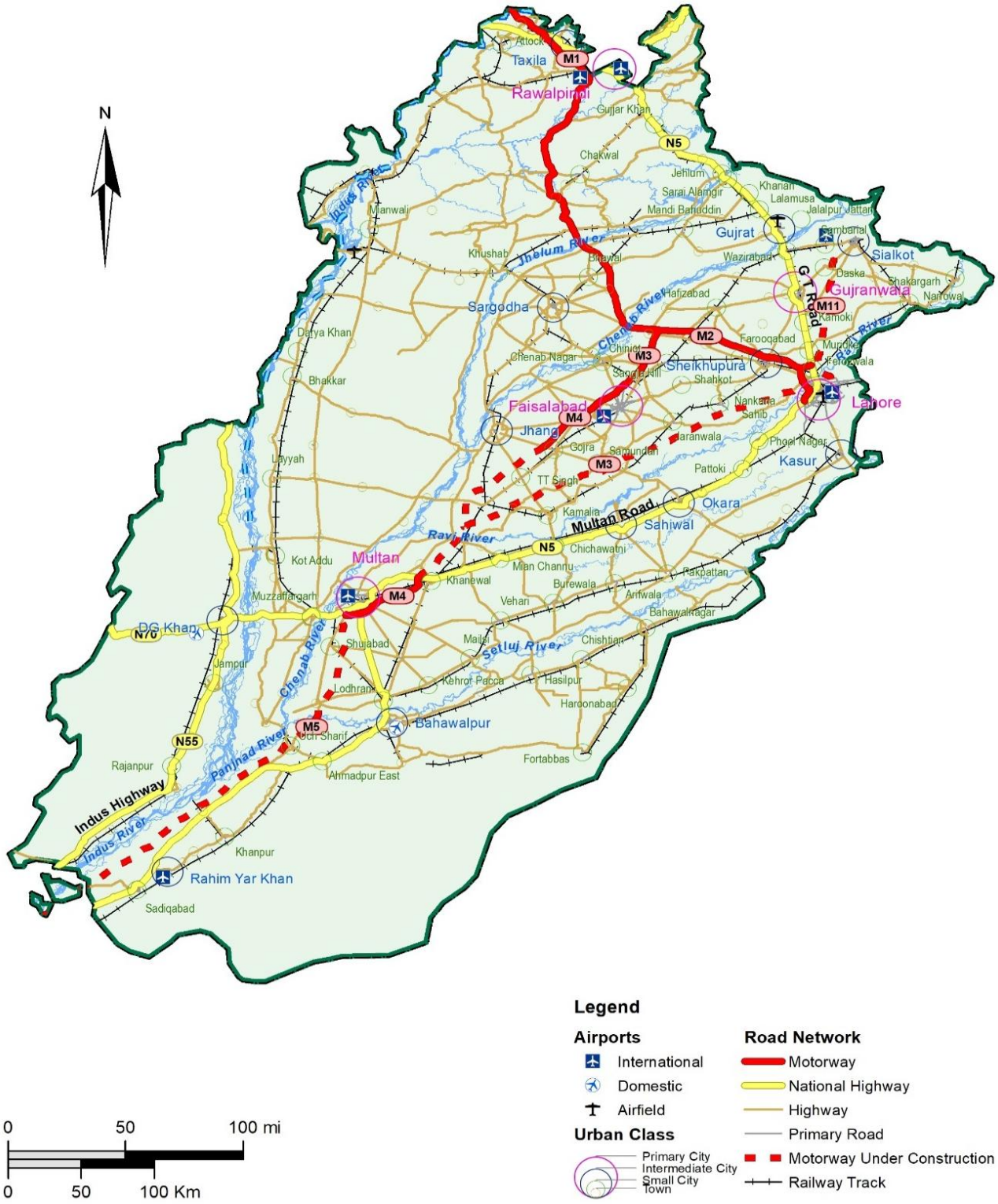
**Table7.1: Roads length by type**

| Year | Total | National Highway | Motorway | Provincial Highways | Secondary Roads | | | Local Local District Council Roads |
|---|---|---|---|---|---|---|---|---|
| | | | | | R & B Sector | Farm to Market Roads | Sugar Cess Roads | |
| 2004 | 65,135 | 1,610 | 387 | 14,631 | | 32,469 | 3,117 | 12,921 |
| 2005 | 71,475 | 1,610 | 387 | 14,631 | | 36,138 | 3,188 | 15,521 |
| 2006 | 71,475 | 1,610 | 387 | 14,631 | | 36,138 | 3,188 | 15,521 |
| 2007 | 70,528 | 1,610 | 387 | 14,473 | | 36,620 | 3,306 | 14,132 |
| 2008 | 71,916 | 1,610 | 387 | 8,956 | 5,570 | 37,625 | 3,319 | 14,448 |
| 2009 | 74,097 | 1,610 | 387 | 8,998 | 5,964 | 39,030 | 3,374 | 14,735 |
| 2010 | 74,097 | 1,610 | 387 | 8,998 | 5,964 | 39,030 | 3,374 | 14,735 |
| 2011 | 74,097 | 1,610 | 387 | 8,998 | 5,964 | 39,030 | 3,374 | 14,735 |
| 2012 | 75,526 | 1,610 | 387 | 10,426 | 5,964 | 39,030 | 3,374 | 14,735 |
| 2013 | 75,526 | 1,610 | 387 | 10,426 | 5,964 | 39,030 | 3,374 | 14,735 |
| 2014 | 75,920 | 1,610 | 387 | 10,821 | 5,964 | 39,030 | 3,374 | 14,735 |
| 2015 | 75,958 | 2,062 | 443 | 10,519 | 5,964 | 39,029 | 3,373 | 14,734 |

**Source: Punjab Development Statistics, 2016**

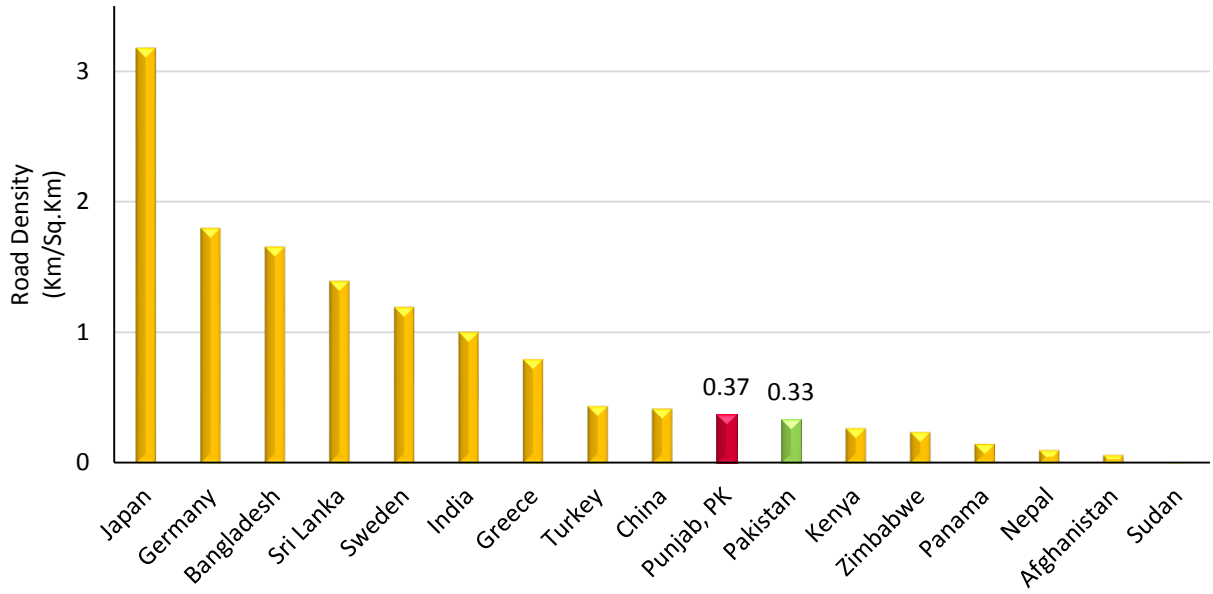
Road density of Punjab as shown in Figure7.7 below is higher than the overall road density of Pakistan and other provinces which indicates that the road sector in Punjab has performed much better compared to other provinces. Road network of Punjab is shown in Figure7.6 below.

**Figure7.6: Existing road network of Punjab**




**Source: The Urban Unit**

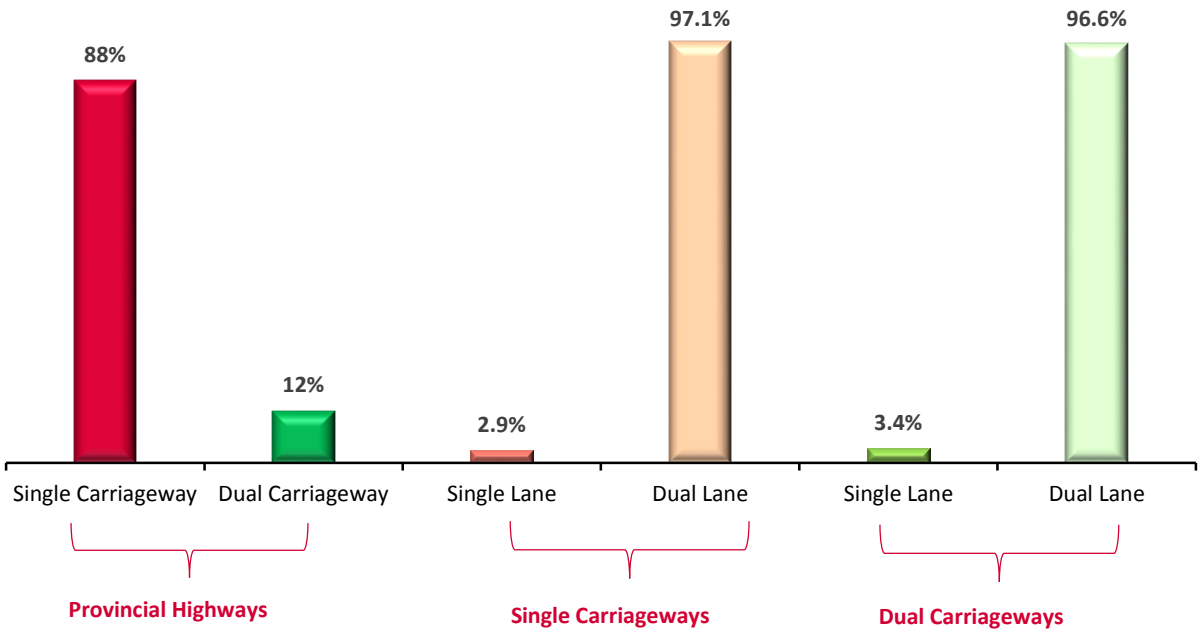
**Figure7.7: Road densities of countries around the world**




**Source: worldstat.info**

In addition, the major provincial highways having multiple lanes and classified as dual carriageways are located on the Eastern side of the province; whereas the Westren and Central part of the province is served primarily by single lane single carriageway. The share of dual carriageways in the provincial road network is merely twelve (12) percent whereas single carriageways make eighty eight (88) percent of the total provincial network. Remaing all roads are calssified as Secondary and Local Roads incldiung Farm to Market roads, Road and Bridges Roads, and Sugar Cess Roads. Mostly these roads are single lane roads within provincial road network. Figure **7.8** affirms the afore-mentioned distribution of single and dual carriageways in the province.

**Figure 7.8: Lane and carriageway wise distribution of provincial highways**




**Source: The Urban Unit**

## China Pakistan Economic Corridor and Punjab

China–Pakistan Economic Corridor (CPEC) is a megaproject, which aims to connect Gwadar Port in South West of Pakistan with China's North Western region of Xinjiang, via a network of highways, and railways. Under CPEC, road projects comprising of motorways following three distinct alignments as shown in Figure 7.10 will be constructed. These include;

## CPEC - Eastern Alignment

Eastern alignment of the CPEC includes roadway projects located in Punjab and Sindh. The Eastern alignment links the provincial capitals i.e., Lahore with Karachi. The entire alignment is divided into four sections; a) 136 kilometre long section between Karachi and Hyderabad also known as the M9 motorway, b) 345 kilometre long section between Hyderabad and Sukkur, c) 392 kilometre long motorway section between Sukkur and Multan, and d) 333 kilometre long motorway section between Multan and Lahore via Abdul Hakeem. Construction of the CPEC Eastern alignment Corridor has been initiated in November 2015.

## CPEC- Western Alignment

The 2,463 km long CPEC Western Corridor connects Baluchistan, Khyber Pakhtunkhwa, and Western Punjab province. It commences at the Barahma-Bahtar Interchange on the M1 Motorway near Burhan and Hasan Abdal in Northern Punjab. Newly reconstructed Karakoram Highway connects with CPEC Western corridor at Burhan, close to where the new 285 km long Brahma Bahtar-Yarik Motorway is planned. A small portion of this CPEC alignment passes through Western districts of the Punjab province; thus providing an opportunity to unlock the potential of under developed Western areas. This alignment also provide an opportunity for establishing an integrated road network in alliance with Central and Eastern alignment.

## CPEC- Central Alignment

Central corridor of CPEC is expected to facilitate freight operations between Baluchistan and Punjab province. This corridor is shorter than the Eastern corridor and will pass through relatively under developed central areas of Punjab. The Central alignment will pass through Punjab from Ranjanpur, Dera Ghazi Khan, Layyah, Bhakkar, Mianwali and Attock districts.

The CPEC project provides an excellent opportunity for the province to establish its missing connectivity links and link under developed areas with a high speed road and rail network. The CPEC corridors will result in significant trans-national freight traffic resulting in multiple employment and trade opportunities for the province. Furthermore, other opportunities coupled with high volume of trans-national freight transport such as service opportunities for local transport companies, development of inter-modal freight terminals and improvements in freight sector in form of modernization of local trucking industry will open doors for new employments for the people. Evidently, CPEC hold attractive opportunities for Punjab to transform its socio-economic outlook.

## Sector constraints and limitations

The size, population, geo-political compulsions, economic and social conditions of the Punjab call for better road to achieve desired economic and social objectives. Analysis of the existing road network reveals that:

## Unilateral and uneven development

- Road network of Punjab is disjointed and unilaterally distributed across the province. Three major corridors i.e., National Highway Five (N5), Motorway 3 (M3) and Motorway 2 (M2) which provides connectivity with rest of country primarily runs from North to South across the province. Importantly, N5 located in the Eastern side of the province follows the alignment of the historic GT Road and provides connectivity to major cities developed along water channels. There does not exist any motorway or high speed highway on the Western side of the province. It is because major rivers which historically characterized the development of cities and town are on the Eastern side of the province. Lack of high speed connections have resulted in slow development of the Western regions of the province.
- Contrary to national roadways, the provincial road network does not provide direct connections to cities. It is because the provincial network also follows the national grid i.e., runs from North to South and does not provide high speed East to West connectivity.
- Existing industrial units are not well-connected with high speed road network for end to end goods delivery. Thus, instead of supporting and facilitating growth, the existing road network impose penalties in terms of time and cost upon goods and restricts efficient movement of commodities across the province (See Figure 7.10).

## Under developed sector

- Lack of investment and high motorization rate (Figure 7.9) has resulted in insufficiency of available road resources.

**Figure 7.9: Trend of road and vehicle availability over time.**

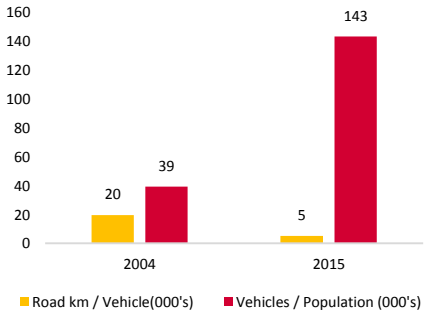
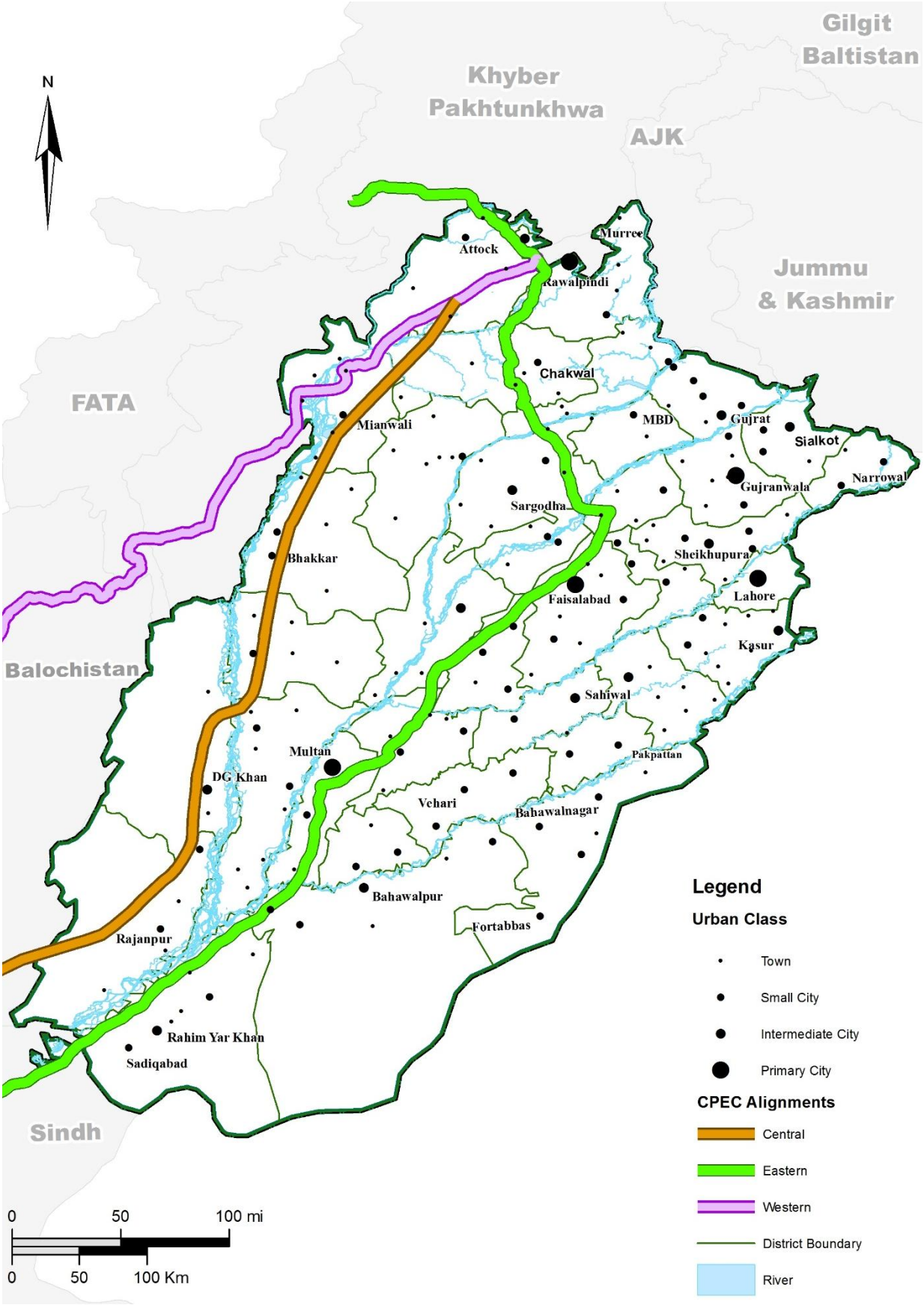
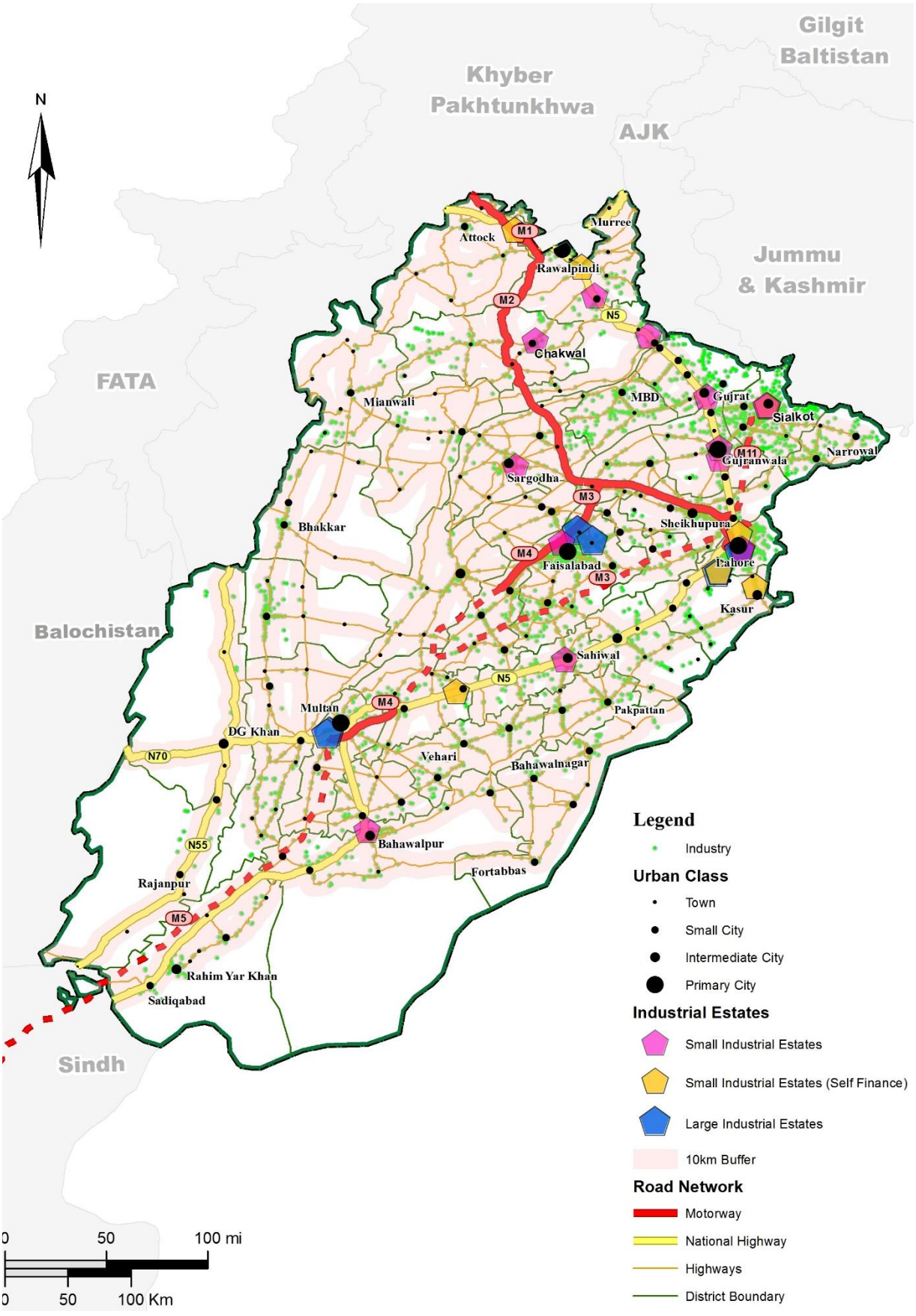


Figure 7.10: CPEC alignments in Punjab




Source: National Highway Authority

**Figure 7.11: Existing industrial units and road network of Punjab**




**Source: The Urban Unit**

### Implementation of policies

- A provincial road sector policy as a core component of provincial road infrastructure development is missing. Road development strategies are developed on ad-hoc basis primarily under political motivation or in case of emergencies like floods and earthquakes. There is no robust, up to date Master Plan for road sector incorporating changing socio-economic and regional interventions for the province.
- Lack of Road Sector Policy in conjunction with provincial Transport Policy has resulted in weak connections and long journey times due to non-integration of employment and industrial hubs with settlements.

### Expertise scarcity and budgeting constraints

- Communication and Works Department, established to develop road infrastructure in the province, lacks adequate expertise and resources to meet connectivity demand.
- Budget gaps exist at the end of each financial year due to inadequate tendering/procurement procedures and archaic building/construction codes leading to wastage of resources.

## 7.1.2. Railways

Pakistan Railways is a national organization mandated to develop, own, operate, maintain and manage rail network in the country. Presently, more than 11,880 Km of railway track is managed by Pakistan Railway. Out of this 11, 880 Km of rail track, 11,389 km of rail track is of broad gauge whereas remaining 389 km is of meter-gauge. There are more than 1,180 Railways Stations. More than 4,822 Kilometres of rail track is in Punjab. Likewise, there are 602 railways stations in Punjab, out of which only 324 stations are operational.

Importantly, provision of rail services falls under the federal domain. The provincial government does not own or maintain any railway network; however, there exists a huge potential within rail sector which needs to be explored if Punjab has to be made economically competitive in the region.

### Spatial distribution

Identical to road network, the major rail links in Punjab runs from North to South mostly parallel to national and provincial highways. Few branch lines exist in the central districts of the Punjab. There does not exist any major line in the Western districts of the province. There does not exist any high speed East to West rail connection. The rail network in Punjab is shown in Figure 7.12 below.

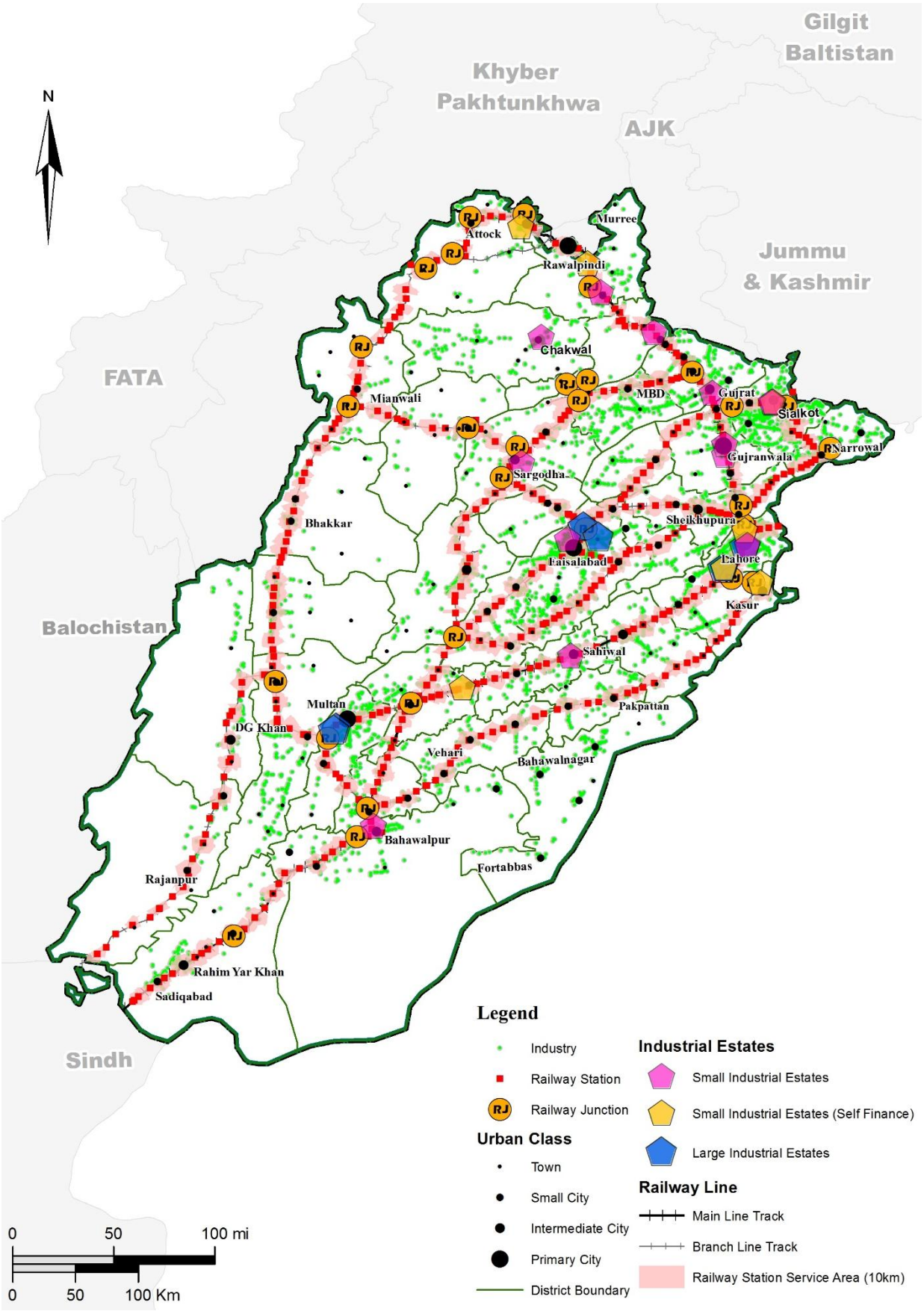
### Sector constraints and limitations

Pakistan Railways (PR) is not only the cheapest mode of travel, but also the largest civil employer in the country. However, over the years, lack of attention, poor policies, increasing expenditures, misappropriation of funds, pilferage, nepotism and periodic floods have left the PR with huge deficits running in billions of rupees. Furthermore, its role unfortunately as a catalyst for economic development has received a setback due to multiple reasons.

Notably, after the first railway line laid down between Karachi and Kotri in 1861, British Government made rapid the expansion of the railway network until 1947 because of their strategic and economic interest; however, after 1947, very little expansion has been made. Instead of maintain the built network, numerous branch lines and minor stations have been closed by the PR due to declining passenger numbers, financial sufferings and underinvestment and preference for road sector. Figure 7.13 depicts the decrease in track length occurred over the years.

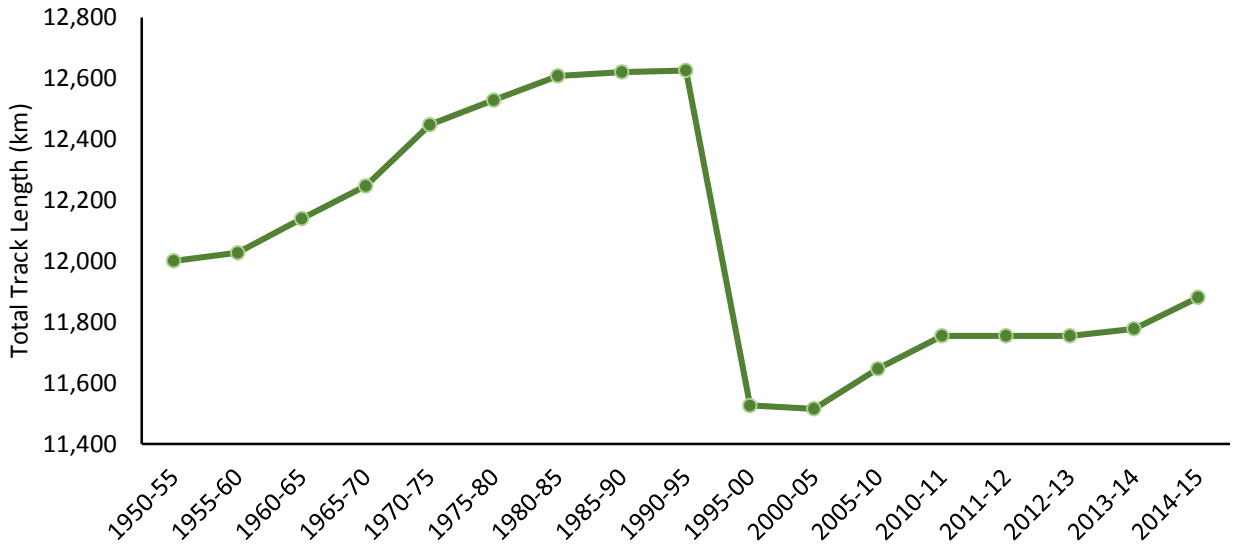
There has been a sharp decrease in track length too during 1995 to 2000. This sudden decline was due to elimination of Narrow Gauge tracks. Correspondingly, there has been a continuous decline in number of locomotives, coaches and freight wagons. In 2015, Pakistan Railway had 458 locomotives. Similarly, coaching vehicles were 1,740 including 1,459 coaching vehicles for passengers and 281 for luggage movement. Freight Wagons accounted for more than 15,452 including 4,357 covered wagons, 4,485 open wagons and 503 special type wagons for transporting liquids, explosives, machinery, livestock etc. However, number of all these i.e., locomotives, coaches and freight wagons have observed a steady decline. Over the last five (5) years, the number of daily freight train services have declined from 96 to 15 and passenger train services from 230 to 97 trains per day. Consequently, despite presence of rail in almost all major cities and in proximity to industrial units, the share of railways in passenger, freight and goods delivery is very marginal as compared to road sector.

**Figure 7.12: Existing industrial units and railway network in Punjab**




**Source: The Urban Unit**

**Figure 7.13: Variation in Pakistan railway track length**



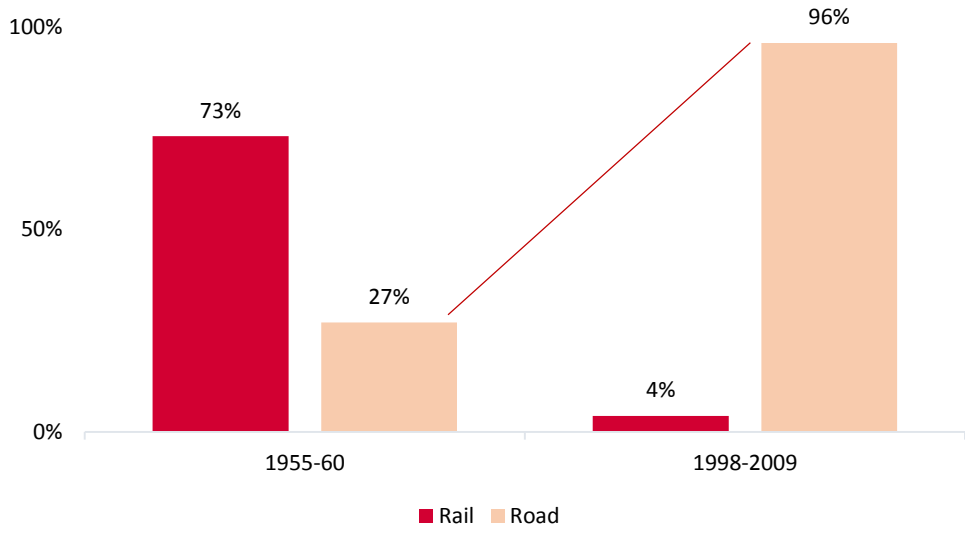

**Source: Pakistan Railways**

As discussed, prior to 1970's railways had a major share in transportation of goods and passenger within the country. In fact, railways served as the primary mode of transport till early 1980s. However, since then its share has declined due to preference towards road[1]. Notably, seventy nine (79%) of industrial units of Punjab province are located in proximity (10 Km) of the rail track; however, the share of freight carried by railways is very marginal.

During 2005-10, the budgetary expenditure for railways accounted to approximately 45.5 billion PKR, whereas for national highways during that period, the budgetary expenditure rose to an average of 155 billion PKR. Figure 7.14 reflects the steep decline in the freight operations of Pakistan Railways.

[1] Infrastructure and Economic Growth in Asia. Springer.

**Figure 7.14: Comparative evolution of rail and road freight**




**Source: World Bank, 2011**

### 7.1.3. Aviation

In Punjab, there are thirteen (13) airports including both international and domestic airports. Out of these thirteen airports, seven (7) are major airports having both international and domestic operations; whereas two serve domestic passengers and remaining operate as non-commercial airfields. Details of these airports is shown in Table 7.2 below; whereas there location is depicted in Figure 7.16.

**Table 7.2: Airports and airfields in Punjab**

| Sr. No | Name | District | Status |
|---|---|---|---|
| 1 | Allama Iqbal International Airport | Lahore | Commercial |
| 2 | Benazir Bhutto International Airport | Rawalpindi | Commercial |
| 3 | Bahawalpur Airport | Bahawalpur | Commercial |
| 4 | Multan International Airport | Multan | Commercial |
| 5 | Shaikh Zayed International Airport | Rahim Yar Khan | Commercial |
| 6 | Dera Ghazi Khan Airport | Dera Ghazi Khan | Commercial |
| 7 | Faisalabad International Airport | Faisalabad | Commercial |
| 8 | Sialkot International Airport | Sialkot | Commercial |
| 9 | Chashma Airport | Mianwali | Non-Commercial |
| 10 | Gujrat Airport | Gujrat | Non-Commercial |
| 11 | New Islamabad International Airport | Rawalpindi | Under-Construction |
| 12 | Walton Airport | Lahore | Non-Commercial |
| 13 | Mangla Airport | Jehlum | Non-Commercial |

#### Spatial distribution

Location of eight (8) commercial airports (see Figure 7.16) used for both passenger and goods movement is testimonial of the historic development of Punjab. Out of eight commercial airports, four airports are in North and North-East of Punjab and remaining four are in the Southern district of the province.

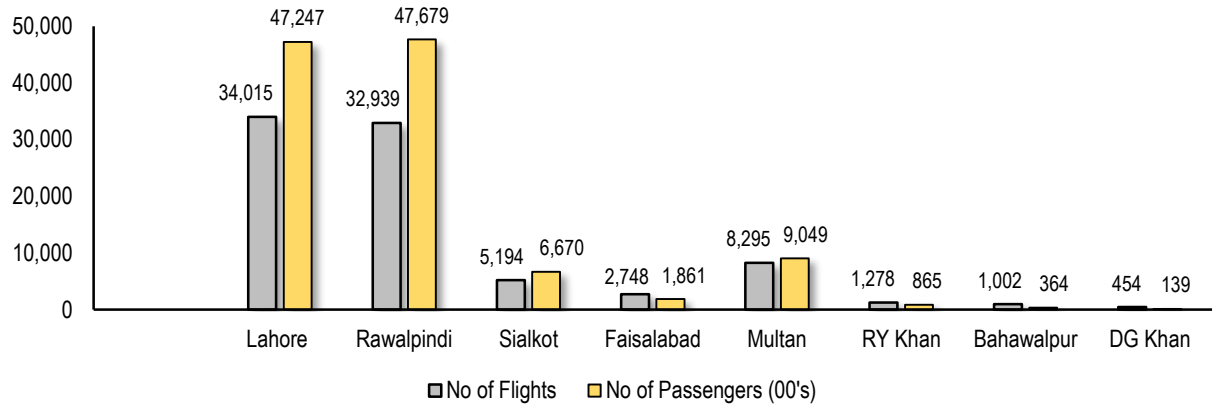
#### Sector constraints and limitations

Air transport in comparison to road and rail transport is cost intensive i.e., cost per passenger / goods is much higher than both i.e. road and rail transport. Mostly, air transport infrastructure is planned and developed on regional level. The eight commercial airports established in various cities of Punjab have been designed considering the regional demand.

Air traffic statistics reveal that the passenger and freight volume on four (4) airports including Faisalabad, Rahim Yar

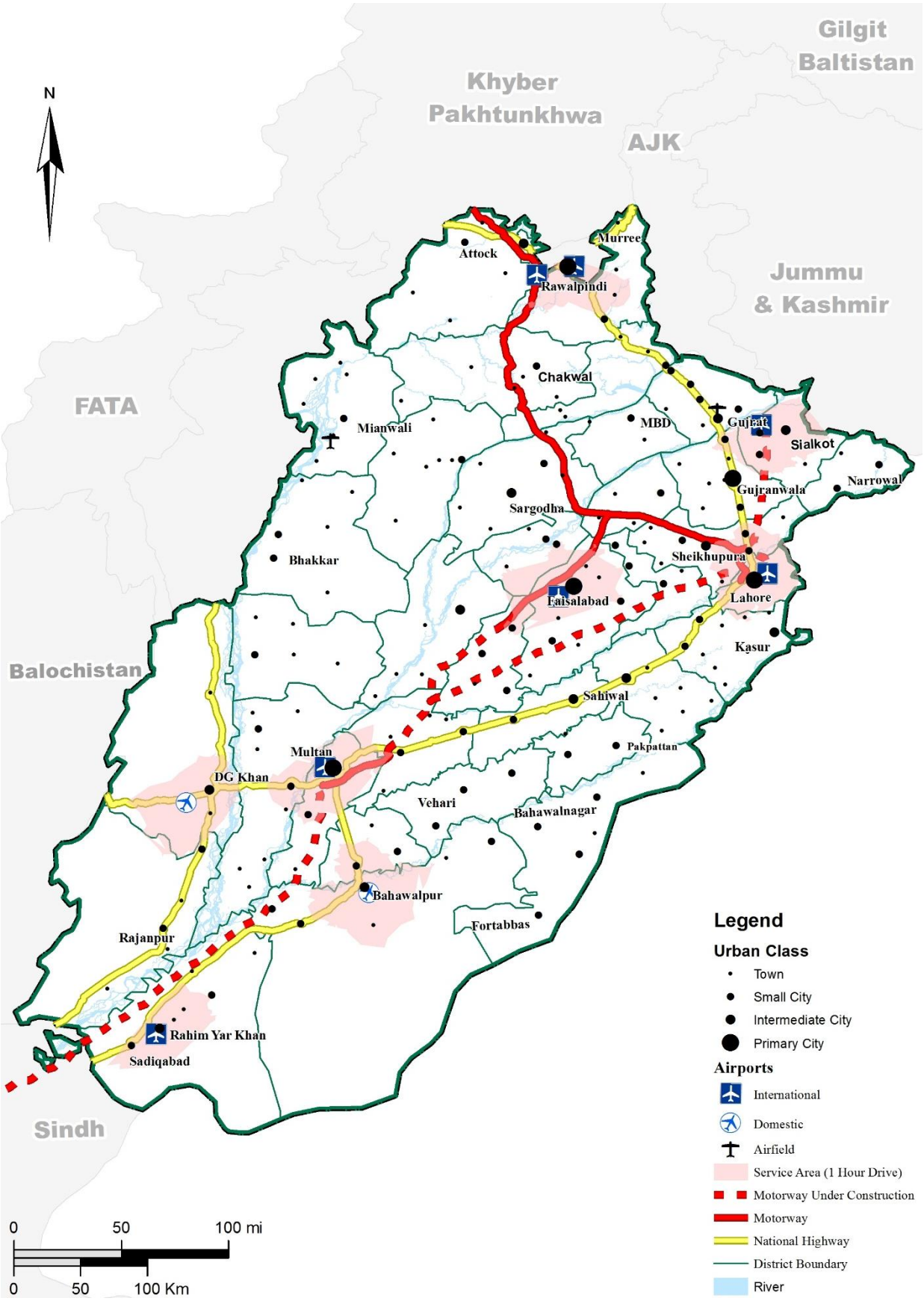
Khan, Bhawalphur and DG Khan is quite less in compassion to major airports. It is because all these major airports strategically located in Lahore, Rawalpindi, Sialkot and Multan have higher number of international flights; thus, having high passengers and goods volume as shown in Figure 7.15 and Figure 7.17 respectively. Presently, around thirty two percent (32%) of the population is served by the existing airports.

**Figure 7.15 Passenger air traffic volumes in Punjab**



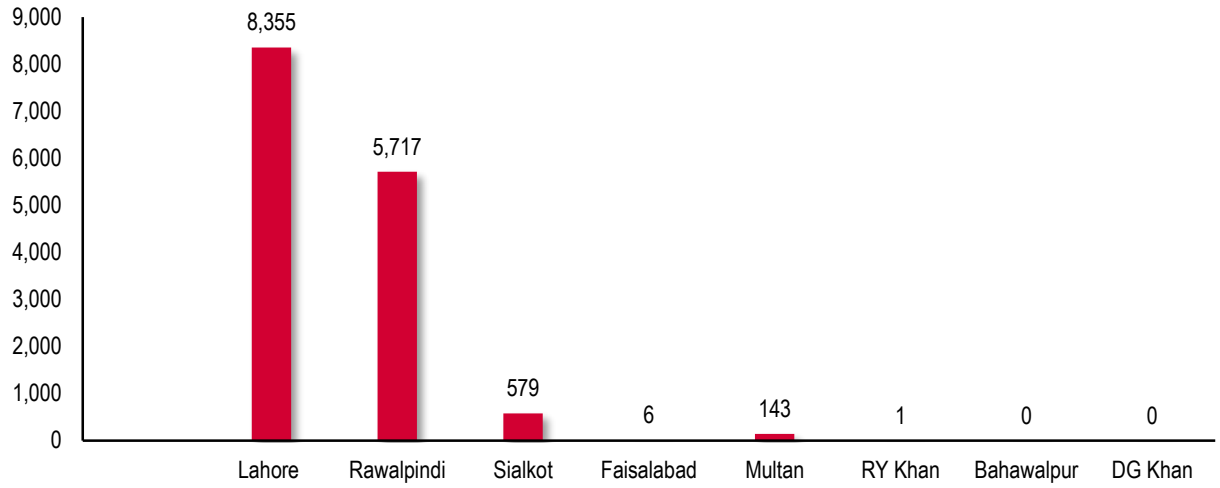

**Source: Civil Aviation Authority, Pakistan July 2015 – June 2016**

**Figure 7.16: Spatial distribution of airports and airfields in Punjab**




**Source: The Urban Unit**

**Figure 7.17 Air traffic freight volumes (m. Tons) in Punjab**




**Source: Civil Aviation Authority, Pakistan July 2015 – June 2016**

Like rail transport, air transport is regulated by a federal organization i.e., Civil Aviation Authority (CAA). CAA is mandated to own, operate, manage and supervise air transport operations in Punjab too. In last decade, flight operations have been outsourced and new airlines have been inducted by the CAA; however, air terminal infrastructure is still owned and developed by the authority. Hurdles faced by the airlines/ operators in obtaining route permits from CAA serves as major cause of poor air transport service delivery in the country. Correspondingly, Pakistan's National Aviation Policy though revised many times still lacks robust policy guidelines and does not cater the needs of the air traffic operators and suppliers.

### 7.1.4. Inland Waterways

Inland water transport system utilizing rivers and canals for transporting passengers and goods is globally termed as the most efficient mode of transport. It is because inland transportation of passengers and goods by water is cheaper in comparison to air, road and rail transport. Lower operation costs make inland water transport more competitive.

#### Spatial distribution

Punjab is known as the Land of Five Rivers i.e., Chenab, Jhelum, Sutlej, Ravi and Indus. All these finally combine with Indus River at Mithankot. The Indus River not only serve as a key water resource for the province for agriculture production but is also most feasible for inland water transportation. Potential inland waterways identified by the Inland Water Transportation Development Company are shown in Figure 7.18.

#### Sector constraints and limitations

Despite having perennial rivers and one of the world's most well-structured irrigation system, there does not exist any inland water transport system in the province. Few handmade wooden boats known as Beris are used to cross the river. The GoPb, realizing the benefits of inland water transport undertook an initiative in form of an Inland Water Transport Development Company. Vision for the said initiative was to explore the potential of waterways in the province and carry out a pilot project on a 200 km stretch of the river Indus in Northern Punjab. However, the company could not achieve its desired aims and has been closed. Nonetheless, there is huge potential for developing inland water transport system in Punjab especially from Daudkhel/ Kalabagh to Sindh.

### 7.1.5. Public Transport

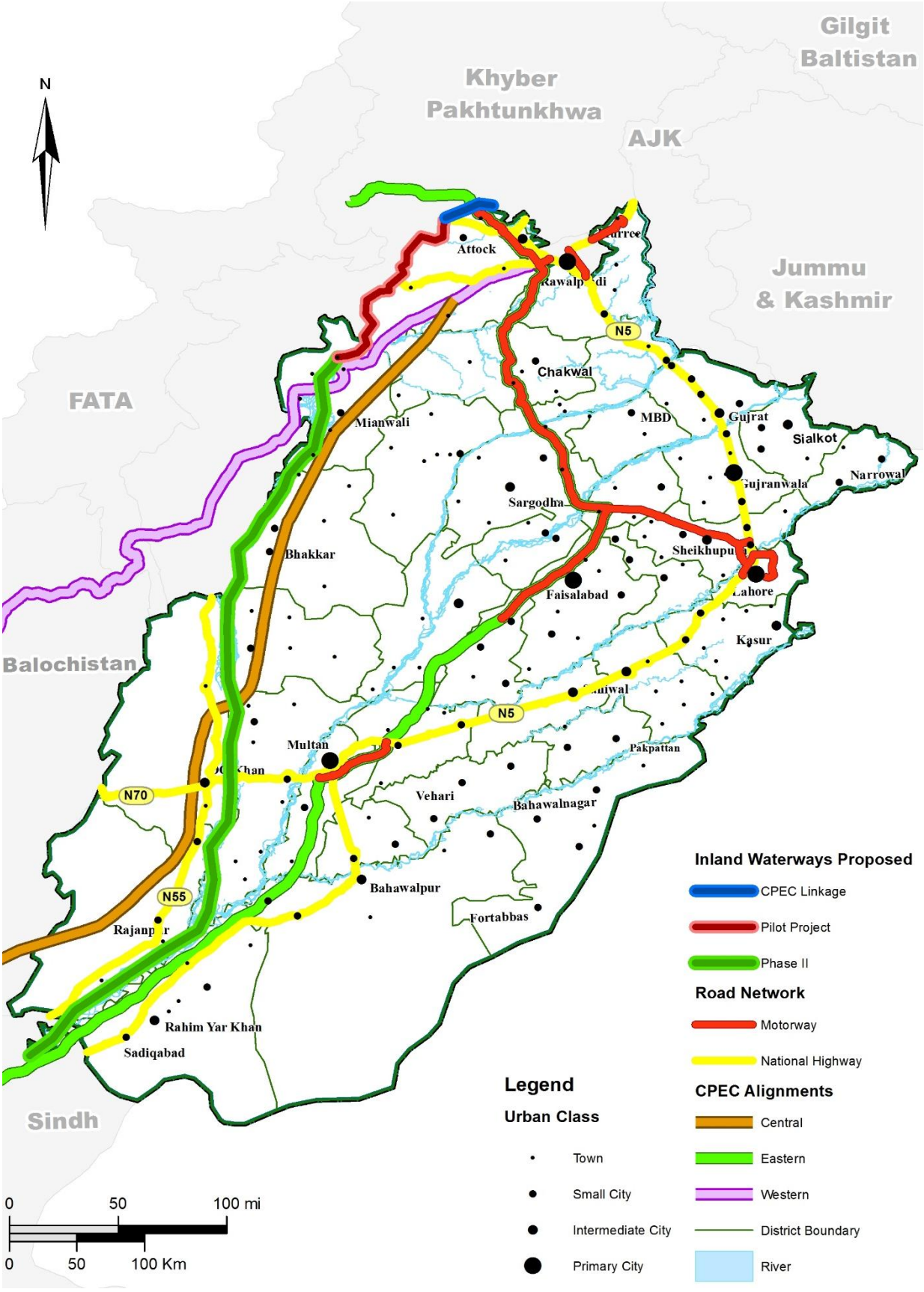
Public transport manipulates socio-economic development of cities in two ways. Inadequacies in public transport provision create barriers, limits individual and community participation in activities such as employment, health, and education, etc. These inadequacies can be due to inappropriate network link between the transport system, and activities. Secondly, operation of the public transport system results in environmental, aesthetic, and social externalities on individuals and communities, as opposed to others. In both scenarios, people are forced to opt alternate modes of travel usually private means to access their desired activities.

Rapid increase in population has resulted in more vehicular trips across the province and within the cities. Consequentially, both inter and intra-city public transport system has observed major changes. Apart from urbanization, other factors have also contributed in these variations. Nonetheless, multiple efforts have been made to revitalize public transport system in the province; however, share of private vehicular trips both within intercity and intra-city travel has remained higher. The public transport system in Punjab can be classified as;

a. Intercity Public Transport
b. Intra-city Public Transport

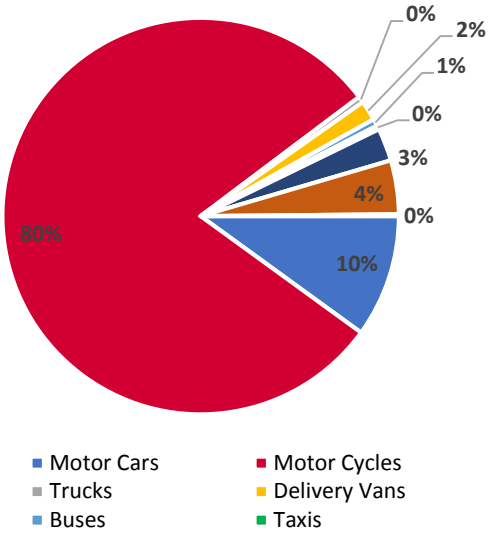
Figure 7.19 reveals the number of all vehicles registered in Punjab. Subsequently, Figure 7.20 depicts the share of various public service vehicles including intercity, intra-city and commercial vehicles within public transport sector

**Figure 7.18 Potential routes of inland water transport in Punjab**



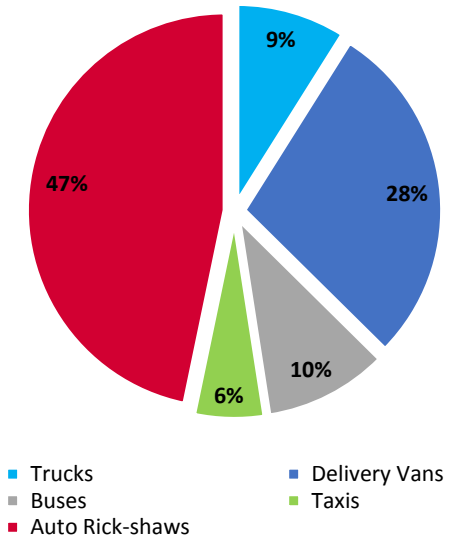

**Source: The Urban Unit**

**Figure 7.19: Vehicle registered in Punjab**




**Source: Excise, Taxation and Narcotics Department, 2016**

**Figure 7.20: Public service vehicles in Punjab**

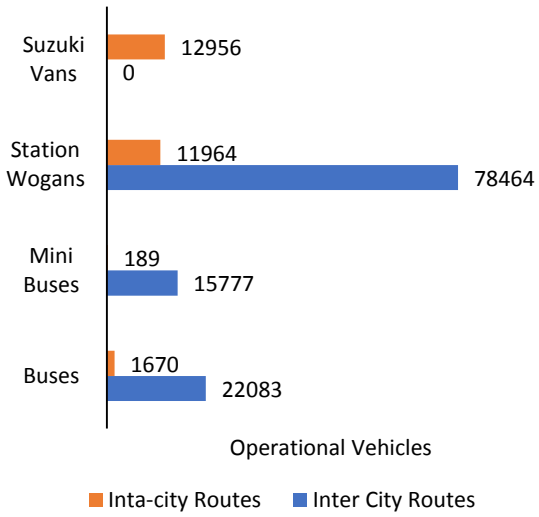



**Source: Excise Taxation and Narcotics Department, 2016**

## Intercity public transport

Intercity Transport in Punjab is deregulated. The GoPb only regulates the fare of non-air-conditioned intercity transport to ensure equity, and convenience to the public. Presently there are more than 116,000 intercity and 26,000 intra-city vehicles playing in Punjab who has obtained route permits from regulatory authority during 2014-17 (see Figure 7.21)

**Figure 7.21 Public service passenger vehicles in Punjab**




**Source: Route Permit Data from 2014 to 2017, Transport Department**

Likewise, there are three hundred and seventy-four (374) intercity bus terminals in Punjab classified as A, B, C and D Class terminals. Presently, there is no A-class terminal in the province, there are only three (3) B-class terminals. There are one hundred and fourteen (114) C-class terminals. Likewise, there are two hundred and fifty-five (255) D-class terminals in the province.

## Intra City Public Transport

According to 2017 national census, more than 37% of Punjab population lives in its cities. Presently, five major cities of the Punjab province houses half of the urban population of the province. Considering this trend, intra-city public transport is of prime importance to support passengers and goods mobility for economic development. Initiatives taken by government in the last five years, have promoted intra-city public transport especially in the major cities. Metro bus system was first of its kind in the country. Lahore Metro-bus carries more than 150,000 passengers every day whereas Islamabad-Rawalpindi Metro-bus is catering the needs of more than 135,000 passengers per day. Likewise, Multan Metro-bus is serving 96,000 commuters every day. Bus Rapid Transit system is also proposed for Faisalabad city. Besides these, feeder bus service is provided by the GoPb in these cities. Same feeder service is being planned for other cities of Punjab including Faisalabad, Gujranwala, Lodhran, Bahawalpur, Rawalpindi and Sialkot.

Table 7.3 shows both the number of intra-city buses operational and required in various cities of Punjab.

**Table 7.3: Intra-city public transport supply and demand in Punjab**

| City | Available | | | | Demand |
|---|---|---|---|---|---|
| | Standard Bus | Mini Bus | Metro | Total Buses | Conventional Buses |
| Lahore | 462 | 788 | 64 | 1314 | 2488 |
| Gujranwala | 12 | 0 | 0 | 12 | 193 |
| Sialkot | 20 | 0 | 0 | 20 | 20 |
| Faisalabad | 26 | 0 | 0 | 26 | 277 |
| Sahiwal | 0 | 0 | 0 | 0 | 0 |
| Bahawalpur | 5 | 0 | 0 | 5 | 12 |
| Multan | 10 | 100 | 35 | 145 | 572 |
| Rawalpindi | 15 | 78 | 68 | 161 | 242 |

**Source: Public Transport Demand Calculations by Transport Department, GoPb**

### Sector constraints and limitations

#### Intercity public transport

Ageing intercity public transport fleet, improperly maintained infrastructure, weak regulations and ineffective enforcement contributes to poor intercity public transport service delivery. As a result, high fuel consumptions and operational costs, leading to high fare, environmental degradations and accidents are common externalities associated with the existing public transport system. Figure 7.22 below depicts passengers opinion regarding various facilities available at different Government regulated C-Class inter-city bus terminals in Punjab.

At present, intercity transport services being deregulated in the province are performed by the private transport operators. Yet, what is required is multi-modal public transport infrastructure offering ease of transit between various inter and intra-city modes within cities. The existing intercity transport terminals are mostly owned (68%) by private operators who make operations purely for profit purpose. The ideology behind intercity public transport service delivery needs to be changed from profit making to convenient service provision.

#### Intra-city public transport

Intra-city Public transport provision is highly complex because of the modes involved, the multitude of origins and destinations, and the volume and mix of traffic. Various studies have identified following core reason for poor intra-city public transport delivery in Punjab.

- Lack of transport policy, master plans coupled with rapid urbanization has resulted in traffic chaos on roads and is creating pressure on already congested road network.
- Transport infrastructure in the cities is being planned and designed to support private means of transport.
- Instead of developing sustainable transit-oriented public transport infrastructure/ systems, preference is given to construction of new roads.
- Urban public transport system in cities is dominated by informal, unsafe modes i.e., Qingchis and obsolete buses.
- Lack of pedestrian facilities and infrastructure results in more vehicular trips in urban centre. Importantly, these vehicular trips are dominated by private means of transport
- Poor traffic management resulting in congestion has led to increase in travel time, emissions, and fuel cost.
- Poor road safety measures are resulting in increased road traffic accidents and fatalities especially for pedestrians and motorcycle riders.
- Institutional barriers, fragmented governance and regulatory structure has resulted in poor service delivery.

### 7.1.6. Freight Transport

Freight delivery in Pakistan greatly relies on road network. The same is true for Punjab. At present more than 96% of the freight traffic is carried through roads[2]. The main reason for this is incapability to make efficient freight operations by other modes in particularly railways.

#### Dry ports and goods forwarding agencies

Punjab has the largest economy in the country and is the most industrialized province having more than 43,000 industrial units. Punjab also serves as a spatial link between Khyber Pakhtunkhwa and Sindh i.e., provides North to South connectivity. All the local and international freight transport emerging from sea ports of Port Qasim and Gwadar transverse Punjab to its desired destination. Presently, there are 7 major dry ports in Punjab enlisted below in Table 7.4. These ports serve as inland freight collection and distribution hub for shipment of international and domestic cargo to provincial destinations. Spatial location of each of these dry ports is shown in Figure 7.23.

[2] Strategic Environmental, Poverty and Social Assessment of Trade and Transport Sector Reforms. Report No 71812-PK, World Bank, 2012.

**Figure 7.22: Passenger's opinion regarding various facilities available at different government regulated c-class inter-city bus terminals in Punjab**

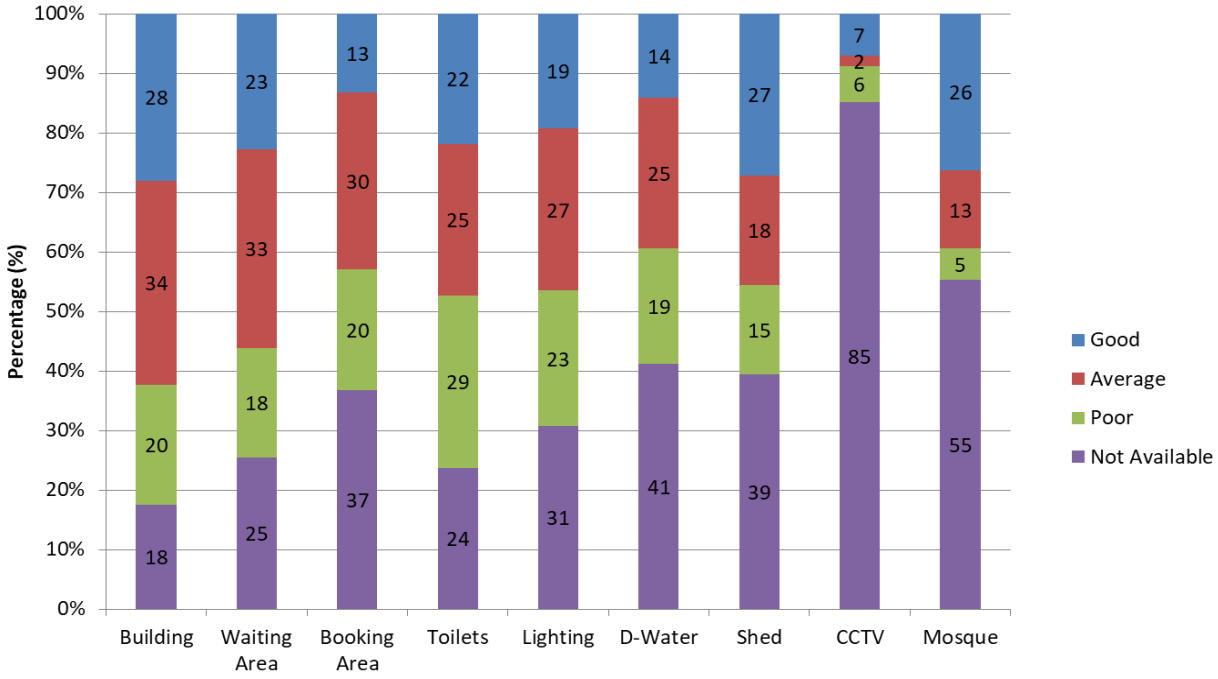



**Table 7.4: Dry ports in Punjab**

| Sr No. | Dry Port | Type |
|---|---|---|
| 1 | Lahore Dry Port | Public sector |
| 2 | Multan Dry Port | Public sector |
| 3 | Rawalpindi Dry Port | Public sector |
| 4 | NLC dry port | Private sector |
| 5 | Sialkot Dry Port | Private sector |
| 6 | Premnagar dry port | Private sector |
| 7 | Faisalabad Dry Port | Private sector |

Likewise, in Punjab, there are more than 640 Goods Forwarding Agencies (GFAs) transporting goods across the province. District wise details of the GFAs is given in Table 7.5

### Sector constraints and limitations

Punjab's freight sector depends on roads for movement of goods. The potential of the freight sector is not fully explored despite the freight operations are deregulated. In fact, the freight transport industry including both trucking and logistics sections operates within the province in a highly competitive environment; whereas the overall freight structure is informal and un-organized. This is evident from the conversion of imported used trucks and concrete mixers by large investors into freight trucks and long trailers.

Moreover, the freight transport in particularly trucking sector is extremely fragmented, with high number of small operators and very few large and medium size operators. At national level, the sector inefficiencies are costing the economy up to Rs.150 Billion per year. This consists of Rs. 60-90 Billion per year extra fuel cost and subsidies on diesel, Rs. 30-35 Billion per year additional road user costs and Rs. 25 Billion per year contribution to the infrastructure deficit[3].

Other factors contributing to industry's inefficiency and low serviceability include overloading, inefficient fuel usage, road damages as well as environmental hazards. The current freight vehicles along with the complete freight handling and management system lacks to meet the domestic and regional freight demand. Also, fuel consumption per ton of the existing trucking fleet is much higher as compared to the world's average[4]. Keeping aside the fact that the cost for transport of freight goods in Pakistan is the lowest in the world[5], the expenditure is much higher in terms of tonnage per kilometer. Likewise, other issues faced by the freight transport industry in the province include:

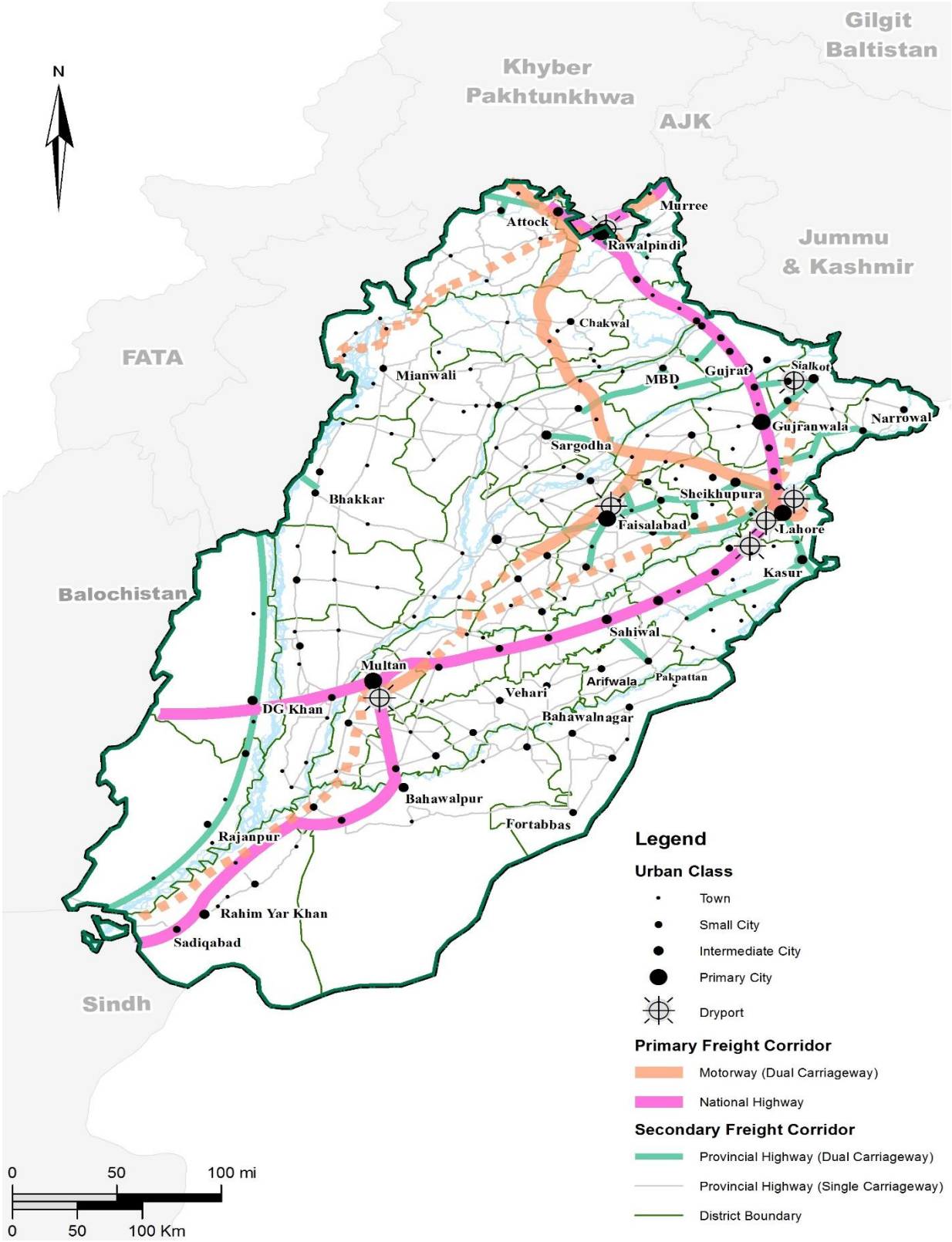
- At present, the freight industry in contrast to auto industry is dependent on informal financing and private leasing i.e., incurring high interest rates. Moreover, weak system of financing and leasing is controlled by limited investors.

[3] Road Freight Strategy Paper - Engineering Development Board-Ministry of Industries, Production & Special Initiatives, GoP. (2006)

[4] Pakistan Transport Plan Study, NTRC/JICA 2005

[5] Greening Growth in Pakistan through Transport Sector Reforms: A Strategic Environmental, Poverty, and Social Assessment. World Bank Publications.

**Figure 7.23: Existing freight corridor and existing dry ports in Punjab**




**Source: The Urban Unit**

**Table 7.5: Goods forwarding agencies in Punjab**

| District | GFA's | District | GFA's | District | GFA's |
|---|---|---|---|---|---|
| T.T Singh | 56 | Okara | 17 | Layyah | 6 |
| Sialkot | 16 | Khushab | 30 | Nankana sahib | 10 |
| Jhang | 10 | Lodhran | 6 | M.B din | 14 |
| Gujrat | 10 | Sahiwal | 6 | Kasur | 38 |
| Chiniot | 14 | Bhakar | 19 | Muzaffargarh | 36 |
| Bahawalnagar | 27 | Hafizabad | 4 | Bahawalpur | 8 |
| Chakwal | 11 | Gujranwala | 2 | Narowal | 17 |
| Multan | 21 | Rawalpindi | 102 | Pakpattan | 7 |
| Vehari | 23 | Faisalabad | 106 | R.Y khan | 2 |
| Mianwali | 9 | Sheikhupura | 0 | Attock | 0 |
| Sargodha | 14 | | | | |

- There exists only one complete high speed freight corridor in the province i.e., N5 which runs completely from North to South traversing the whole province. The other high-speed corridor to be composed of multiple Motorways is incomplete. In case of blockage upon these two corridors in particularly N5, the delivery time of goods increases.
- There are no Trans-freight Terminals in province which could facilitate multi-purpose trucking and logistic services at one place. Large trucks travelling within and across cities, have become a major source of congestion.
- Presently, indigenously designed bed ford trucks make more than 65% of the trucking fleet. The design of these trucks does not support movement of standard size containers shipped by international sea carriers. Moreover, almost all trucks in the province do not conform to Euro Specifications, thus, cannot be used to transport goods internationally. The trucking fleet has to be upgraded to meet Euro 4 and 5 standards in comparison to current Euro-1 standard. Likewise, the trucking manufacturing industry has to be upgrade its assembly line accordingly.
- Absence of Intelligent Freight Transport System couples with obsolete trucks results in unnecessary delays and higher operational costs.
- A highly intense and unhealthy internal competition prevails within freight transport sector, which limits operation to be made at low profits; thus resulting in low freight rates and viz-e-viz overloading and damage to physical infrastructure.
- Low-quality freight transport service is impeding the province's trade competitiveness both at national-international levels. A truck takes 2-3 days going up North to Khunjrab/ Torkham from South of Punjab which, is twice the time for alike journey in Europe or East Asia. About 30% to 40% of agricultural produce is wasted due to inefficient logistics practices[6]. Absence of standard drivers training institutes are another leading cause of poor service delivery.

## 7.2. POLICY FOCUS FOR AN INTEGRATED NETWORK

### 7.2.1 Transport Vision for Punjab

Strategic objective for the provincial transport sector clearly expresses both a desired outcome, and a preferred pathway to be adopted for the achievement of the overall strategy goals. It is

**TO ENHANCE THE FUNCTIONAL LINKAGES AND CONNECTIVITY OF GROWTH CORRIDORS AND NODES AND IMPROVE ACCESS TO REGIONAL AND INTERNATIONAL MARKETS**

Considering the aforementioned analysis and transport vision for Punjab, following policy focuses have been chalked out. These include:

**Policy focus 1: Development of an integrated transport network leading to improved connectivity**

An integrated multi-modal transport network consisting of roads, railways, and inland waterways, and airways, ports needs to be developed that will lead to and help people to access their desired activity location; thus contributing effectively in the economic growth of the province. This can be done by;

a. Improving connectivity between communities and economic zones by enhancing functional provincial linkages to national and highways and motorways network

6 Planning Commission. 2011. Pakistan: Framework for Economic Growth. Islamabad

b. Developing multimodal connections and providing hassle free transfers through enhanced physical and system integration between transport modes and infrastructure
c. Improving travel time along key economic corridors by addressing infrastructure bottlenecks and adopting intelligent transport measures

### Policy focus 2: Facilitating balanced growth to ensure economic prosperity for all

The integrated multi-modal transport network providing connectivity through high speed rail and road link must facilitate economic growth of all regions of Punjab. Further, enhanced connectivity ensuring access to all areas of the province must enable inclusive balanced growth. Importantly, for this purpose, East-West linkages needs to be developed. Presently, the socio-economic activities are concentrated in the Eastern side of the province. To ensure that the Western side plays an effective part within provincial economic growth, vital missing links needs to be developed. This can be attained by;

a. Providing transport links in low accessibility areas to boost regional employment opportunities and economies
b. Improving access to special economic zones; thus unlocking their untapped potential
c. Providing reliable and affordable inter and intra-city public transport to less developed regions

### Policy focus 3: Enhancing regional and international competitiveness

The integrated multi-modal transport network will enhance trade competitiveness through establishment of efficient Trans-Freight Stations, Ports at both large and intermediate cities. This can be accomplished by;

a. Providing accessibility to and from cities (large, intermediate and small), towns and special economic zones to both regional and international markets
b. Ensuring availability of efficient freight transportation, handling and storage service at large and intermediate cities.

### Policy focus 4: Fostering sustainable urban development

Sustainable urban development requires an affordable transport network offering choice of mode and ease of access to desired locations; thus, facilitating mobility of the current and future population. The network to be developed for Punjab must foster sustainable urban development and this can be done by;

a. Integrating urban land use planning and transport provision and service delivery in accordance with the principles of sustainable urban development. One such example is Transit Oriented Development.
b. Improving accessibility of public transport by increasing the coverage area, modernizing the fleet and facilities and making public transport operations sustainable.
c. Improving freight delivery in urban areas through advance ICT based Freight transport management on main corridors.
d. Improving livability of urban areas by both implementing traffic management measures and ensuring greener environment for all.

### Policy focus 5: Ensuring safe travel for all transport users and surroundings while preserving and conserving the environment

The integrated multimodal transport network to be developed for Punjab must ensure safe travel environment while having zero impact on the environment. This can be achieved by;

a. Ensuring social inclusion of people and efficient freight delivery by providing safe travel environment and infrastructure.
b. Improving and implementing safety standards pertaining to transport infrastructure, vehicle fitness testing and operations through compliance of relevant international transport safety standards, regulations, and protocols.
c. Implementing and carrying out safety audits on all new or improved transport infrastructure projects.
d. Reducing transport emissions (air, noise, and vibration) by improving vehicle fitness and fuel standards, and promotion of sustainable transport modes.

## 7.3. INTEGRATED MULTIMODAL TRANSPORT NETWORK FOR PUNJAB

Prior to identification of future projects for achieving an integrated multi-modal transport system that can stimulate and support economic growth in Punjab, it is utmost important to identify the gateways for the regional and international connectivity.

### 7.3.1 International and Regional Gateways for Enhanced Connectivity

In connectivity terms, a city of considerable population that serves as an entry or exit point within region is classified as a gateway city. Moreover, cities that have an airport or a seaport are also usually termed as International Gateways as they open horizons to virtually all corners of the world. Equally important are the regional gateways that provide connectivity to multiple cities with a region and with the neighbouring regions. It is necessary to identify Regional and International gateways of Punjab that will provide unimpeded connectivity to national and international market. Table 7.6 enlists International and Regional gateways of Punjab. These categories are based on the level of connectivity that a particular city provides.

**Table 7.6: Gateways for regional and international connectivity**

| Sr. No. | City | Population | Existing Gateway | Prospective Gateways |
|---|---|---|---|---|
| 1 | Lahore | 8,468,553 | International | International |
| 2 | Faisalabad | 3,132,345 | International | International |
| 3 | Multan | 2,245,453 | International | International |
| 4 | Rawalpindi | 2,213,999 | International | International |
| 5 | Sialkot | 901,842 | International | International |
| 6 | Bahawalpur | 568,599 | Regional | International |
| 7 | RY Khan | 402,314 | Regional | International |
| 8 | DG Khan | 349,075 | Regional | International |
| 9 | Jhelum | 185,894 | Regional | Regional |
| 10 | Mianwali | 178,892 | Regional | Regional |
| 11 | Attock | 134,884 | Regional | Regional |
| 12 | Bhakkar | 115,729 | Regional | Regional |
| 13 | Layyah | 144,984 | - | Regional |
| 14 | Rajanpur | 50,708 | - | Regional |

### International gateways

International gateways of Punjab include the cities having international air flight and border crossing. The importance of international gateways both as key economic driver and for transporting passengers and freight cannot be overlooked because Punjab is a landlocked province. Presently, there are eight (8) commercial airports in Punjab; out of which five (5) airports have both domestic and international operations providing vital regional and international connectivity to the indigenous industry (see Table 7.6). Hence it is important to ensure that the provincial road and rail network link these airports with neighbouring cities and towns; this supporting growth and facilitating in achievement of wider economic benefits such as more employment in direct and spin off industries.

With the expected level of growth anticipated in earlier chapters of this strategy document, new routes, markets and opportunities will become accessible. It will have a positive impact on the Province's economy in terms of job creation and access to other key destinations.

In addition to above, Punjab shares international border with India in East which poses a huge opportunity for the province. Despite tensions between the two countries, goods are traded at border over the years. Presently, trade between the two countries is marginal as compared to global trade made by both; however, the potential available cannot be ignored[7]. Global peace examples reveal that neighbouring countries who remained at war eventually had to accord peace arrangements and settle for greater economic benefits. The same may happen for Pakistan and India. Propitiously, infrastructure do exist for such scenario that support the movement of people and goods via three major means i.e., road, rail and air transport. Road and Rail are also key to freight movement between the two nations. Assuming that the political situation between the two nations will improve, it is expected that the trade between the two will rapidly increase as the two countries are largest economies of the region. Under such conditions, new freight handling and transporting venues apart from Wagha Border facilitating cross border trade will need to be established. Bahawalpur shall serve as an international gateway in such scenario; consequently, the road and rail network in that region need to have ample capacity. Likewise, Central and Western alignment of CPEC will have a major impact on DG Khan and Rahim Yar Khan. These cities have international airport and shall serve as International Gateway.

### Regional gateways

Punjab is connected to the other provinces of Pakistan through a network of motorways, national highways and rail links. Major cities along the provincial border acts as regional gateways to Punjab. Existing regional hubs include the cities having a sizeable population that falls directly on or in the vicinity of a national highway, motorway or operational rail link and termed as regional gateway. In addition, cities with airports making domestic flight operations are also included within the list of regional gateways. Seven cities are currently identified as regional gateways as shown in Table 7.6. Prospective regional gateways are based on the growth of cities, major ongoing infrastructure projects and infrastructure based on the vision of PSS 2047.

Importantly, in province, not all the existing regional gateways are performing up to the par. For instance, Rahim Yar Khan is located on the main national transport link N5 and is arguably the major gateway of Punjab from where most of the freight transport passes yet it could not transform into regional freight hub. Reason for this non-transformation is lack of development of freight terminal in/ around the city; thus making it less attractive for the freight service providers. Likewise, Mianwali and Bhakkar located on the West of Punjab provide road connections to the Khyber Pakhtunkhwa province of Pakistan. Both these cities lack proper connections to the

[7]http://www.sbp.org.pk/publications/pak-india-trade/Chap_2.pdf

Eastern parts of the province. Not only the road density in this region is relatively low but also the quality of the roads providing access to these cities is sub-standard.

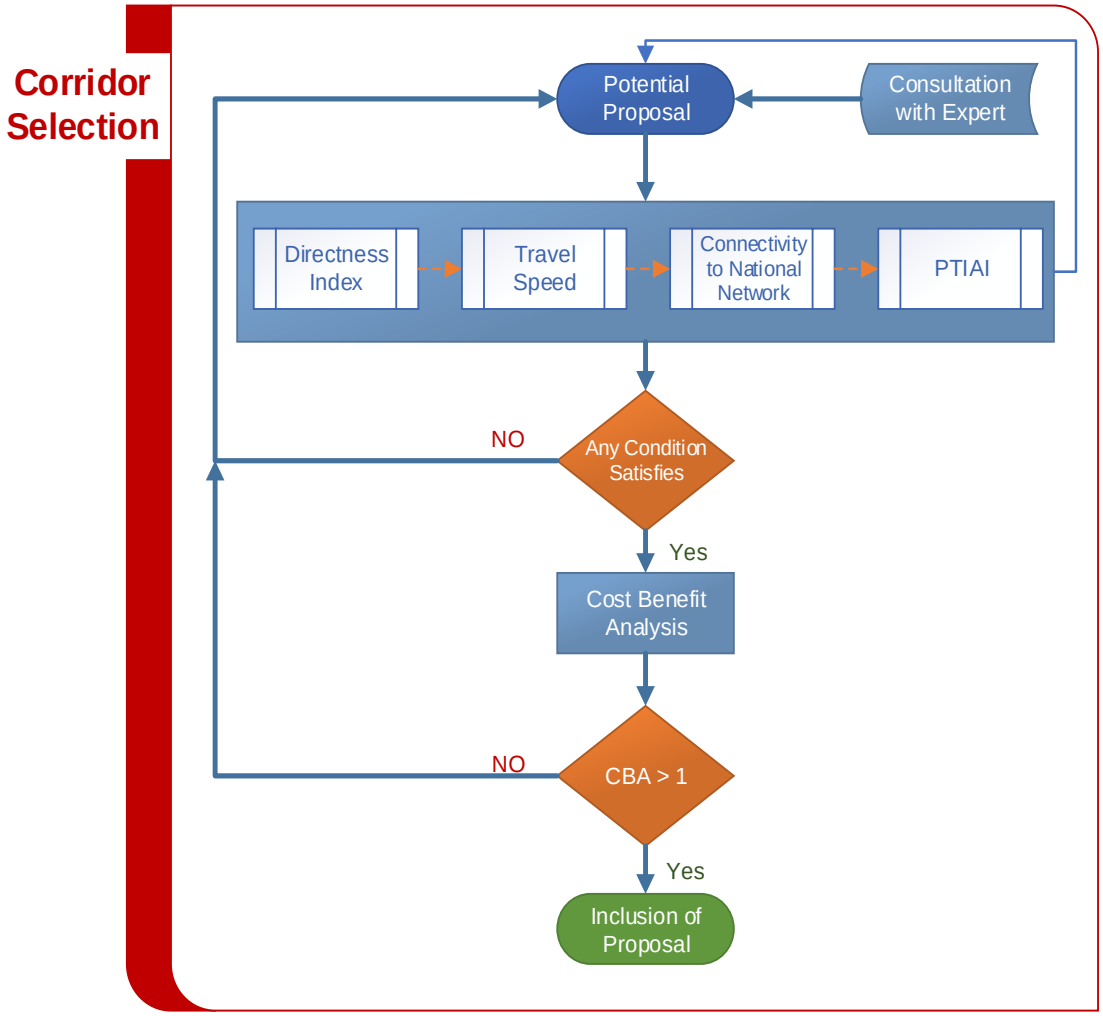
Moreover, upcoming interventions of CPEC, discussed earlier, will also make Punjab a major hub for transhipment of goods to and from China. Increased freight movement will directly impact the regional gateways and is expected to uplift these cities due to improved economic activities. The existing as well as prospective gateways will be key to access national and international markets.

### 7.3.2 Identification of Road Connectivity Corridors

A well versed and comprehensive solution is laid out for the road network of the Punjab that will cater the present and future transport needs of the province. All the interventions are made considering the on-going projects, CPEC and future plans of the National Highway Authority tasked with the development of the national road network. In addition, areas with potential economic growth highlighted in the economy and settlement section of the report are also considered prior to identification of proposed road corridors. The prime aim is to maximise the utility and productivity of the provincial network by ensuring and upgrading high speed connectivity to the areas which do not have direct access to the provincial network.

Adopted methodology, shown in Figure 7.24, is devised to identify the missing links or links with poor mobility and reliability that can help obtain the highest rate of return both in economically and socially. Identification of links is based on the analysis of directness index, travel speed, connectivity to CPEC and motorways of Pakistan, public transport infrastructure accessibility index (PTIAI), and consultation with experts. Each identified link was then subjected to a detailed cost benefit analysis to ensure that the project is financially sound.

**Figure 7.24: Methodology for identification and selection of proposed road corridors**




#### Selected corridors

A total of 26 corridors spanning 3,480 km have been identified after an iterative selection process. These identified corridors have been grouped into 6 categories based on the connectivity direction and purpose it fulfils. These six categories along with respective nomenclature include;

i. Linkages to CPEC denoted by prefix “C”
ii. Linkages to KLM denoted by prefix “K”
iii. North-South Linkages denoted by prefix “N”
iv. Regional Linkages denoted by prefix “R”

v. International Linkages denoted by prefix "I".
vi. Potohar Region Linkages denoted by Prefix "P".

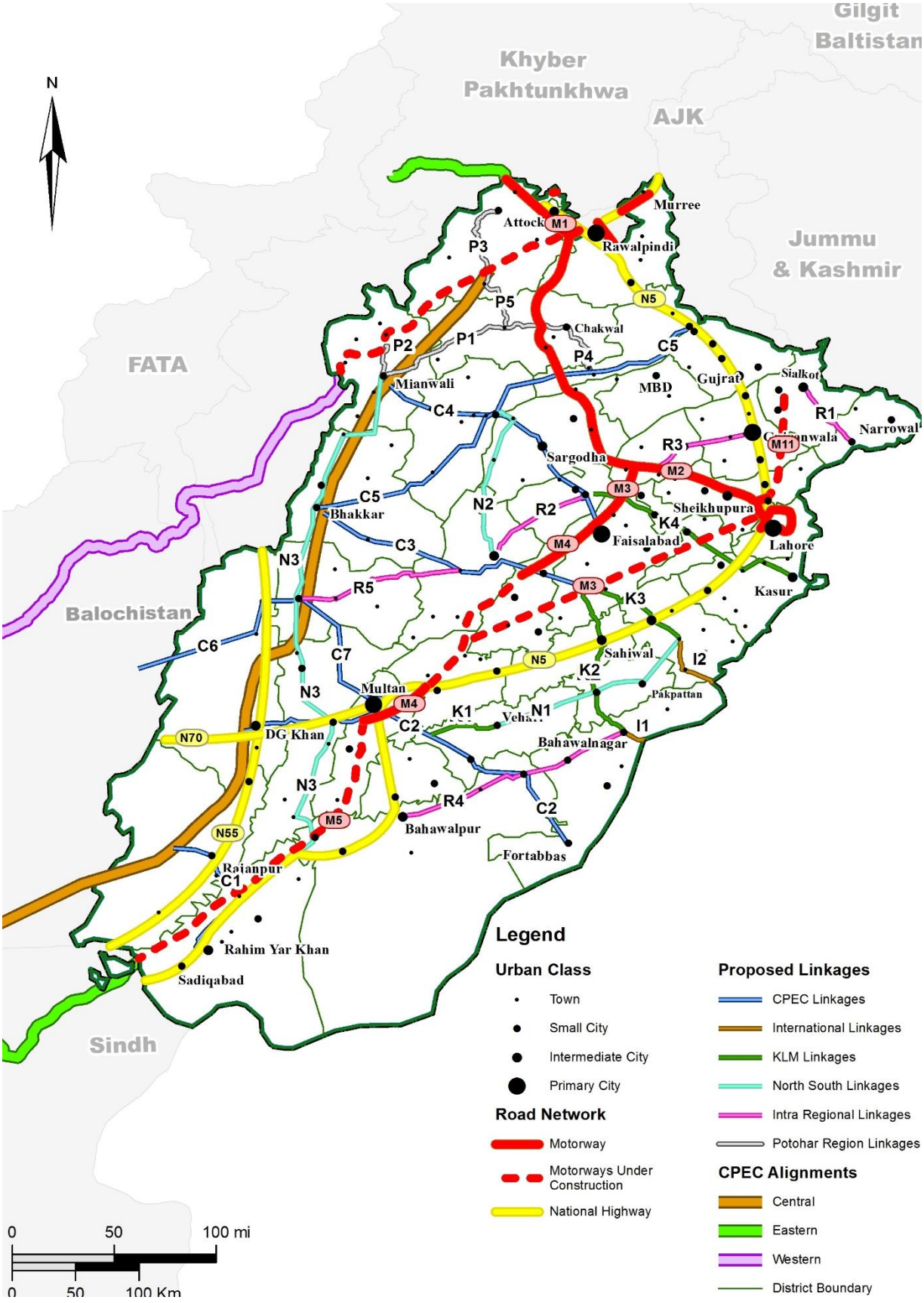
List of the selected corridors is given in Table 7.7 and their alignments are depicted in Figure 7.25.

These identified links are proposed to be constructed as a new four (4) lane dual carriageway road either as a new road or by widening and dualization of the existing road. However, keeping in view, the existing road network of Punjab, the proposed links majorly involve widening and rehabilitation work rather than new construction. In most cases, low speed deteriorated secondary roads and single carriageway highways connecting major settlements are proposed to be upgraded. Also, some sections of the identified links require new constructions to avoid any significant detour. Around 2,763 km of existing road network is proposed to be widened whereas 273 km of roads is to be newly constructed.

**Table 7.7: Length of proposed road corridors**

| Sr No | Corridor ID | Linkage | Length (KM) |
|---|---|---|---|
| 1 | C1 | RYK to CPEC (Central) via Rajanpur (U/C by NHA) | 128 |
| 2 | C2 | Fort Abbas to CPEC (Central) via Multan. Muzaffargarh & D.G khan | 281 |
| 3 | C3 | Samundari to CPEC (Central) via Jhang | 208 |
| 4 | C4 | Faisalabad to CPEC (Central) via Chiniot, Sargodha & Khusab | 197 |
| 5 | C5 | Jhelum to Bhakar via Khushab and Pind Daddan Khan | 325 |
| 6 | C6 | Layyah to N70 Balochistan | 139 |
| 7 | C7 | Layyah to Multan | 117 |
| 8 | K1 | Vehari to Tiba Sultanpur | 48 |
| 9 | K2 | Bahawalnagar to KLM via Arfifwala & Sahiwal | 136 |
| 10 | K3 | Deepalpur to KLM via Okara | 79 |
| 11 | K4 | Kasur to Chiniot via Nankana | 165 |
| 12 | N1 | Deepalpur to Vehari via Arifwala & Borewala | 150 |
| 13 | N2 | Khushab to Jhang via Sahiwal (Sargodha) | 126 |
| 14 | N3 | Taranda to Mianwali via Muzafargarh, Layyah & Bhakkar | 453 |
| 15 | R1 | Narowal to Sialkot | 55.5 |
| 16 | R2 | Jhang to Chiniot | 73.3 |
| 17 | R3 | Gujranwala to M2 via Hafizabad | 94 |
| 18 | R4 | Bahawalnagar to Bahawalpur | 164.4 |
| 19 | R5 | Layyah to Jhang | 118.7 |
| 20 | I1 | Bahawalnagar to Border | 15 |
| 21 | I2 | Deepalpur to Border | 49 |
| 22 | P1 | Mianwali to Chakwal | 147 |
| 23 | P2 | Mianwali to CPEC Western | 27 |
| 24 | P3 | Attock to CPEC Western | 72 |
| 25 | P4 | Pind Dadan Khan to Chakwal | 54 |
| 26 | P5 | Talagang to CPEC via Pindi Gheb | 58 |
| | | **Grand Total** | **3,480** |

**Figure 7.25: Proposed road corridors for an integrated road network for Punjab**



## Linkages to CPEC

Linkages to CPEC connect the major settlements of Punjab with CPEC corridors. These linkages will provide settlements on East and West sides of Punjab a direct and fast access to CPEC; thus, allowing them to have access and to move to other regions easily. These proposed linkages can be regarded as East-West linkages enhancing East-West connectivity within the Punjab. Seven corridors having collective length of 1,395 km have been proposed as linkages to CPEC. These linkages include 211 km of new roads and expansion of four major bridges. These corridors primarily run East to West providing connectivity to the population/ regions that are not served directly by the CPEC and Motorway corridors. Details of corridors is given in Table 7.8

.

**Table 7.8: Detail of linkages to CPEC**

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| C1 | 128 | Bahadarpur Rd | 8 | 2-Lane Single Carriageway | Widening |
| | | N-5 | 52 | Dual Carriage Way | Unchanged |
| | | Chachran Sharif to Kot Mithan Road | 24 | 2-Lane Single Carriageway | Widening |
| | | Rajanpur Kotmitha | 14 | Single Lane | Widening |
| | | local road | 15 | Single Lane | Widening |
| | | New Road | 15 | New Road | New Dual Road |
| C2 | 281 | New Road | 39 | New Road | New Dual Road |
| | | Hasilpur-Chunanwala Rd | 13 | 2-Lane Single Carriageway | Widening |
| | | New Road | 13 | New Road | New Dual Road |
| | | Hasilpur Road | 6 | Dual Carriageway | Unchanged |
| | | New Road | 9 | New Road | New Dual Road |
| | | Mailsi Road | 23 | 2-Lane Single Carriageway | Widening |
| | | Multan Road | 34 | 2-Lane Single Carriageway | Widening |
| | | Multan-Vehari Road | 39 | 2-Lane Single Carriageway | Widening |
| | | N-5 | 5 | Dual Carriageway | Unchanged |
| | | Multan Southern-Bypass Road | 17 | Dual Carriageway | Unchanged |
| | | N-70 | 83 | Dual Carriageway | Unchanged |
| C3 | 208 | Bye Pass to samundri existing | 6 | 2-Lane Single Carriageway | Widening |
| | | Bye Pass to samundri New | 5 | New Road | New Dual Road |
| | | Jhang Gojra Road | 32 | 2-Lane Single Carriageway | Widening |
| | | Gojra Samundari Road | 22 | 2-Lane Single Carriageway | Widening |
| | | Jhang Bypass | 14 | 2-Lane Single Carriageway | Widening |
| | | Jhang Road | 8 | 2-Lane Single Carriageway | Widening |
| | | Jhang Bhakkar Road | 121 | 2-Lane Single Carriageway | Widening |
| C4 | 197 | Sargodha Faisalabad Road | 73 | 2-Lane Single Carriageway | Widening |
| | | Sargodha Khushab | 42 | 2-Lane Single Carriageway | Widening |
| | | Joharabad Road | 10 | Dual Carriageway | Unchanged |
| | | Khushab-Mianwali | 72 | 2-Lane Single Carriageway | Widening |
| C5 | 325 | Jehlum to Pind Daddan Khan Road | 80 | 2-Lane Single Carriageway | Widening |
| | | New Road to Bypass Pind Daddan Khan | 1 | New Road | New Dual Road |
| | | Pind Daddan Khan to Khushab Road | 81 | 2-Lane Single Carriageway | Widening |
| | | Qaidabad Road | 8 | Dual Carriageway | Unchanged |
| | | Muzafargarh Road | 25 | 2-Lane Single Carriageway | Widening |
| | | Adhi kot Road | 10 | 2-Lane Single Carriageway | Widening |
| | | Rooda Noorpur Thal Road | 28 | 2-Lane Single Carriageway | Widening |
| | | Noorpur Thal bypass | 2 | 2-Lane Single Carriageway | Widening |
| | | Noorpur thal road | 30 | 2-Lane Single Carriageway | Widening |
| | | Goharwala Kapahi Road | 11 | 1-Lane Single Carriageway | Widening |
| | | Khansar Goharwala road | 25 | 1-Lane Single Carriageway | Widening |
| | | Bhakkar Khansar Road | 24 | 2-Lane Single Carriageway | Widening |
| C6 | 139 | New road from N70 to N55 | 75 | Proposed road | New Dual Road |
| | | Mangrotha road | 10.8 | 1-Lane Single Carriageway | Widening |

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| | | N55 | 29 | 2-Lane Single Carriageway | Widening |
| | | New Road | 20 | Proposed road | New Dual Road |
| | | Athara hazari road | 4.3 | 1-Lane Single Carriageway | Widening |
| | | New Road | 34 | New Road | New Dual Road |
| C7 | 117 | Mianwali-Muzafargarh road | 45 | 2-Lane Single Carriageway | Widening |
| | | Taunsa Canal to Multan Bypass | 38 | 2-Lane Single Carriageway | Widening |
| | | **Total** | **1,395** | | |

### Linkages to Karachi Lahore motorway

Karachi Lahore Motorway (KLM) is an under construction 6-lane divided, access-controlled motorway running from North to South in Punjab. KLM will connect Lahore with Peshawar Karachi Motorway network at Abdul Hakeem. The motorway is expected to be completed by end of 2018. KLM Linkages are proposed to connect settlements along the Eastern side of province such as Kasur, Bahawalnagar, Arifwala, Deepalpur and Vehari with the KLM. Most of the settlements have access to Lahore and Multan through provincial highways; however, keeping in view the travel demand, high speed connections are proposed to ease the already congested network. Four (4) corridors are proposed spanning 428 km. These corridors involve expansion of three major bridges and include 32 km of new road. Details of the corridor are given in Table 7.9.

**Table 7.9: Detail of Karachi Lahore motorway linkages**

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| K1 | 48 | Multan to Vehari Road | 48 | 2-Lane Single Carriageway | Widening |
| | | Bahawalnagar to Arifwala Road | 42 | 23 Km Dual Carriageway | Under Construction |
| | | Arifwala to Sahiwal Road | 42 | Dual Carriageway | Unchanged |
| | | N 5 | 6 | Dual Carriageway | Unchanged |
| K2 | 136 | Sahiwal Bypass | 6 | 2-Lane Single Carriageway | Widening |
| | | Naiki Midhall Road | 15 | 2-Lane Single Carriageway | Widening |
| | | Garh Road Rehme Shah | 22 | 2-Lane Single Carriageway | Widening |
| | | Kanjwari-Samundri Road | 3 | 2-Lane Single Carriageway | Widening |
| K3 | 79 | Depalpur to Okara Road | 26 | 2-Lane Single Carriageway | Widening |
| | | Okara to Samundari | 53 | 2-Lane Single Carriageway | Widening |
| | | Kasur to Raiwind Road | 25 | 2-Lane Single Carriageway | Widening |
| | | Raiwind to Patoki Road | 13 | 2-Lane Single Carriageway | Widening |
| | | New Road | 32 | New Road | New Dual Road (bridge on Ravi) |
| | | Nankana Saib Road | 10 | 2-Lane Single Carriageway | Widening |
| | | Mangtanwala Road | 7 | Dual Carriageway U/C | Unchanged |
| K4 | 165 | Nankana Sahib Bypass | 4 | 2-Lane Single Carriageway | Widening |
| | | Nankana Sahid to Shahkot Road | 24 | 2-Lane Single Carriageway | Widening |
| | | Shahkot Bypass | 4 | 2-Lane Single Carriageway | Widening |
| | | Shahkot to Salarwala Road | 20 | 2-Lane Single Carriageway | Widening |
| | | Salarwala to Kamalpur | 5 | 2-Lane Single Carriageway | Widening |
| | | Kamalpur to Chiniot Road | 21 | 2-Lane Single Carriageway | Widening |
| | | **Total** | **428** | | |

### North-south linkages

Although, the National Highways and Motorways run North to South in Punjab; however, three (3) new North-South corridors are proposed for the settlements that are located away from the national network. The proposed corridors are 729 km long and includes only the widening and rehabilitation of existing road network. Details of the these corridors is given in Table 7.10

### Regional linkages

Five (5) regional linkages are proposed To meet transport needs of emerging cities, which will not only improve the accessibility of the relevant cities but also complements pre-mentioned proposed links creating a grid of high-speed road connections. The five corridors proposed in this category span 506 km with a patch of 28 km of new road. Details of these corridors is given in Table 7.11

**Table 7.10: Detail of north-south linkages**

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| N1 | 150 | Deepalpur to Pakpattan | 41 | 2-Lane Single Carriageway | Widening |
| | | deepalpur road | 5 | Dual Carriageway | Unchanged |
| | | Pakpattan to Arifwala Road | 31 | 2-Lane Single Carriageway | Widening |
| | | Arifwala to Burewala Road | 42 | 2-Lane Single Carriageway | Widening |
| | | Burewala to Vehari Road | 31 | 2-Lane Single Carriageway | Widening |
| N2 | 119 | Khushab to Sahiwal (Sgd) Road | 49 | 2-Lane Single Carriageway | Widening |
| | | Sahiwal (Sgd) to Jhang Road | 77 | 2-Lane Single Carriageway | Widening |
| N3 | 453 | Jalalpur pirwala to Uch sharif Hwy | 19 | 2-Lane Single Carriageway | Widening |
| | | Alipur to Uch sharif Road | 27 | 2-Lane Single Carriageway | Widening |
| | | Alipur road | 82 | 2-Lane Single Carriageway | Widening |
| | | Mehmood Kot Road | 7.6 | 2-Lane Single Carriageway | Widening |
| | | Muzafargarh_kot Addu road | 28 | 2-Lane Single Carriageway | Widening |
| | | Kot Addu to Layyah Road | 65 | 2-Lane Single Carriageway | Widening |
| | | Karor to Layyah road | 29 | 2-Lane Single Carriageway | Widening |
| | | Karor Bhakkar road | 48 | 2-Lane Single Carriageway | Widening |
| | | Darya Khan road | 10 | 2-Lane Single Carriageway | Widening |
| | | Darya khan to kallur kot road | 76 | 2-Lane Single Carriageway | Widening |
| | | Mianwali to Muzafargarh road | 47 | 2-Lane Single Carriageway | Widening |
| | | Sargodha to Mianwali road | 6 | Dual Carriageway | Unchanged |
| | | **Total** | **729** | | |

**Table 7.11: Detail of regional linkages**

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| **R1** | 55.5 | Pasrur road | 3.5 | Dual Carriageway | Unchanged |
| | | Pasrur road | 44 | 2-Lane Single Carriageway | Widening |
| | | Narowal road | 8 | 2-Lane Single Carriageway | Widening |
| **R2** | 73.3 | Jhang Chiniot road | 71 | 2-Lane Single Carriageway | Widening |
| | | Jhang Chiniot road | 2.3 | Dual Carriageway | Unchanged |
| **R3** | 94 | Gujranwala to Hafizabad road | 7 | Dual Carriageway | Unchanged |
| | | Gujranwala to Hafizabad road | 36 | 2-Lane Single Carriageway | Widening |
| | | Hafizabad Bypass | 1.7 | Dual Carriageway | Unchanged |
| | | Jalalpur Bhattian Road | 29 | 2-Lane Single Carriageway | Widening |
| | | Jalalpur Bhattian Road | 3 | Dual Carriageway | Unchanged |
| | | Wazirabad Road | 15 | 2-Lane Single Carriageway | Widening |
| **R4** | 164.4 | Bhawalnagar to Chishtian Road | 37 | 2-Lane Single Carriageway | Widening |
| | | Bhawalnagar to Chishtian Road | 4 | Dual Carriageway | Unchanged |
| | | Bhawalnagar to Bahawalpur | 2.4 | Dual Carriageway | Unchanged |
| | | Bhawalnagar to Bahawalpur | 29 | 2-Lane Single Carriageway | Widening |
| | | Hasilpur road | 92 | Dual Carriageway | Unchanged |
| **R5** | 118.7 | Gujranwala to Hafizabad road | 5.1 | Dual Carriageway | Unchanged |
| | | Gujranwala to Hafizabad road | 20.3 | 2-Lane Single Carriageway | Widening |
| | | Hafizabad Bypass | 28 | Proposed road | New Dual Road |
| | | Jalalpur Bhattian Road | 7.3 | 1-Lane Single Carriageway | Widening |
| | | Jalalpur Bhattian Road | 58 | 1-Lane Single Carriageway | Widening |
| | | **Total** | **506** | | |

### International linkages

Punjab, being a land lock province, shares international border with India along its entire Eastern side. Trade between both Pakistani and Indian Punjab remains marginal compared to

global trade of the two countries [8]. Most of the trade is done by road transport through Wagha Border Lahore. However, in the event of improved relations it is expected that the trade between the two sides will rapidly increase as both countries i.e., India and Pakistan are largest economies of the region. In such a scenario, the road network needs to have enough connectivity and capacity. Currently, only Lahore and Kasur are connected to India with a dual road. So, keeping the future demand in mind, two (2) additional cross border linkages are proposed. Alignment detail of these links is mentioned in Table 7.12

[8]http://www.sbp.org.pk/publications/pak-india-trade/Chap_2.pdf

**Table 7.12: Detail of international linkages**

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| I1 | 15 | Bahawalnagar - Fateh Kot Road | 13 | 2-Lane Single Carriageway | Widening |
| | | New Road | 2 | New Road | New Dual Road |
| I2 | 49 | Deepalpur to Wasawewala Road | 24 | 2-Lane Single Carriageway | Widening |
| | | Wasawewala to Havali Lakha | 4 | 2-Lane Single Carriageway | Widening |
| | | Haveli Lakha to Border | 21 | 2-Lane Single Carriageway | Widening |
| | | **Total** | **64** | | |

### Potohar region linkages

Alignment detail of these links is mentioned in Table 7.13. these links are proposed to enhance the connectivity of the Pothar region that will serve as key with respect to CPEC corridors integration within overall proposed road network in Punjab.

**Table 7.13: Detail of Potohar region linkages**

| ID | Length (km) | Segments | Section Length | Existing Road | Proposed |
|---|---|---|---|---|---|
| P1 | 147 | Mianwali to Musa Khel Rd | 20 | 3 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | Musa khel Talagang Rd | 77 | 3 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | Talagang Rd | 7 | Dual Carriageway | Unchanged |
| | | Talagang to Chakwal Rd | 37 | 3 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | Chakwal Rd | 6 | Dual Carriageway | Unchanged |
| P2 | 27 | Mianwali to Kalabagh Rd | 27 | 2 Lane Single Carriageway | Widening to 4 Lane Dual |
| P3 | 72 | Attock to Talagang Rd | 72 | 2 Lane Single Carriageway | Widening to 4 Lane Dual |
| P4 | 54 | Khewra Rd | 12 | 3 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | Mountaneous Section (Khewra Rd) | 10 | 3 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | Chakwal Rd | 32 | 4 Lane Single Carriageway | Widening to 4 Lane Dual |
| P5 | 58 | Talagang Fatehjang to Islamabad Rd | 36 | 3 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | Pindi Gheb to Attock Rd | 22 | 2 Lane Single Carriageway | Widening to 4 Lane Dual |
| | | **Total** | **358** | | |

### Phasing

Proposed corridors are phased in three decades in correspondence to the phasing of urban and economic development laid out earlier in the document. Importantly, phasing is done to ensure that road infrastructure is constructed during the period when it is most required, most feasible and ripe maximum benefits for the province. This way neither there is loss of opportunity cost due to non-provision of a required link nor there is loss to economy by provision of a corridor earlier than required. Three phases are 2017 – 2027, 2027 – 2037 and 2037 – 2047. Phasing of the projects is done by considering following three parameters,

i. Completion of Major Projects
ii. Transformation of Cities
iii. Potential Growth Regions

Each proposed corridor is subjected to all three parameter to establish its phase of construction. All the corridors providing connection to the motorway and CPEC network are given priority; however, consideration is also made to adjoining cities growth. Similarly, an international gateway connection is given more preference over regional gateway. Proposed phasing is given in Table 7.14 and shown in Figure 7.26.

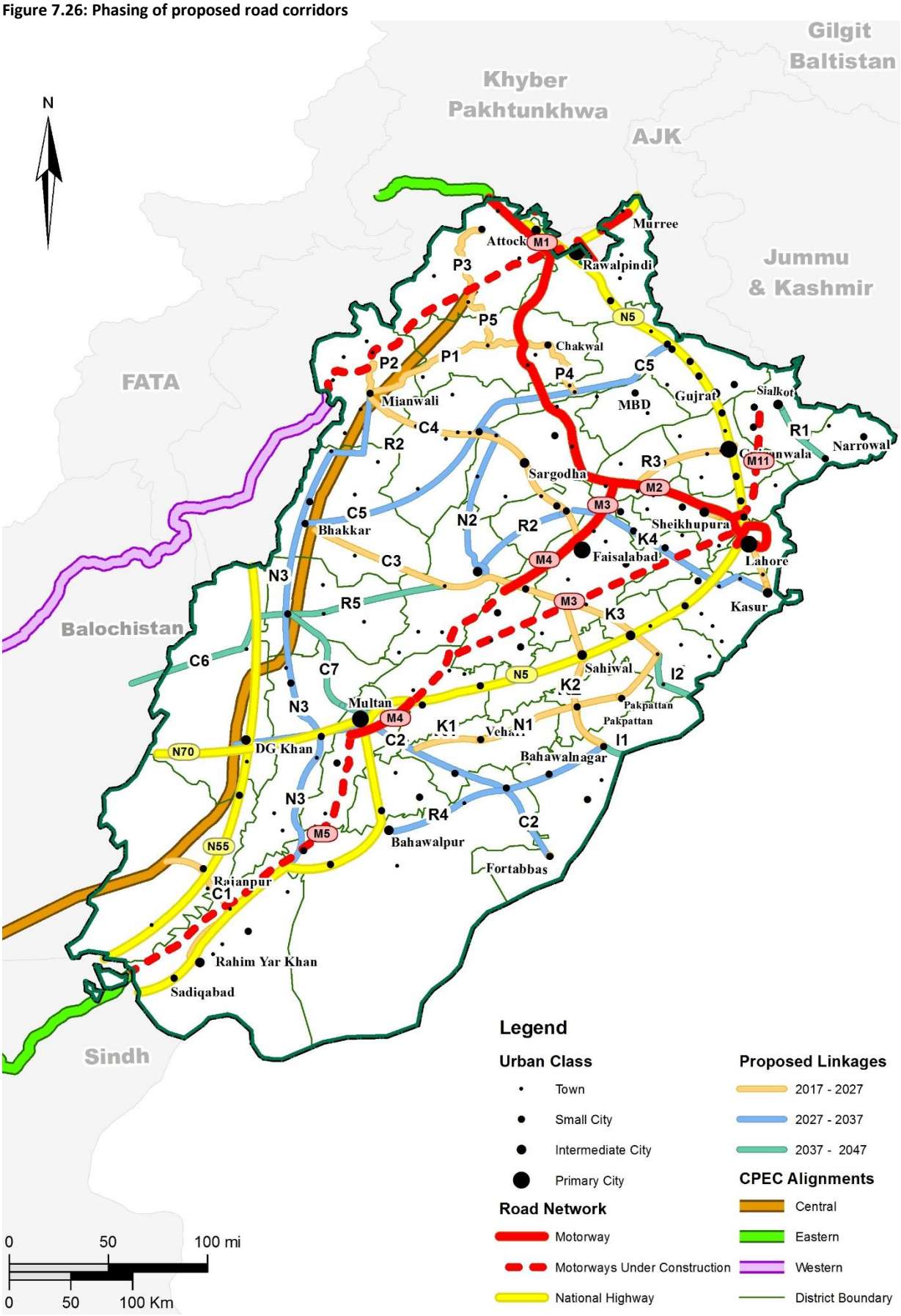
### Phase I (2017 – 2027)

In the priority phase 2017-2027, there are thirteen (13) corridors having a collective length of 1,398 km. Corridor C1 will provide link to CPEC central alignment which is yet to be started. Major portion of this corridor is already under construction by NHA; Moreover, the remaining section to the CPEC corridor is conditional with the construction of the CPEC central alignment. Corridors C3 and C4 are major connectivity corridors that will link East and West part of Punjab and will provide high speed links to major settlements of Sargodha, Mianwali, Bhakkar, Khushab and Jhang. Corridor C4 is already exceeding its capacity with volumes ranging around 18,000 PCU per day. Bhakkar is expected to become a regional hub by 2027; hence, corridor C3 will pave the economic growth of this region. Corridors K1, K2 and K3 also provides East to West connectivity by linking KLM with rest of Punjab. Corridor N1 will connect already existing (dual carriageway) highway network from Kasur to KLM link. Thus, providing a long distance North-South alternate link to N5 for the growing cities of Kasur, Arifwala, Burewala and Vehari. Lastly, Gujranwala is expected to become a major economic hub; hence increased economic activity will be complemented by a direct link from Gujranwala to M2 near M2-M3 interchange improving the connection to Faisalabad and CPEC corridor

**Table 7.14: Phasing detail of proposed corridors**

| Phase | ID | Linkage | Length (KM) |
|---|---|---|---|
| I 2017-2027 | C1 | RYK to CPEC (Central) via Rajanpur (U/C by NHA) | 128 |
| | C3 | Samundari to CPEC (Central) via Jhang | 208 |
| | C4 | Faisalabad to CPEC (Central) via Chiniot, Sargodha & Khusab | 197 |
| | K1 | Vehari to Tiba Sultanpur | 48 |
| | K2 | Bahawalnagar to KLM via Arfifwala & Sahiwal | 136 |
| | K3 | Depalpur to KLM via Okara | 79 |
| | N1 | Deepalpur to Vehari via Arifwala & Borewala | 150 |
| | R3 | Gujranwala to M2 via Hafizabad | 94 |
| | P1 | Mianwali to Chakwal | 147 |
| | P2 | Mianwali to CPEC Western | 27 |
| | P3 | Attock to CPEC Western | 72 |
| | P4 | Pind Dadan Khan to Chakwal | 54 |
| | P5 | Talagang to CPEC via Pindi Gheb | 58 |
| | | **Total** | **1,398** |
| II 2027-2037 | C2 | Fortabbas to CPEC (Central) via Multan. Muzaffargarh & D.G khan | 281 |
| | C5 | Jehlum to Bhakar via Khushab and Pind Daddan Khan | 325 |
| | K4 | Kasur to Chiniot via Nankana | 165 |
| | N2 | Khushab to Jhang via Sahiwal (Sgd) | 126 |
| | N3 | Taranda to mianwali via Muzafargarh, Layyah & Bhakkar | 453 |
| | R2 | Jhang to Chiniot | 73.3 |
| | R4 | Bhawalnagar to Bahawalpur | 164.4 |
| | | **Total** | **1,587.7** |
| III 2037-2047 | C6 | Layyah to N70 Balochistan | 139 |
| | C7 | Layyah to Multan | 117 |
| | I1 | Bhawalnagar to Border | 15 |
| | I2 | Deepalpur to Border | 49 |
| | R1 | Narrowal to Sialkot | 55.5 |
| | R5 | Layyah to Jhang | 118.7 |
| | | **Total** | **494** |

Figure 7.26: Phasing of proposed road corridors



### Phase II (2027 – 2037)

This phase includes seven (7) corridors spanning 1,588 km of roads. By end of Phase II, 84% of proposed corridors will be completed. Two East-West CPEC linkages i.e., C2 and C5 under this phase are vital for mitigating mobility needs of growing cities.

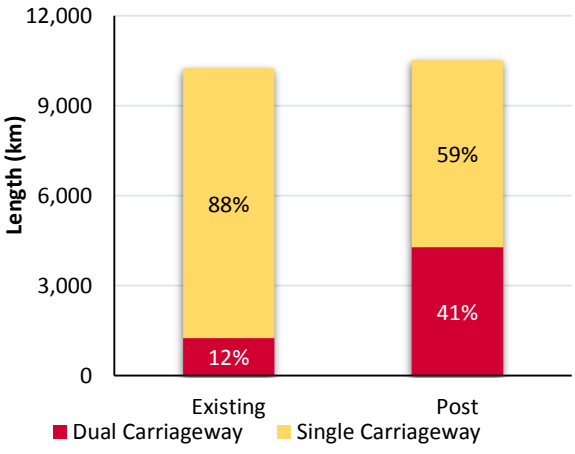
The other major corridor providing connectivity under this phase is K4 linking Kasur and Chiniot to KLM. Construction of this corridor will reduce the traffic load on Lahore for South Western movement from Kasur. Development of R4 is also phased in this tenure as Bahawalnagar and Hasilpur will also transform into regional hubs. During this phase, North-South link between Jhang and Khushab is also proposed as both cities are expected to grow. Link N3, as explained earlier is an alternate to CPEC central alignment and is proposed to be constructed, if the CPEC central alignment is not constructed by the Federal Government. In such scenario development of the corridor N3 in Phase II is critical to uplift the Western regions of the Punjab as Bhakkar is expected to grow by end of 2037.

### Phase III (2037 – 2047)

Phase III includes six (6) proposed corridors having a total length of 494 km. Corridor C6 is proposed in this term to further strengthen the connectivity between Punjab and Baluchistan as it is expected that by this time most of the trade will be done through Gwadar Port. Likewise, Layyah will have improved connectivity through R5 and C7; thus making it a major transit node within the provincial transport network. This phase also includes construction of two border connections I1 and I2 assuming that the trade with India will grow if peace is achieved by that time.

In total, 3,480 km of provincial highways will be constructed in three phases. Construction of these road will raise the share of dual carriageways provincial highways from 12% to 41%; thus ensuing availability of high speed road connections in the province (See Figure 7.27). Figure 7.28 depicts the transformation of single carriageway into dual carriage way. Nonetheless, construction of above mentioned corridors will help to transform the road infrastructure of Punjab and developed a robust road network in the province.

**Figure 7.27: Transformation of carriageways**




## 7.3.1. Rail Sector

The rail network in Punjab needs to complement other modes of transport especially road transport. Out of the four Main Railway Lines (ML's) of Pakistan, ML-1 (1687km) is passing through Punjab, connecting it with Karachi and Peshawar. This line is considered as the main line for passenger and freight transport in the province. Figure 7.12 shows the existing rail infrastructure of Punjab.

The existing rail network in Punjab is serving only long distance commuters. There is a need to re-define the role of rail within Punjab overall transport system in order to extract benefit from the existing railway network and reduce the traffic load from roads. Apart from revitalizing the existing freight rail services in the province, it will be more advantageous to have high speed intercity commuter rail transport service between major cities and its surrounding towns; thus allowing people to people and people to location connectivity.

### Commuter rail transport

High speed intercity commuter rail transport connects cities in fastest possible time. Under PSS, rail network is proposed to be upgraded to high speed rail for commuter rail service and efficient freight service. The network of commuter trains, will better serve the cities and its suburbs. Commuter trains will carry more people with much smaller land area and little air pollution in comparison with road transport. The speed selected for proposed commuter rail network is to be 100 km/h. Since railway is a federal subject and is regulated by a federal department; however, the provincial government may negotiate with federal government and adopt the de-regulated operational model followed in United Kingdom. Under this model, various rail companies like C2C, Virgin Railway share the same line owned by government and pay a certain amount for using the national track.

Nonetheless, various commuter rail networks are identified and proposed in each economic region based on the emerging cities by 2047 to give rail connectivity.

### East economic region

East economic region of Punjab includes Lahore and Gujranwala. Six rail links are proposed for this region in order to have better rail connectivity with nearby cities of Lahore which serves as international gateway in the region. Likewise Gujranwala to be a regional gateway city by 2047 will require high speed rail connections. Detail of each rail link is given in Table 7.15 below;

Figure 7.28: Provincial highways by carriageway type

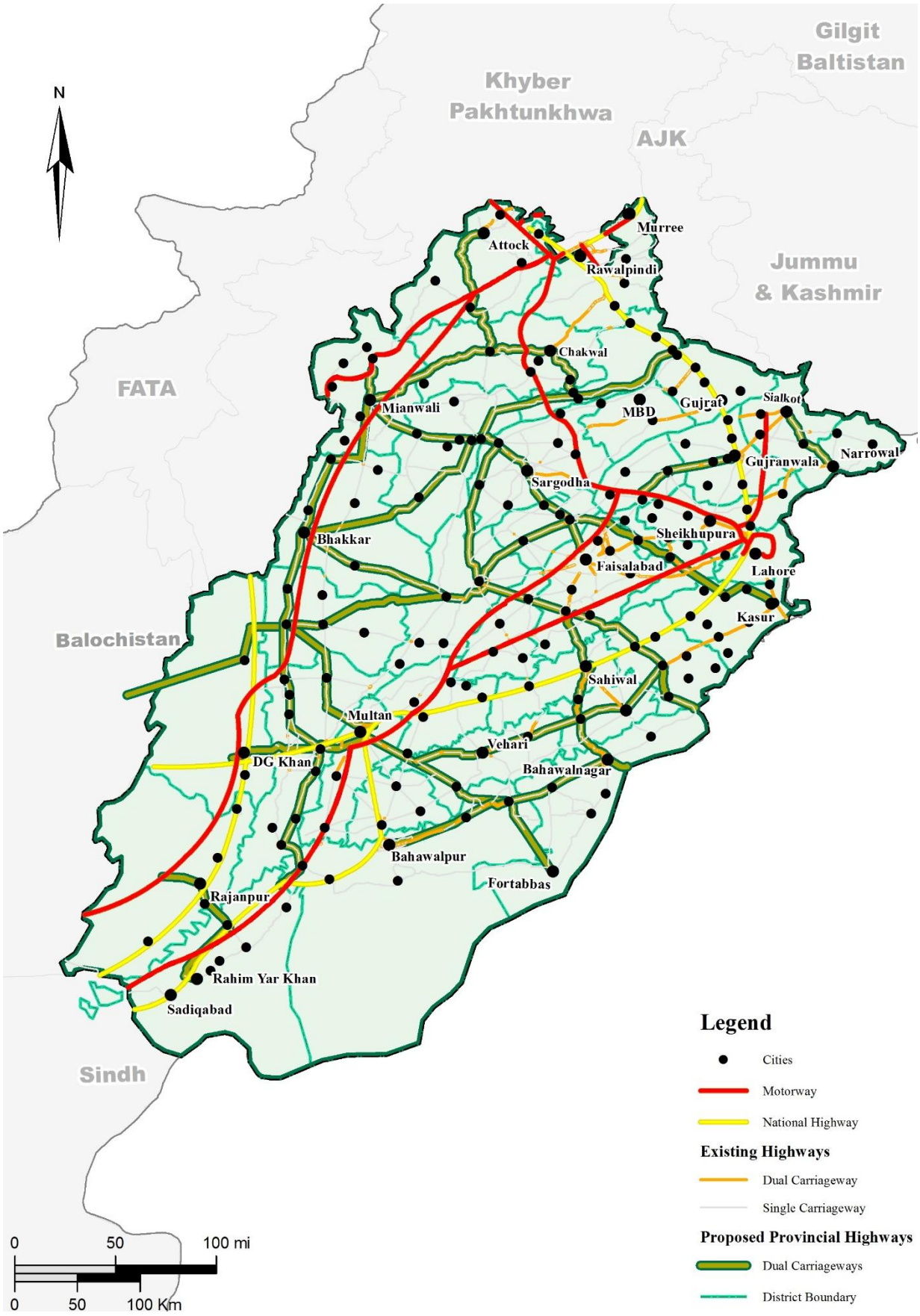


**Table 7.15: Proposed rail corridors for eastern economic region of Punjab**

| Rail Link | Cities | Section | Distance (km) | Speed (Km/hr) | Time (H:MM) | Remarks |
|---|---|---|---|---|---|---|
| E1 | Gujranwala Lahore | Complete | 70 | 100 | 0:42 | No Up gradation Required |
| E2 | Narowal Lahore | Complete | 90 | 100 | 0:54 | Up gradation Required |
| E3 | Sialkot-Wazirabad-Gujranwala | Sialkot Wazirabad | 42 | 100 | 0:25 | Up gradation Required |
| | | Wazirabad Gujranwala | 32 | 100 | 0:19 | No Up gradation Required |
| | | Complete | 74 | 100 | 0:44 | - |
| E4 | Kasur-Raiwand-Lahore | Kasur Raiwand | 29 | 100 | 0:17 | Up gradation Required |
| | | Raiwand Lahore | 44 | 100 | 0:26 | No Up gradation Required |
| | | Complete | 73 | 100 | 0:44 | - |
| E5 | Farooqabad-Sheikhupura-Lahore | Farooqabad-sheikhupura | 16 | 100 | 0:10 | Up gradation Required |
| | | Sheikhupura-Lahore | 40 | 100 | 0:24 | Up gradation Required |
| | | Complete | 56 | 100 | 0:34 | - |
| E6 | Hafizabad Gujranwala | Complete | 47 | 100 | 0:28 | New |

## North economic region

In Northern economic region, Rawalpindi is a large city and Taxila and Attock will be the regional hubs. In addition, Gujar khan will serve as a town. The proposed rail links will enhance the connectivity of cities in this region. Details of these rail links is mentioned in Table 7.16.

**Table 7.16: Proposed rail corridors for northern economic region of Punjab**

| Rail Link | Cities | Section | Distance (km) | Speed (Km/hr) | Time (H:MM) | Remarks |
|---|---|---|---|---|---|---|
| N1 | Attock- Rawalpindi | Attock - Taxila | 51 | 100 | 0:31 | No Up gradation Required |
| | | Taxila - Rawalpindi | 32 | 100 | 0:19 | No Up gradation Required |
| | | Complete | 83 | 100 | 0:50 | - |
| N2 | Gujar Khan - Rawalpindi | Complete | 50 | 100 | 0:30 | No Up gradation Required |

## Western economic region

Western economic region includes Faisalabad and Shorkot, Sangla Hill, Jaranwala, Jhang, Bhalwal and Chiniot. Seven high speed rail links are proposed within this region as shown in Table 7.17 below.

**Table 7.17: Proposed rail corridors for western economic region of Punjab**

| Rail Links | Cities | Section | Distance (km) | Speed (Km/hr) | Time (H:MM) | Remarks |
|---|---|---|---|---|---|---|
| W1 | Mianwali - Khushab - Sargodha | Complete | 135 | 100 | 1:24 | Up gradation Required |
| W2 | Faisalabad – Shorkot | Complete | 110 | 100 | 1:06 | Up gradation Required |
| W3 | Sargodha - Jhang - Shorkot | Complete | 150 | 100 | 1:30 | Up gradation Required |
| W4 | Sargodha - Faislabad | Complete | 109 | 100 | 2:11 | Up gradation Required |
| W5 | Jaranwala-Faisalabad | Complete | 34 | 100 | 0:20 | Up gradation Required |
| W6 | Sangla hill-Faisalabad | Complete | 47 | 100 | 0:28 | Up gradation Required |
| W7 | Bhalwal-Sargodha | Complete | 31 | 100 | 0:19 | Up gradation Required |

**Figure 7.29: Proposed rail lines for Punjab 2047**

### Southern economic region

Southern economic region is mostly dependent on agriculture for its economy. Multan is the major city of this region. To connect Multan to its nearby cities, with high speed rail system, two rail links are proposed. Details of proposed links is given in Table 7.18 below.

**Table 7.18: Proposed rail corridors for southern economic region of Punjab**

| Corridor | Corridor | Section | Distance (km) | Speed (Km/hr) | Time (H:MM) | Remarks |
|---|---|---|---|---|---|---|
| S1 | Shorkot –Khanewal - Multan | Complete | 110 | 100 | 1:06 | No Up gradation Required |
| S2 | Multan - Bahwalpur | Multan Shujabad | 39 | 100 | 0:23 | No Up gradation Required |
| | | Shujabad Bahwalpur | 67 | 100 | 0:40 | No Up gradation Required |
| | | Complete | 106 | 100 | 1:03 | - |

### Missing rail links

In addition to above, other rail links are also proposed which will improve and strengthen East-West connectivity via rail in the province. These links are mentioned in Table 7.19 below.

**Table 7.19: Proposed missing rail links**

| Rail Link | Cities | Distance (km) | Remarks |
|---|---|---|---|
| M1 | Khushab - Gujar Khan | 158 | New Line required |
| M2 | Faisalabad to Bahwalnagar | 193 | 2 New Bridge + New Line required |
| M3 | Kotla Jam to Shorkot | 180 | New Bridge + Line required |
| M4 | Dera Ghazi Khan to Multan | 93 | New Bridge + Line required |
| M5 | Rahim yar Khan to Rajanpur | 105 | New Bridge |

## 7.3.2. Inland Waterways

The network of inland waterways, in Punjab, is shown in Figure 7.18. As discussed earlier, rivers in Punjab have the potential for transportation of goods. Hence there is a need to develop sustainable inland water transport infrastructure in Punjab.

For the purpose of developing an integrated transport network, inland waterways to be used along with other modes especially in Western part of the province. For this purpose, a detailed study as earlier planned by defunct inland water transport development company needs to be completed and multi-modal freight terminals needs to be developed at Mianwali/ Dhadukhail.

## 7.3.3. Freight Transport

Punjab has an inefficient freight transport sector. It is because the existing road freight transport system needs to be integrated in real manner with the rail system for multi-modal operations; thus ensuring efficiency in freight delivery. Rail transport is advantageous over long hauls and road freight transport is competitive over short hauls. Development of multimodal freight transport system will provide all necessary infrastructure for freight transport, clearance and transfer at one place; thus making freight sector competitive. At present, there exists only one high speed road freight corridor in Punjab i.e., N5. In addition to inter-modal freight terminals provisions a network of high speed freight corridors is required allowing reduced travel times and faster delivery of good across the province.

### Freight corridors

Presently, the primary freight corridor which facilitates majority of existing freight operations is N-5 National Highway which extends from Karachi in Sindh and passes through Rahim Yar Khan, Bahawalpur, Multan, Sahiwal, Lahore, Gujranwala, Gujrat and Rawalpindi (Punjab) to Torkham, Khyber Pakhtunkhwa. Being the longest freight corridor, it provides North-South Connectivity and links major cities of Punjab. In addition to N-5 National Highway, freight transport is also made via partially completed motorway corridor consisting of M2, and M3 motorways. Beside these major corridors, there are provincial highways which are also used for freight delivery; however, majority of these highways are single carriage way and have lower notified speed as compared to motorways; thus resulting in delays in goods delivery and low efficiency in freight transportation.

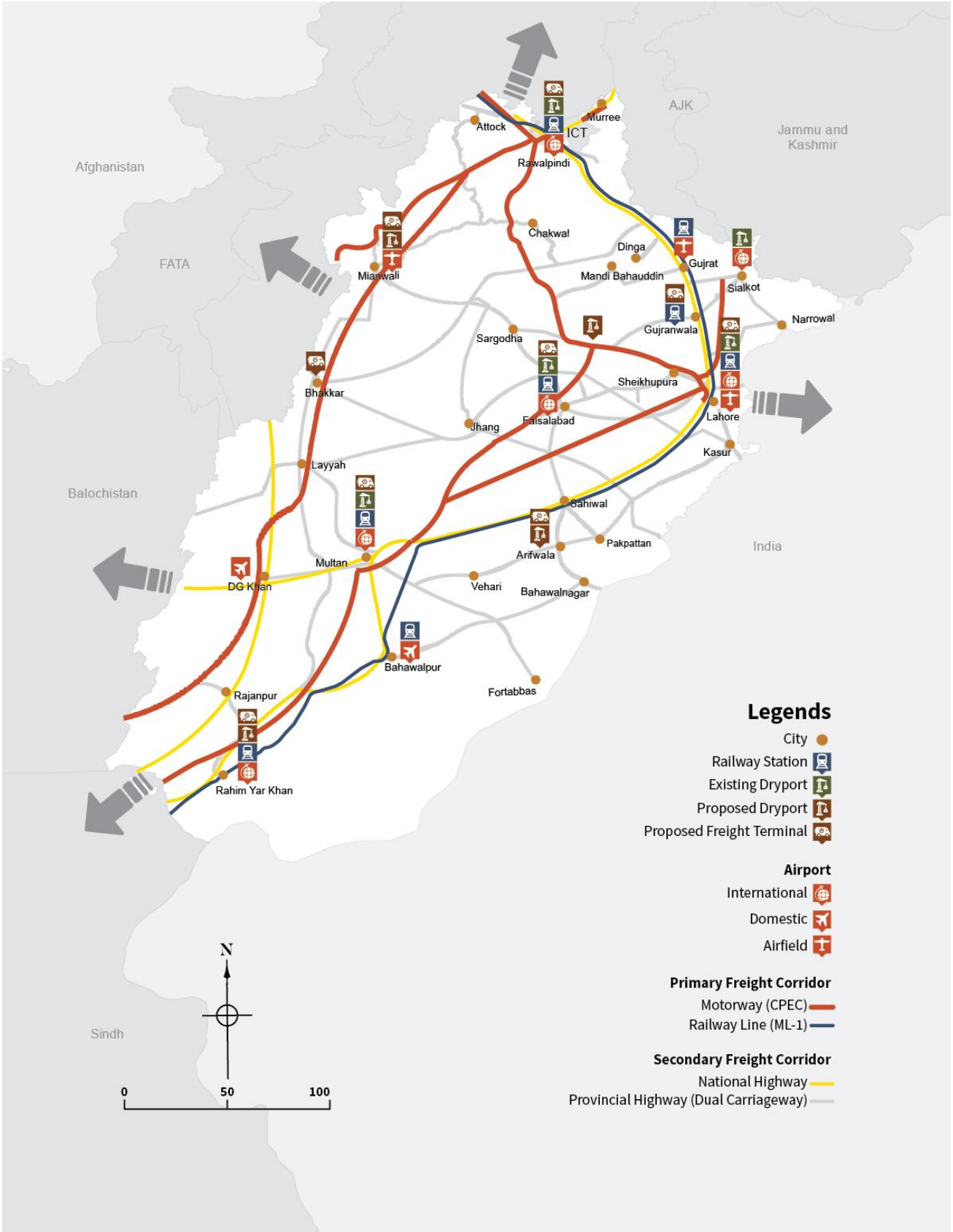
### Proposed freight corridors

All the identified road corridors will serve as freight corridors in the province along with CPEC routes. These freight corridors are further classified as primary and secondary freight corridors.

### Primary freight corridors

Primary corridors consists of strategic linking corridors i.e., Eastern, Western and Central alignment of CPEC and all motorways in the province. These corridors will be multiple lane dual carriage ways have controlled access; thus allowing maximum speed and congestion free passage to freight movement across the province. These corridors can be seen in Figure 7.30 and details of these corridors are as follows:

**Figure 7.30: Primary, secondary freight corridors, dry ports and freight terminals in Punjab**



### A. CPEC- Eastern alignment

CPEC Eastern corridor starts in Punjab from Burhan and exits in South at Sadiqabad. This corridor will allow unrestricted freight transport through Eastern parts of the province having high population density and concentration of industrial units. It is envisaged that this corridor will have major domestic freight load and will serve as key to optimizing the output and efficiency of the economic zones and industrial units located in Eastern Punjab.

### A. CPEC- Western alignment

Baluchistan, Khyber Pakhtunkhwa, and Gilgit Baltistan via Karakoram Highway. The Western corridor starts from Brahma Bahtar Interchange on the M1 Motorway near Burhan and Hasan Abdal in Northern Punjab. The Western CPEC alignment is almost complete and will be operational by 2019. Consequently, it serve as the first primary corridor in the Western areas of the Punjab. Furthermore, it terms of transnational connectivity, this corridor will be bearing most of the freight traffic as it the shortest route to Gwadar.

### B. CPEC- Central alignment

The central corridor of CPEC will pass through Rajanpur, Dera Ghazi Khan, Layyah, Bhakkar, Mianwali and Attock districts. Presently, this corridor is not in construction phase; however, once constructed it will ease freight transport and will link existing industrial unit in the central Punjab with a high speed corridor

### Secondary freight corridors

Secondary corridors consist of non-access controlled national and provincial highways located in the Punjab province. These are multiple lanes dual carriageway highways providing North to South and East to West connectivity. Notified commercial speed of secondary corridors is less than Primary Freight Corridors. Importantly, N5 National Highway which is currently serving as a primary corridor will be expected to be used as secondary corridor because of probable shift of freight from N5 to CPEC Eastern alignment. The secondary corridors are also shown in Figure 7.30

### Freight terminals and dry ports

Inter-modal Freight Terminals and dry ports are vital for the success of any freight transport system. All the improvements proposed in form of identified freight corridors will be of no use if not properly linked with purposely built inter-modal freight terminals and dry ports. These terminals along with dry ports will provide parking and rest area for the trucks and facilitate logistic operations such as road tax payments, fitness testing and certification, etc. Presently, in Punjab there is no inter-modal freight terminal where both container and bulk freight can be handled. Lack of inter-modal facility results in higher transport cost. Further, current freight delivery practices primarily due to location of existing dry ports allows trucks to enter small and intermediate cities during day hours and in large cities during night hours. The situation is chaotic for large cities where lack of freight handling facilities at dry ports and GFAs result in dumping of goods along and on road side. Often in areas of large cities where these dry ports and GFAs are located, it is impossible to pass during night time.

### Proposal for freight terminals and dry ports

Considering the bottle necks created by the freight vehicles within urban limits, poor service delivery due to obsolete freight handling practices, inter-modal freight terminals and dry ports are proposed under PSS. Freight terminals are proposed considering the location of industrial estates, transformation of cities, freight corridors and location of the existing industry. Likewise, Four (4) new dry ports at Mianwali, Rahim Yar Khan, Bhawalnagar and Pindi Bhattian are proposed to improve the logistics and freight delivery in province. These freight terminals and dry ports will be developed in parallel with the construction of proximate connectivity corridor in phases i.e. 2017-2027, 2027-2037 and 2037-2047. Location of proposed freight terminals and dry ports is shown in Figure 7.30 above.

A complete map of the proposed integrated multi-modal network of Punjab is shown in Figure 7.31.

**Figure 7.31: Integrated future connectivity portrait of Punjab, 2047**