



PUNJAB CITIES GROWTH ATLAS

1995-2015



THE URBAN UNIT
Urban Sector Planning & Management Services Unit (Pvt.) Ltd.
A Public Sector Company.





PUNJAB
CITIES
GROWTH
ATLAS
1995-2015

Acknowledgment

The preparation of the **Punjab Cities Growth Atlas** is a team effort of the Urban Unit. The continuous guidance and support of Mr. Faisal Fareed is highly appreciated. This **Atlas** would not have been possible without the contribution of GIS and Urban Planning teams; their dedication and responsibility are gratefully acknowledged. Special appreciations are for the communication team for their creative ideas.

The team acknowledges the UN-Habitat, Lincoln Institute of Land Policy and New York University's Marron Institute for sharing their globally tested methodology to measure the urban extents. We also appreciate the support of Oak Ridge National Laboratory, United States for providing the LandScan™ population data.

Disclaimer

Efforts have been made to ensure accuracy of the data. Population count and density data has been extracted from the best available resources, however, these should be read as indicative of magnitude rather than exact figures.

Concept and Final Review

Dr. Nasir Javed

Task Lead

Urooj Saeed

Urban Planning Team

Sana Riaz; Maryam Ibrahim, Uzair Faruqui & Mamoona Fakhar

GIS Analysis and Cartography Team

Imtiaz Younas, Iqra Khalid, Sahar Mirza, Khadija Nisar, M. Luqman & Rana Waqar Aslam

GIS Development Team

Ehsan Saqib; Adeel Khalil

Connectivity Team

Dr. Murtaza Bukhari; Zuhair Aslam

Design & Layout

Razia Liaqat; Muhammad Zubair

Published & Printed by

The Urban Unit, Planning & Development Department, Government of the Punjab

Copyrights @THE URBAN UNIT

All Rights Reserved. No part of this magazine may be reprinted or reused without permission.

ISBN: 978-969-9508-35-6

📍 503 - Shaheen Complex, Edgerton Road, Lahore

☎ 042 - 99205316 - 22

✉ uspmu@punjab.gov.pk



www.urbanunit.gov.pk



THE URBAN UNIT
Urban Sector Planning & Management Services Unit (Pvt.) Ltd.
A Public Sector Company.

Preface

The Punjab Cities Growth Atlas provides a unique perspective to our cities, as this is an attempt to spatially demarcate the urban extent of 194 cities in the province. This reflects functional boundaries of Punjab's cities in contrast with the administrative boundaries of local government system.

The world today focuses on population size to identify urban areas and to assess the level of urbanization; this *Atlas* presents another dimension to measure urbanization-the increase in the area of urban extent of cities. The cumulative urban area of Punjab's cities has expanded three times over a period of 20 years i.e. from 1995 to 2015 A.D. This expansion has predominantly occurred at the cost of dwindling population densities.

Irrespective of the disputed definition of urban areas for the purpose of Population Census, *Atlas* applies the use of urban extent to measure the area of cities and to count the population within, for each city. The result is a true reflection of the innovative and applied use of satellite and remote sensing technologies, computer algorithm coupled with knowledge of urban planning

Looking ahead, developing visions for the cities of tomorrow is becoming increasingly important at all levels as the world, South Asia and Pakistan confront rapid urbanization. *The Punjab Cities Growth Atlas* will provide guidance for policy makers, practitioners and citizens to move towards more sustainable urbanization with optimum urban densities.

About Punjab Cities Growth Atlas

As the world shifts towards evidence-based policy making and urban data science, it is crucial to know the geographic and demographic state of our cities.

Section 1

It provides an overview of all the 194 cities in Punjab. A visual representation of the location of cities and a detail including city names, respective districts and areas have been provided.

Section 2

This section focuses on Connectography, relating to connectivity and cartography. It is the visualization of complex transport networks and settlements. It presents multi-city linkages through motorways, national highways inter-city roads, railway lines and airports.

Section 3

This provides classifications, rankings and statistics for 50 cities of Punjab. It presents dynamic cities in terms of urban extents, area, expansion, urban population, population growth, land consumption, densities and economic regions.

Section 4

This section presents different elements of urban expansion and intra-city population for 50 cities of Punjab, in visual, graphical and tabular formats. The cities are organized in their respective districts to provide a geographic reference.

For each city, a unique map for urban extent in years 1995, 2005 and 2015 represents the magnitude of urban expansion for two decades and another set of maps portray evolution of intra-city densities as the city expands.

Table of Contents

2

Connectography

Cities Connectography	09
China-Pakistan Economic Corridor	10
Bahawalpur Division	11
Dera Ghazi Khan Division	12
Faisalabad Division	13
Gujranwala Division	14
Lahore Division	15
Multan Division	16
Rawalpindi Division	17
Sahiwal Division	18
Sargodha Division	19

3

Urban Expansion

50 Cities of Punjab

50 Cities of Punjab	21
Cities at Same Scale	22
Cities Area Classification	23
Urban Expansion Rankings	27
Cities Population Classification	34
Urban Population Growth Rankings	36
Urban Land Consumption	39
Total Population Density Composition	44
Population Area Correlation	45
Economic Regions of Punjab	46

1

194 Cities of Punjab

Cities of Punjab	03
Dasymetric Map of Punjab	06
Urban Area Distribution	07

4

Cities' Profile

1995-2005-2015

District Attock	55
District Bahawalnagar	57
District Bahawalpur	59
District Bhakkar	61
District Chakwal	63
District Chiniot	65
District Dera Ghazi Khan	67
District Faisalabad	69
District Gujranwala	71
District Gujrat	73
District Hafizabad	75
District Jhang	77
District Jhelum	79
District Kasur	81
District Khanewal	83
District Khushab	85
District Lahore	87
District Layyah	89
District Lodhran	91
District Mandi Bahuddin	93
District Mianwali	95
District Multan	97
District Muzaffargarh	99
District Nankana Sahib	101
District Narowal	103
District Okara	105
District Pakpattan	107
District Rahim Yar Khan	109
District Rajanpur	111
District Rawalpindi	113
District Sahiwal	115
District Sargodha	117
District Sheikhupura	119
District Sialkot	121
District Toba Tek Singh	123
District Vehari	125

Glossary

Built-up land	Built-up land is defined as areas characterized by buildings, asphalt, concrete and a systematic street pattern.
City	All municipal committees, municipal corporations and metropolitan corporation identified under the Punjab Local Government Act 2013 have each been considered as a city of Punjab.
Compound Annual Area Growth Rate	The mean growth rate at which the urban area of a city is expanding every year, over a specified period of time.
Compound Annual Population Growth Rate	The mean growth rate at which the population of a city is growing every year, over a specified period of time.
Connectography	Connectography is the visualization of transport networks, relating to connectivity and cartography.
Contiguous Urban Development	"The total percentage increase in the contiguous urban area of a city, over a specified period of time."
Dasymetric	The term "Dasymetric" is derived from the Greek translation for "measuring density" i.e. dasys-dense, metreo- to measure. The dasymetric map was developed to highlight the density of population in Punjab.
Economic Region	A geographical unit of analysis that uses socio-economic data and administrative boundaries for statistical analysis and planning.
High Density Area	Area with more than 40,000 persons per square kilometer.
Land Consumption Index	The ratio of percentage change in area to percentage change in population. It indicates the amount of urban land consumed by the increase in one unit of population.

Landsat	The Landsat Program is a series of Earth-observing satellite missions jointly managed by NASA and the U.S. Geological Survey. It aims to acquire data for images of the Earth's land surface.
LandScan	The LandScan Population data by U.S Department of Energy, is a population database at 30" X 30" resolution for estimating ambient populations counts
Low Density Area	Area with less than 10,000 persons per square kilometer.
Medium Density Area	Area with more than 10,000 but less than 40,000 persons per square kilometer.
Settlements	Settlements are areas characterized by human habitation.
Urban Agglomeration	An urban agglomeration or conurbation, in general, is formed when distinct urban settlements merge to form one contiguous urbanized area. In the case of cities in Punjab, the contiguous built-up area of some municipalities has expanded and merged together to form one unit.
Urban Area	The area of an urban extent.
Urban Expansion	The increase in the area of the urban extent over a specified period of time.
Urban Extent	An urban extent represents the functional boundary of a city, demarcated through a methodology of built-up contiguity.
Urban Land	Urban land in this atlas refers to the urban area or urban extent of a city.

Delineation of Urban Extent

Methodology Urban Extent

To mark the urban extents of Punjab's cities, remotely sensed medium resolution satellite imagery of Landsat (1995-2005-2015) was used as a base. The results were further cross verified by high resolution imagery. The satellite imagery was then classified to identify built-up areas across the map, reflecting settlements.

The Urban Unit created a python-based algorithm inspired by a globally tested methodology developed by the Marron Institute at New York University, UN-Habitat and Lincoln Institute of Land Policy to measure the urban extent for each city. The peripheries of the urban extents were then manually refined to address anomalies in the local context.

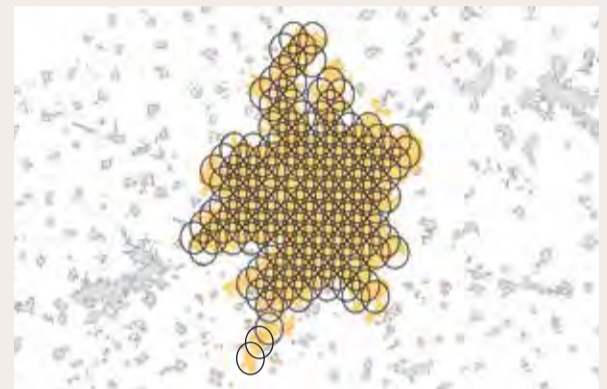
The urban extents of cities, indicating urbanized areas and smaller urban clusters, were determined by the degree of built-up contiguity and clustering.

Settlements have been clustered based on the criteria of majority built-up land by drawing contiguous buffers with an area of one square kilometer. Contiguous buffers with 50% or more built-up land have been selected and clustered together, and classified as urban. The outer boundary of this result is the urban extent. This reflects the functional limits of a city.

In certain cases, when smaller urban clusters have formed in close distance to the main urban extent, the clusters have been attached to the main urban extent.



High Resolution Image



Contiguous Built-Up

LandScan Population

This Atlas used LandScan satellite imagery to estimate population statistics within the demarcated urban extents. Although, Census data statistics are globally preferred for a time series population analysis, this methodology was used due to the lack of latest available data and a 19-year long intercensal gap (1998-2017).

The dataset was acquired from LandScan 30" X 30" resolution population database to estimate the population of the cities in Punjab for the years 2005 and 2015. This methodology included a manual verification and modification process to improve the spatial precision and relative magnitude of the population distribution across Punjab.

The Punjab Cities Growth Atlas entails:

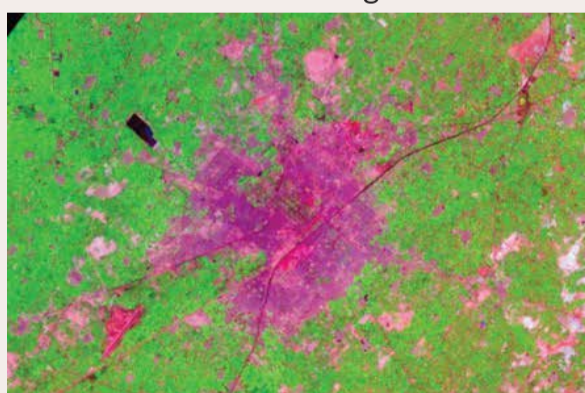
1-The urban extents for all 194 cities of Punjab.

2- The time series assessment (1995-2005-2015) of the urban extents for 50 cities.

This analysis measures the area and respective population of each urban extent to determine trends in urban expansion, population counts and densities.



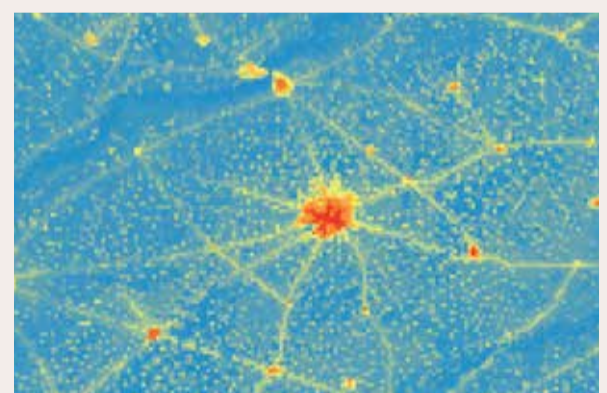
Satellite Image



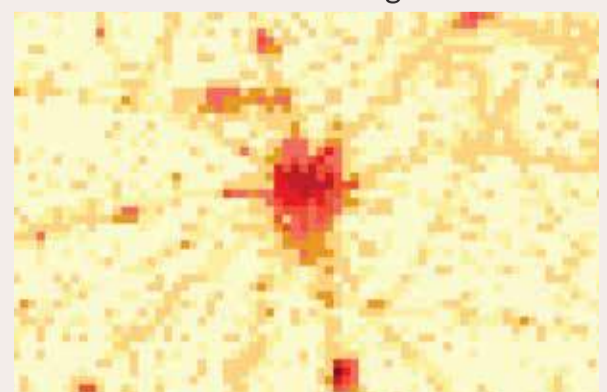
Pre-processed Image



Classified Settlements



Landscan Image



Population Density

194 Cities of Punjab

Section 1 provides an overview of all the 194 cities in Punjab.

A visual representation of the location of all the cities and detail; city names, respective districts and areas have been provided.

A map depicting density patterns across Punjab highlight higher densities within these cities and along major corridors connecting the cities. This indicates settlement and economic activity patterns.

Cities of Punjab

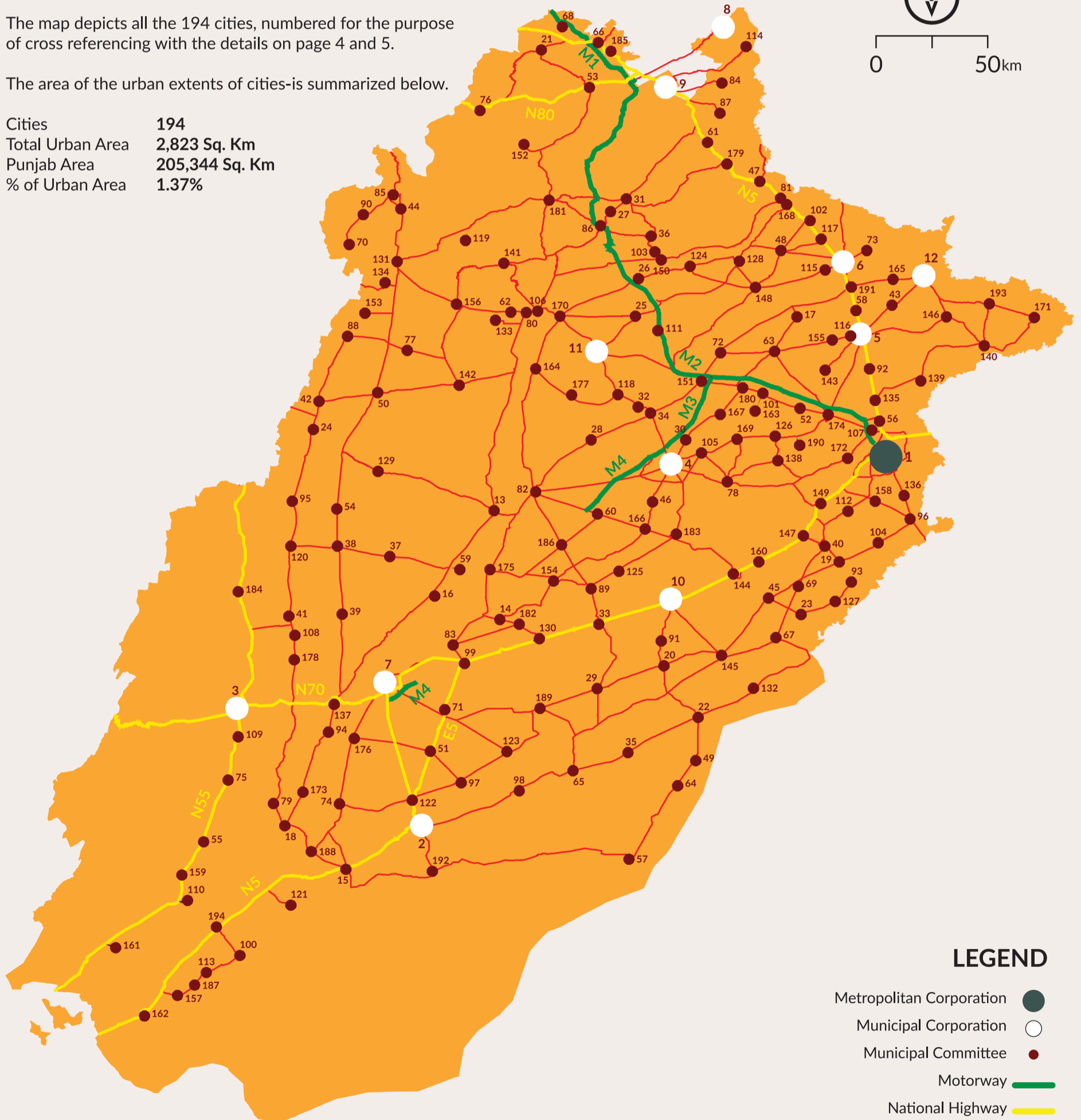
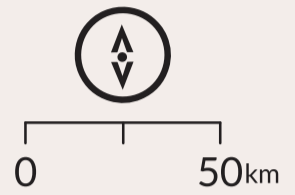
All municipal committees, municipal corporations and metropolitan corporation identified under the Punjab Local Government Act 2013 have been selected as the cities of Punjab.

Metropolitan Corporation-01
 Municipal Corporations-11
 Municipal Committees-182

The map depicts all the 194 cities, numbered for the purpose of cross referencing with the details on page 4 and 5.

The area of the urban extents of cities-is summarized below.

Cities	194
Total Urban Area	2,823 Sq. Km
Punjab Area	205,344 Sq. Km
% of Urban Area	1.37%



LEGEND

- Metropolitan Corporation
- Municipal Corporation
- Municipal Committee
- Motorway
- National Highway
- Major Road

Cities of Punjab

METROPOLITAN CORPORATION

SR. NO.	CITY NAME	DISTRICT NAME	AREA SQ.KM
1	Lahore	Lahore	665

MUNICIPAL CORPORATION

2	Bahawalpur	Bahawalpur	66
3	DG Khan	DG Khan	28
4	Faisalabad	Faisalabad	183
5	Gujranwala	Gujranwala	150
6	Gujrat	Gujrat	26
7	Multan	Multan	187
8	Murree	Rawalpindi	4
9	Rawalpindi & Islamabad (Twin Cities)	Rawalpindi	*494
10	Sahiwal	Sahiwal	35
11	Sargodha	Sargodha	55
12	Sialkot	Sialkot	58

MUNICIPAL COMMITTEE

13	18 Hazari	Jhang	1
14	Abdul Hakeem	Khanewal	5
15	Ahmadpur East	Bahawalpur	13
16	Ahmadpur Sial	Jhang	2
17	Ali Pur Chatha	Gujranwala	4
18	Alipur	Muzaffargarh	6
19	Allahabad/Ellahabad	Kasur	4
20	Arifwala	Pakpattan	12
21	Attock	Attock	28
22	Bahwalnagar	Bahawalnagar	16
23	Basirpur	Okara	3
24	Bhakkar	Bhakar	21
25	Bhalwal	Sargodha	8
26	Bhera	Sargodha	2
27	Bhoun	Chakwal	2
28	Bhowana	Chiniot	2
29	Burewala	Vehari	17
30	Chak Jhumra	Faisalabad	2
31	Chakwal	Chakwal	14
32	Chenab Nagar	Chiniot	9
33	Chichawatni	Sahiwal	9
34	Chiniot	Chiniot	13
35	Chishtian	Bahawalnagar	14
36	Choa Saidan Shah	Chakwal	1
37	Choubara	Layyah	1
38	Chowk Azam	Layyah	6
39	Chowk Sarwar Shaheed	Muzaffargarh	4
40	Chunian	Kasur	7
41	Daira Din Panah	Muzaffargarh	2
42	Darya Khan	Bhakar	9
43	Daska	Sialkot	12
44	Daud Khel	Mianwali	4
45	Depalpur	Okara	6
46	Dijkot	Faisalabad	2
47	Dina	Jhelum	3
48	Dinga	Gujrat	4

MUNICIPAL COMMITTEE

SR. NO.	CITY NAME	DISTRICT NAME	AREA SQ.KM
49	Donga Bonga	Bahawalnagar	2
50	Dullewala	Bhakar	3
51	Dunyapur	Lodhran	8
52	Farooqabad	Sheikhupura	4
53	Fateh Jhang	Attock	5
54	Fatehpur	Layyah	4
55	Fazilpur	Rajanpur	4
56	Ferozwala	Sheikhupura	15
57	Fortabbas	Bahawalnagar	5
58	Gakhar Mandi	Gujranwala	4
59	Garh Maharaja	Jhang	1
60	Gojra	Toba Tek Singh	12
61	Gujjar Khan	Rawalpindi	6
62	Hadali	Khushab	3
63	Hafizabad	Hafizabad	15
64	Haroonabad	Bahawalnagar	9
65	Hasilpur	Bahawalpur	11
66	Hassanabdal	Attock	**Urban Agglomeration
67	Haveli Lakha	Okara	4
68	Hazro	Attock	3
69	Hujra Shah Muqim	Okara	3
70	Isa Khel	Mianwali	3
71	Jahanian	Khanewal	6
72	Jalalpur Bhattian	Hafizabad	3
73	Jalalpur Jattan	Gujrat	5
74	Jalalpur Pirwala	Multan	4
75	Jampur	Rajanpur	7
76	Jand	Attock	5
77	Jandanwala	Bhakar	4
78	Jaranwala	Faisalabad	12
79	Jatoi	Muzaffargarh	3
80	Jauharabad	Khushab	13
81	Jhelum	Jhelum	18
82	Jhang	Jhang	32
83	Kabirwala	Khanewal	4
84	Kahuta	Rawalpindi	4
85	Kalabagh	Mianwali	5
86	Kallar Kahar	Chakwal	2
87	Kallar Saydan	Rawalpindi	2
88	Kallur Kot	Bhakar	4
89	Kamalia	Toba Tek Singh	7
90	Kamarmashani	Mianwali	2
91	Kameer	Pakpattan	2
92	Kamoki	Gujranwala	10
93	Kanganpur	Kasur	2
94	Kangarh	Muzaffargarh	2
95	Karor Lalisan	Layyah	5
96	Kasur	Kasur	19
97	Kehror Pacca	Lodhran	7
98	Khairpur Tamewali	Bahawalpur	3
99	Khanewal	Khanewal	20
100	Khanpur	Rahim Yar Khan	14

*Rawalpindi and Islamabad are known as the twin cities. Evidence from the two cities' urban expansion delineates a classic form of an urban agglomeration as the two cities are geographically and operationally intertwined for economic and social transactions.

MUNICIPAL COMMITTEE

SR. NO.	CITY NAME	DISTRICT NAME	AREA SQ.KM
101	Khanqah Dogran	Sheikhupura	2
102	Kharian	Gujrat	18
103	Khewra	Jhelum	4
104	Khudian	Kasur	3
105	Khurrianwala	Faisalabad	6
106	Khushab	Khushab	8
107	Kot Abdul Malik	Sheikhupura	**Urban Agglomeration
108	Kot Addu	Muzaffargarh	11
109	Kot Chutta	DG Khan	2
110	Kot Mithan	Rajanpur	3
111	Kot Momin	Sargodha	2
112	Kot Radha Kisan	Kasur	4
113	Kot Samaba	Rahim Yar Khan	2
114	Kotli Sattian	Rawalpindi	3
115	Kunjah	Gujrat	2
116	Ladheywala Warraich	Gujranwala	**Urban Agglomeration
117	Lalamusa	Gujrat	7
118	Lalian	Chiniot	2
119	Lawa	Chakwal	2
120	Layyah	Layyah	11
121	Liaqatpur	Rahim Yar Khan	5
122	Lodhran	Lodhran	11
123	Mailsi	Vehari	9
124	Malikwal	Mandi Bahauddin	3
125	Mamukanjan	Faisalabad	3
126	Mananwala	Sheikhupura	3
127	Mandi Ahmad Abad	Okara	2
128	Mandi Bahauddin	Mandi Bahauddin	13
129	Mankera	Bhakar	2
130	Mian Channu	Khanewal	8
131	Mianwali	Mianwali	27
132	Minchinabad	Bahawalnagar	4
133	Mitha Tiwana	Khushab	2
134	Kundian	Mianwali	3
135	Muridke	Sheikhupura	15
136	Mustafabad	Kasur	3
137	Muzaffargarh	Muzaffargarh	13
138	Nankana Sahib	Nankana	3
139	Narang	Sheikhupura	2
140	Narowal	Narowal	10
141	Naushera	Khushab	1
142	Noorpur Thal	Khushab	2
143	Nowshera Vikran	Gujranwala	2
144	Okara	Okara	21
145	Pakpattan	Pakpattan	10
146	Pasrur	Sialkot	4
147	Pattoki	Kasur	8
148	Phalial	Mandi Bahauddin	2
149	Phool Nagar	Kasur	4
150	Pind Dadan Khan	Jhelum	2

MUNICIPAL COMMITTEE

SR. NO.	CITY NAME	DISTRICT NAME	AREA SQ.KM
151	Pindi Bhattian	Hafizabad	4
152	Pindi Gheb	Attock	3
153	Piplan	Mianwali	7
154	Pir Mahal	Toba Tek Singh	4
155	Qila Dedar Singh	Gujranwala	4
156	Quidabad	Khushab	2
157	Rahim Yar Khan	Rahim Yar Khan	38
158	Raja Jang	Kasur	1
159	Rajanpur	Rajanpur	6
160	Renala Khurd	Okara	4
161	Rojhan	Rajanpur	3
162	Sadiqabad	Rahim Yar Khan	27
163	Safdarabad	Sheikhupura	2
164	Sahiwal	Sargodha	4
165	Sambarial	Sialkot	4
166	Samundari	Faisalabad	7
167	Sangla Hill	Nankana	6
168	Sarai Alamgir	Gujrat	7
169	Shahkot	Nankana	7
170	Shahpur Saddar	Sargodha	2
171	Shakargarh	Narowal	6
172	Sharaqpur	Sheikhupura	2
173	Shehar Sultan	Muzaffargarh	2
174	Sheikhupura	Sheikhupura	28
175	Shorkot	Jhang	4
176	Shujabad	Multan	8
177	Sillanwali	Sargodha	3
178	Sinawan	Muzaffargarh	3
179	Sohawa	Jhelum	1
180	Sukheki	Hafizabad	2
181	Talagang	Chakwal	8
182	Talamba	Khanewal	1
183	Tandianwala	Faisalabad	4
184	Taunsa	DG Khan	7
185	Taxila	Attock	55
186	Toba Tek Singh	Toba Tek Singh	8
187	Trinda Saway Khan	Rahim Yar Khan	1
188	Uch Sharif	Bahawalpur	4
189	Vehari	Vehari	12
190	Warburton	Nankana	2
191	Wazirabad	Gujranwala	9
192	Yazman	Bahawalpur	6
193	Zafarwal	Narowal	3
194	Zahir Pir	Rahim Yar Khan	5

**An urban agglomeration or conurbation in general is formed when distinct urban settlements merge to form one contiguous urbanized area. In the case of cities in Punjab, the contiguous built-up area of some municipalities have expanded and merged together in addition to the surrounding settlements.

a) Hassanabdal has merged with Taxila and Wah Cantt.

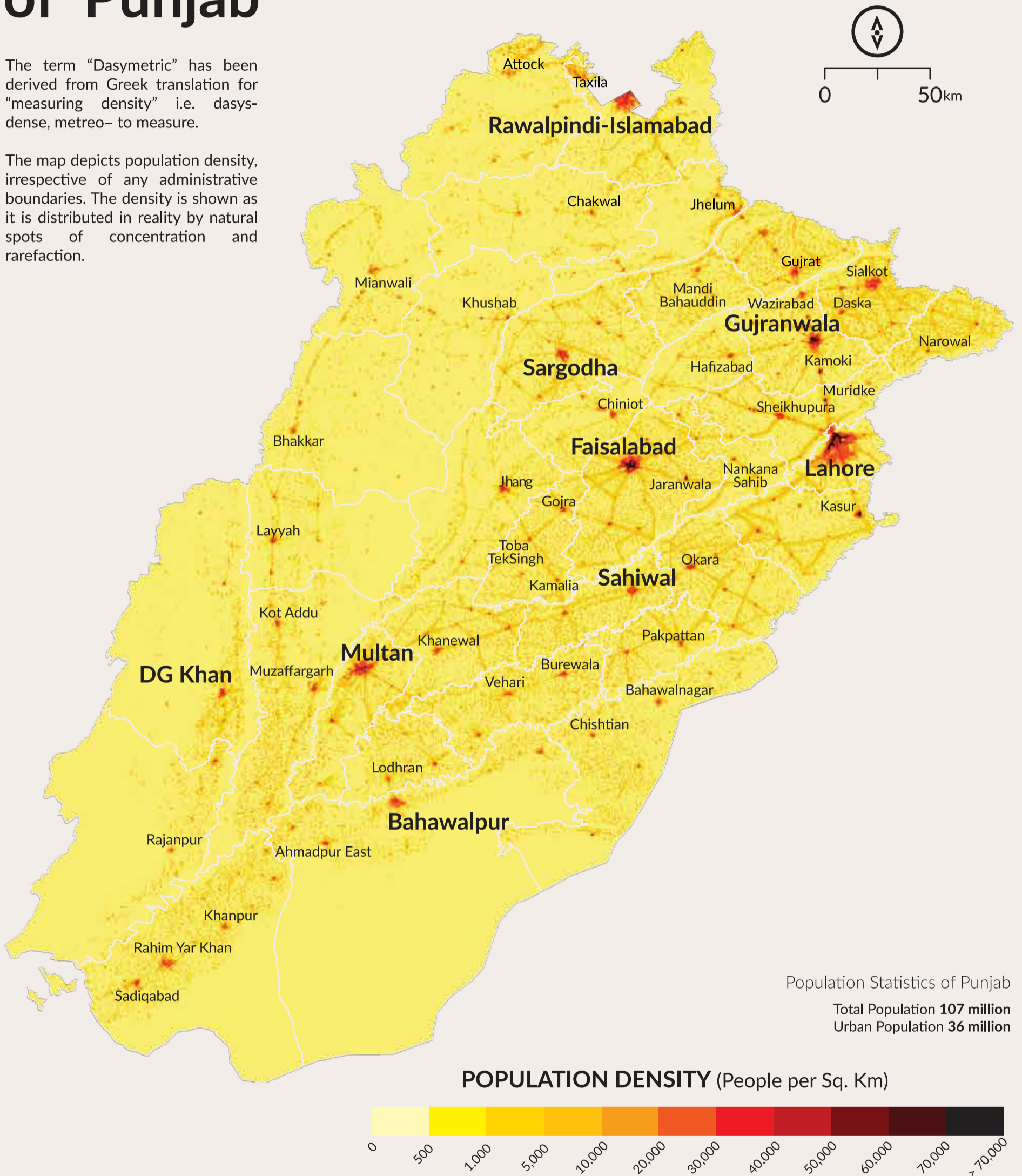
b) Kot Abdul Malik has merged with Lahore Metropolitan Area.

c) Ladheywala Warraich has merged with Gujranwala.

Dasymetric Map of Punjab

The term “Dasymetric” has been derived from Greek translation for “measuring density” i.e. dasys-dense, metreo- to measure.

The map depicts population density, irrespective of any administrative boundaries. The density is shown as it is distributed in reality by natural spots of concentration and rarefaction.



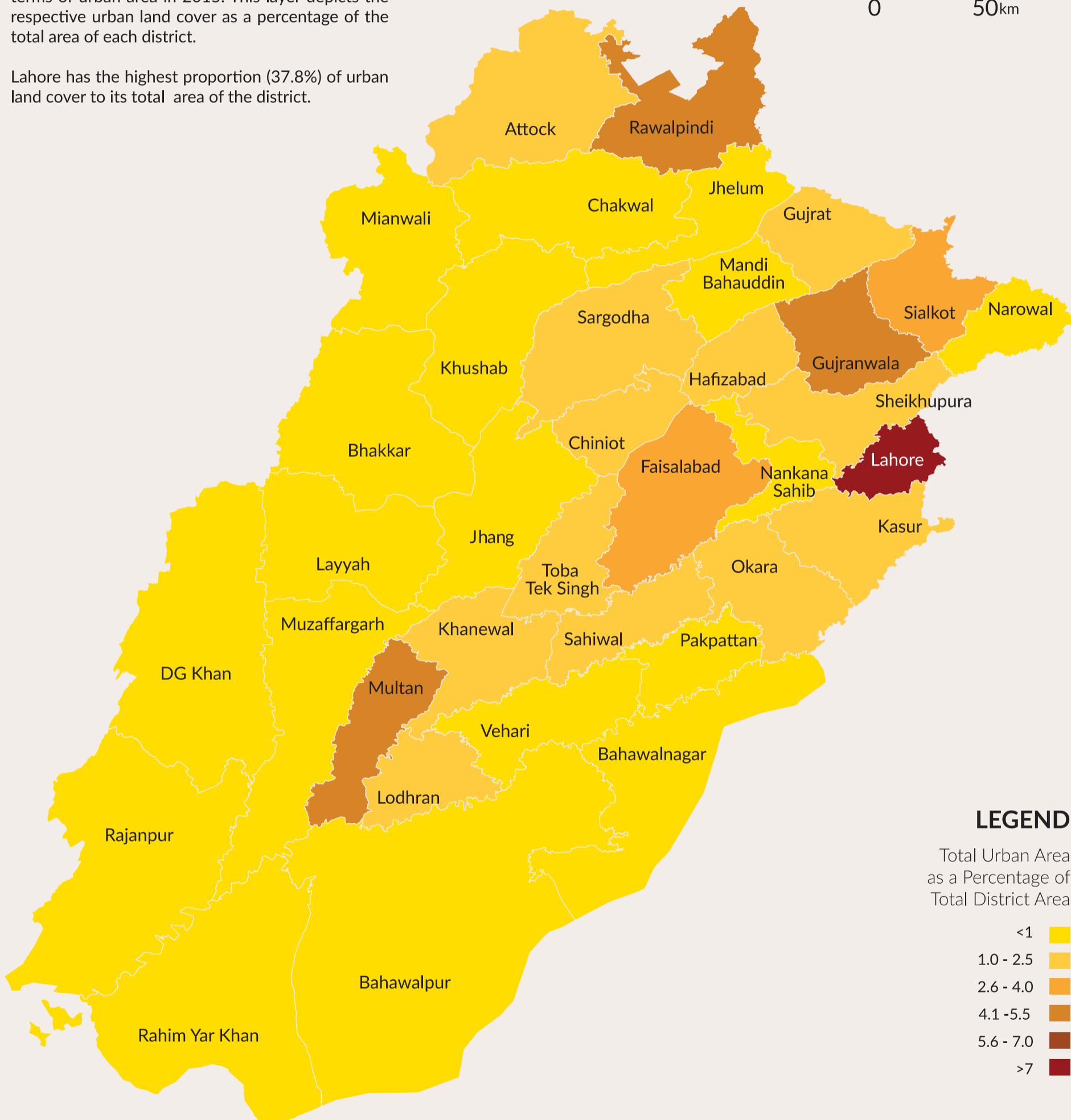
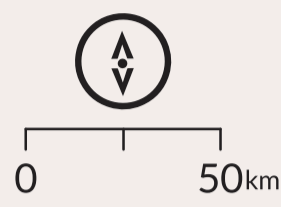
Population Statistics of Punjab
 Total Population **107 million**
 Urban Population **36 million**

Data Sources
 Population Count - LandScan 2015

Urban Area Distribution

This map visualizes how urbanized each district is, in terms of urban area in 2015. This layer depicts the respective urban land cover as a percentage of the total area of each district.

Lahore has the highest proportion (37.8%) of urban land cover to its total area of the district.



LEGEND

Total Urban Area as a Percentage of Total District Area

- <1
- 1.0 - 2.5
- 2.6 - 4.0
- 4.1 - 5.5
- 5.6 - 7.0
- >7



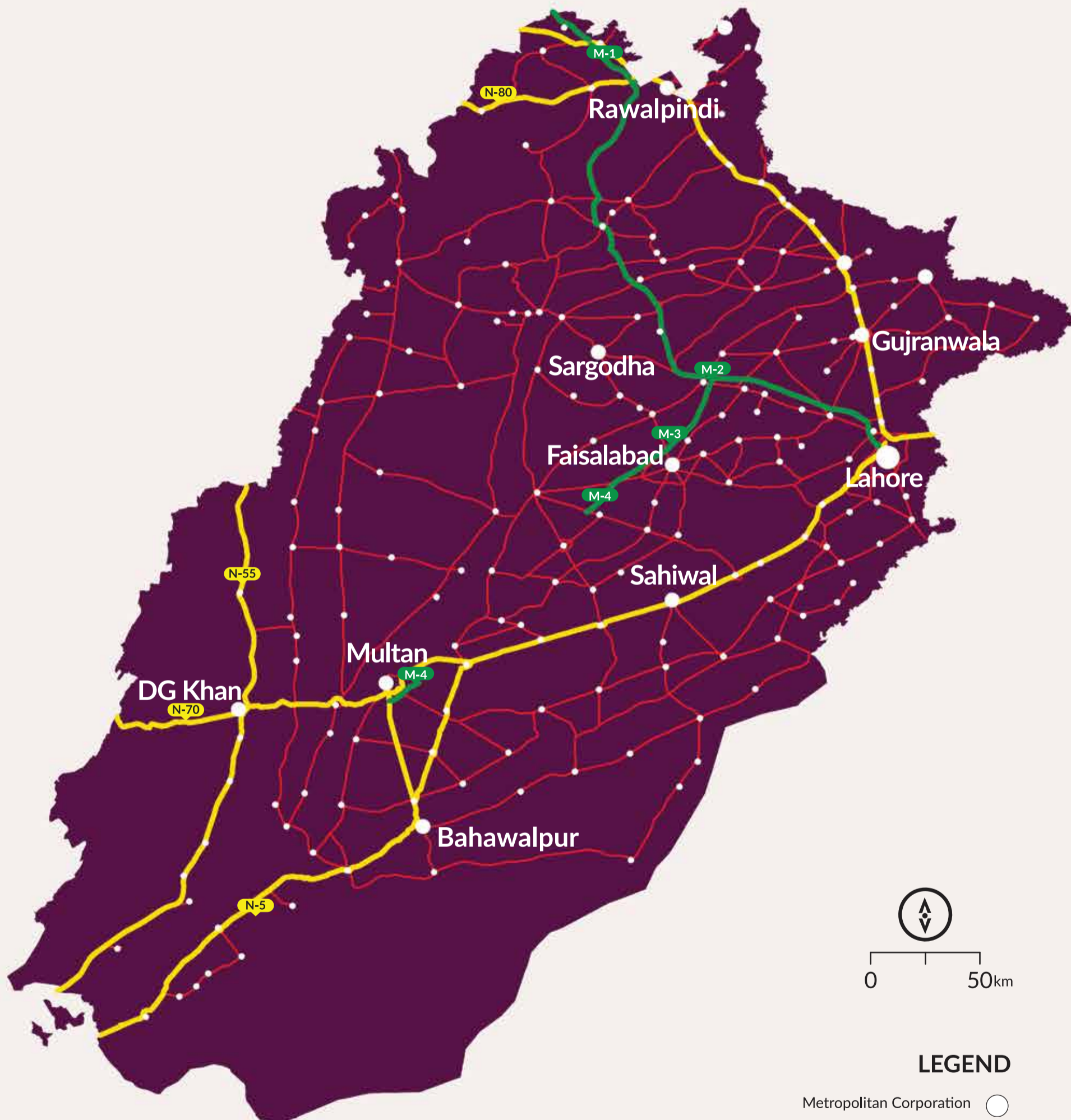
Connectography

Connectography relates to connectivity and cartography. It is the visualization of complex transport networks between cities.

Section 2 presents multi-city linkages through motorways, national highways inter-city roads, railway lines and airports. It is imperative to note the formation of cities along a mesh of these transport networks.

For the quality and clarity of information in this connectography section, the maps have been zoomed to a divisional level.

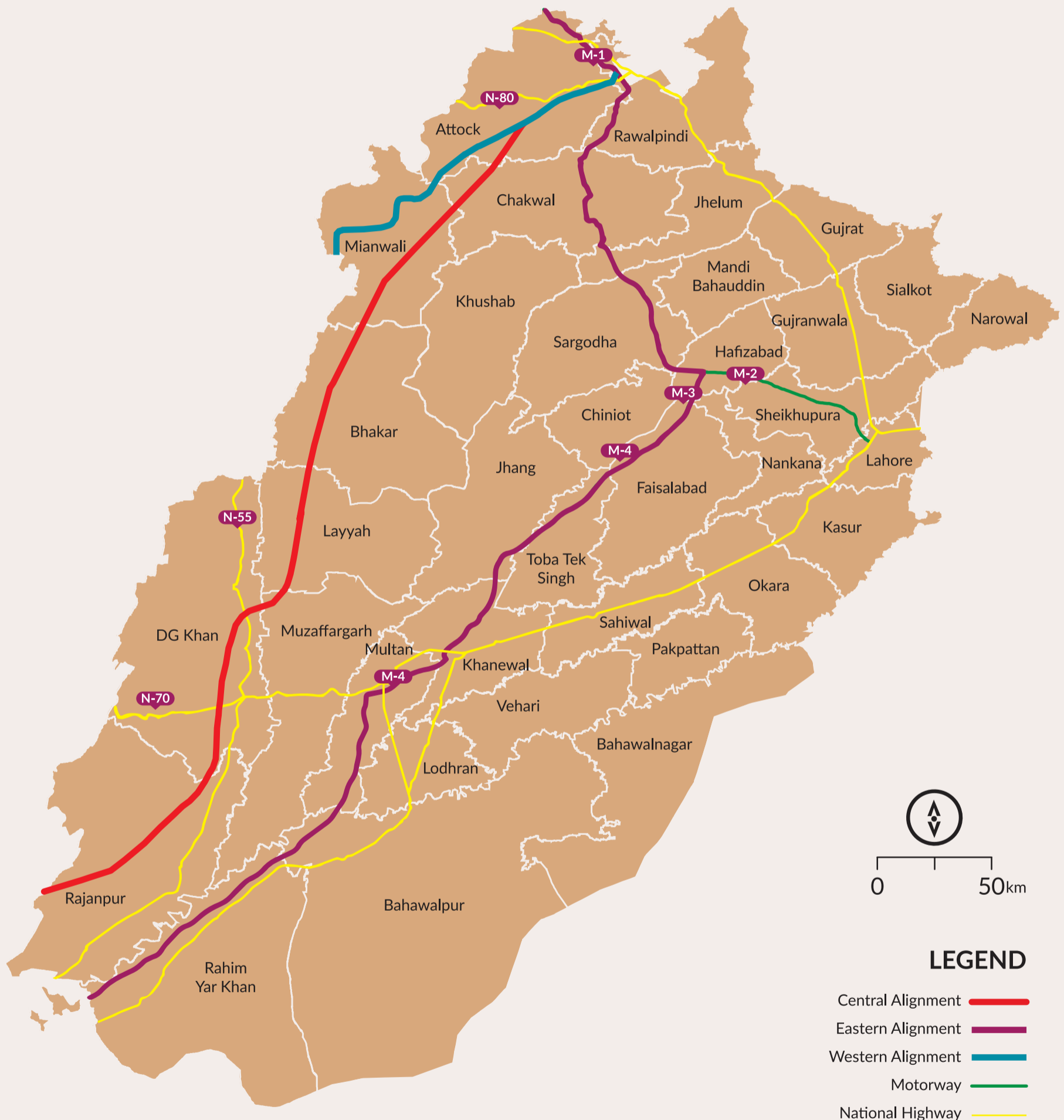
Cities Connectography



LEGEND

- Metropolitan Corporation ○
- Municipal Corporation ○
- Municipal Committee ○
- Motorway —
- National Highway —
- Major Road —

China-Pakistan Economic Corridor

















Bahawalpur Division

Bahawalpur, encompassing a major part of the Cholistan desert, is the largest division of Punjab province in terms of land. A well-defined network of roads, in addition to the international airport at Rahim Yar Khan, help connect it to other national and international locations; thus aiding in the distribution of wheat, sugarcane and cotton produce from the local farmlands and industries to the regional agricultural and industrial centers.



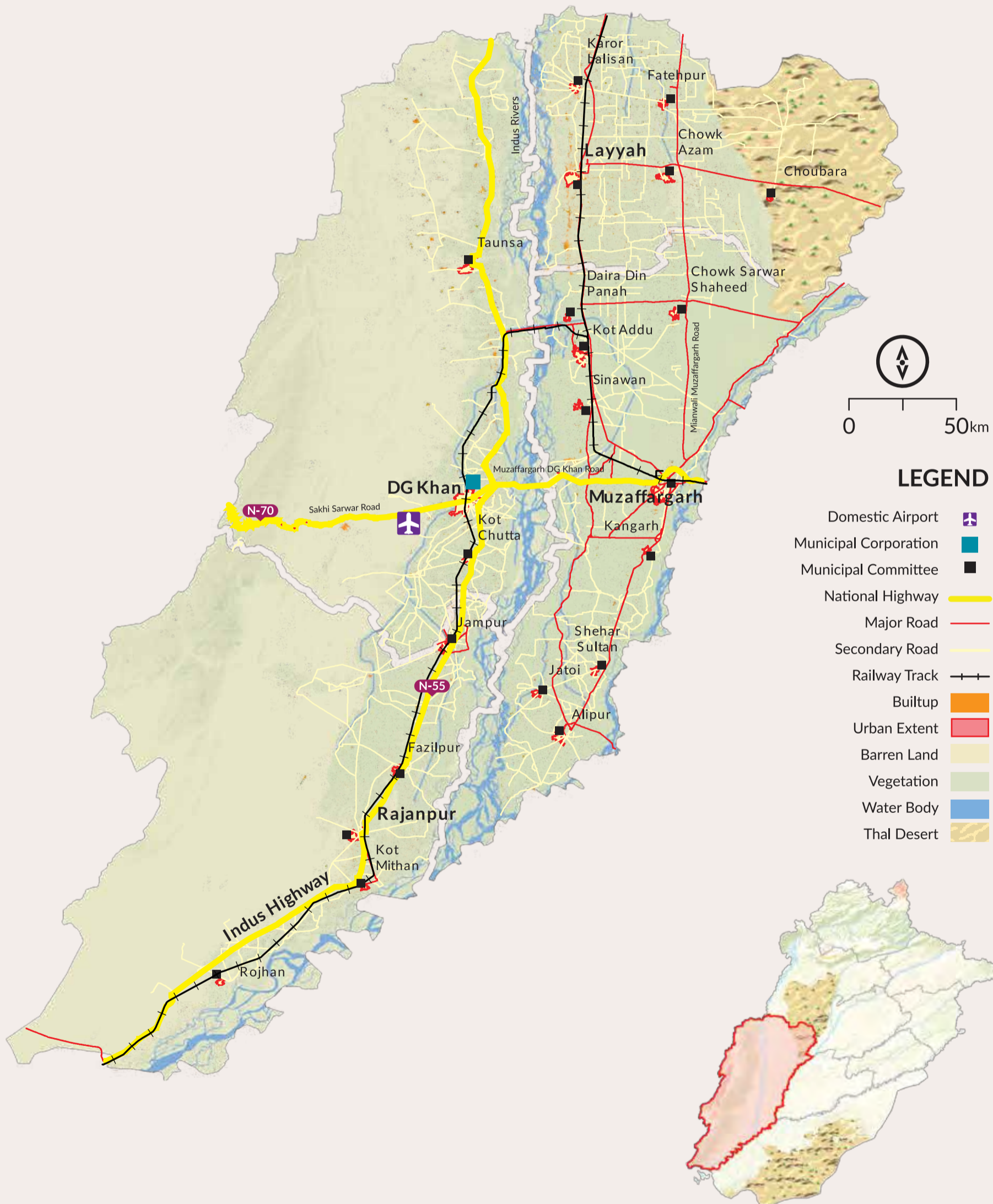
LEGEND

- International Airport 
- Domestic Airport 
- Municipal Corporation 
- Municipal Committee 
- National Highway 
- Major Road 
- Secondary Road 
- Railway Track 
- Builtup 
- Urban Extent 
- Barren Land 
- Vegetation 
- Water Body 
- Cholistan Desert 



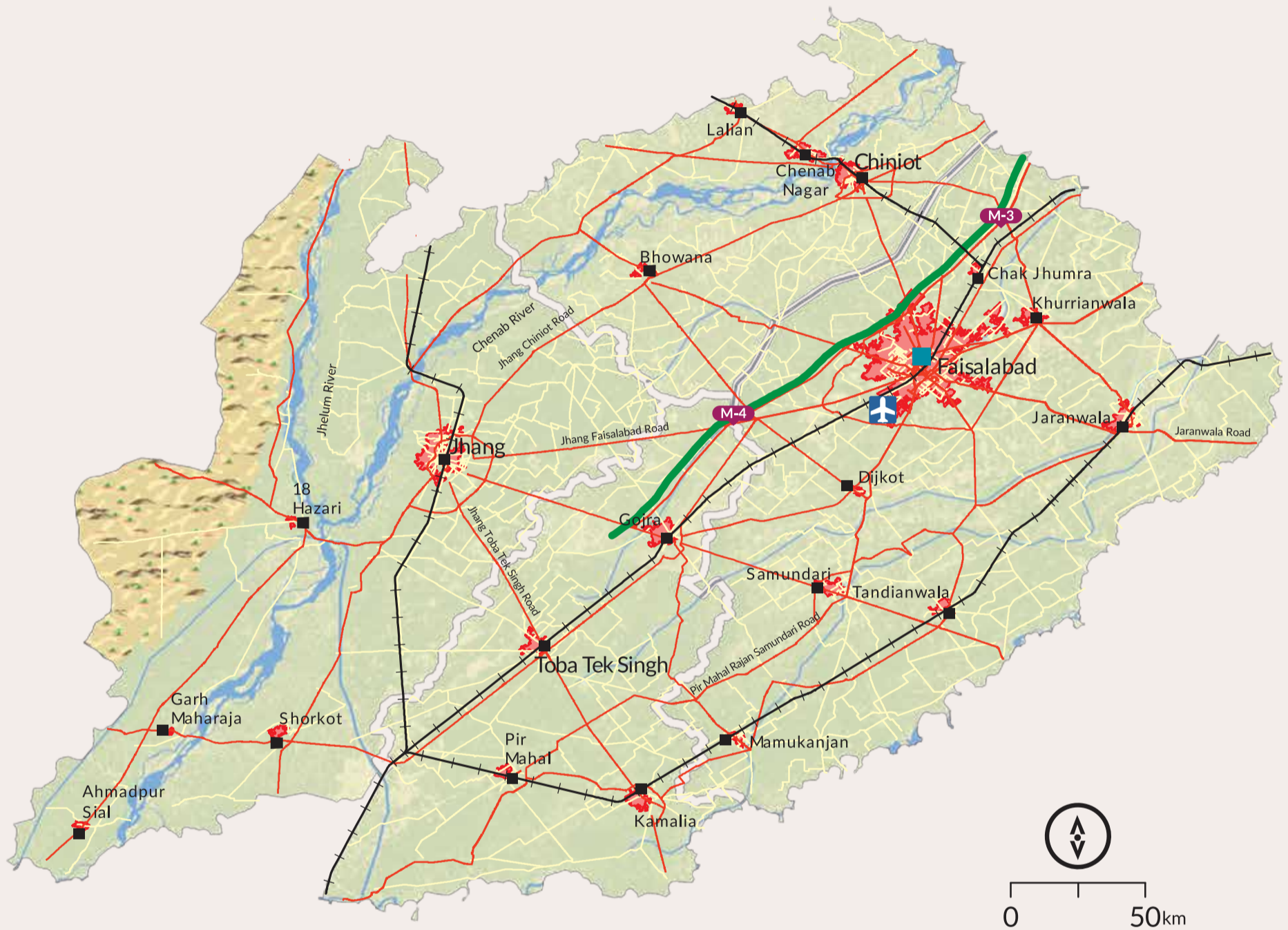
Dera Ghazi Khan Division

The DG Khan division, serving as the gateway to Baluchistan province, is connected by two National Highways; N-55 and N-70. The presence of industrial units in the division makes it an important transit point, linking Punjab to other provinces of the country. DG Khan division is also home to the tribal areas of Punjab.



Faisalabad Division

Faisalabad, known as the Manchester of Asia, is the manufacturing and distribution hub of textile industries in Pakistan and an integral contributor to the country's GDP. Being the first planned city of the colonial era, it is centrally located and well connected to the northern and southern parts of the country, via efficient road, air and rail networks. Moreover, the city is also facilitated by an international airport and an efficient system of public transportation.

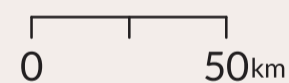


LEGEND

- International Airport
- Municipal Corporation
- Municipal Committee
- Motorway
- Major Road
- Secondary Road
- Railway Track
- Builtup
- Urban Extent
- Barren Land
- Vegetation
- Water Body
- Thal Desert

Gujranwala Division

Gujranwala division, being an important industrial hub of the province, is connected to the northern and southern parts of Pakistan via the main Karachi-Peshawar railway line and the national highway (N-5) - part of the historic Grand Trunk road. The primary and secondary level road networks in the division aid the local agriculture markets to access regional industrial and commercial clusters.



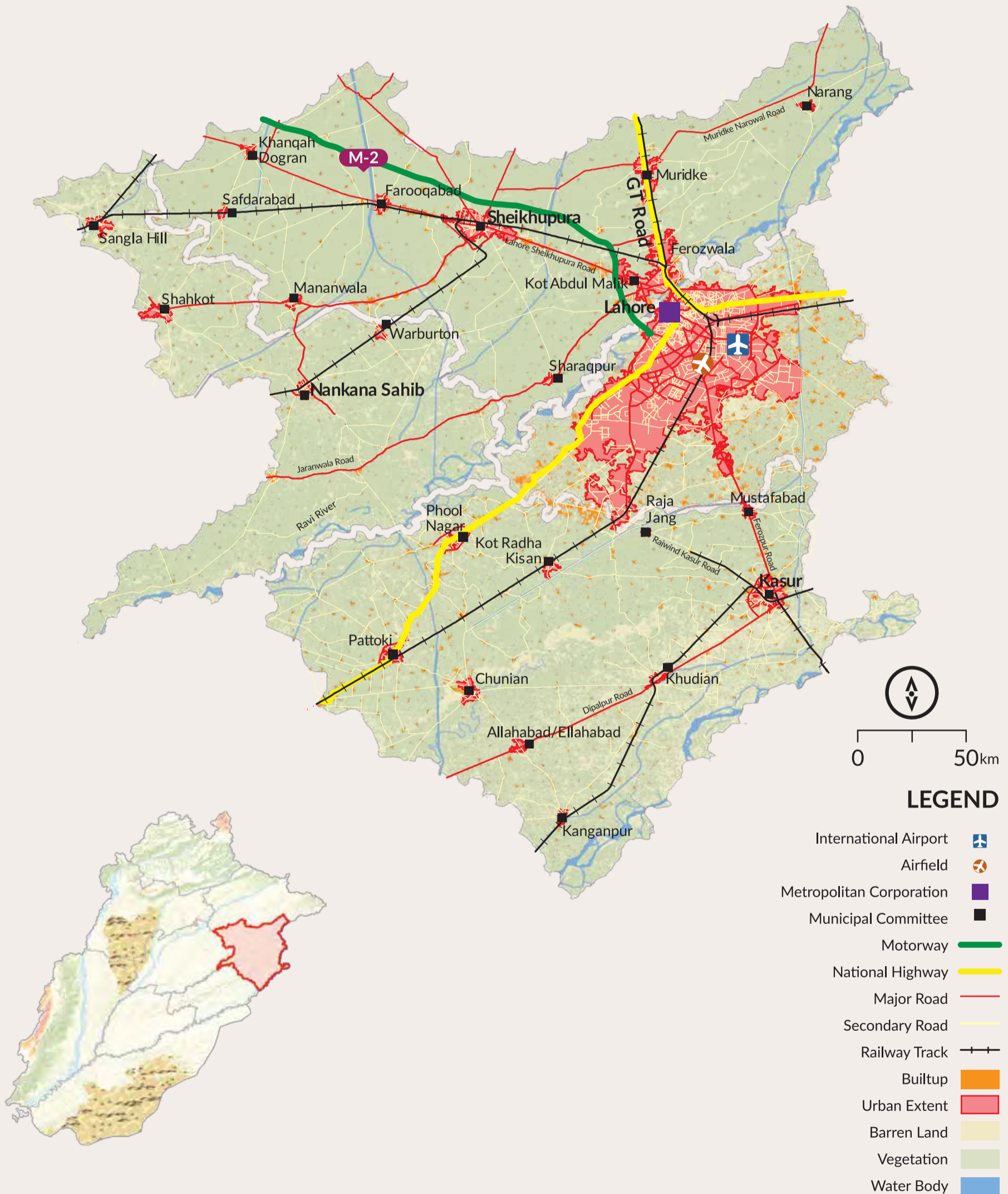
LEGEND

- International Airport
- Airfield
- Municipal Corporation
- Municipal Committee
- Motorway
- National Highway
- Major Road
- Secondary Road
- Railway Track
- Builtup
- Urban Extent
- Barren Land
- Vegetation
- Water Body



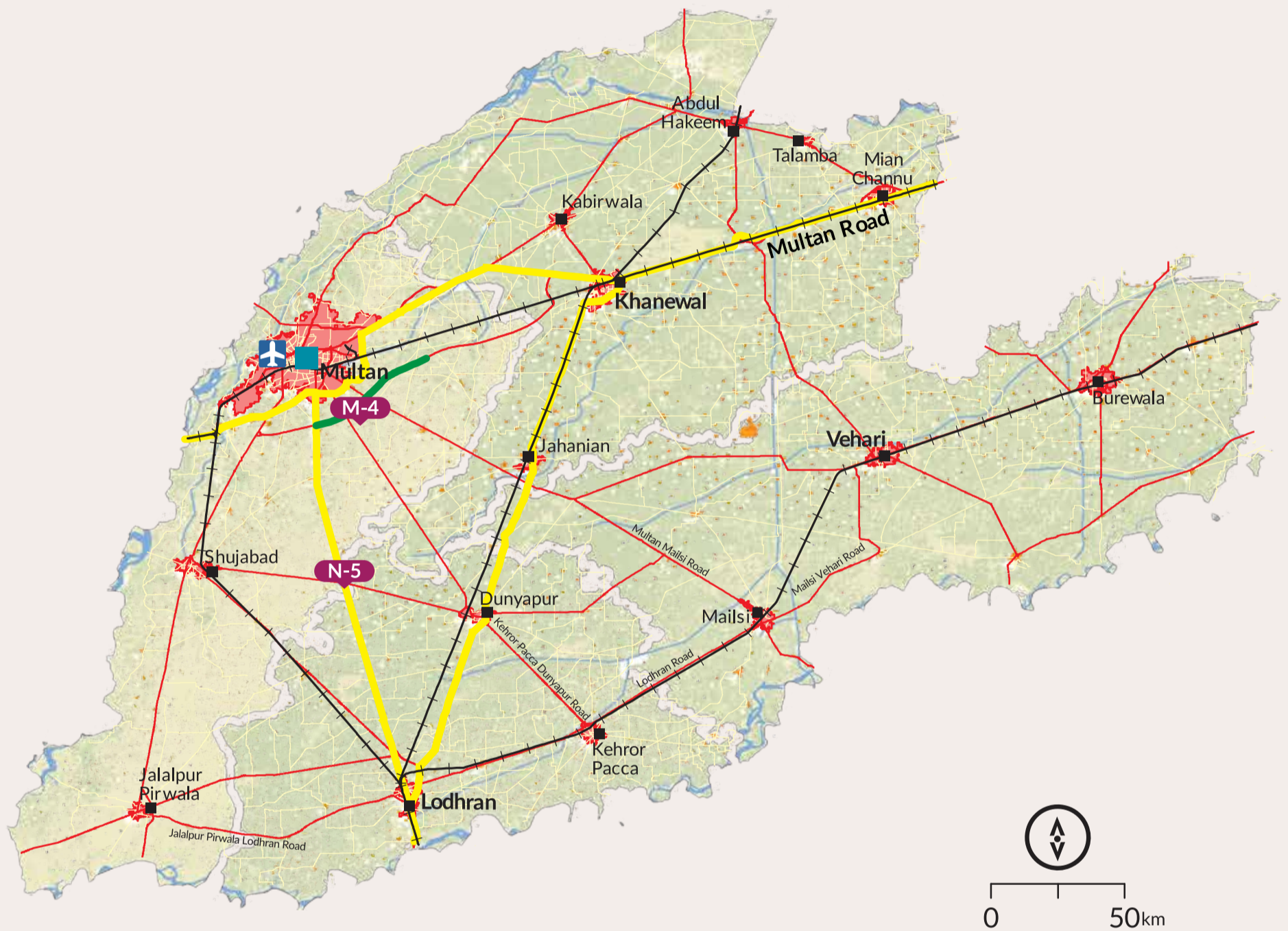
Lahore Division

Lahore Division is facilitated by the M-2 motorway, Grand Trunk road and other significant primary and secondary level road networks. Lahore city, being the administrative capital and cultural core of the province, is accessed by millions of commuters, moving in and out of the city, on a daily basis. A well-connected transportation system comprising of the Allama Iqbal international airport, the bus rapid transit system named Lahore Metrobus, the historic railway station, and other inter/intra city bus networks help connect Lahore to other provincial, national and international locations.

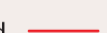




Multan Division

The Multan division is connected to other regions of the country through an international airport and well-defined road and rail networks. It is connected to the city of Faisalabad via the M-4 motorway, which further extends as the M-1 and M-2 motorways, providing road linkages to the Northern parts of the country. Multan city serves as a strategic hub of Southern Punjab and provides a rapid bus transit service named Multan Metrobus.

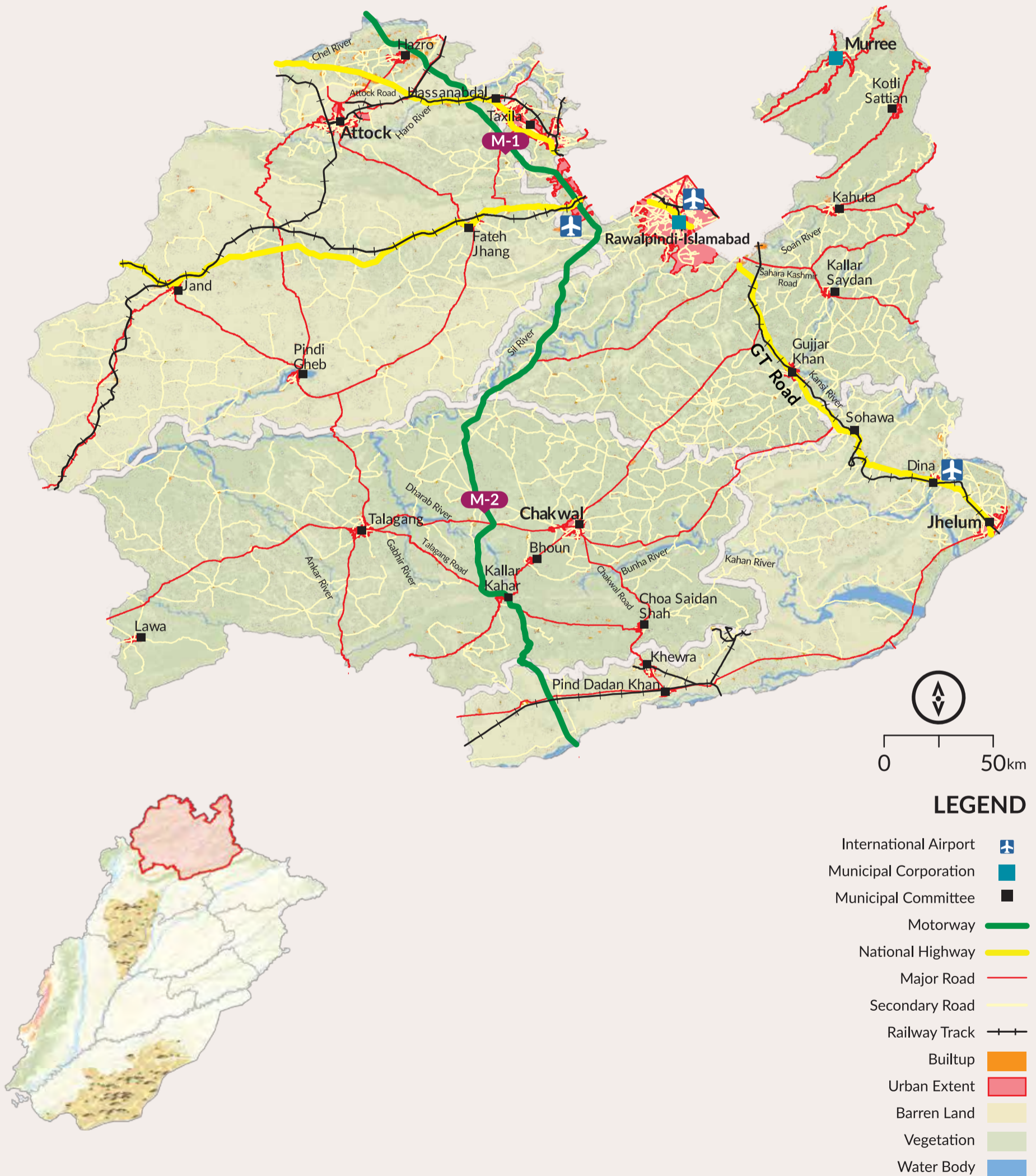


LEGEND

- International Airport 
- Municipal Corporation 
- Municipal Committee 
- Motorway 
- National Highway 
- Major Road 
- Secondary Road 
- Railway Track 
- Builtup 
- Urban Extent 
- Barren Land 
- Vegetation 
- Water Body 

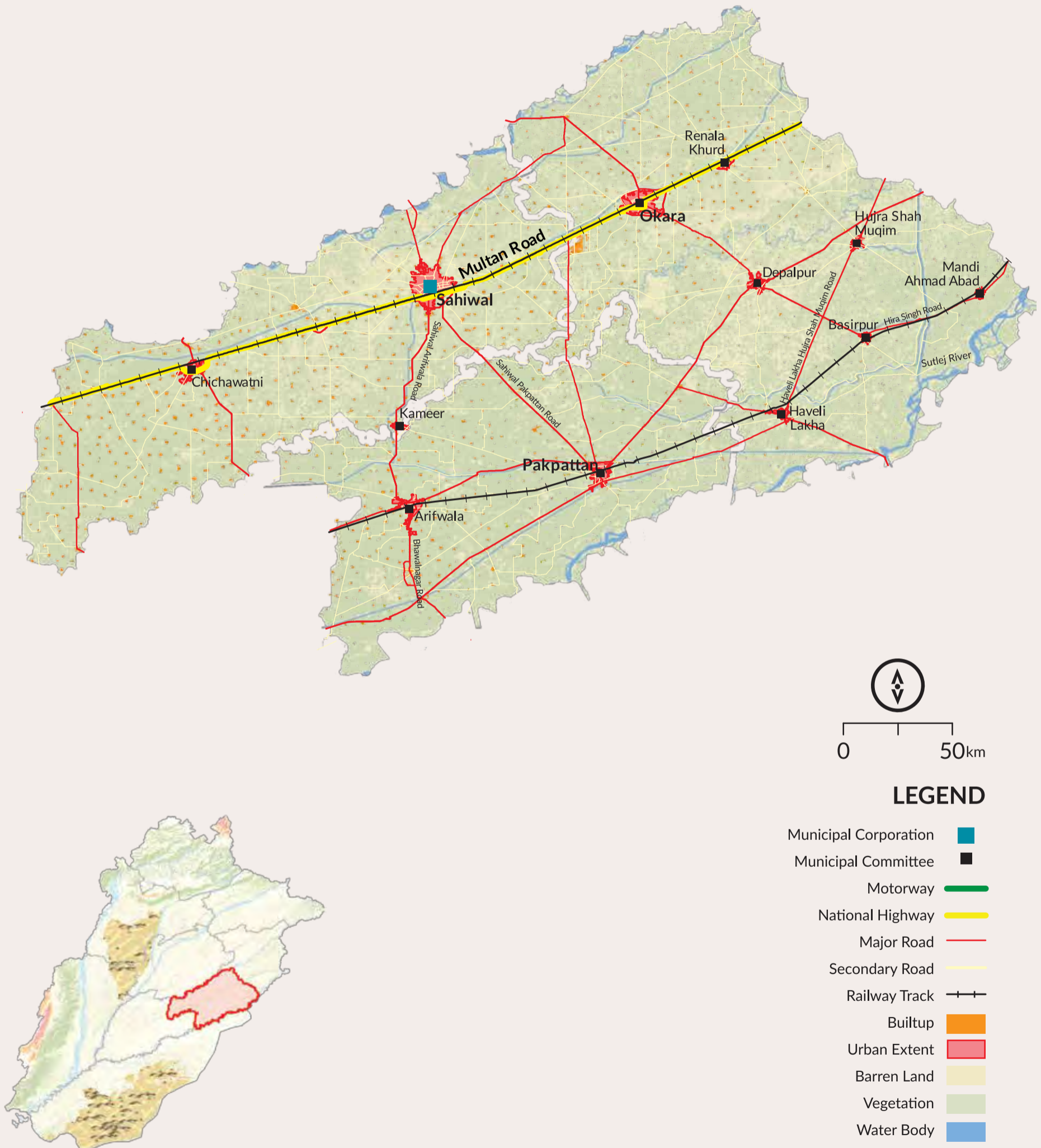
Rawalpindi Division

Rawalpindi Division is the gateway to the northern parts of the country. Historically, the division was a significant transit point on the famous silk route, providing access to Afghanistan and the central Asian estates. It serves as the main commercial center for the surrounding mountainous areas, thus drawing a huge influx of people to Rawalpindi, on a daily basis. Thus, the division is made accessible by an efficient transportation network, comprising of rail and road networks, a rapid bus transit service named Rawalpindi-Islamabad Metrobus and three international airports providing ample travel options to the local people.



Sahiwal Division

Sahiwal Division, renowned for its food processing units and the livestock breeding industry, helps to connect southern and northern parts of the Punjab province. The millions of commuters accessing Sahiwal from central Punjab are facilitated through a well-defined network of provincial and national highways.



Sargodha Division

Sargodha Division is known for its wheat, fruit and cotton industries. It is home to the largest airbase and strategic arsenal of Pakistan. The division is well-connected to other major cities of the province, such as Lahore, Faisalabad and Islamabad, via provincial and national motorways and railway networks.





Section

Urban Expansion

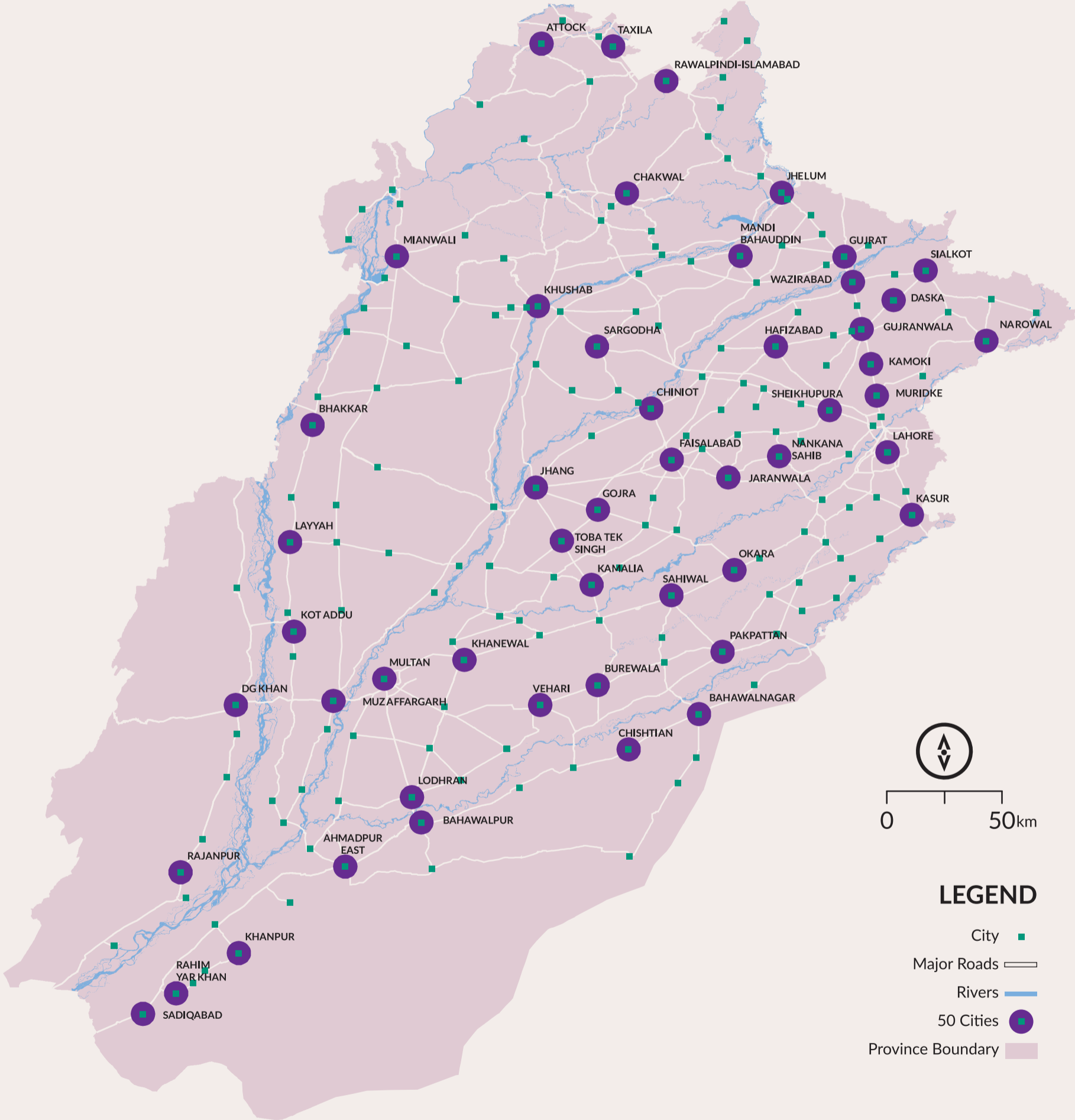
50 Cities of Punjab

Section 3 provides classifications, rankings and statistics for 50 cities of Punjab. It presents the dynamic cities in terms of urban extents, area, expansion, urban population, population growth, land consumption, densities and economic regions.

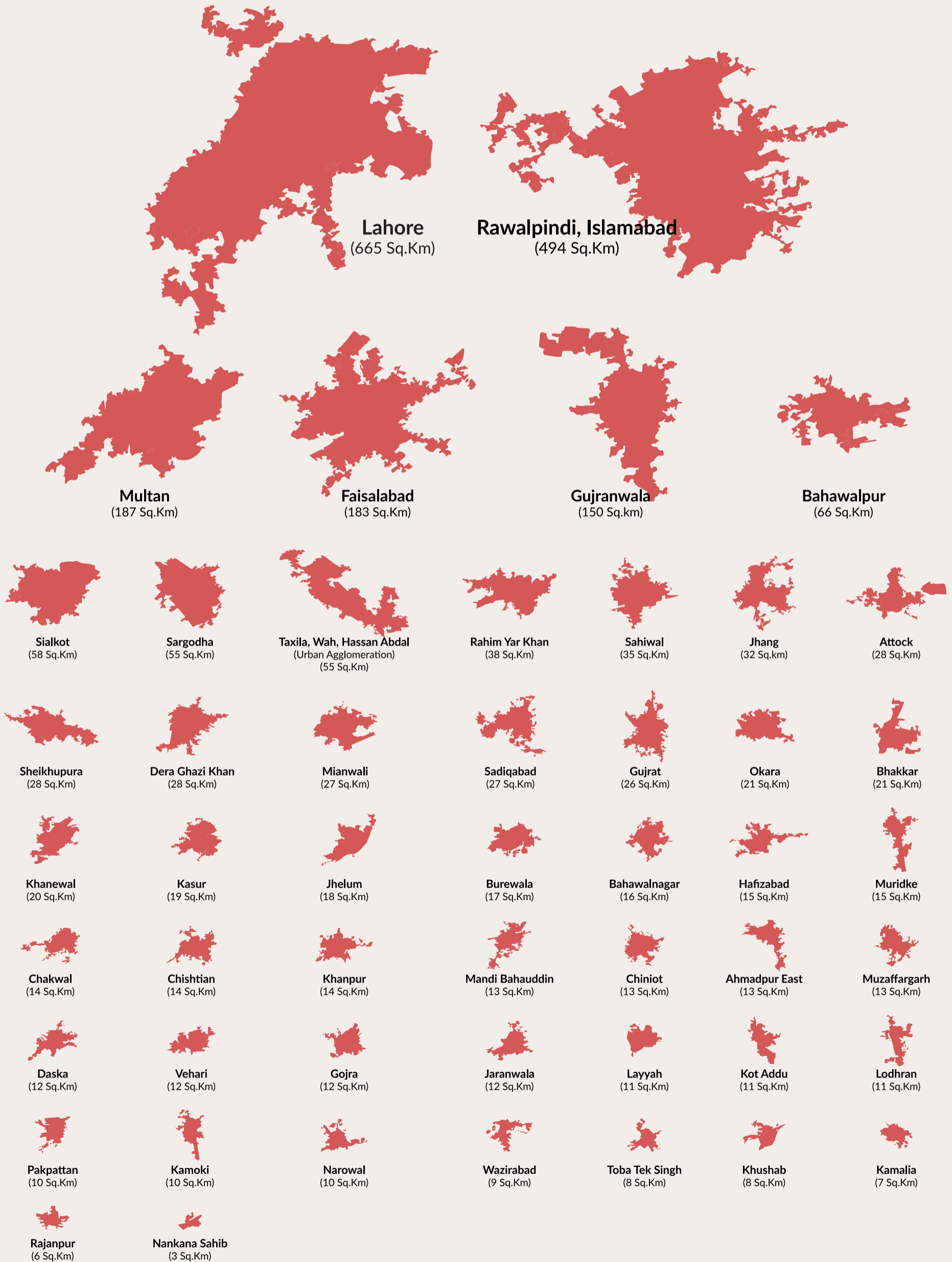
50 Cities of Punjab

For the time series assessment to determine trends in urban expansion and population changes over two decades (1995-2005-2015), 50 out of 194 cities were selected.

36 district headquarters
14 next large cities in terms of population count in the 1998 census

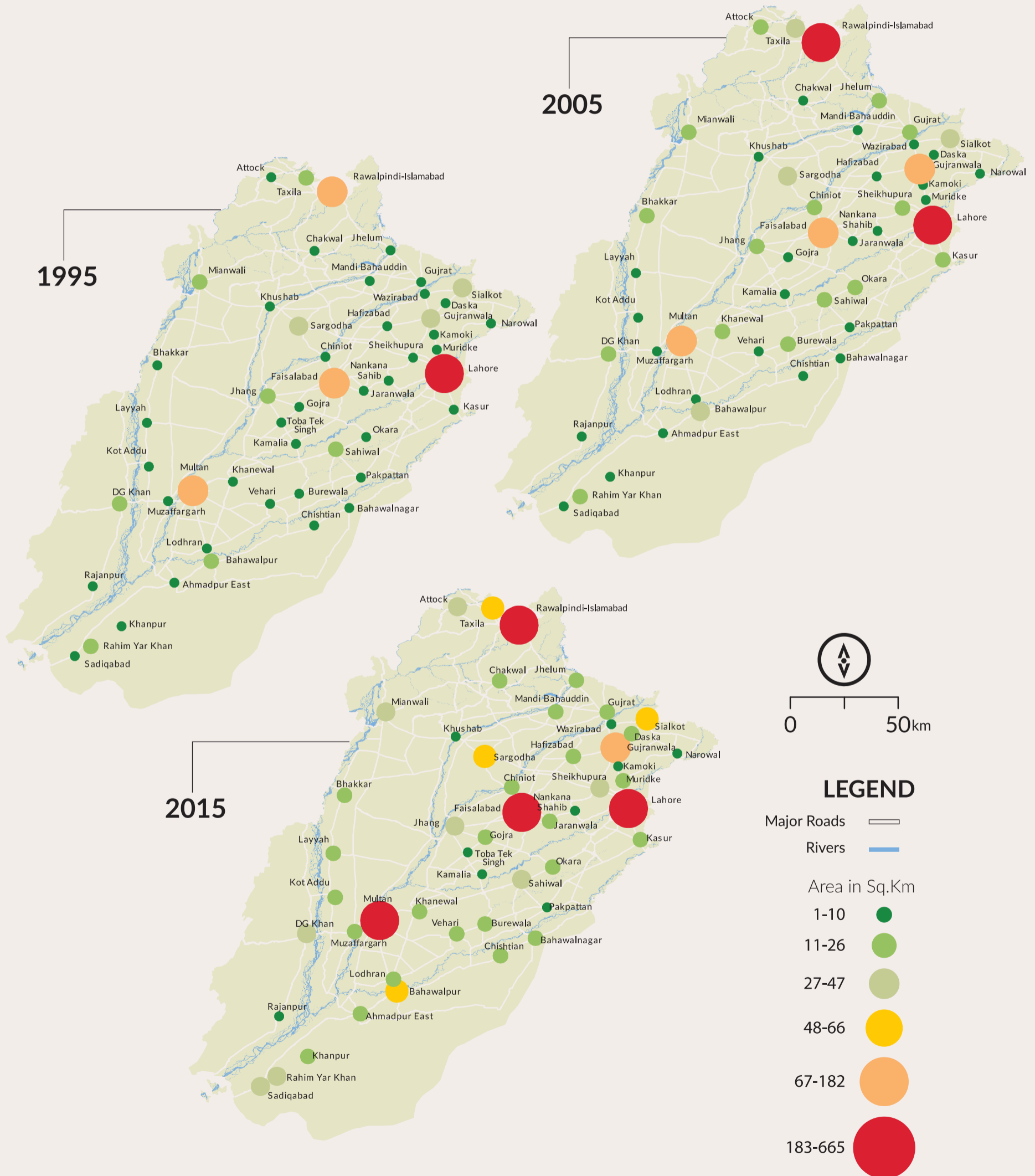


Cities at Same Scale 2015

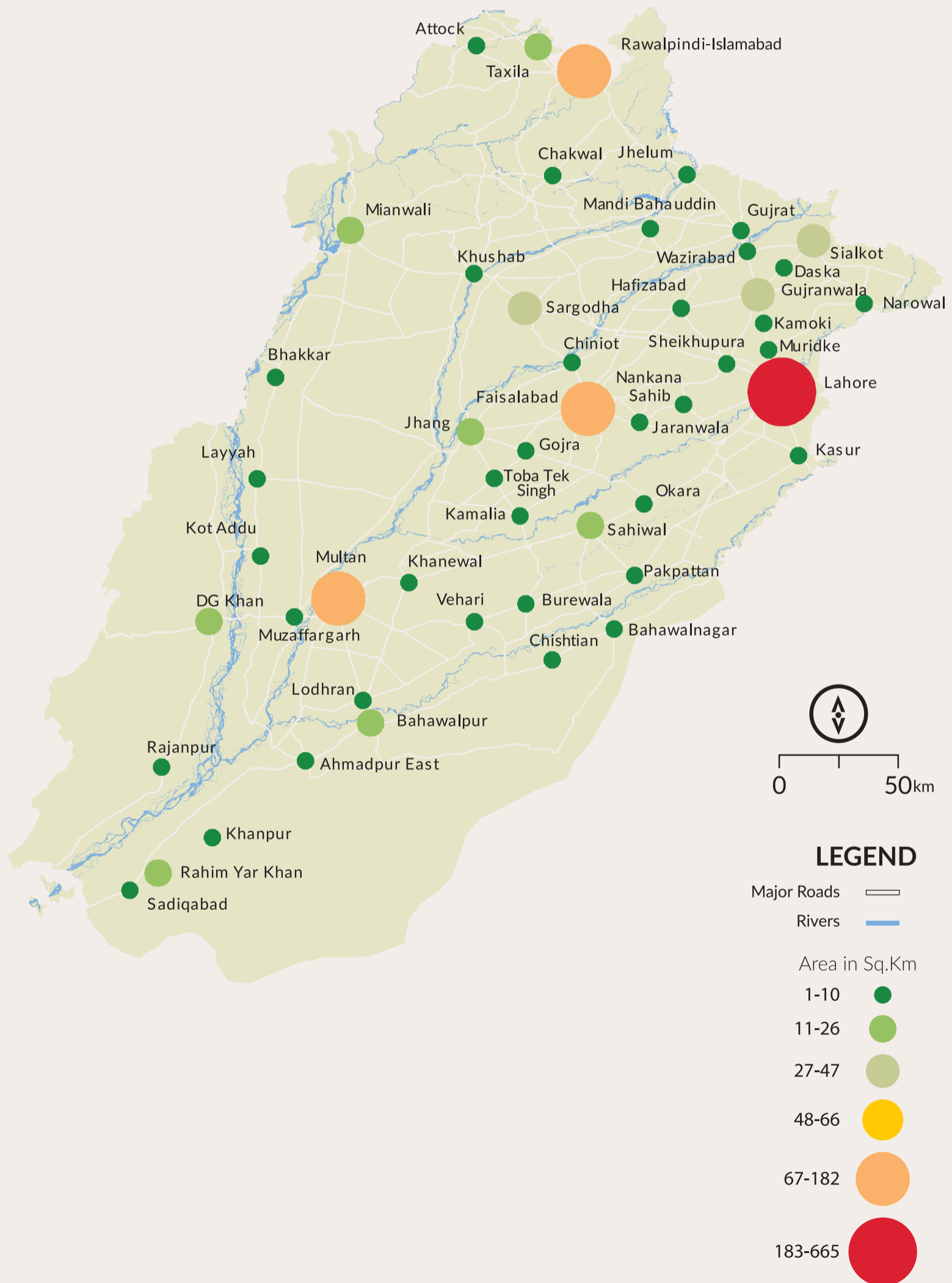


Scale | 1Inch = 2.5km ■ Urban Extent 2015

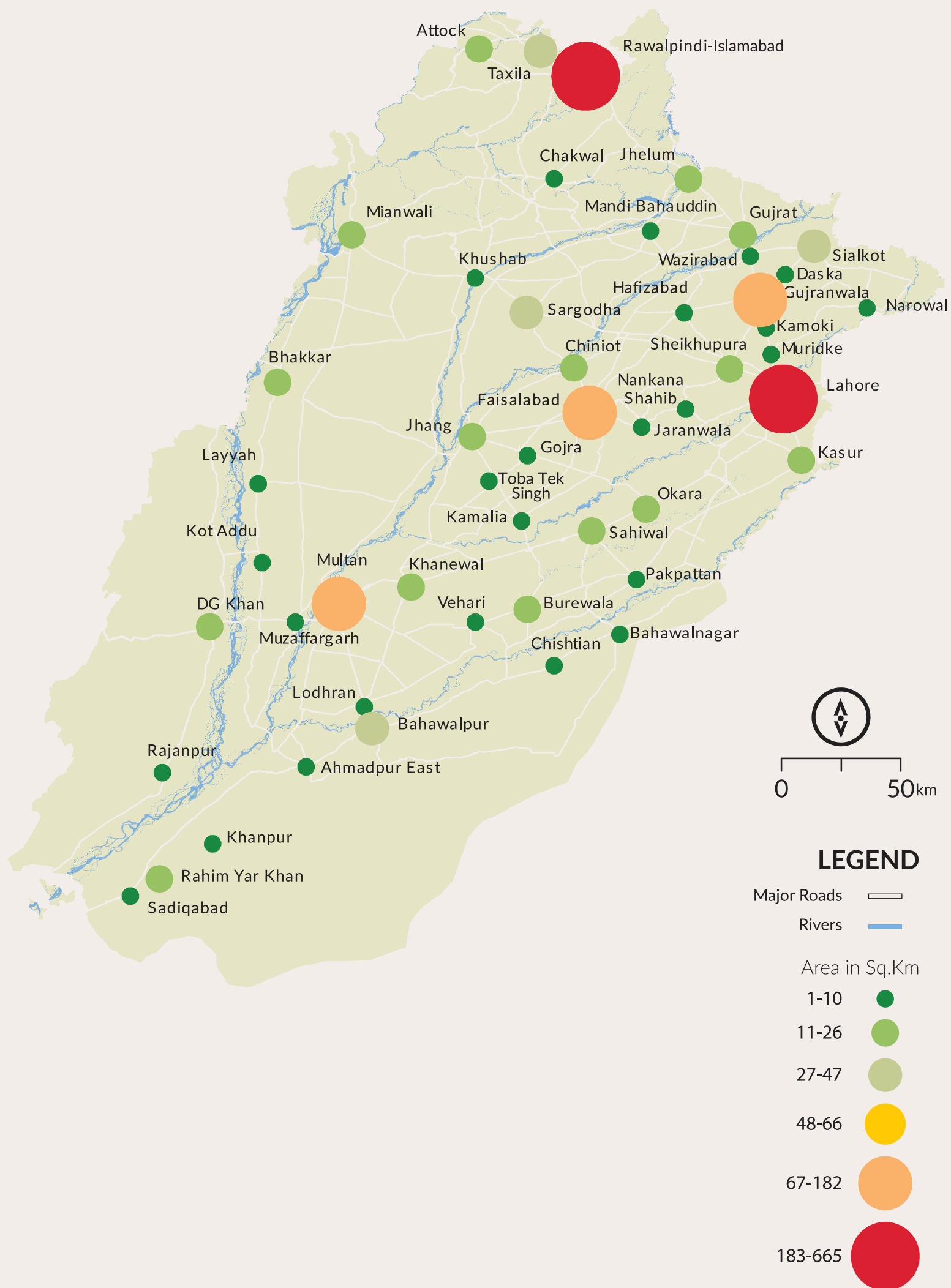
Cities Classification by Urban Area 1995-2015



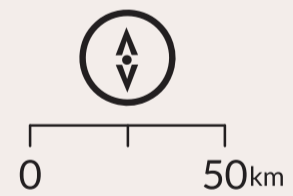
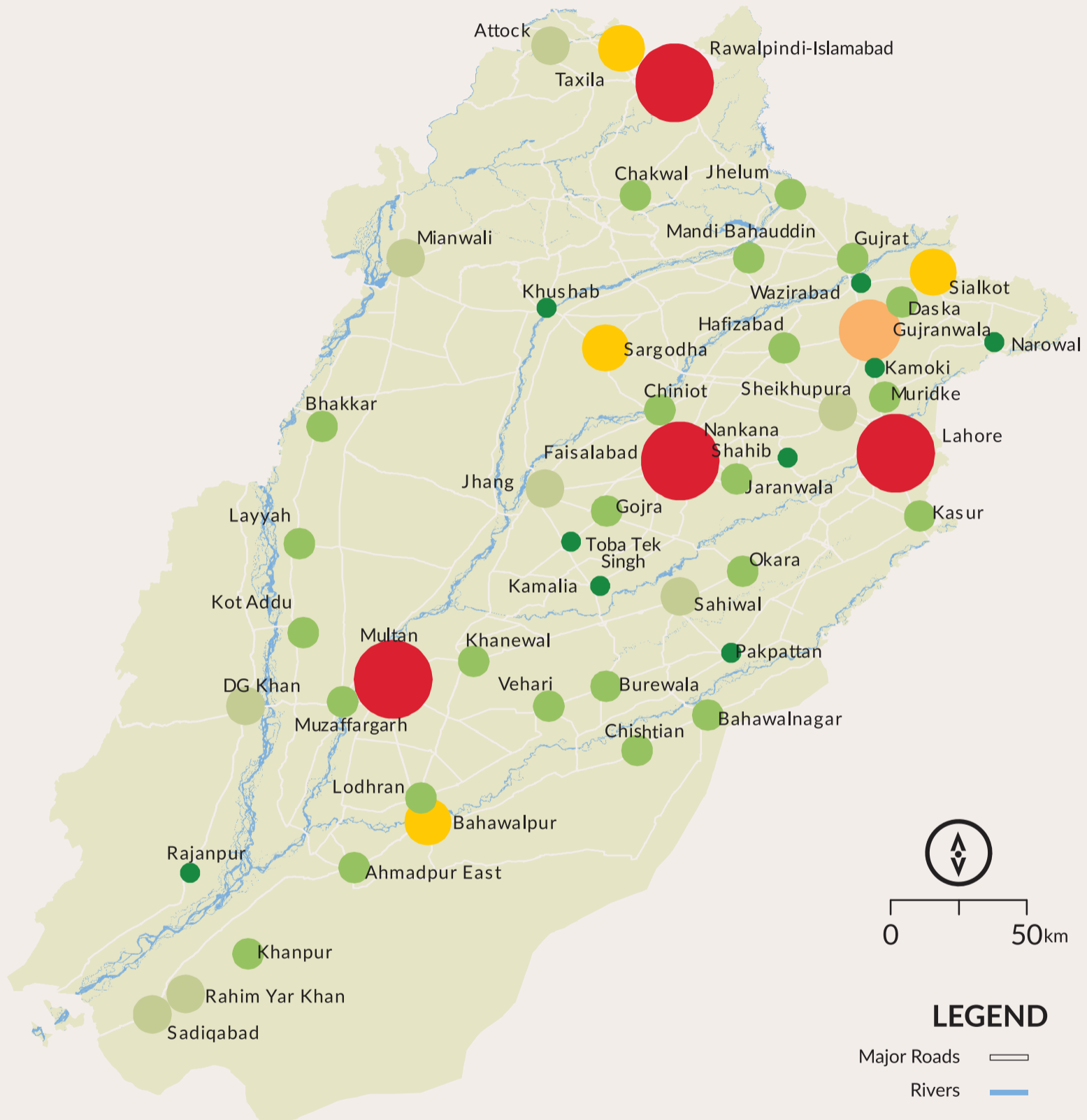
Cities Classification by Urban Area 1995



Cities Classification by Urban Area 2005



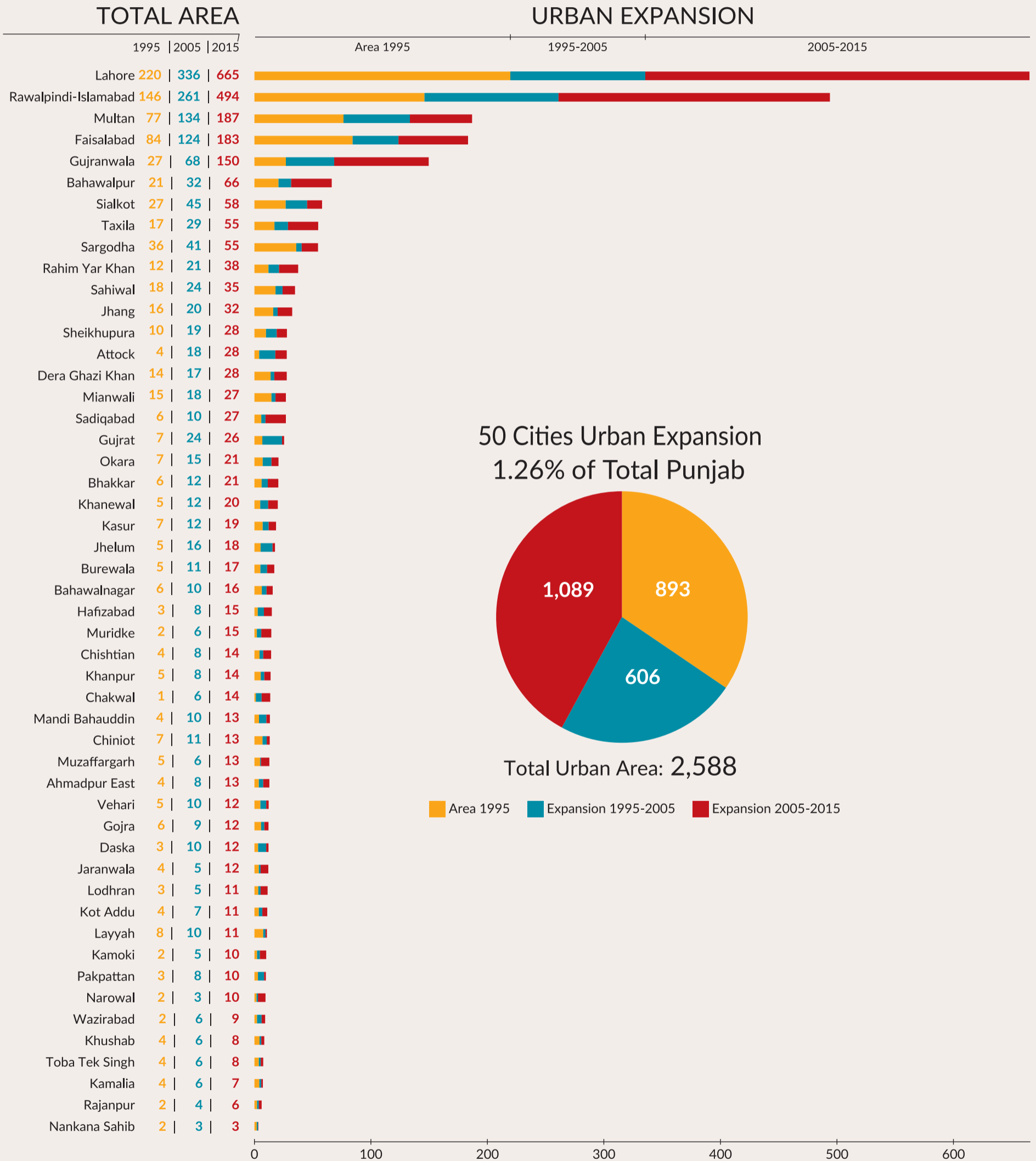
Cities Classification by Urban Area 2015



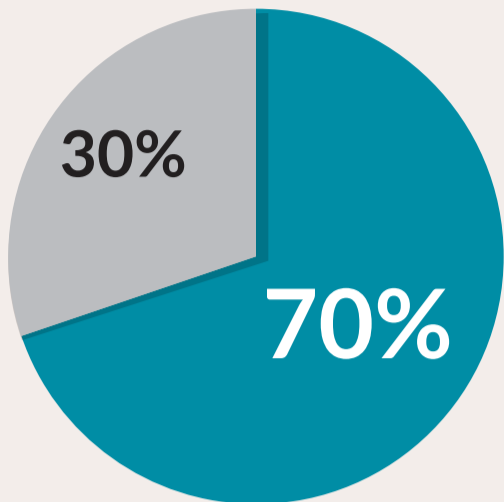
LEGEND

- Major Roads
- Rivers
- Area in Sq.Km
- 1-10
- 11-26
- 27-47
- 48-66
- 67-182
- 183-665

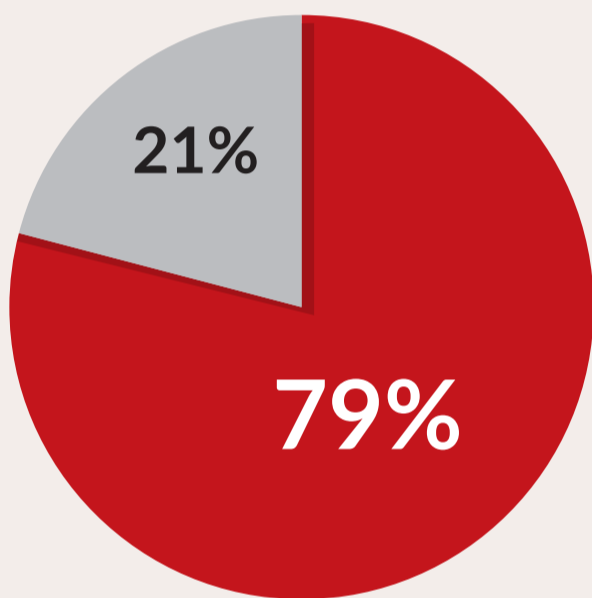
Urban Expansion Ranking by Area in Sq. Km



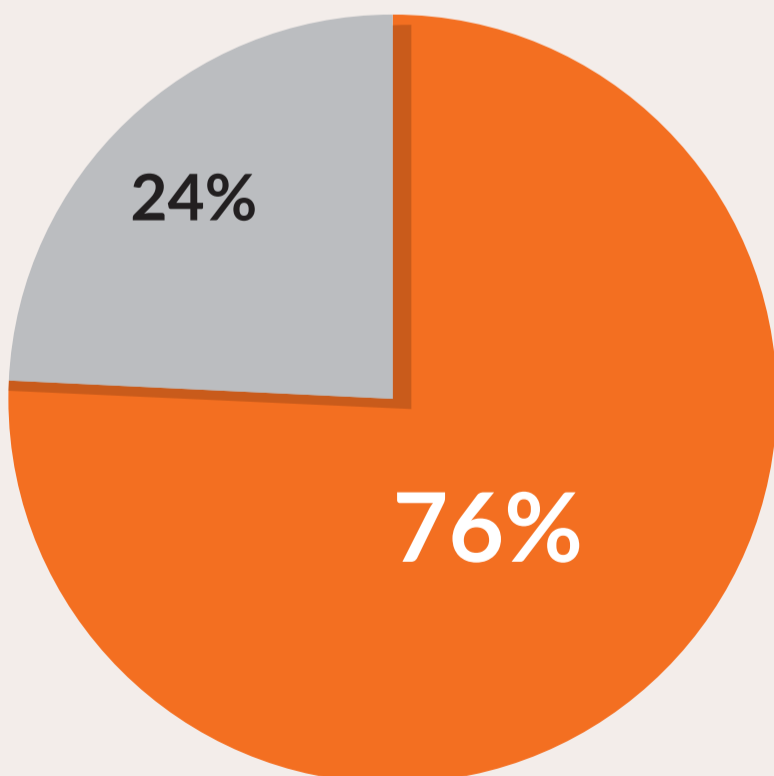
1995-2005



2005-2015



1995-2015



Area Contribution of Top 10 Cities to Urban Expansion 1995-2015

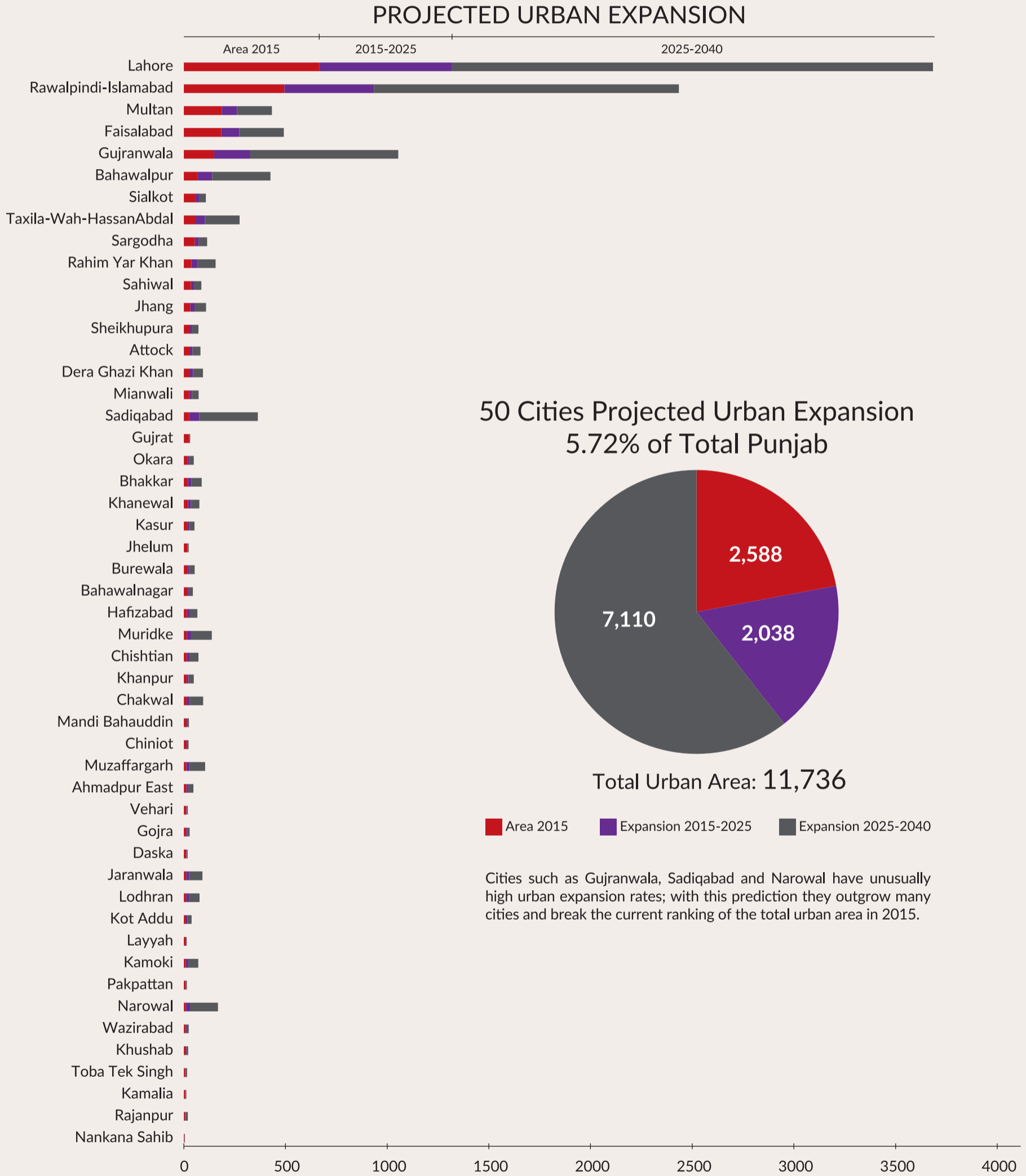
TOTAL URBAN EXPANSION AREA (SQ. KM)

	1995-2005	2005-2015	1995-2015
All 50 Cities	606	108,9	169,5
Top* 10 Cities	423	861	128,4
All Other 40 Cities	183	228	411

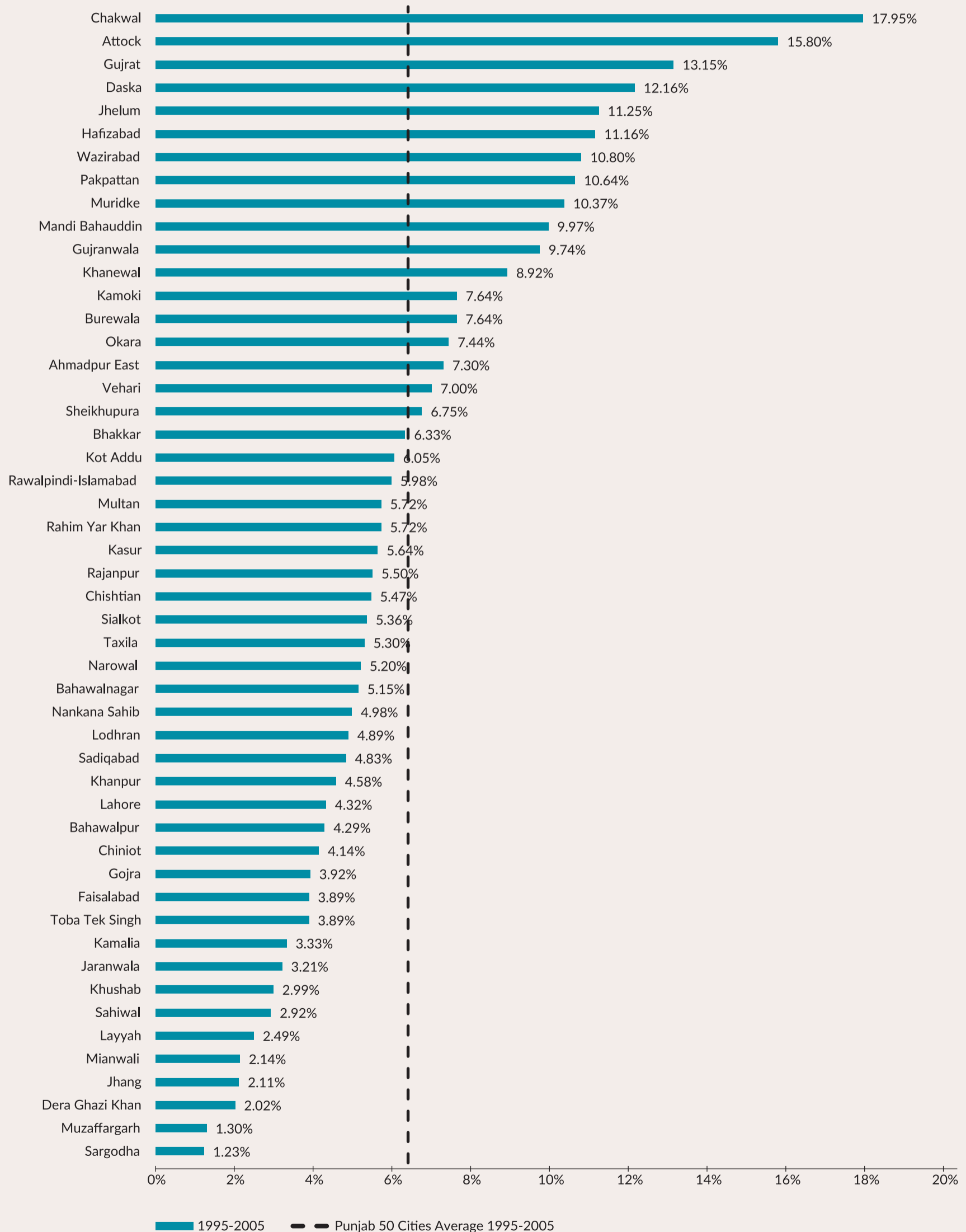
*Top 10 cities are based on largest city area in 2015.

■ Top* 10 Cities
 ■ All Other 40 Cities

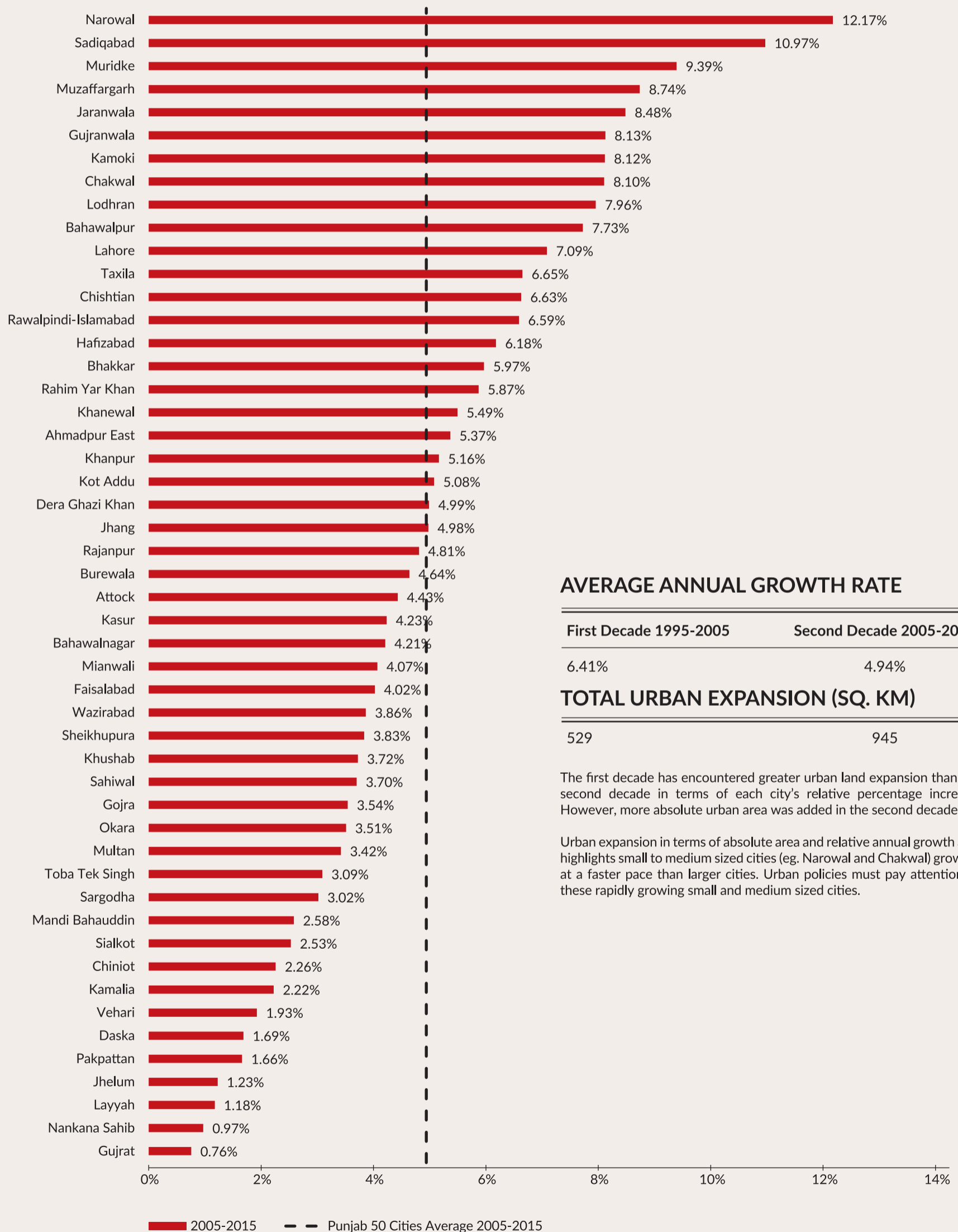
Projected Urban Expansion by Area in 2015



Compound Annual Area Growth Rate 1995-2005



Compound Annual Area Growth Rate 2005-2015



AVERAGE ANNUAL GROWTH RATE

First Decade 1995-2005	Second Decade 2005-2015
6.41%	4.94%

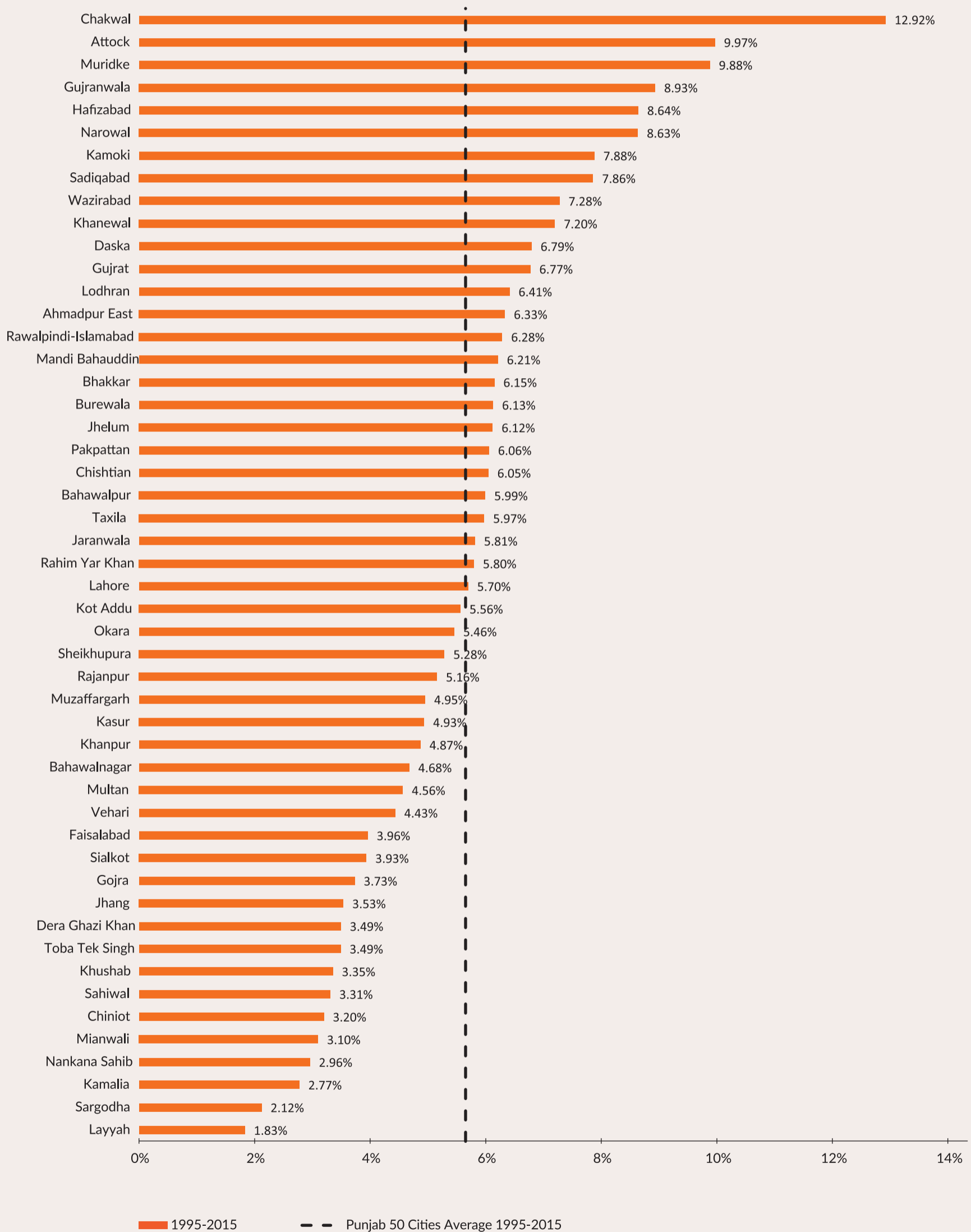
TOTAL URBAN EXPANSION (SQ. KM)

529	945
-----	-----

The first decade has encountered greater urban land expansion than the second decade in terms of each city's relative percentage increase. However, more absolute urban area was added in the second decade.

Urban expansion in terms of absolute area and relative annual growth also highlights small to medium sized cities (eg. Narowal and Chakwal) growing at a faster pace than larger cities. Urban policies must pay attention to these rapidly growing small and medium sized cities.

Compound Annual Area Growth Rate 1995-2015

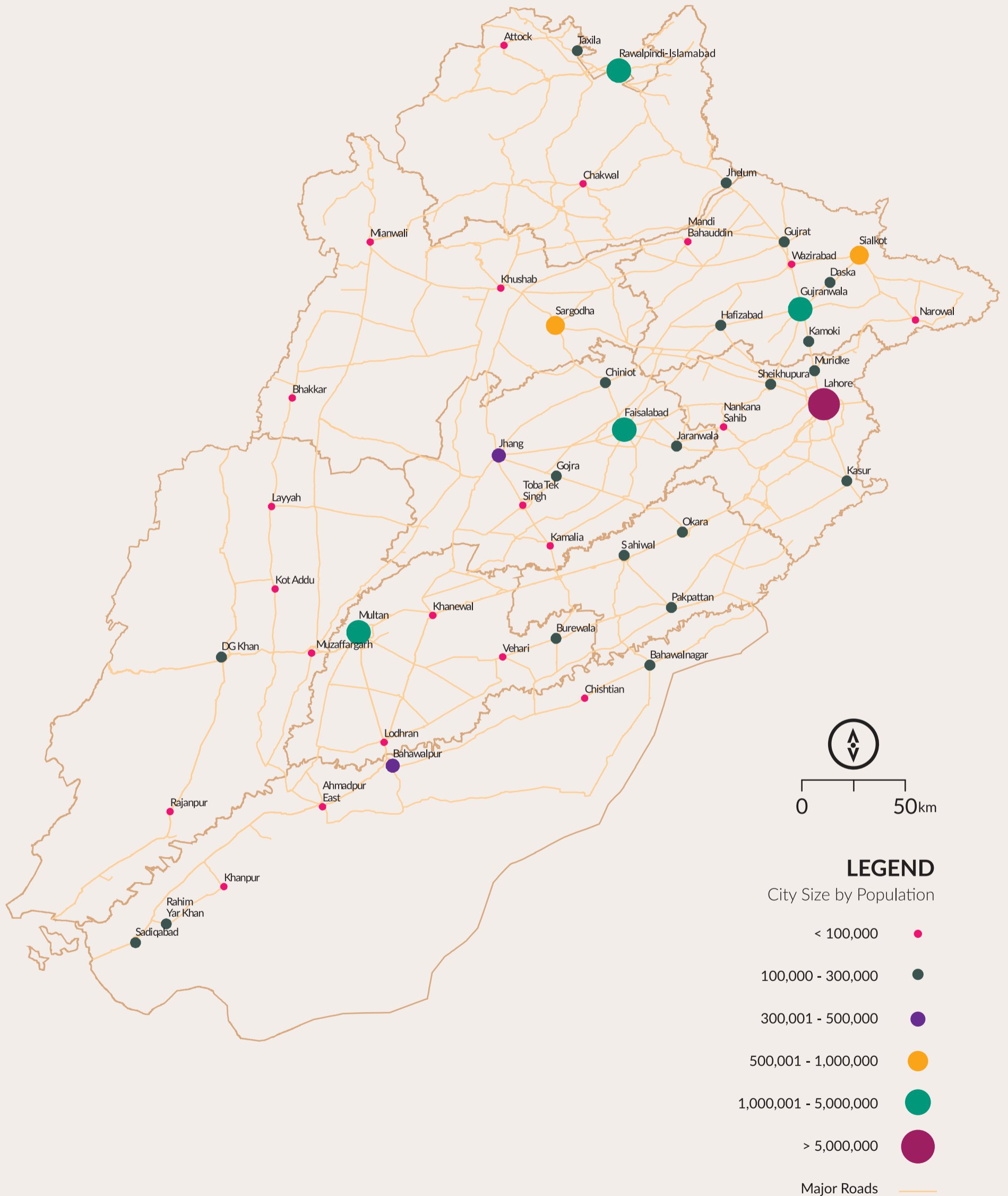


50 Cities Ranking

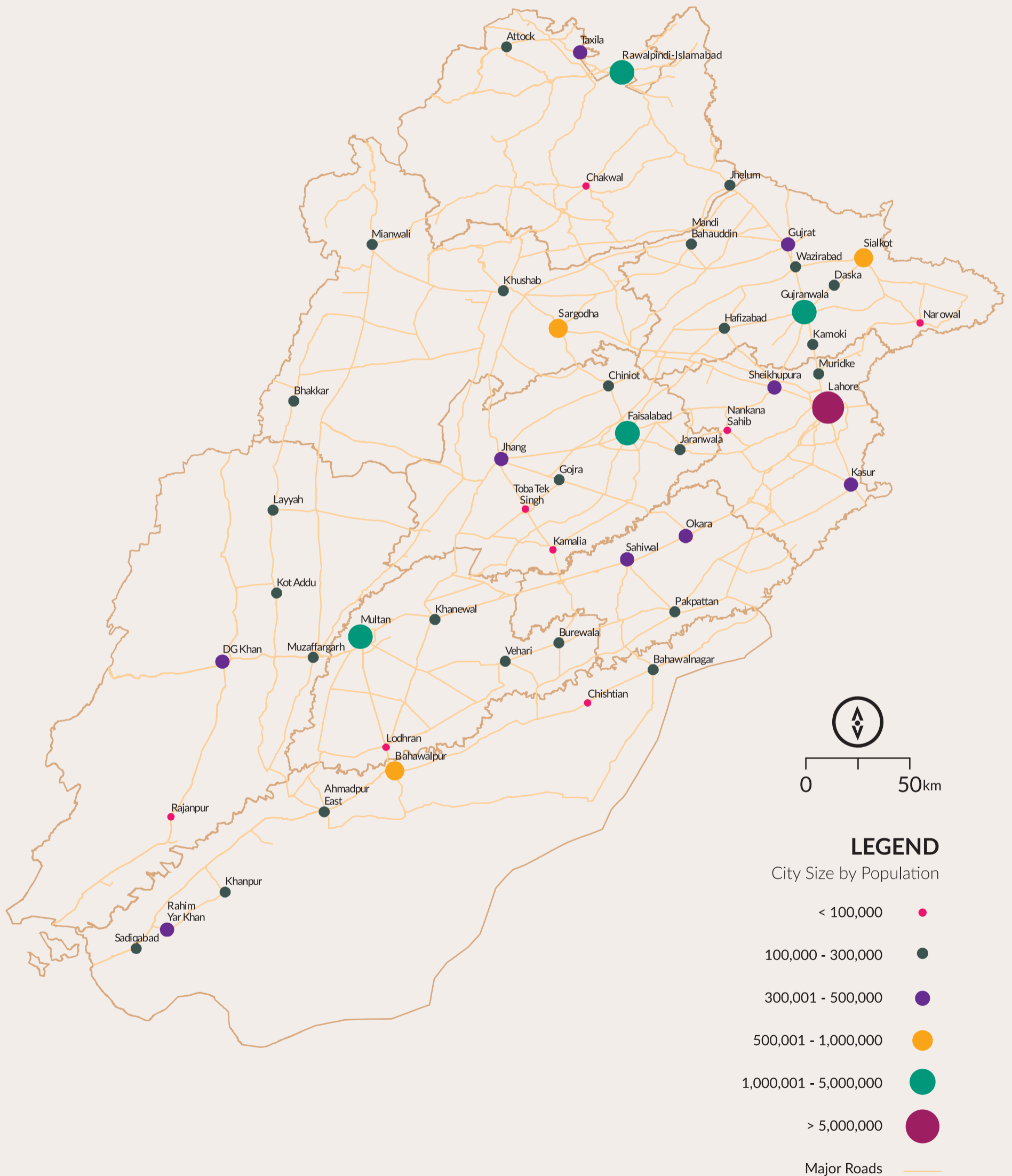
by Rate of Urban Expansion 1995-2015

CITY	GROWTH RANKING 1995-2005	TOTAL % CHANGE 1995-2005	GROWTH RANKING 2005-2015	TOTAL % CHANGE 2005-2015
Narowal	29	66%	1	215%
Sadiqabad	33	60%	2	183%
Muridke	9	168%	3	145%
Muzaffargarh	49	14%	4	131%
Jaranwala	42	37%	5	126%
Gujranwala	11	153%	6	118%
Kamoki	13	109%	7	118%
Chakwal	1	421%	8	118%
Lodhran	32	61%	9	115%
Bahawalpur	36	52%	10	110%
Lahore	35	53%	11	98%
Taxila	28	68%	12	90%
Chishtian	26	70%	13	90%
Rawalpindi-Islamabad	21	79%	14	89%
Hafizabad	6	188%	15	82%
Bhakkar	19	85%	16	79%
Rahim Yar Khan	23	74%	17	77%
Khanewal	12	135%	18	71%
Ahmadpur East	16	102%	19	69%
Khanpur	34	56%	20	65%
Kot Addu	20	80%	21	64%
Dera Ghazi Khan	48	22%	22	63%
Jhang	47	23%	23	63%
Rajanpur	25	71%	24	60%
Burewala	14	109%	25	57%
Attock	2	334%	26	54%
Kasur	24	73%	27	51%
Bahawalnagar	30	65%	28	51%
Mianwali	46	24%	29	49%
Faisalabad	39	46%	30	48%
Wazirabad	7	179%	31	46%
Sheikhupura	18	92%	32	46%
Khushab	43	34%	33	44%
Sahiwal	44	33%	34	44%
Gojra	38	47%	35	42%
Okara	15	105%	36	41%
Multan	22	74%	37	40%
Toba Tek Singh	40	46%	38	36%
Sargodha	50	13%	39	35%
Mandi Bahauddin	10	159%	40	29%
Sialkot	27	69%	41	28%
Chiniot	37	50%	42	25%
Kamalia	41	39%	43	25%
Vehari	17	97%	44	21%
Daska	4	215%	45	18%
Pakpattan	8	175%	46	18%
Jhelum	5	190%	47	13%
Layyah	45	28%	48	12%
Nankana Sahib	31	63%	49	10%
Gujrat	3	244%	50	8%

Cities Classification by Population Count 2005

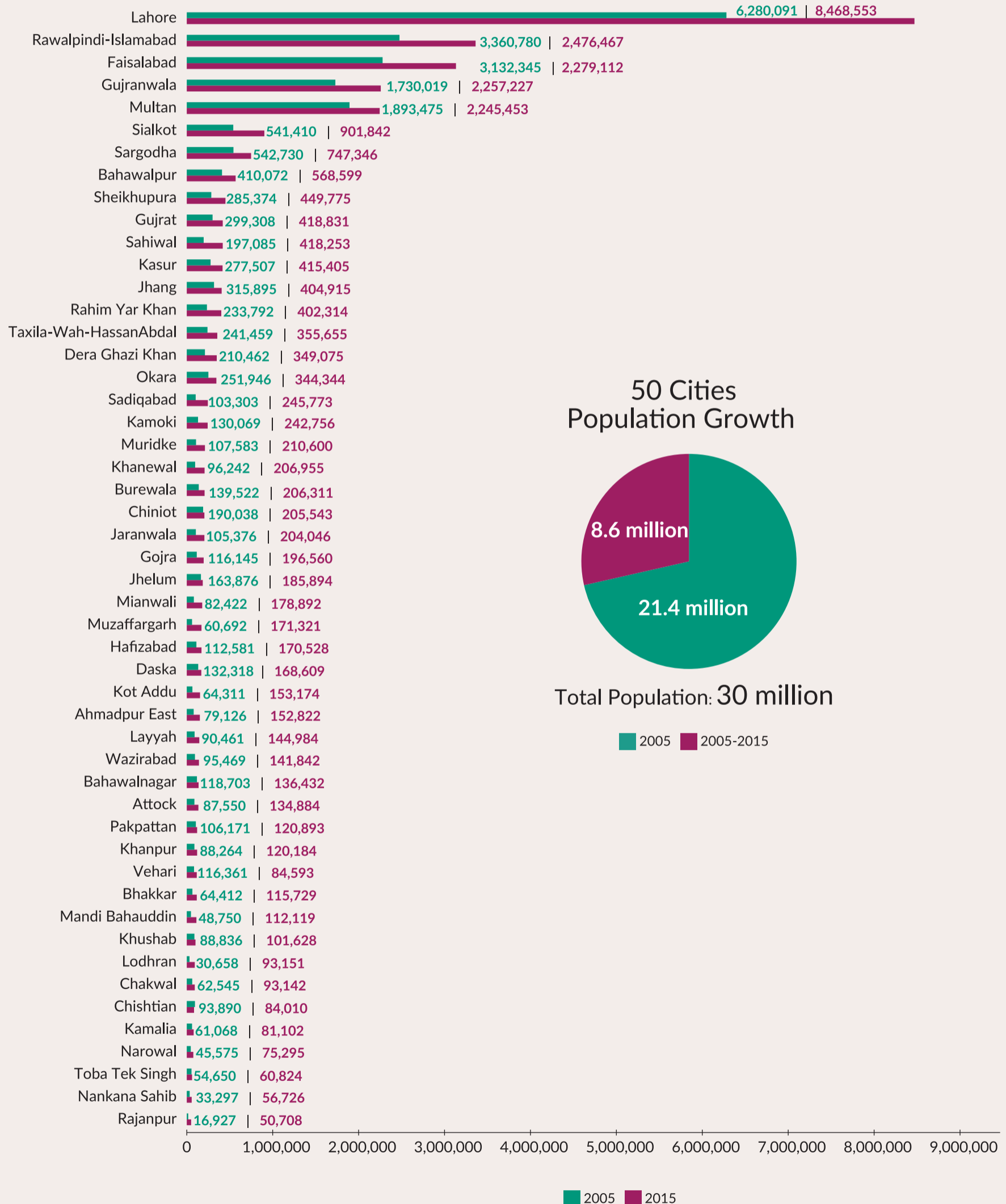


Cities Classification by Population Count 2015



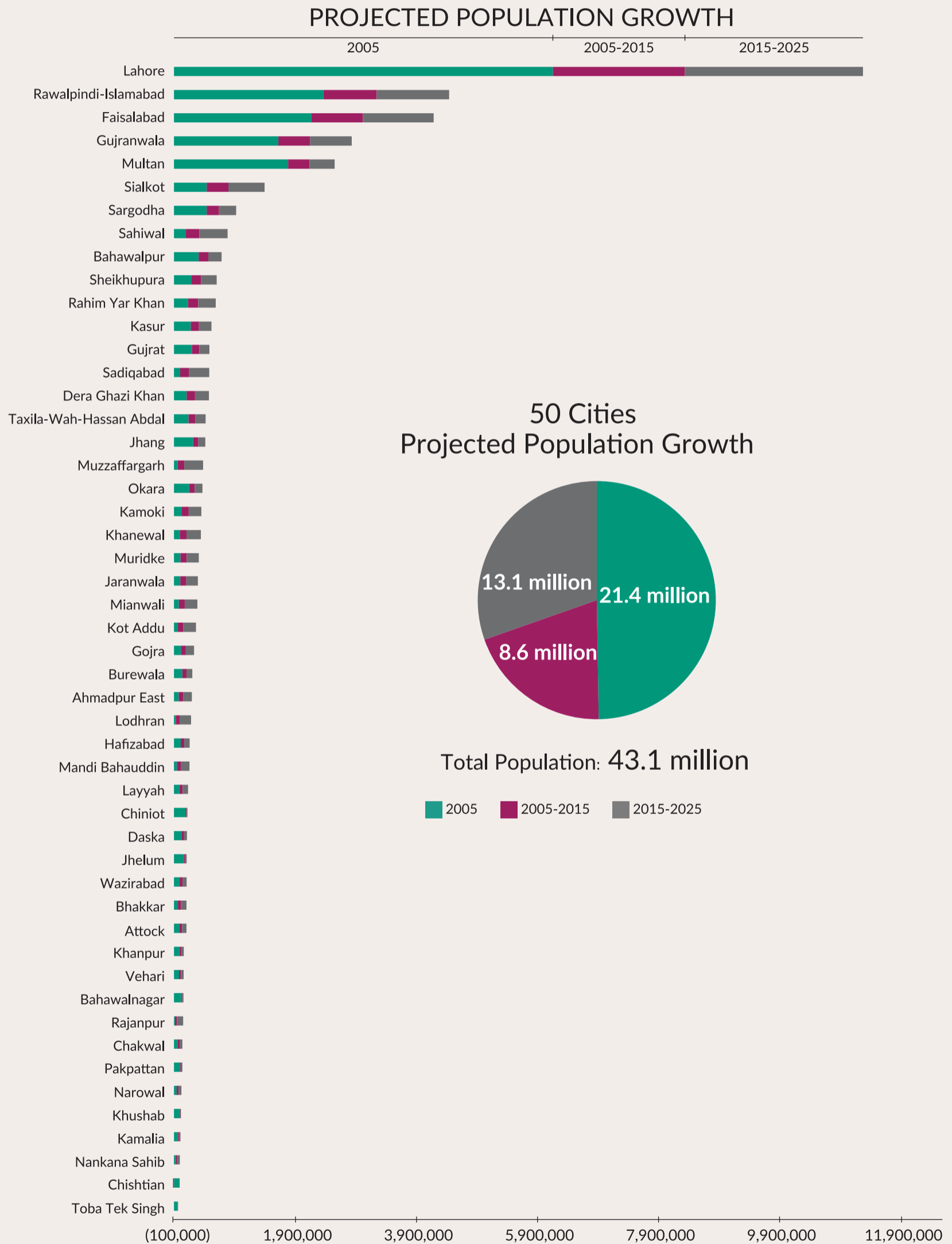
Population Count

Ranking by Population in 2015



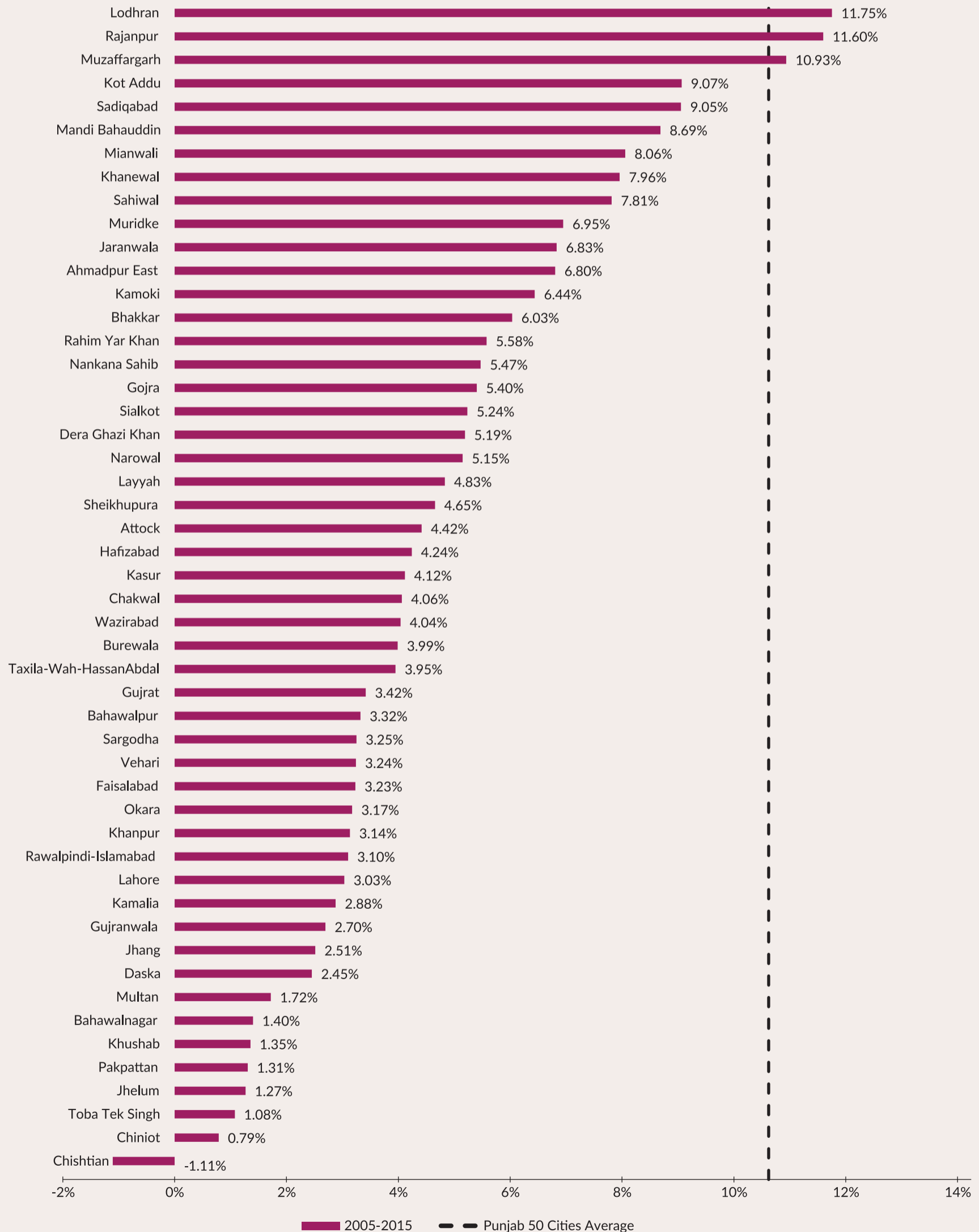
Data Source:
Population Count - LandScan 2005 & 2015

Projected Population Growth Ranking by Population in 2025



Data Source:
Population Count - LandScan 2005 & 2015

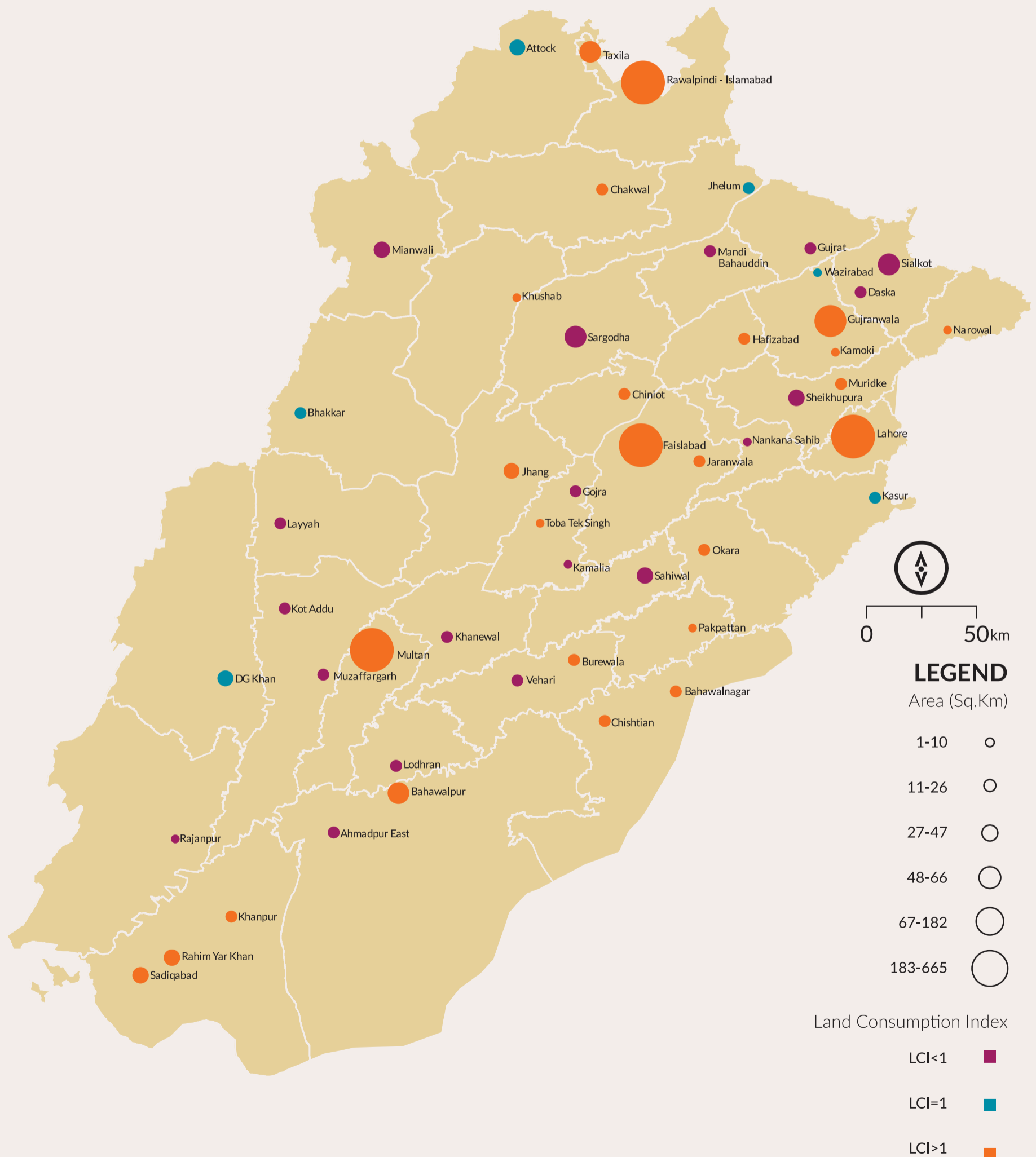
Compound Annual Population Growth Rate 2005-2015



Urban Land Consumption 2005-2015

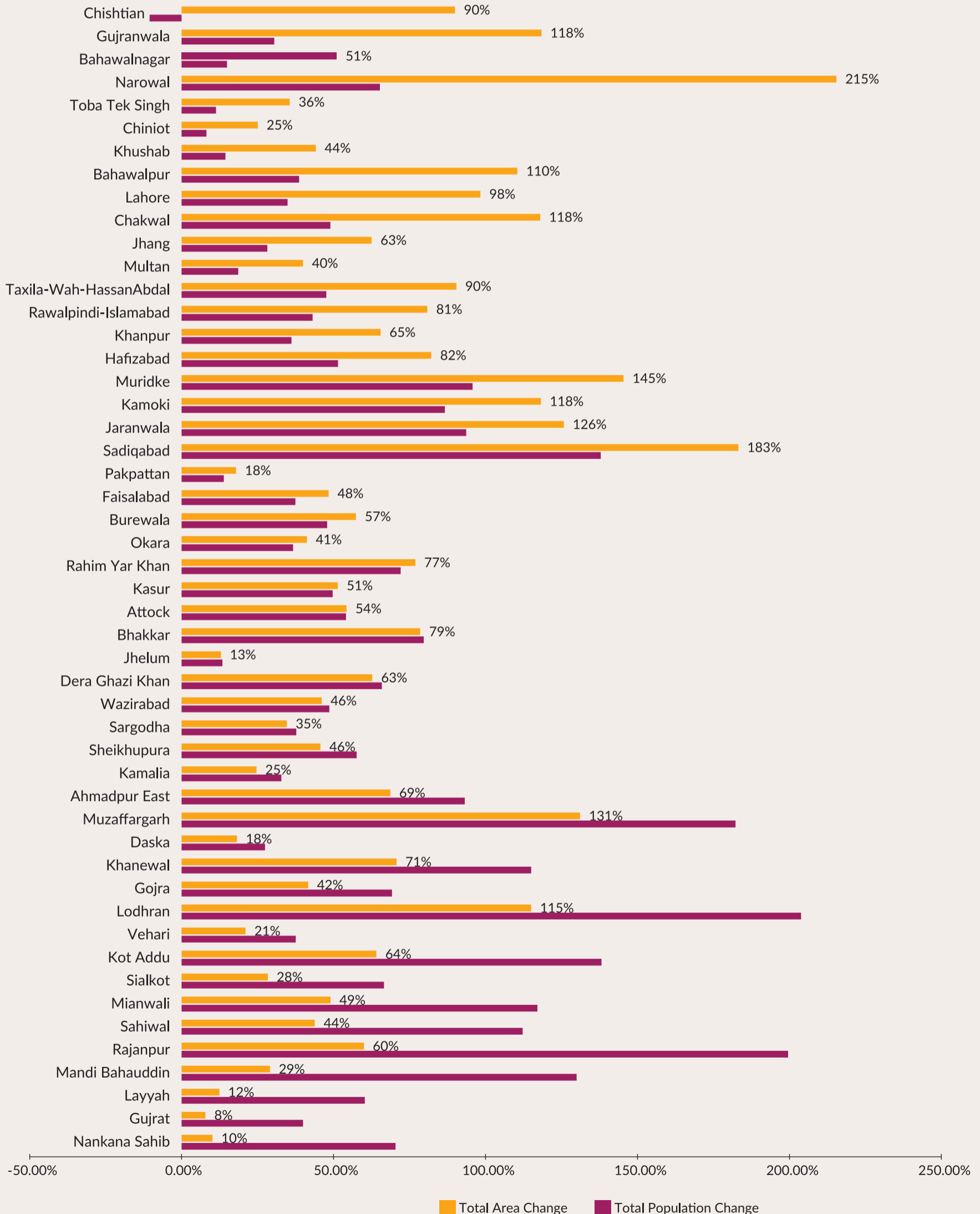
The Land Consumption Index (LCI) is the ratio of percentage change in area to percentage change in population. For the 25 out of 50 cities consuming more urban land than its respective population growth, the LCI is greater than one.

The LCI is equal to one for 6 cities that have their urban area growing at the same rate as their population. The remaining 19 cities are consuming less urban area than its respective population growth, the LCI is less than one. Gujranwala is using 3.89 times more land for each marginal unit of population.



Urban Land Consumption 2005-2015

25 out of 50 cities have had greater urban area growth than population growth.



Urban Land Consumption Index 2005-2015

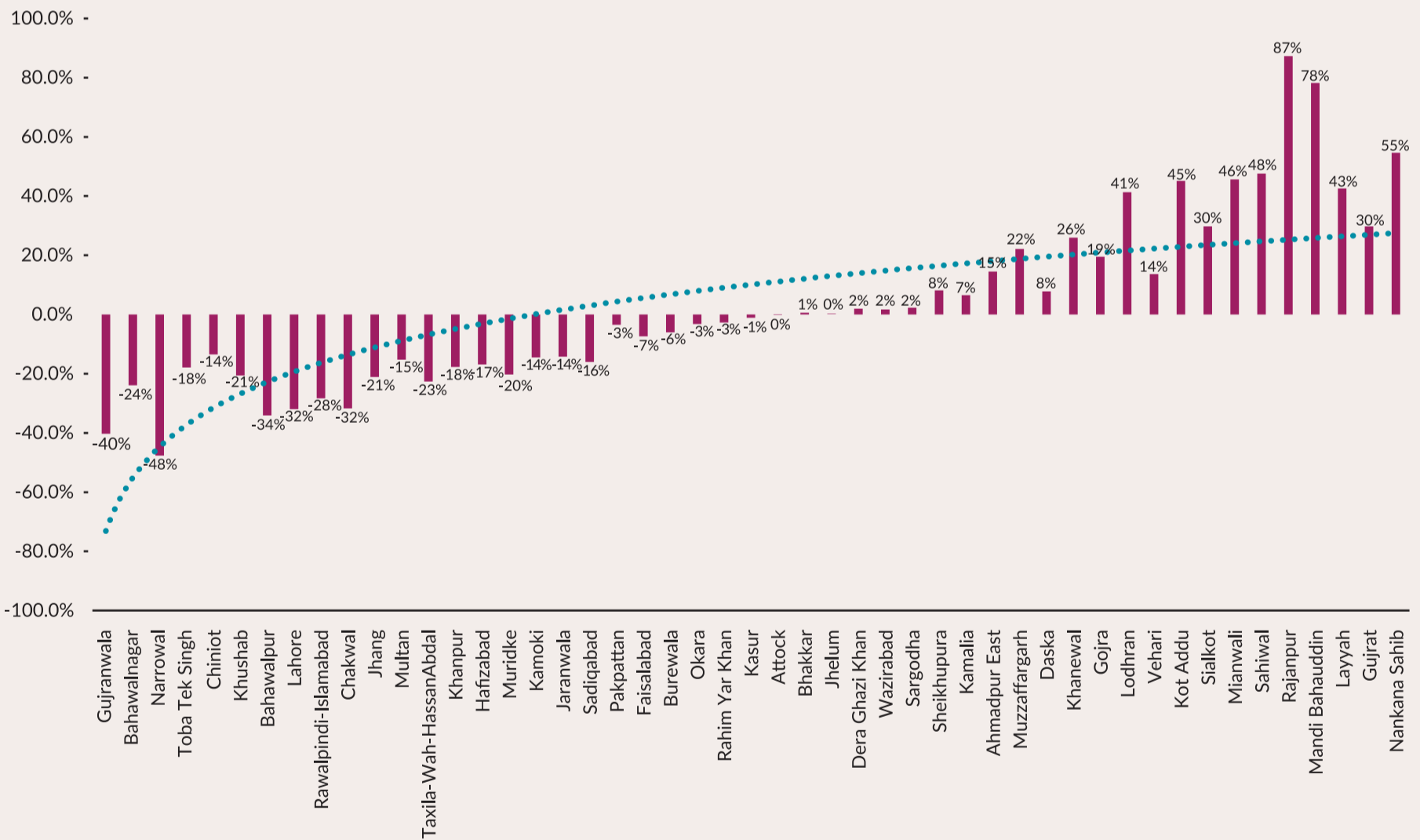
The Land Consumption Index (LCI) is the ratio of percentage change in area to percentage change in population.



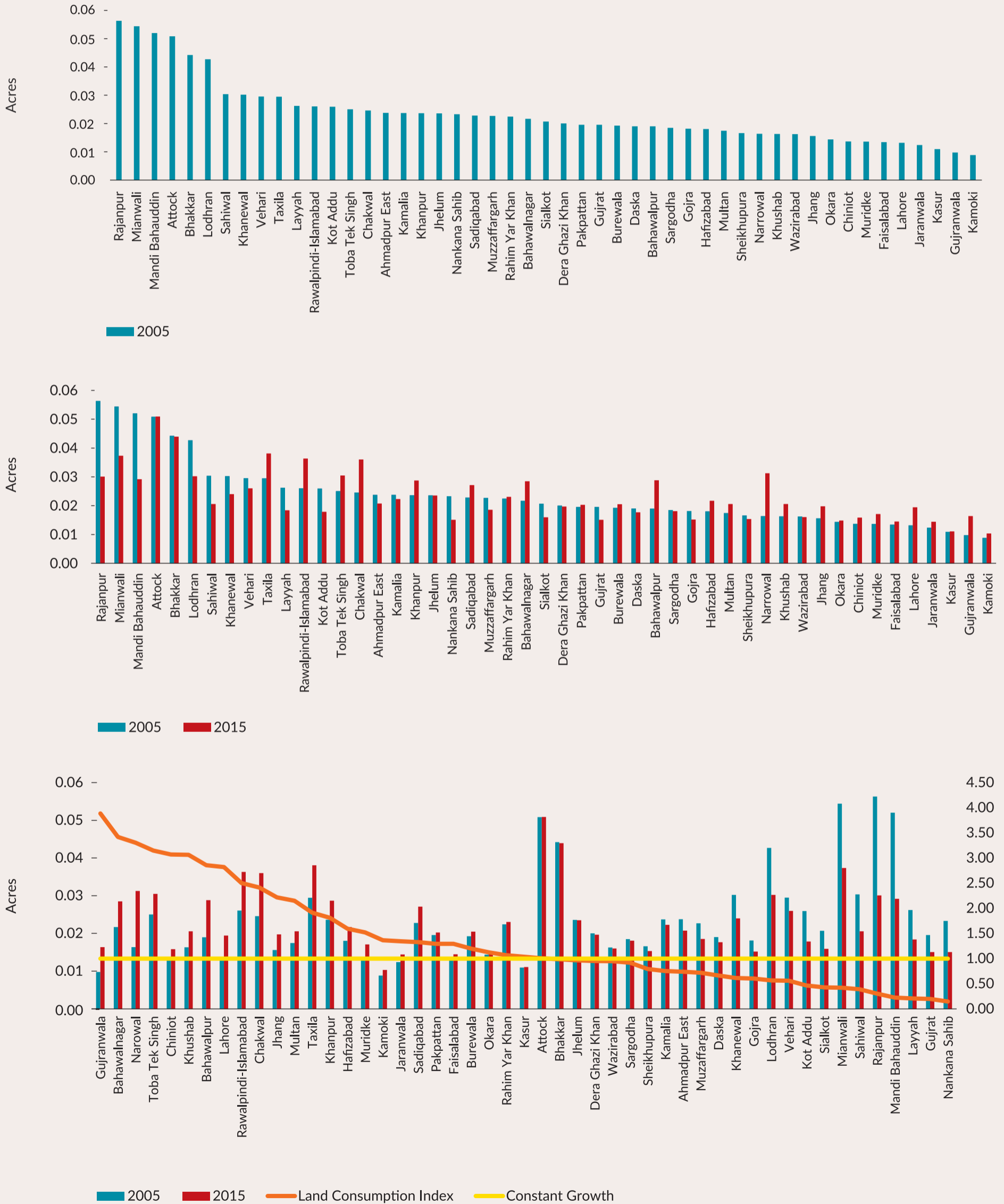
*Chishtian is an anomaly. Its area has increased by 90% while its population has decreased by 10.52%; LCI is -8.55. It is excluded from the charts to avoid distortion.

Change in Density by Urban Land Consumption Index 2005-2015

Cities consuming more land per person have decreasing densities; however, by varying degrees. For example, Gujranwala does not have the largest decline in density but the Land Consumption Index is the highest because of the ratio of percentage change in area to percentage change in population. Attock has a Land Consumption Index of 1 and a density decrease of -0.01%.

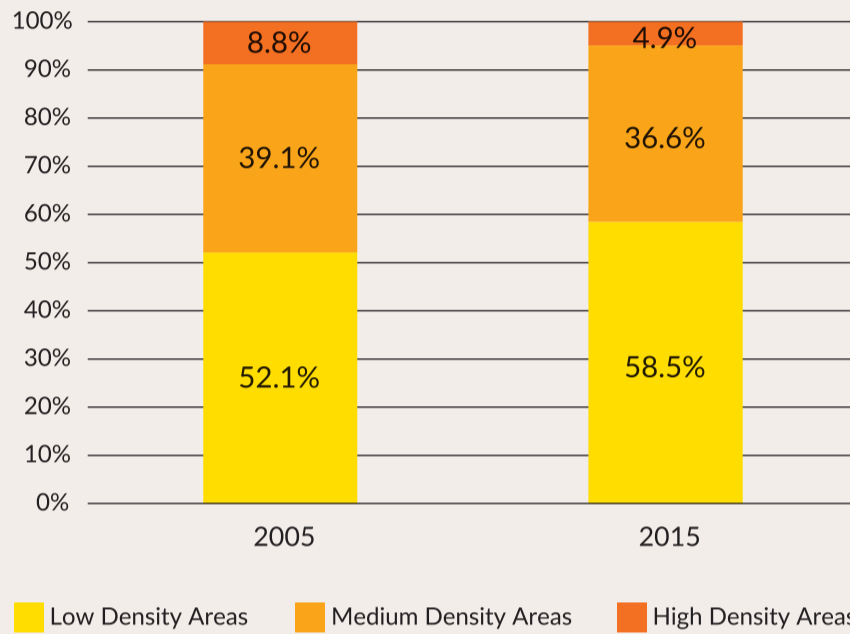


Area Per Person 2005 and 2015

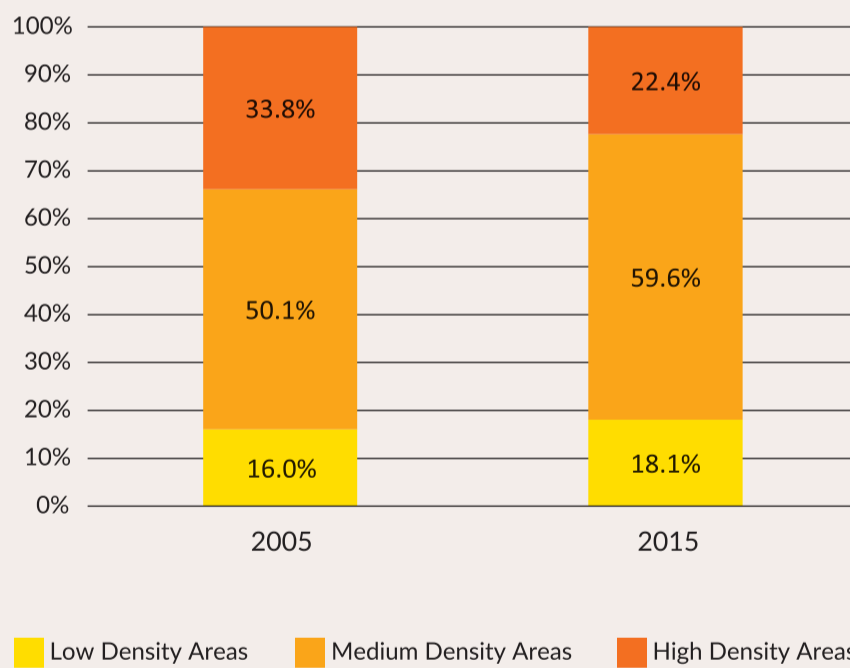


Total Population Density Composition 2005-2015

Punjab Density-Area Composition



% Population by Density Areas



PERCENTAGE CHANGE IN DENSITY-AREA COMPOSITION

Low Density Areas

↑12.2%

Medium Density Areas

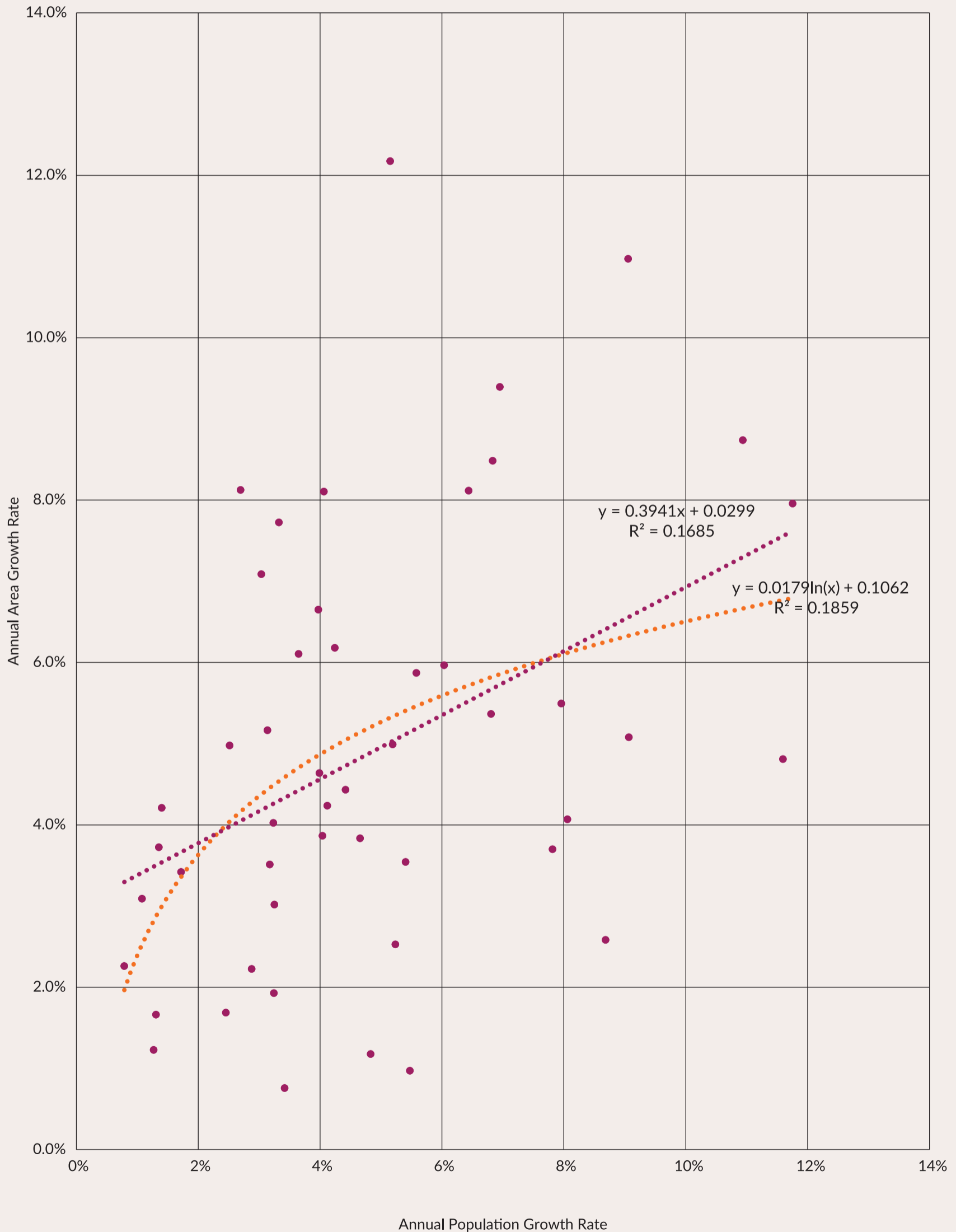
↓6.2%

High Density Areas

↓44.9%

Population Area Correlation 2005-2015

There is a very weak correlation between area growth and population growth for the 50 cities in Punjab.

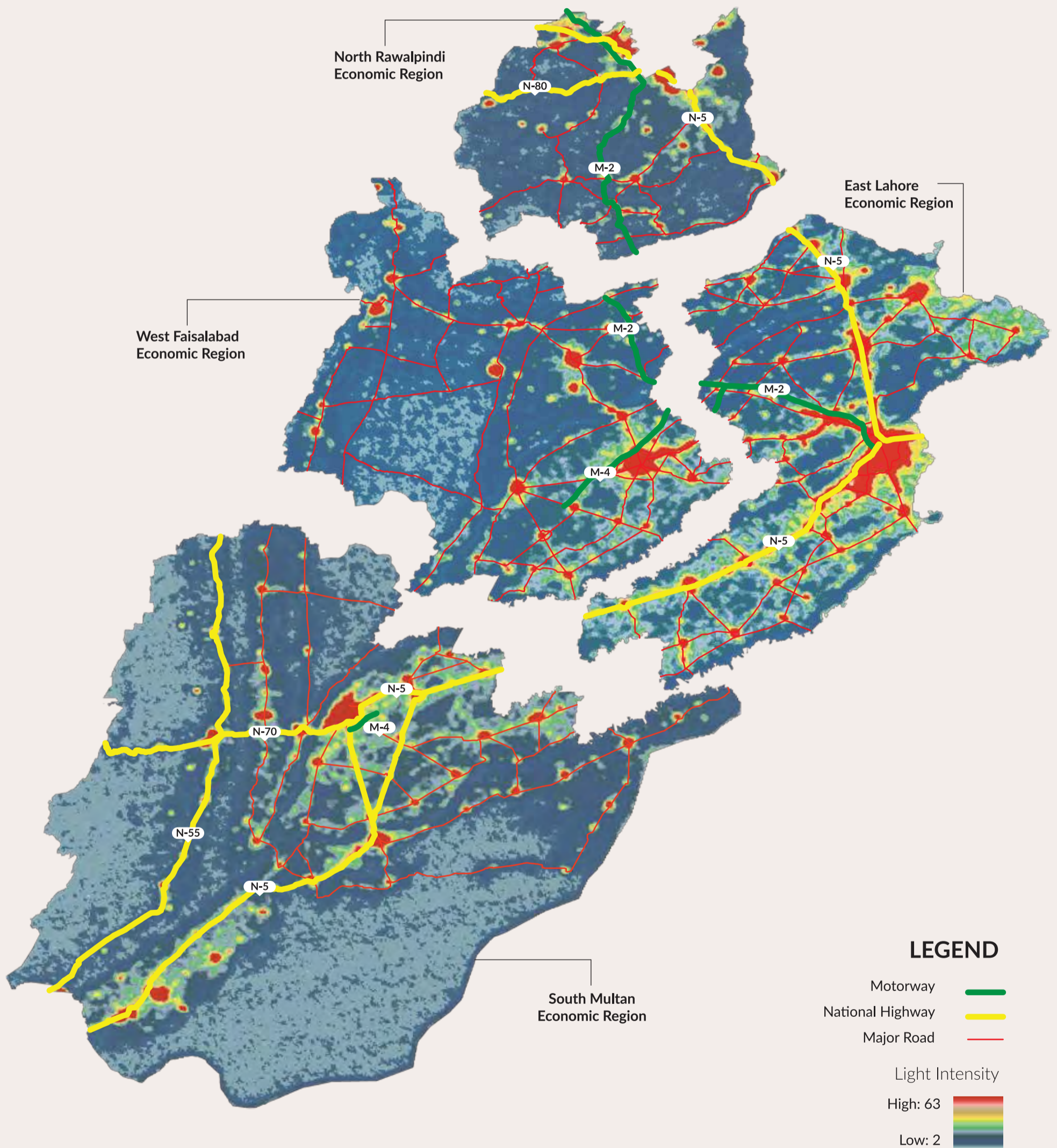


Economic Regions of Punjab

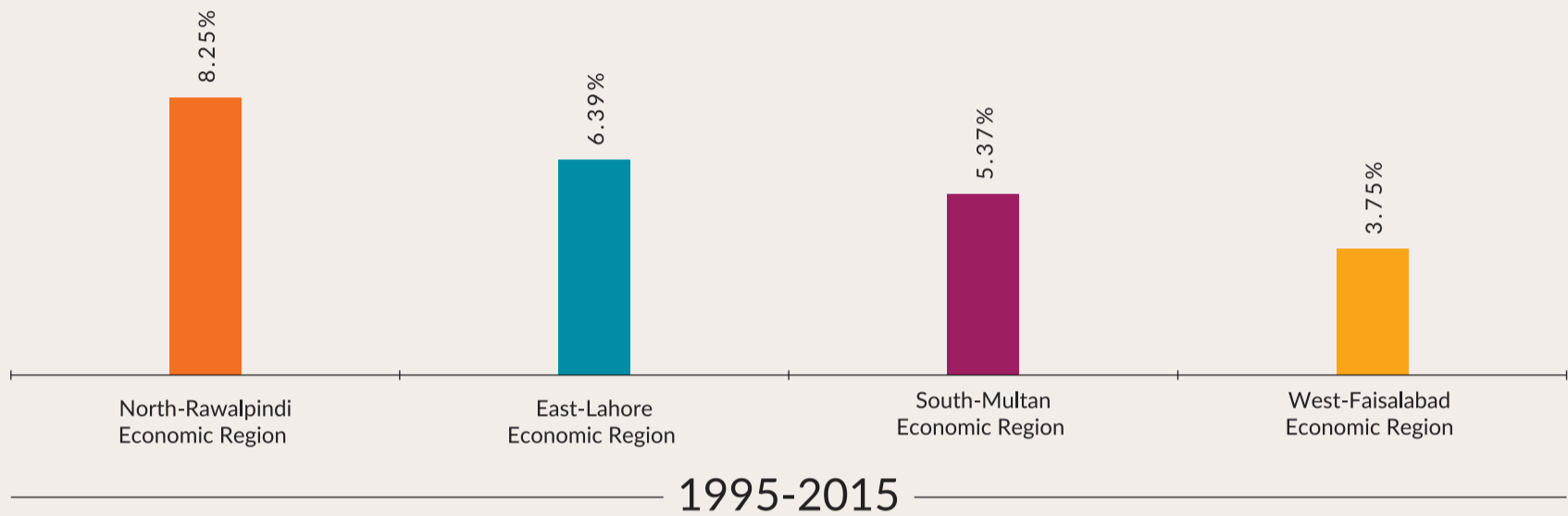
Based on an Analysis for Economic Regions, initial findings point toward four main Economic Regions centred around Lahore, Rawalpindi, Faisalabad and Multan. These regions have been identified for integration of the economy by uncovering and building upon economic networks and the spatial configuration of cities. In this Atlas, these economic regions has been used to further analyse the growth rate on regional basis. The following parameters were catered while defining the regions;

1. Initial identification was carried out by drawing a hundred kilometre radius around four major cities of Punjab. These cities were selected for their political and international importance and their overall influence within the economy.
2. A visual analysis of the network pointed toward a clear hierarchy of settlements for which a City Classification System was devised along with a theoretical model to explain the linkages.
3. The resulting network of Primary and Intermediate cities was then overlaid with administrative boundaries to ascertain administrative limits for this regional 'System of Cities'.
4. In parallel, a nightlight analysis was also carried out to determine the relationship between cities by analysing the intensity of corridor developments between them.
5. A historical analysis was also carried out whereby it was revealed that these regions existed at the time of partition in the shape of four divisions. This lends credence to the hypothesis that the regional 'System of Cities' identified very likely, dates back to British-era planning.
6. Subsequently, additional criteria like Geography, Language & Culture and other characteristics were used to build different regional profiles.

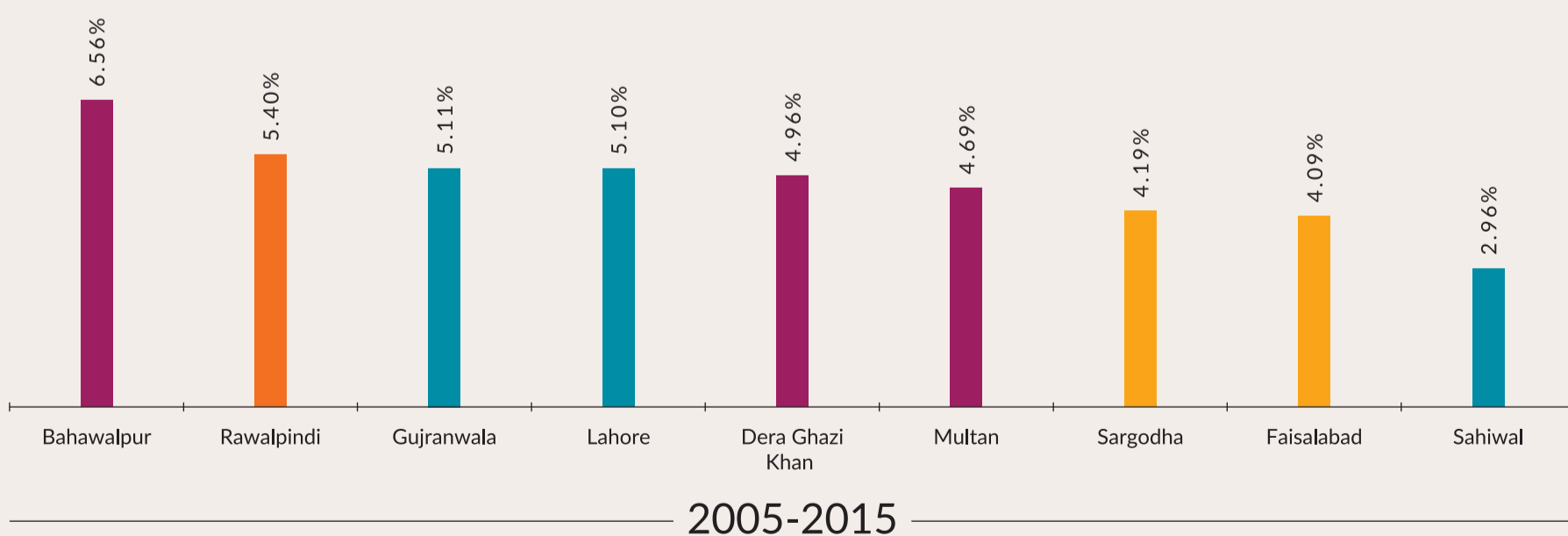
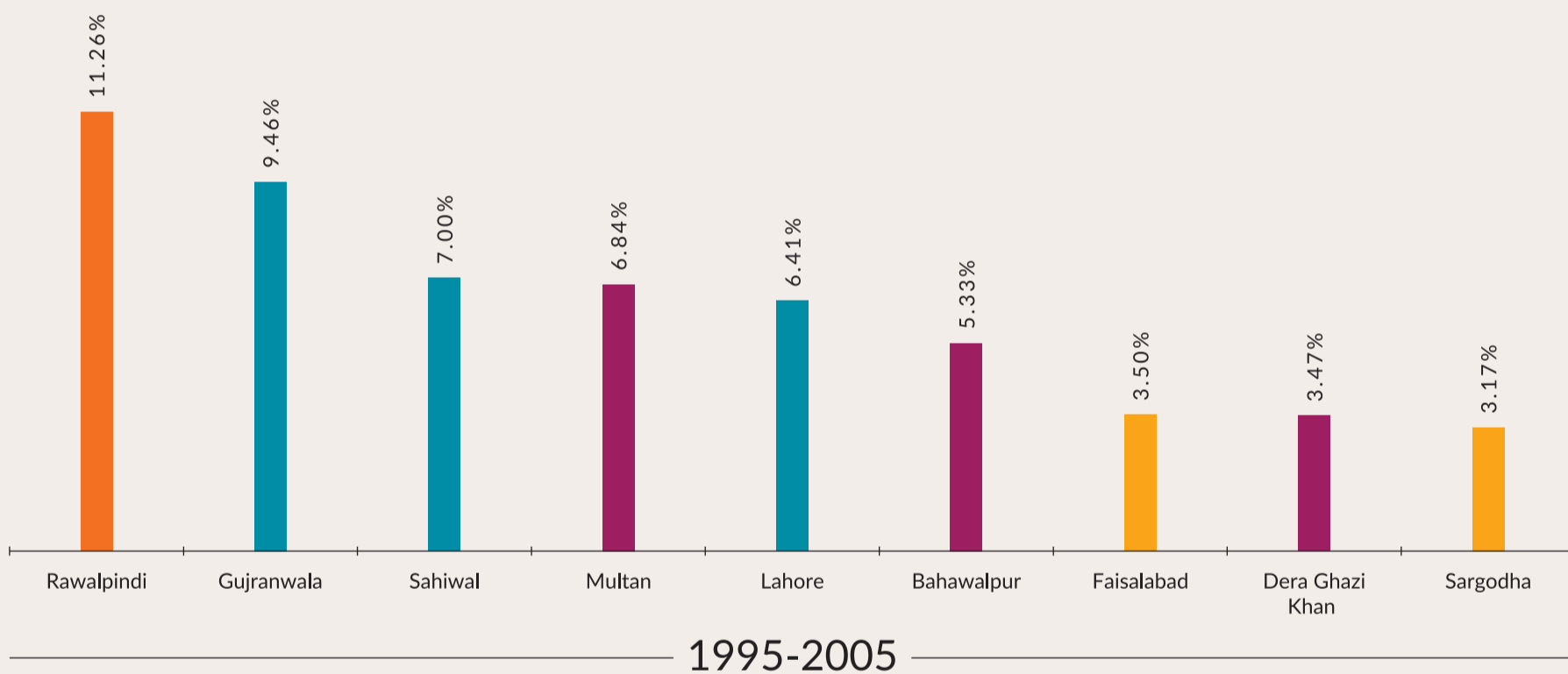
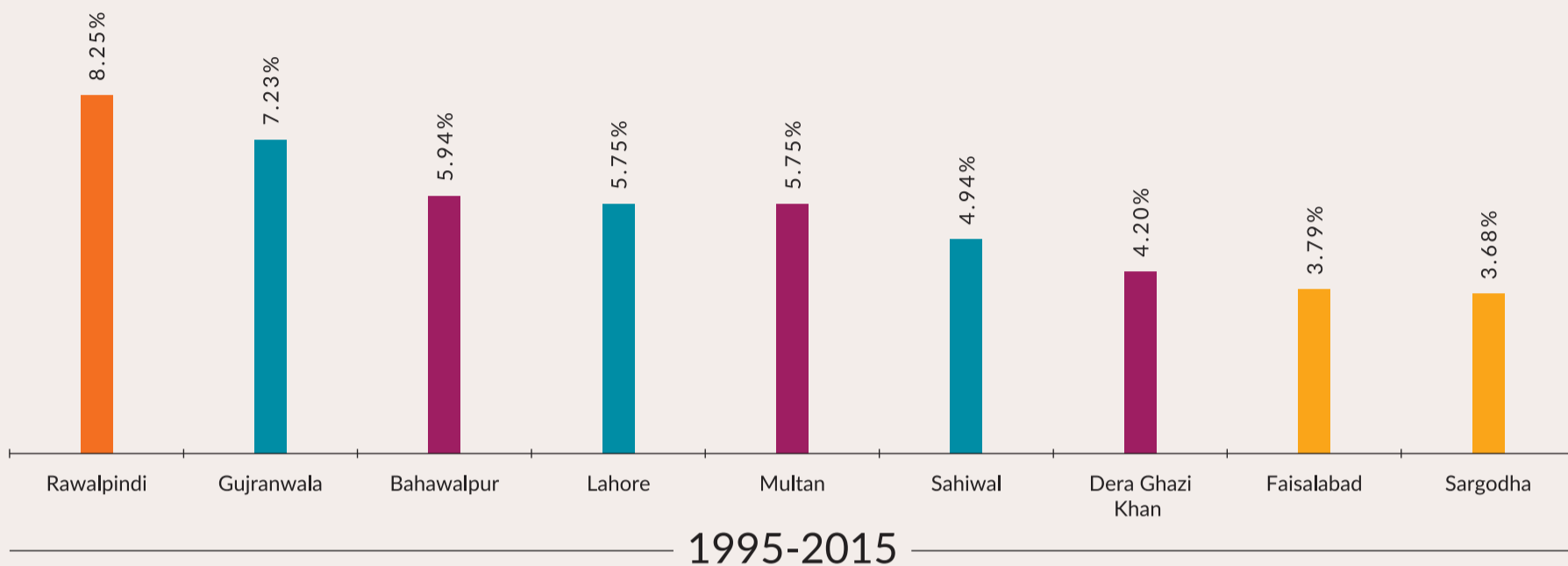
Economic Regions of Punjab



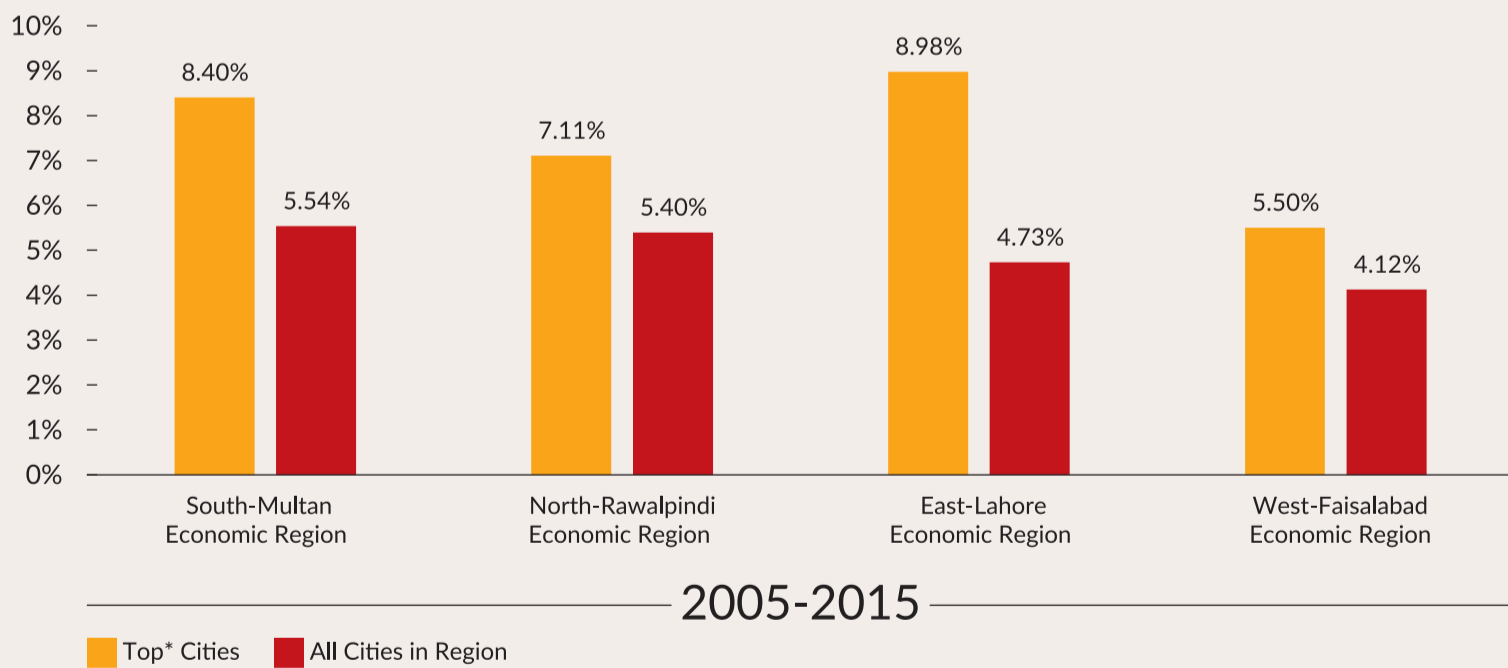
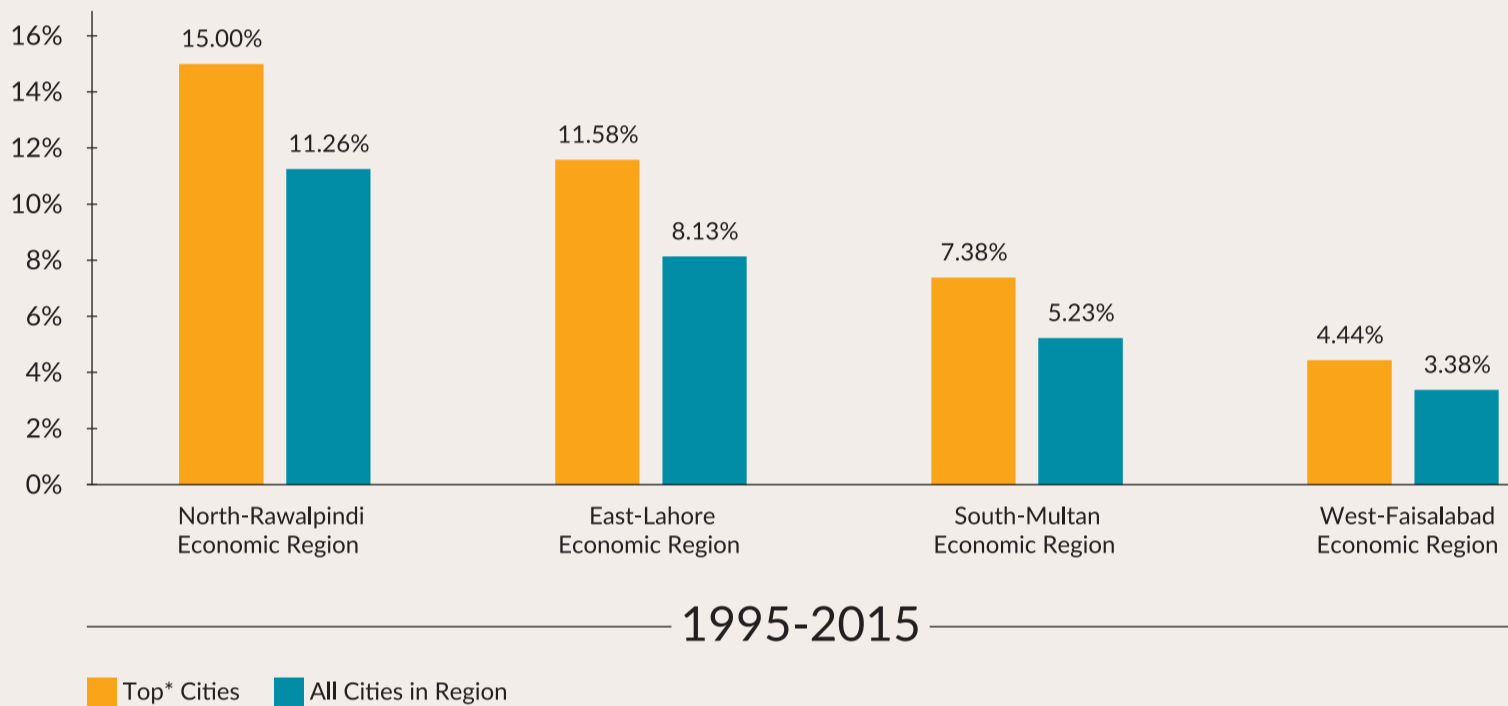
Annual Area Growth Rate (Region Average) Ranking by Economic Region



Annual Area Growth Rate (Division Average) Ranking by Administrative Division

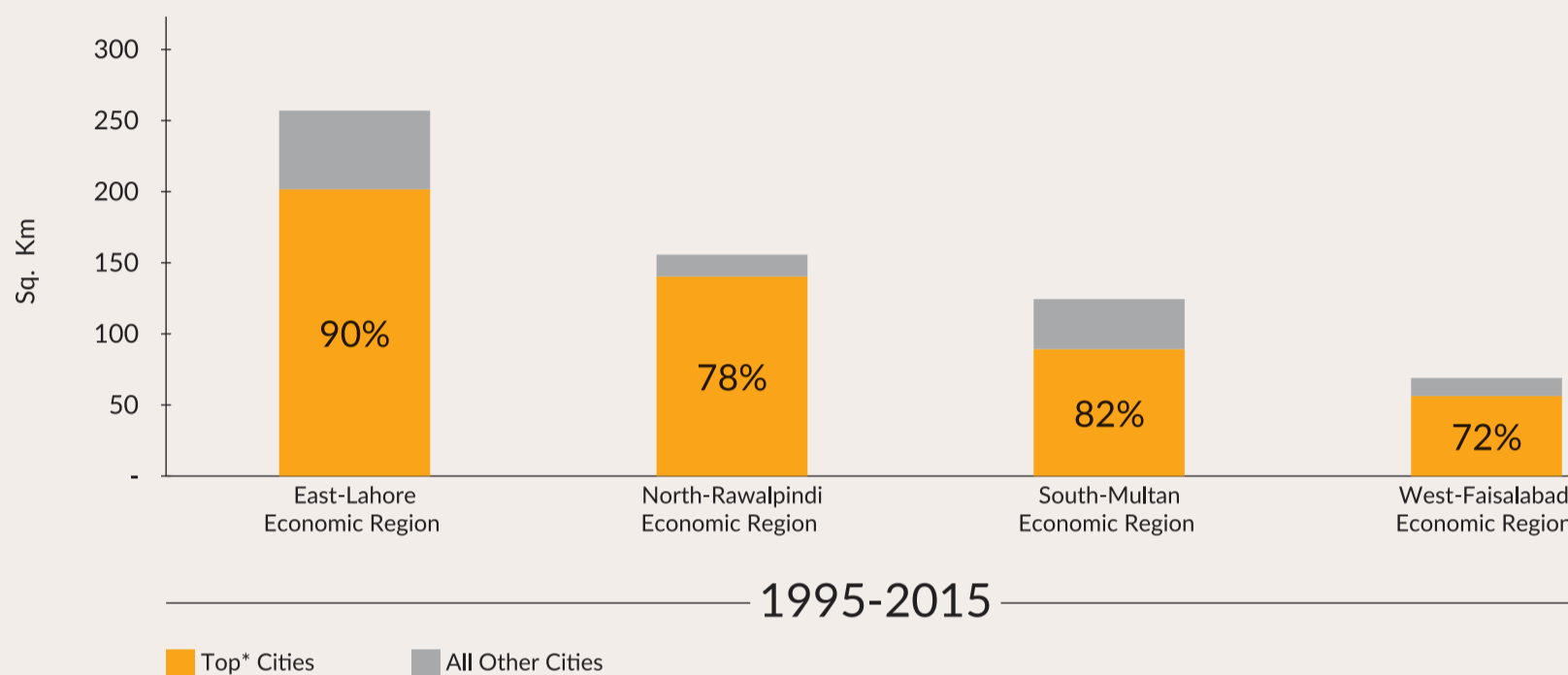


Top Cities Average Area Growth Rate by Economic Region



*Top 5 cities with highest area growth rates were identified except for Rawalpindi Region, top 3 out of a total of 5 cities were selected.

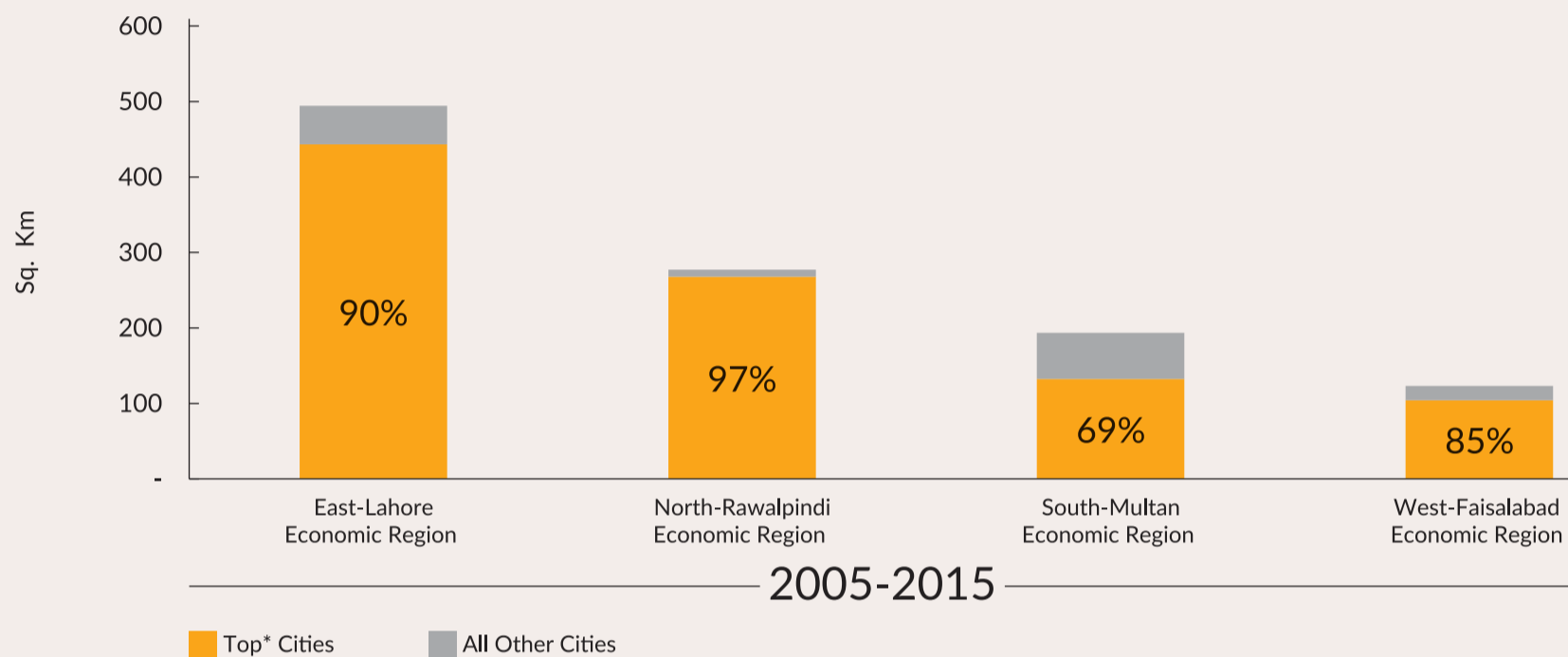
Top Cities Area Contribution to Urban Expansion 1995-2005



ECONOMIC REGION	TOP* CITIES	URBAN EXPANSION 1995-2005 (SQ. KM)
Lahore Economic Region	Lahore	116
	Gujranwala	41
	Sialkot	18
	Gujrat	17
	Sheikhupura	9
	SUB-TOTAL	
Rawalpindi Economic Region	Rawalpindi-Islamabad	115
	Attock	14
	Taxila	12
SUB-TOTAL		140
Multan Economic Region	Multan	57
	Bahawalpur	11
	Rahim Yar Khan	9
	Khanewal	7
	Burewala	6
SUB-TOTAL		89
Faisalabad Economic Region	Faisalabad	39
	Bhakkar	5
	Sargodha	5
	Jhang	4
	Chiniot	4
SUB-TOTAL		56

*Top 5 cities with highest absolute area of urban expansion were identified except for Rawalpindi Region, top 3 out of a total of 5 cities were selected.

Top Cities Area Contribution to Urban Expansion 2005-2015



ECONOMIC REGION	TOP* CITIES	URBAN EXPANSION 2005-2015 (SQ. KM)
Lahore Economic Region	Lahore	330
	Gujranwala	81
	Sialkot	13
	Sahiwal	11
	Sheikhupura	9
	SUB-TOTAL	
Rawalpindi Economic Region	Rawalpindi-Islamabad	232
	Taxila	26
	Attock	10
	SUB-TOTAL	
Multan Economic Region	Multan	53
	Bahawalpur	35
	Sadiqabad	17
	Rahim Yar Khan	16
	Dera Ghazi Khan	11
	SUB-TOTAL	
Faisalabad Economic Region	Faisalabad	60
	Sargodha	14
	Jhang	12
	Bhakkar	9
	Mianwali	9
	SUB-TOTAL	

*Top 5 cities with highest absolute area of urban expansion were identified except for Rawalpindi Region, top 3 out of a total of 5 cities were selected.

4

Section

City Profiles

1995-2005-2015

Section 4 presents different elements of urban expansion and intra-city population for the 50 cities of Punjab, in visual, graphical and tabular formats. The 50 cities are organized in their respective districts to provide a sense of the geographic location.

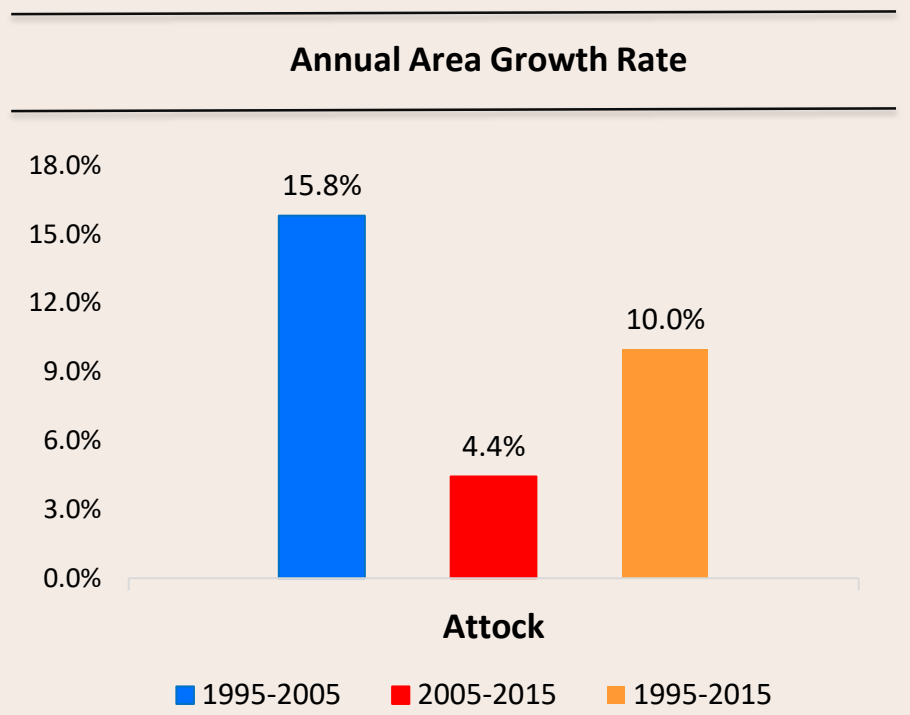
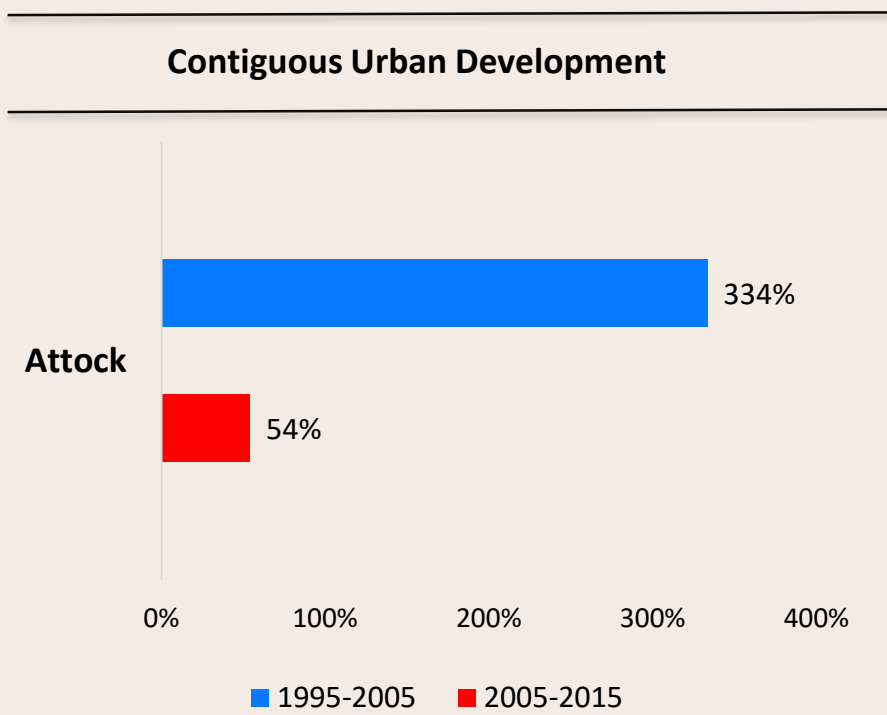
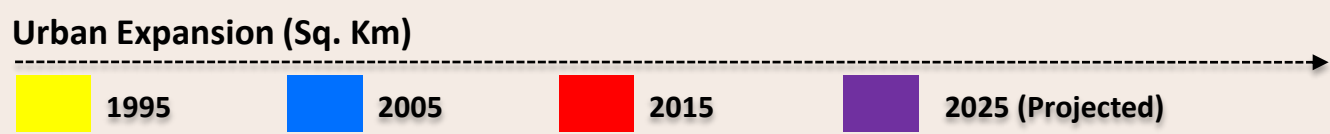
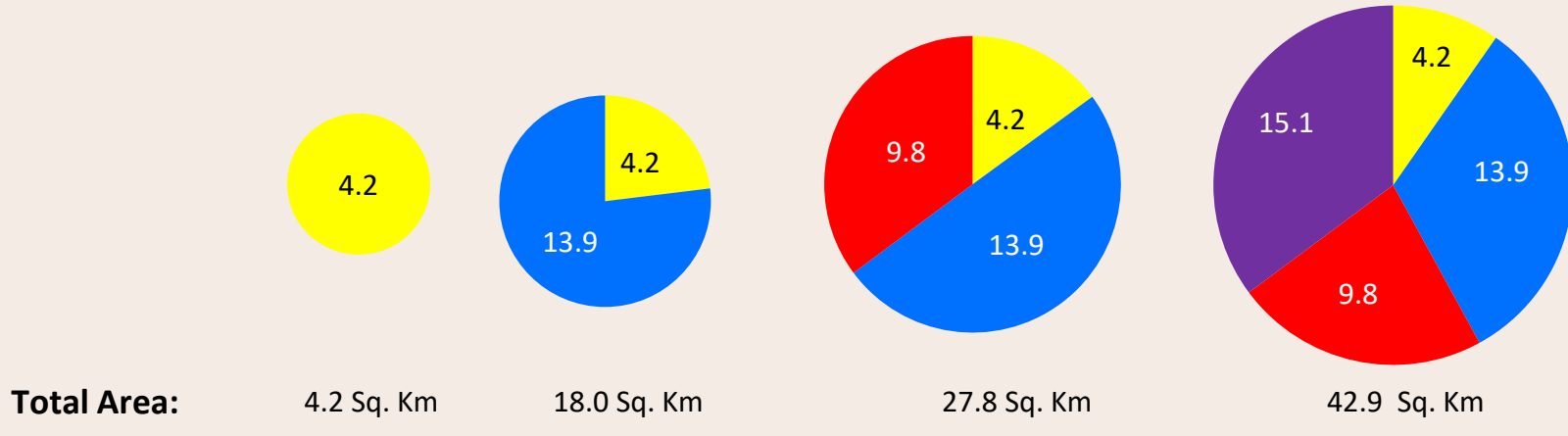
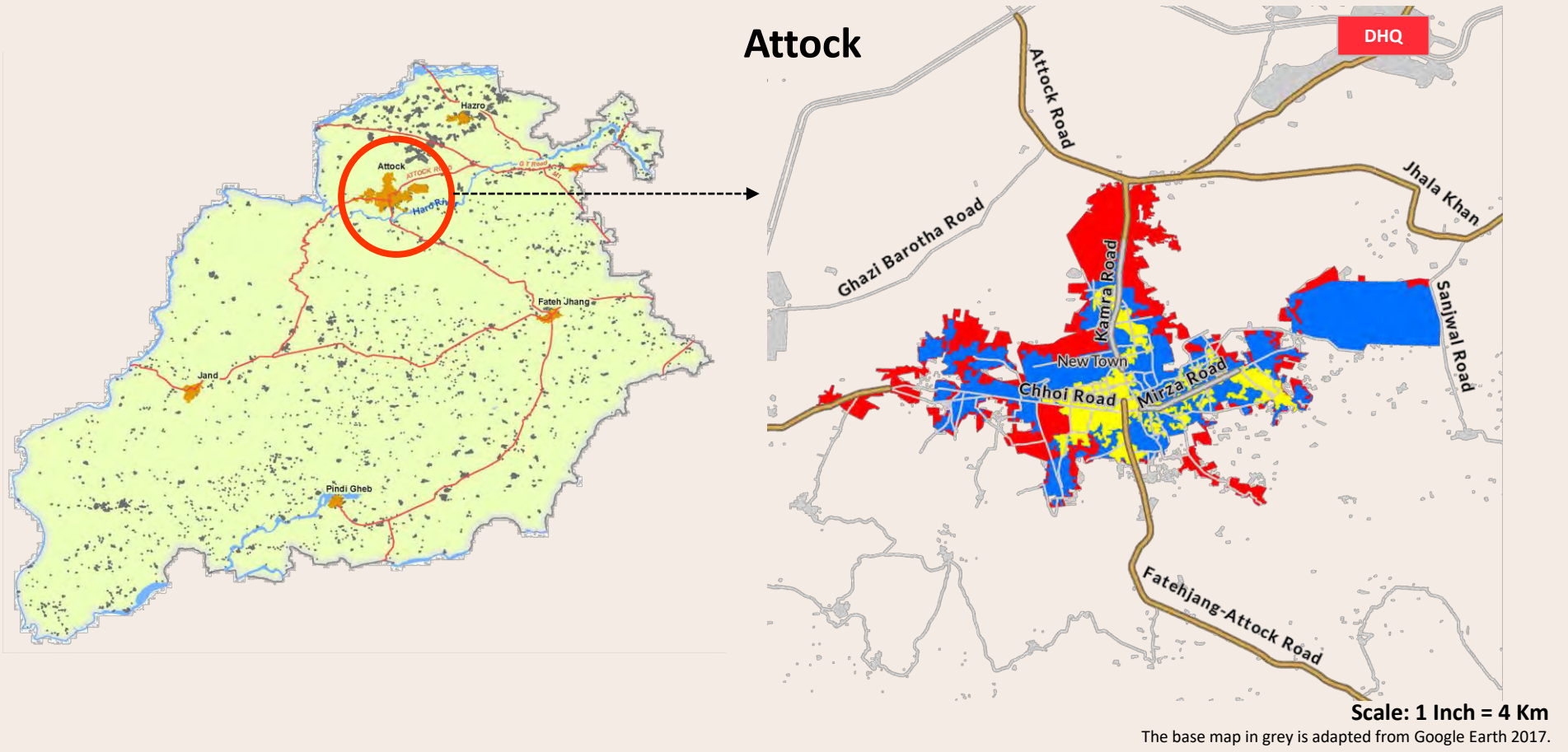
For each city, a unique map for the urban extents in the years 1995, 2005 and 2015 represents the magnitude of urban expansion for two decades and another set of maps portray the evolution of intra-city densities as the city expands.

An urban extent reflects the functional boundary of a city. A methodology, detailed in section 1 using remote sensing data, a python based algorithm and LandScan data, has been used to demarcate the urban extents and assess the intra-city density trends.

A much-needed dataset for the population within these 50 cities has been created and shared. Further statistics including areas, annual urban area and population growth rates and density changes are also provided.

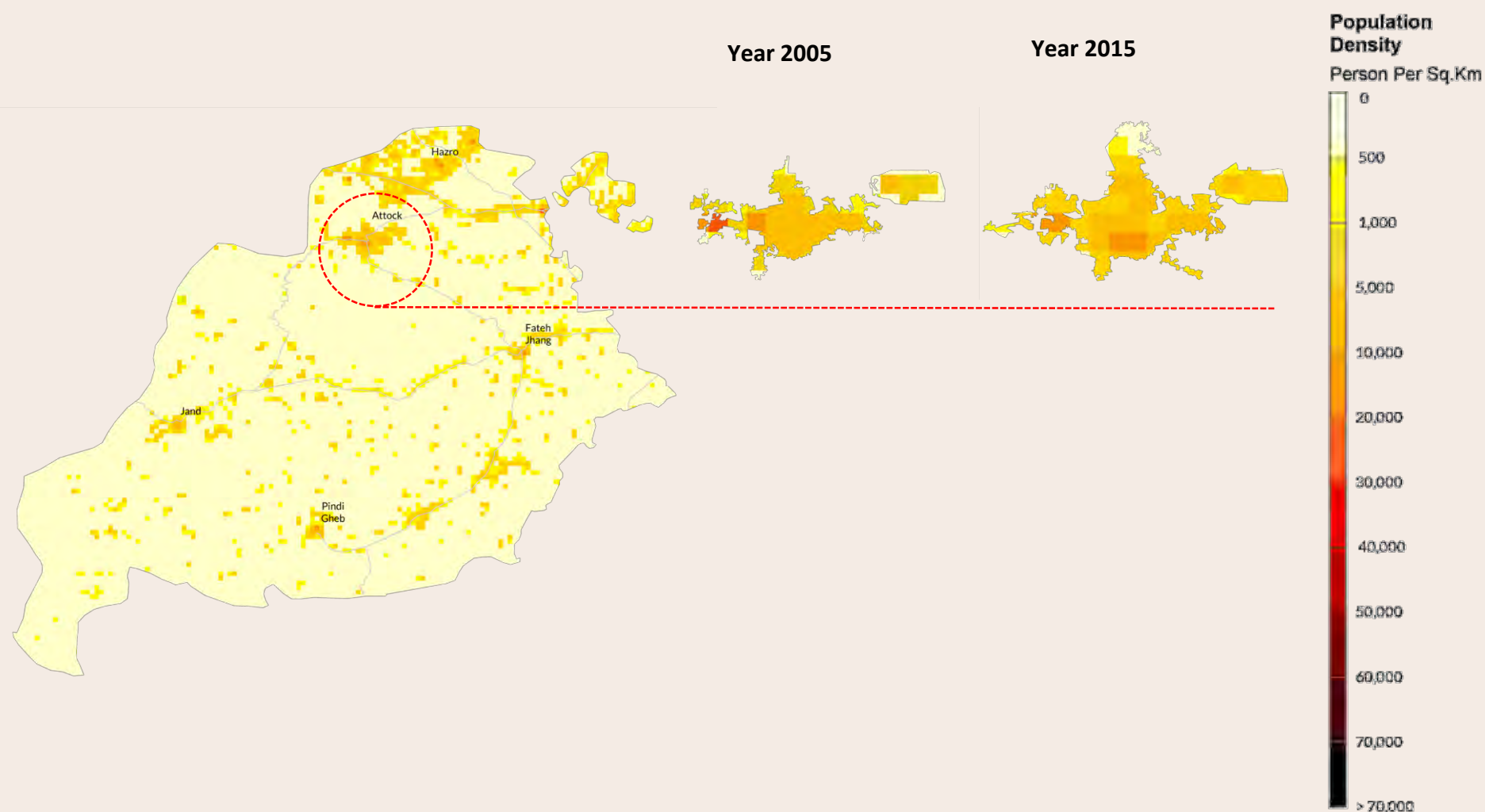
District: Attock

Urban Expansion



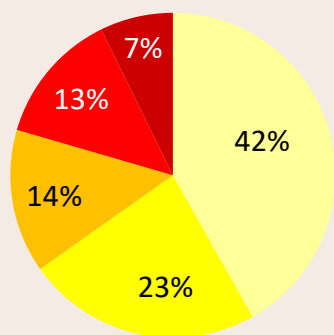
District: Attock

Population Density



Percentage of Area Occupied by 20% of Population (2015)

Attock



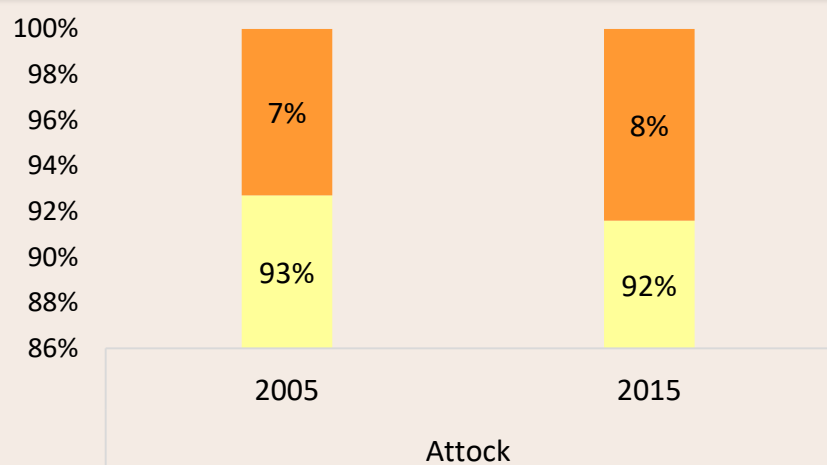
Top Quintile Second Quintile Third Quintile Fourth Quintile Bottom Quintile

Population Area Statistics

Attock

Population 2005	87,550
Population 2015	134,884
Pop. Change '05-'15	54.07%
Pop. Annual Growth Rate '05-'15	4.42%
Area 1995 (Sq. Km)	4.15
Area 2005 (Sq. Km)	18.01
Area 2015 (Sq. Km)	27.78
Area Change '95-'05	333.52%
Area Change '05-'15	54.28%
Area Annual Growth Rate '95-'05	15.80%
Area Annual Growth Rate '05-'15	4.43%
Pop. Density 2005 (Per Sq. Km)	4,862
Pop. Density 2015 (Per Sq. Km)	4,855
Density Change '05-'15	-0.14%
Land Consumption Index	1.00

Intra-city Area Composition



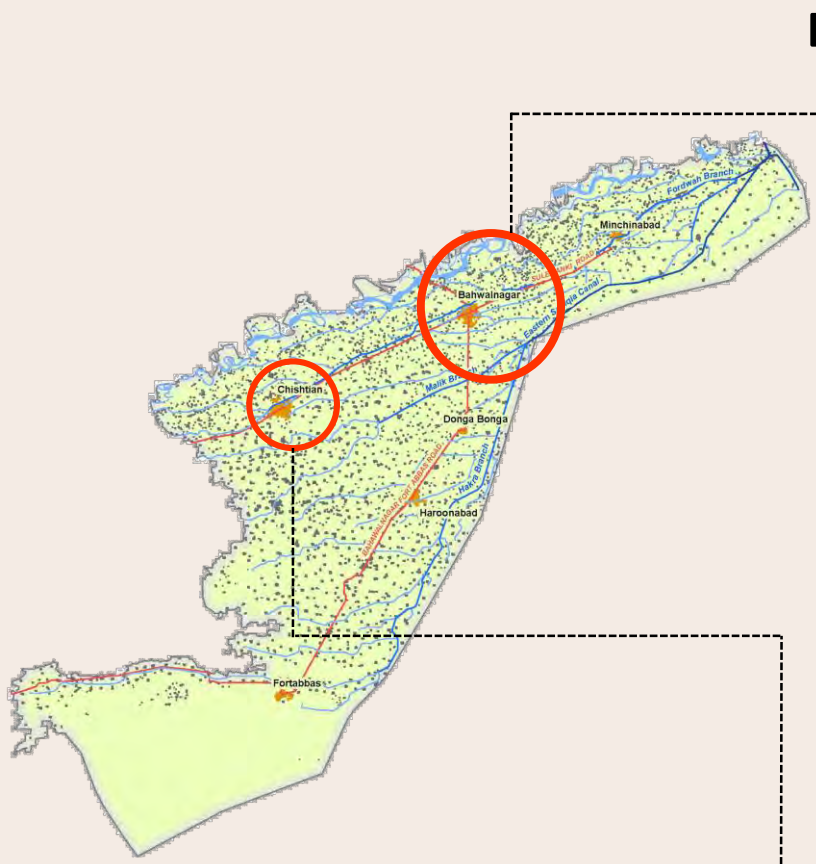
Low Density Areas Medium Density Areas High Density Areas

Percentage Change in Area Composition (2005-2015)

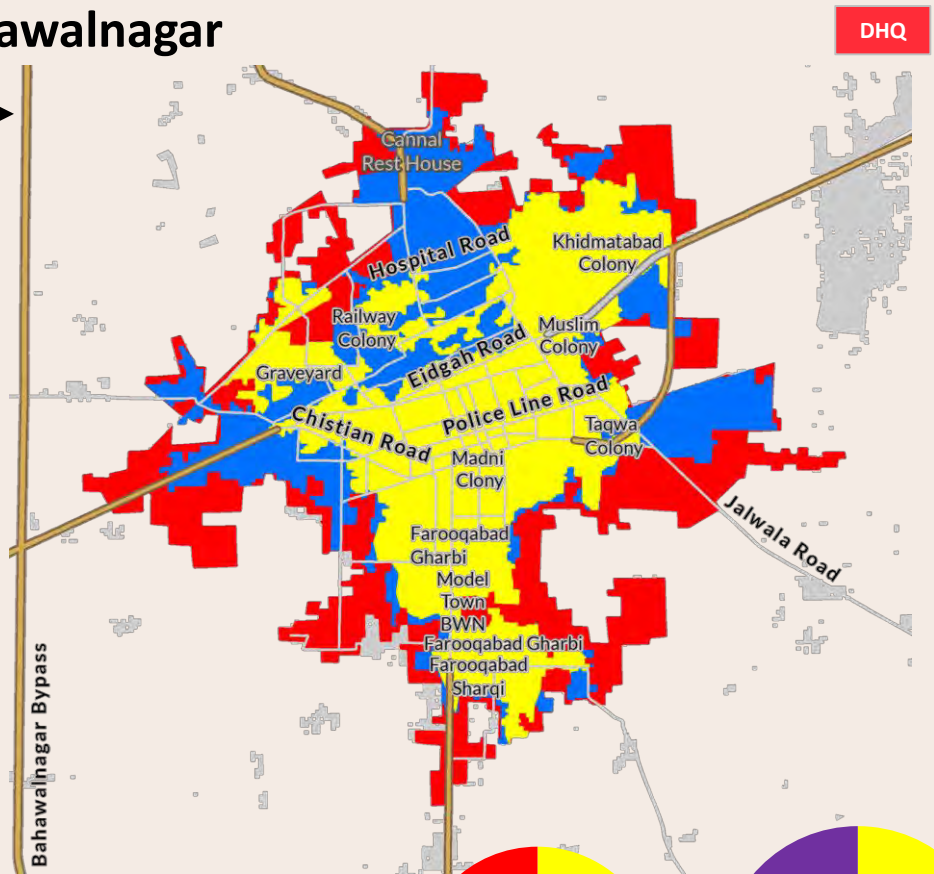
	Low Density Areas	Medium Density Areas	High Density Areas
Attock	↓ -1%	↑ 14%	-

District: Bahawalnagar

Urban Expansion

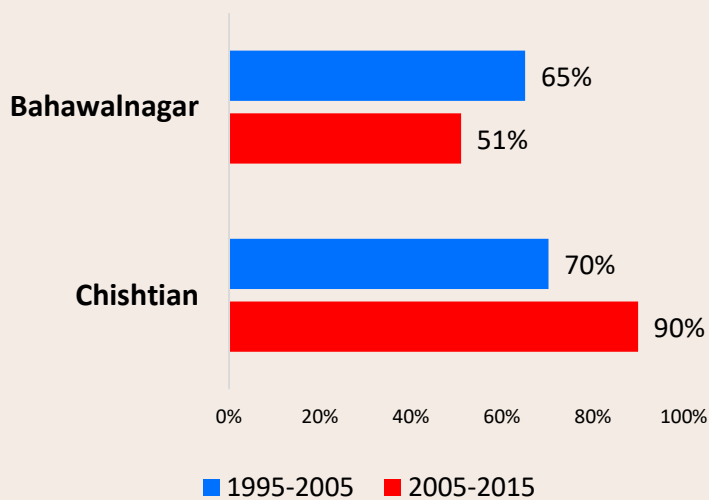


Bahawalnagar

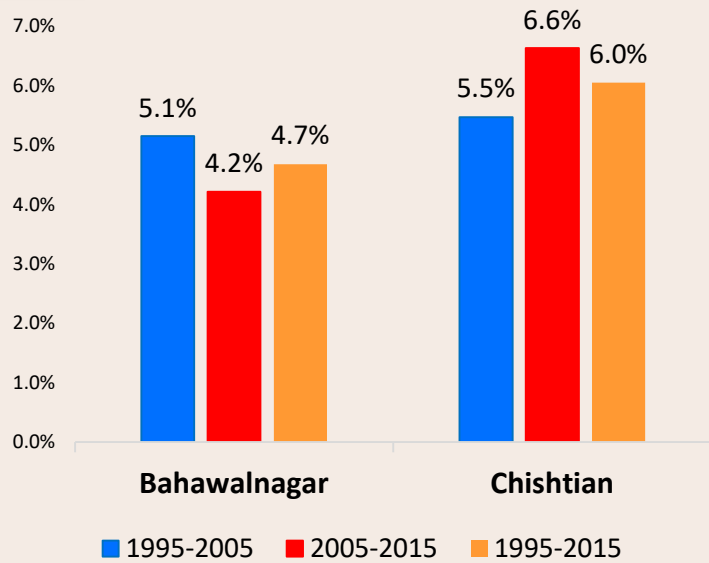


DHQ

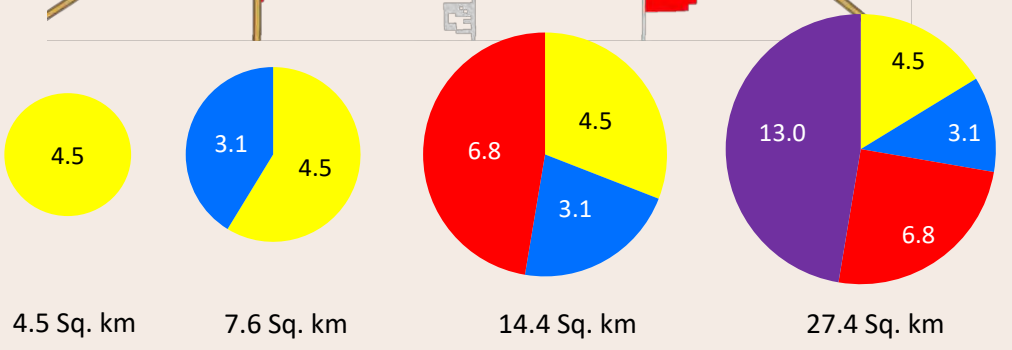
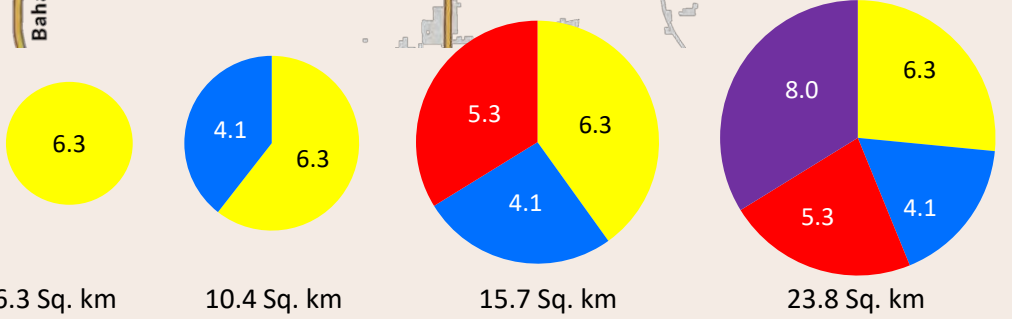
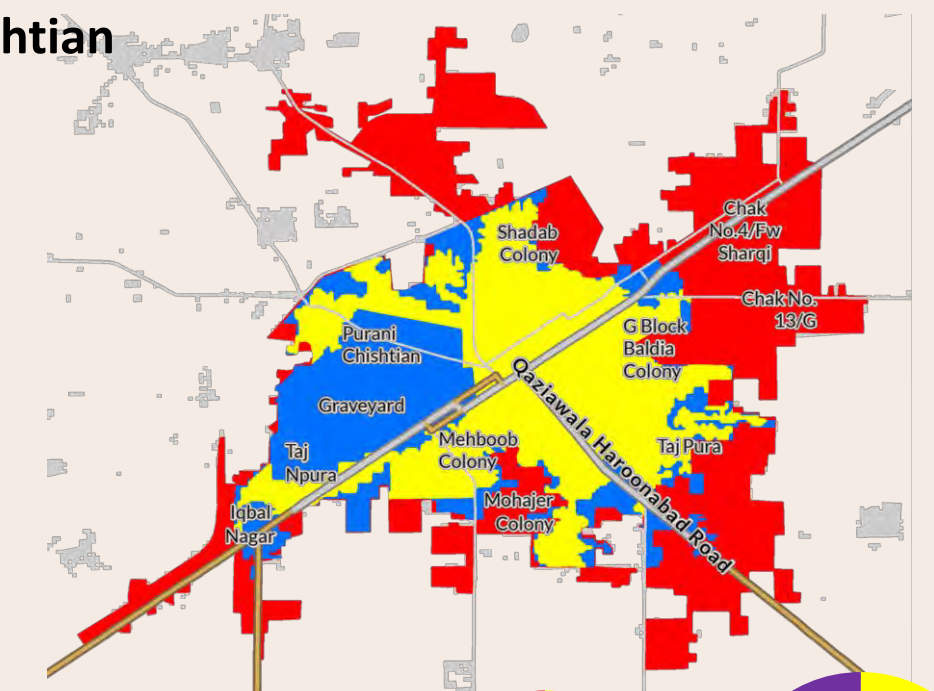
Contiguous Urban Development



Annual Area Growth Rate



Chishtian



Scale: 1 Inch = 2 Km

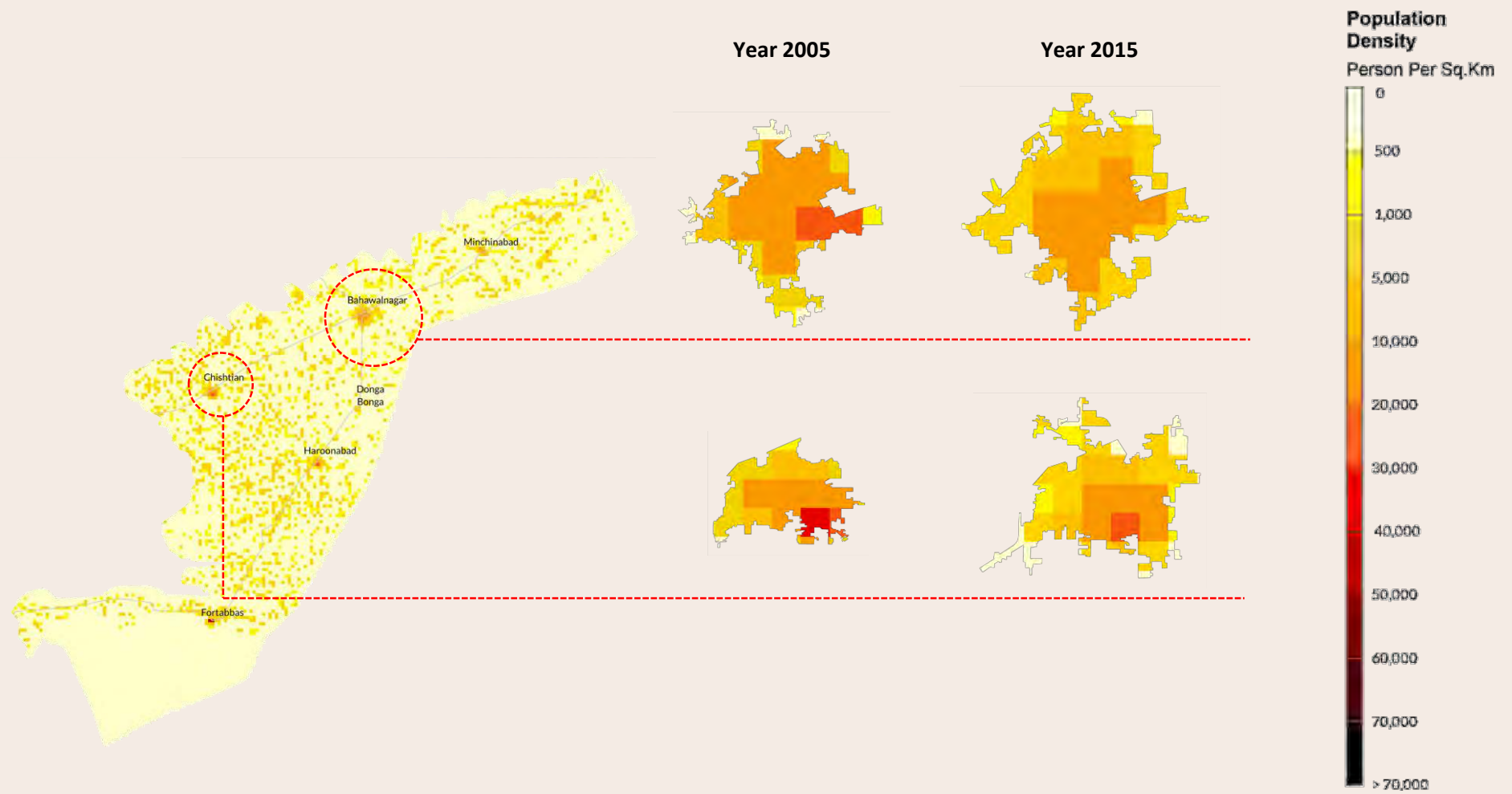
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

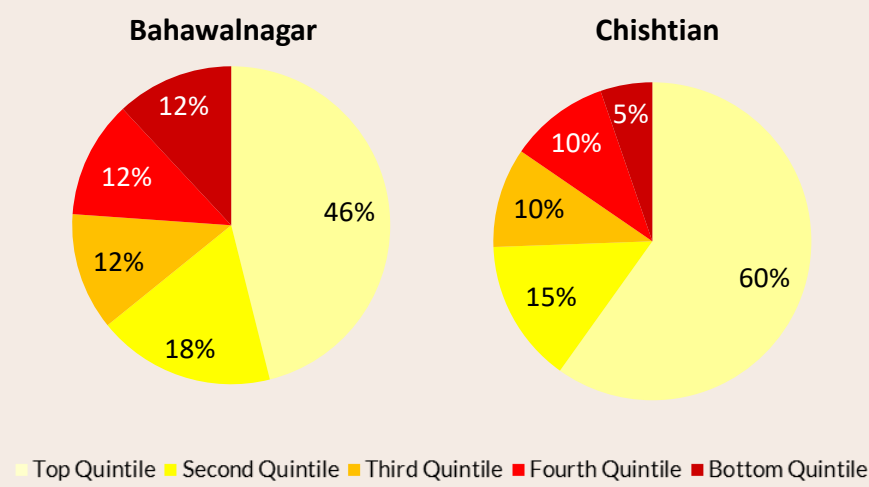


District: Bahawalnagar

Population Density



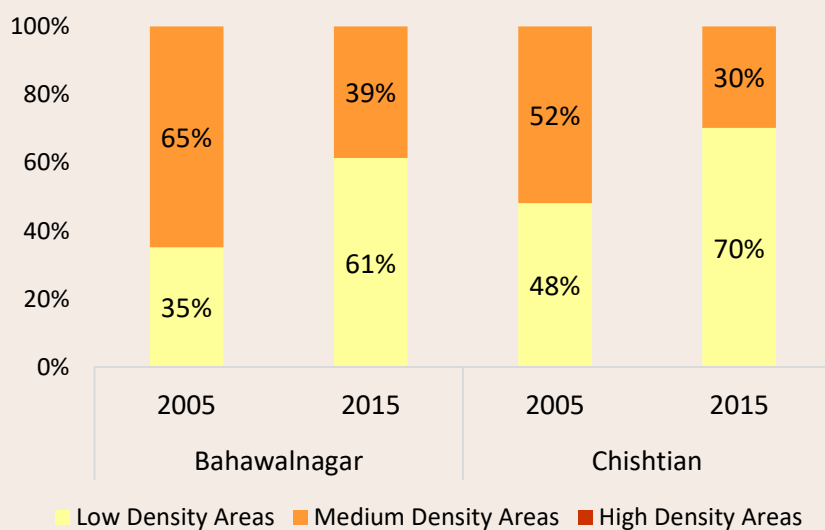
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Bahawalnagar	Chishtian
Population 2005	118,703	93,890
Population 2015	136,432	84,010
Pop. Change '05-'15	14.94%	-10.52%
Pop. Annual Growth Rate '05-'15	1.40%	-1.11%
Area 1995 (Sq. Km)	6.31	4.46
Area 2005 (Sq. Km)	10.42	7.59
Area 2015 (Sq. Km)	15.73	14.42
Area Change '95-'05	65.16%	70.27%
Area Change '05-'15	51.04%	89.96%
Area Annual Growth Rate '95-'05	5.15%	5.47%
Area Annual Growth Rate '05-'15	4.21%	6.63%
Pop. Density 2005 (Per Sq. Km)	11,397	12,369
Pop. Density 2015 (Per Sq. Km)	8,673	5,826
Density Change '05-'15	-23.90%	-52.90%
Land Consumption Index	3.42	(8.55)

Intra-city Area Composition



Percentage Change in Area Composition (2005-2015)

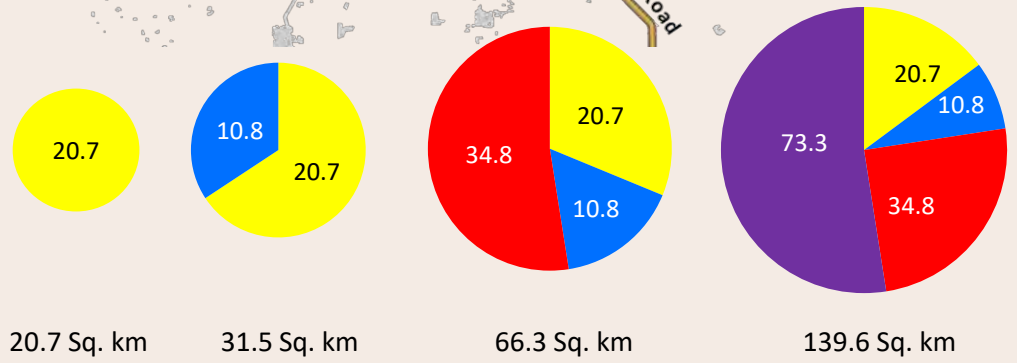
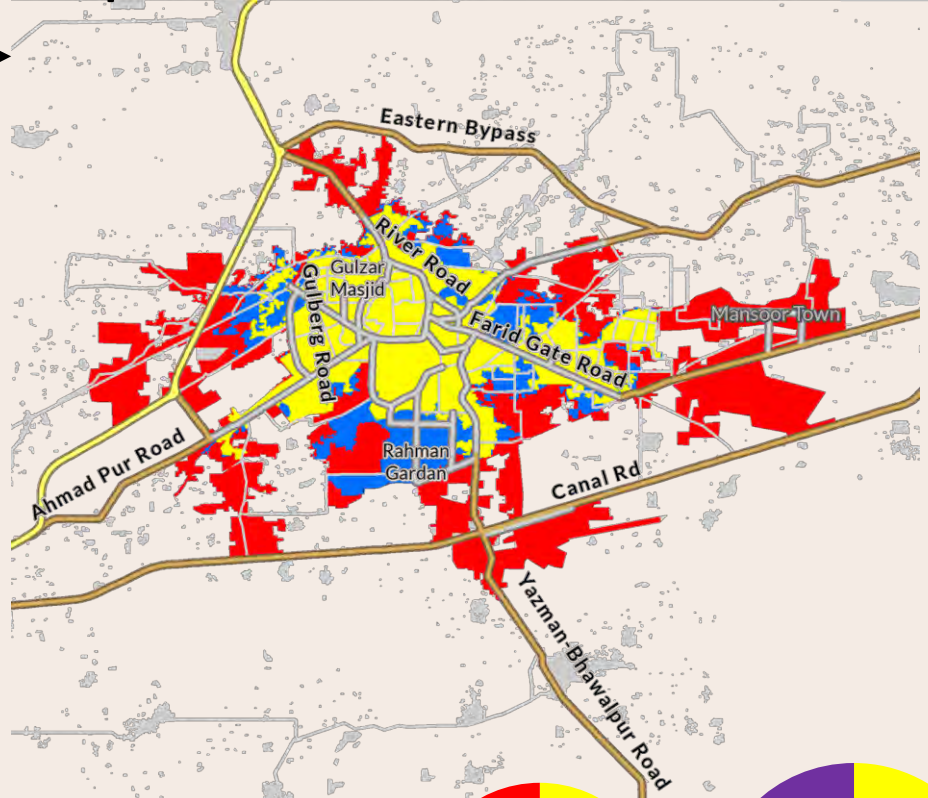
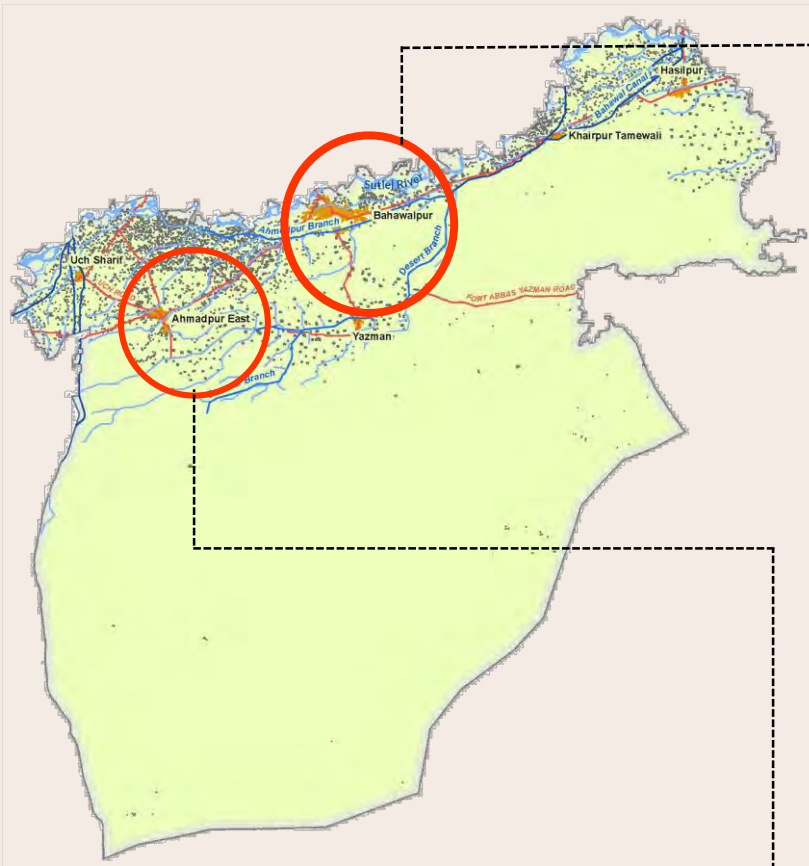
	Low Density Areas	Medium Density Areas	High Density Areas
Bahawalnagar	↑ 75%	↓ -41%	-
Chishtian	↑ 46%	↓ -43%	-

District: Bahawalpur

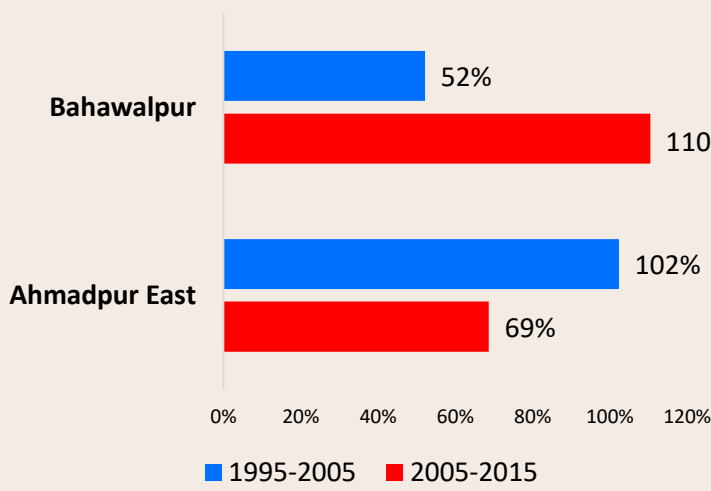
Urban Expansion

Bahawalpur

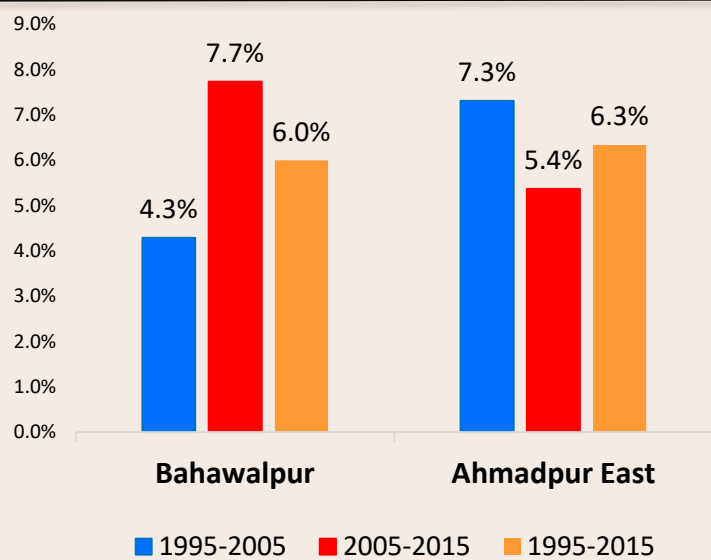
DHQ



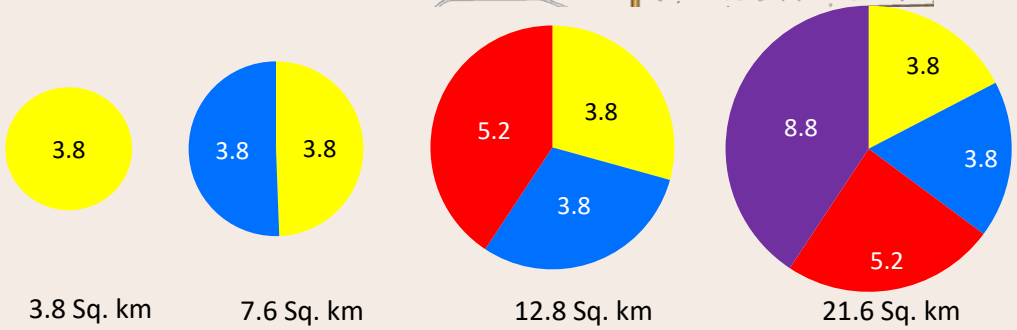
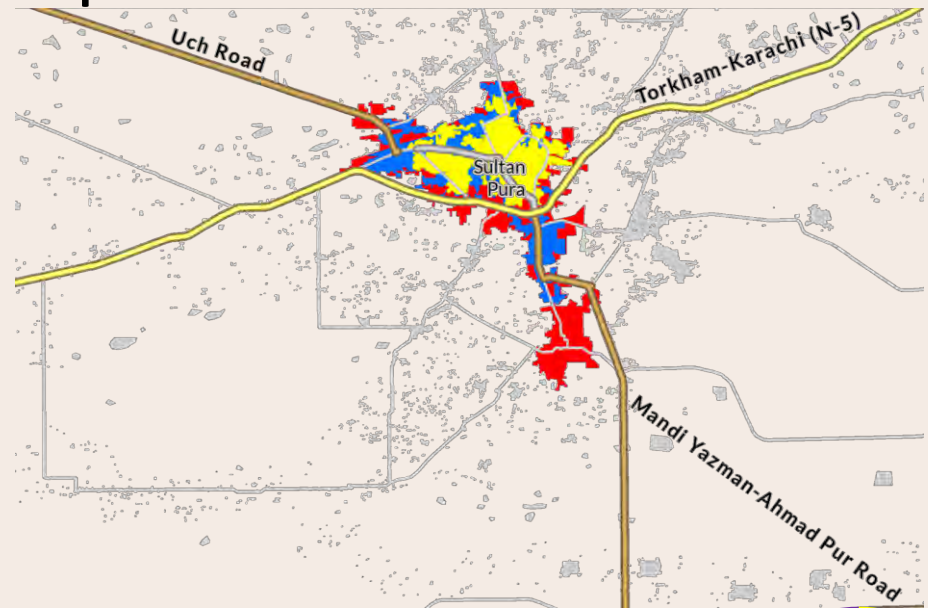
Contiguous Urban Development



Annual Area Growth Rate



Ahmadpur East



Scale: 1 Inch = 5 Km

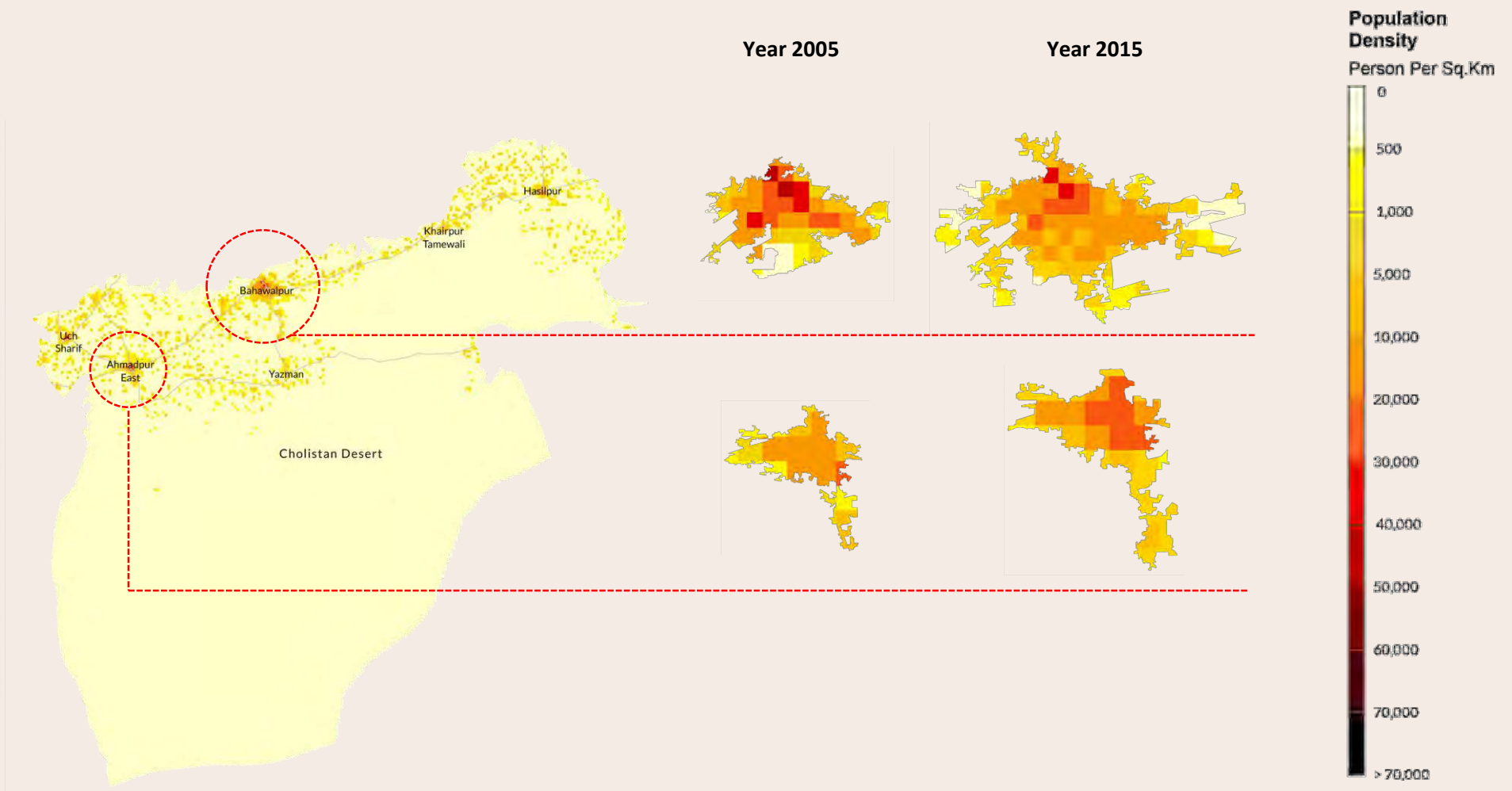
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

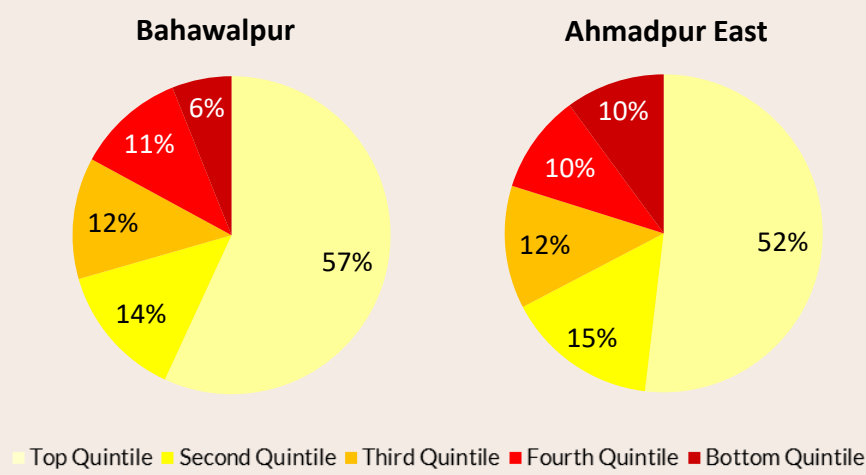


District: Bahawalpur

Population Density



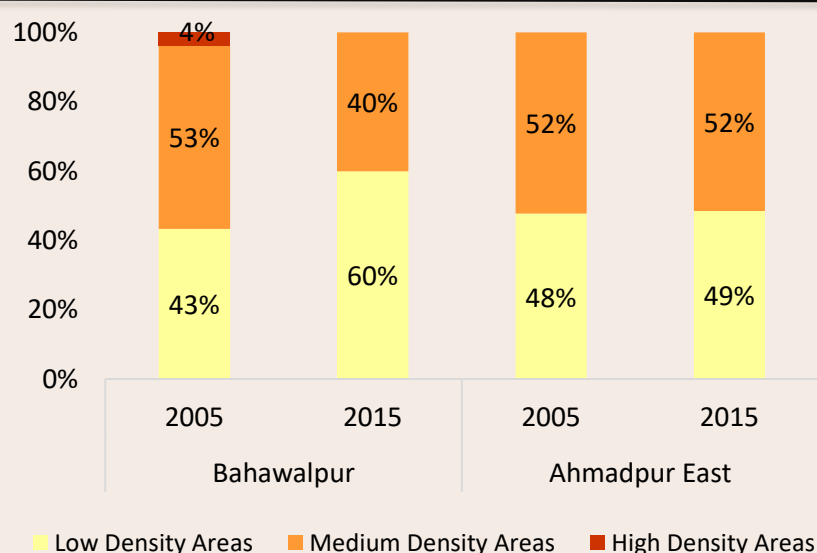
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Bahawalpur	Ahmadpur East
Population 2005	410,072	79,126
Population 2015	568,599	152,822
Pop. Change '05-'15	38.66%	93.14%
Pop. Annual Growth Rate '05-'15	3.32%	6.80%
Area 1995 (Sq. Km)	20.71	3.76
Area 2005 (Sq. Km)	31.51	7.61
Area 2015 (Sq. Km)	66.31	12.83
Area Change '95-'05	52.15%	102.38%
Area Change '05-'15	110.46%	68.66%
Area Annual Growth Rate '95-'05	4.29%	7.30%
Area Annual Growth Rate '05-'15	7.73%	5.37%
Pop. Density 2005 (Per Sq. Km)	13,015	10,398
Pop. Density 2015 (Per Sq. Km)	8,575	11,907
Density Change '05-'15	-34.12%	14.51%
Land Consumption Index	2.86	0.74

Intra-city Area Composition

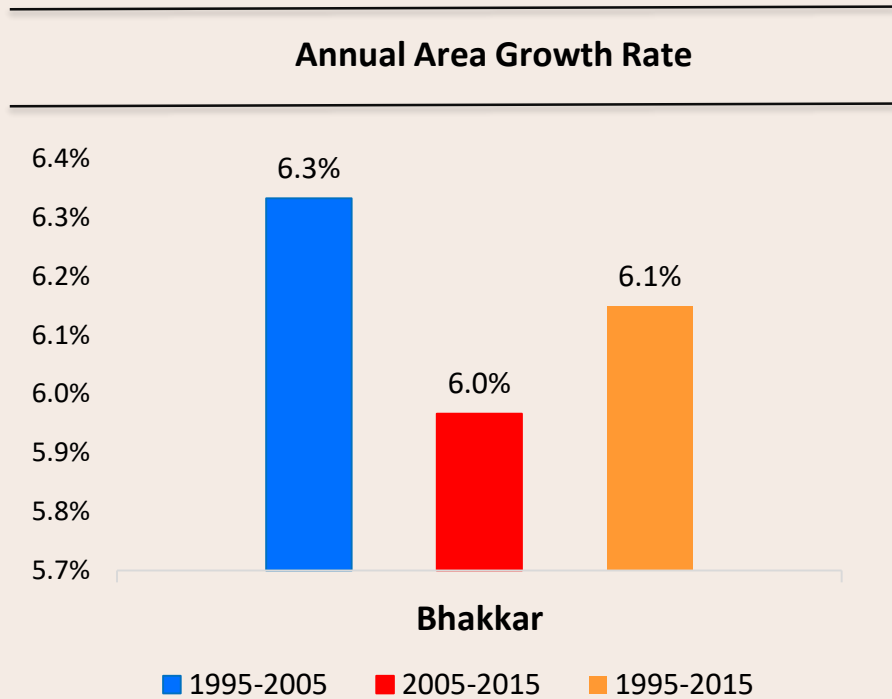
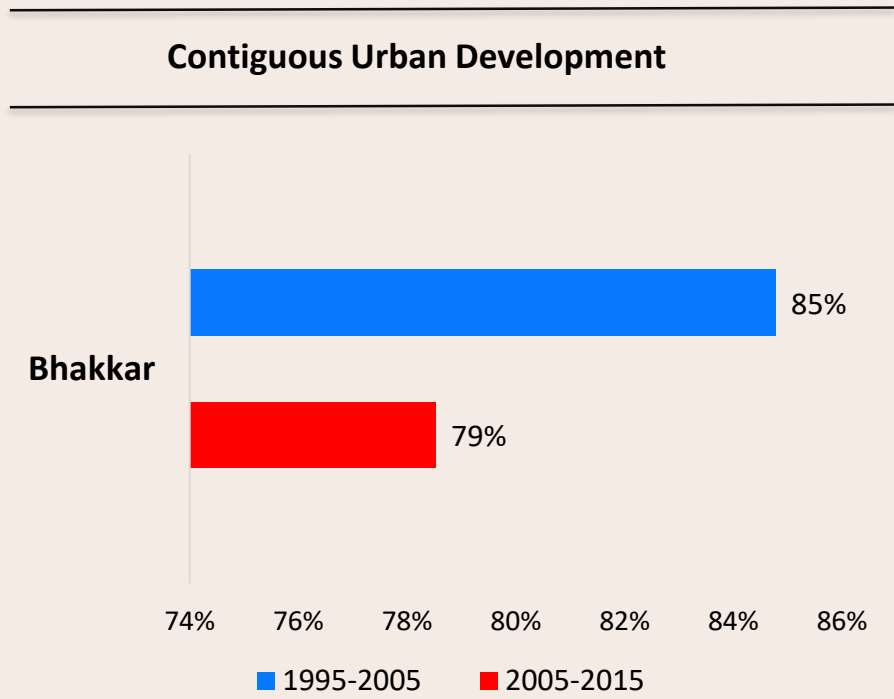
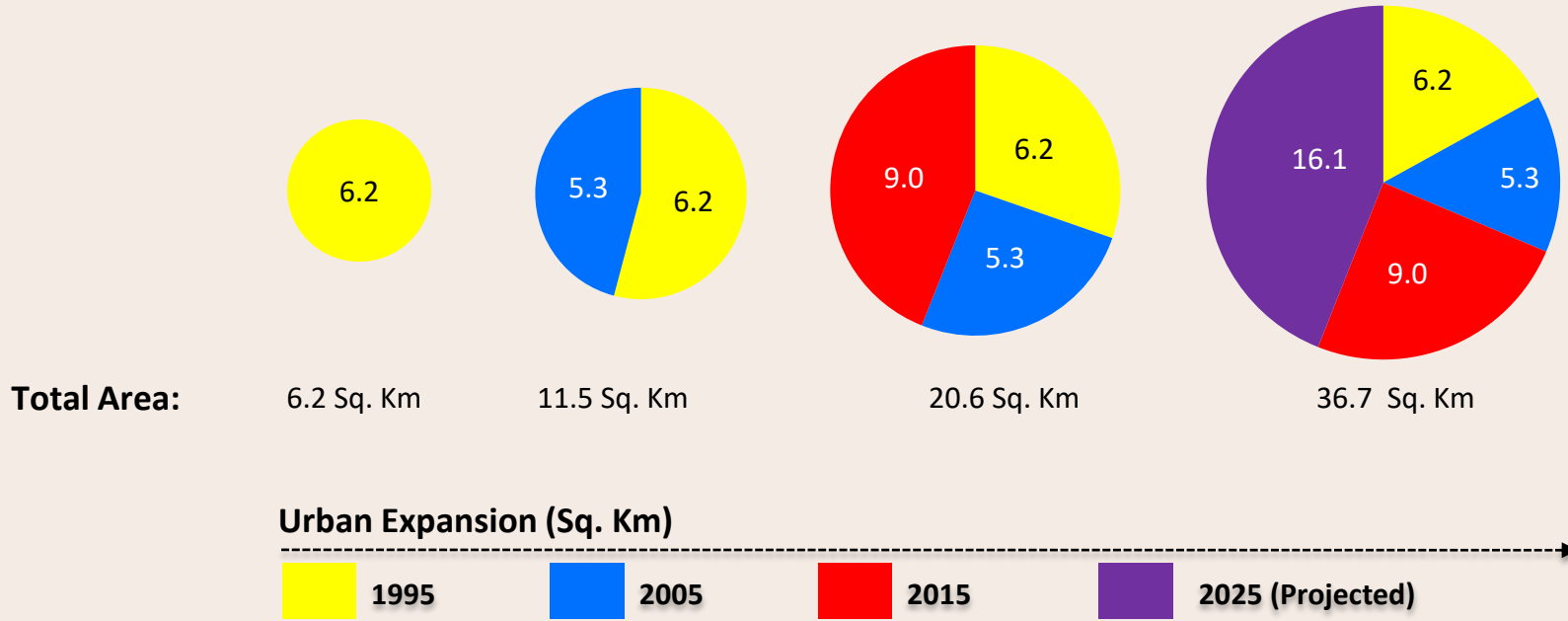
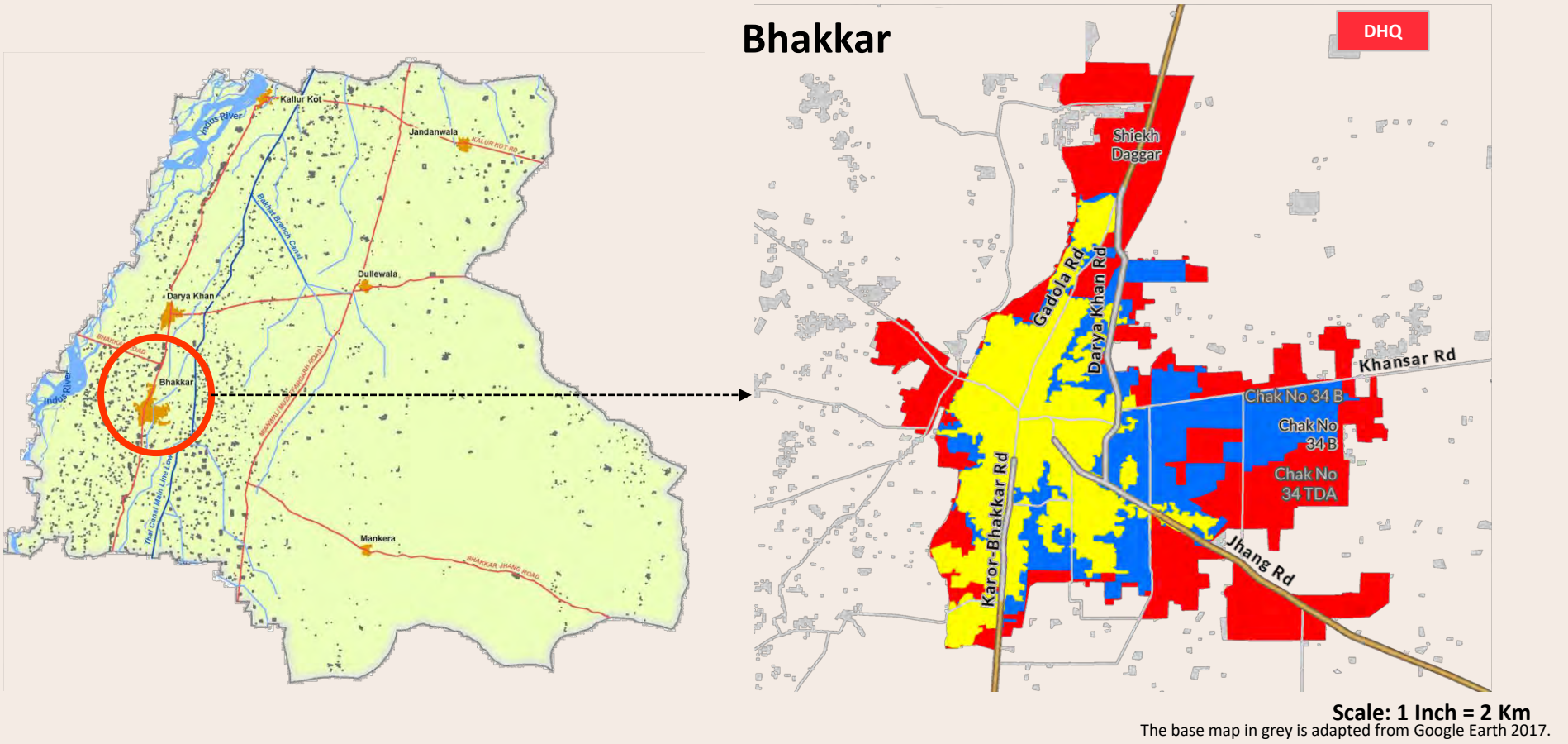


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Bahawalpur	↑ 39%	↓ -24%	↓ -100%
Ahmadpur East	↑ 2%	↓ -2%	-

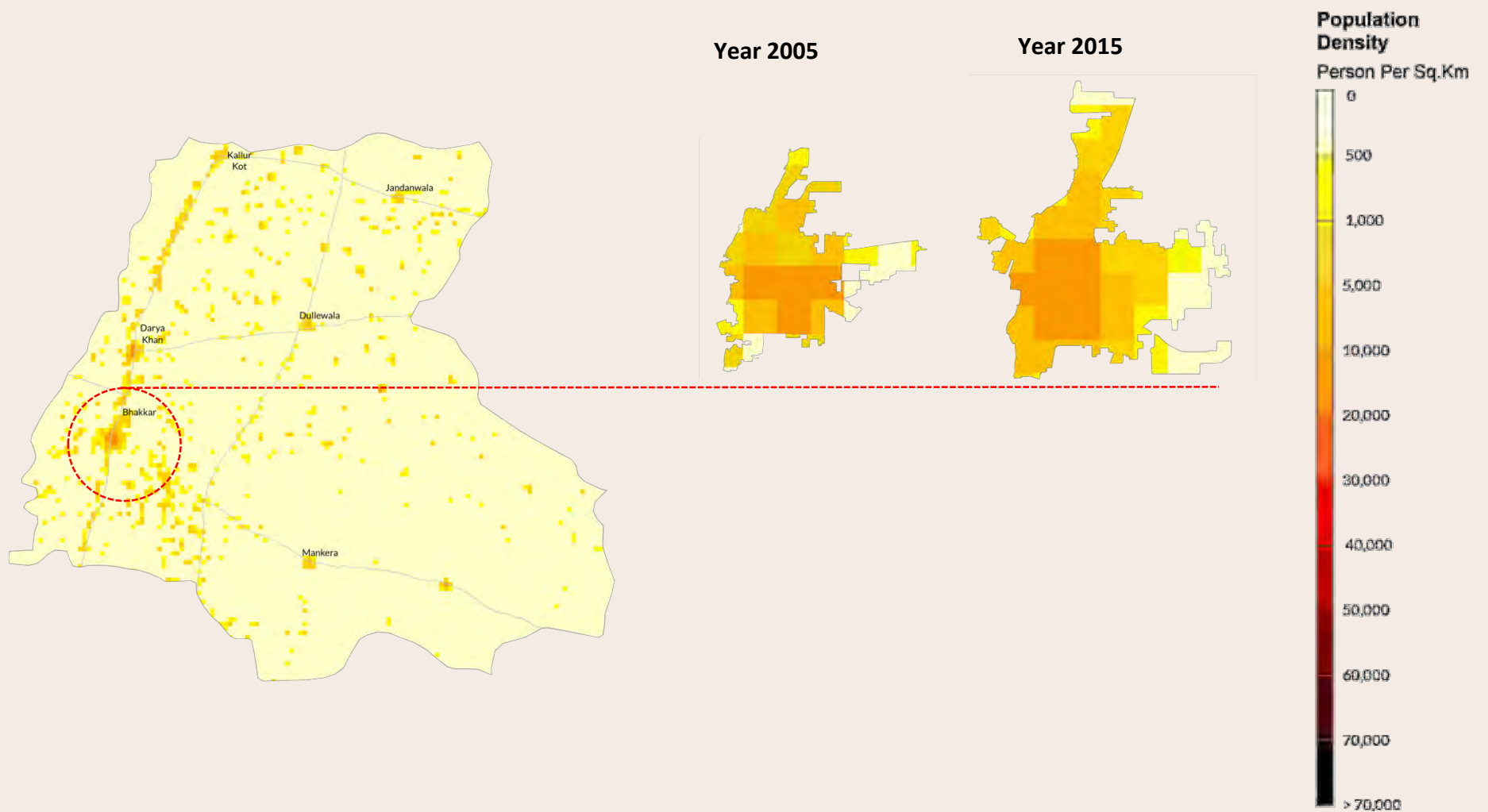
District: Bhakkar

Urban Expansion

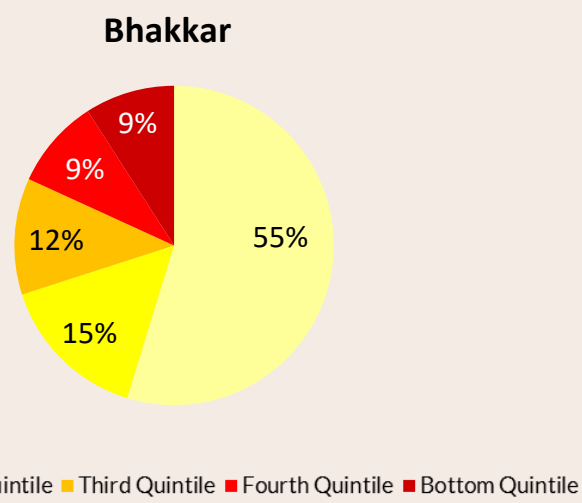


District: Bhakkar

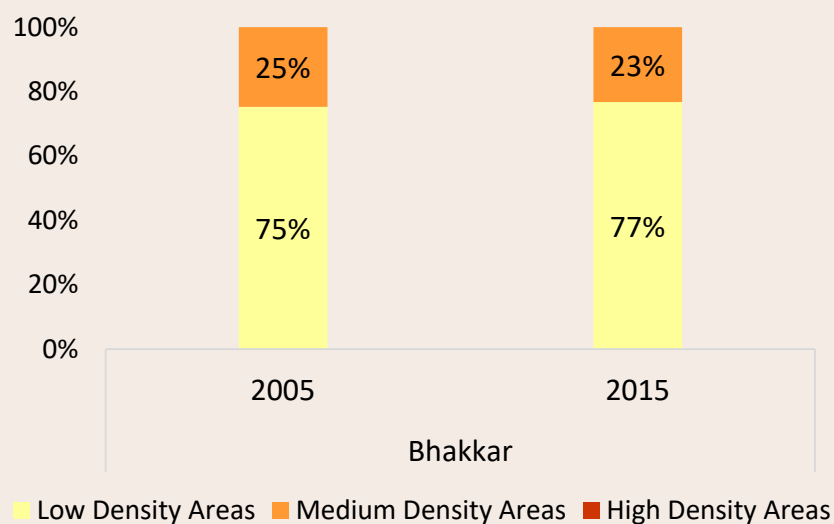
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

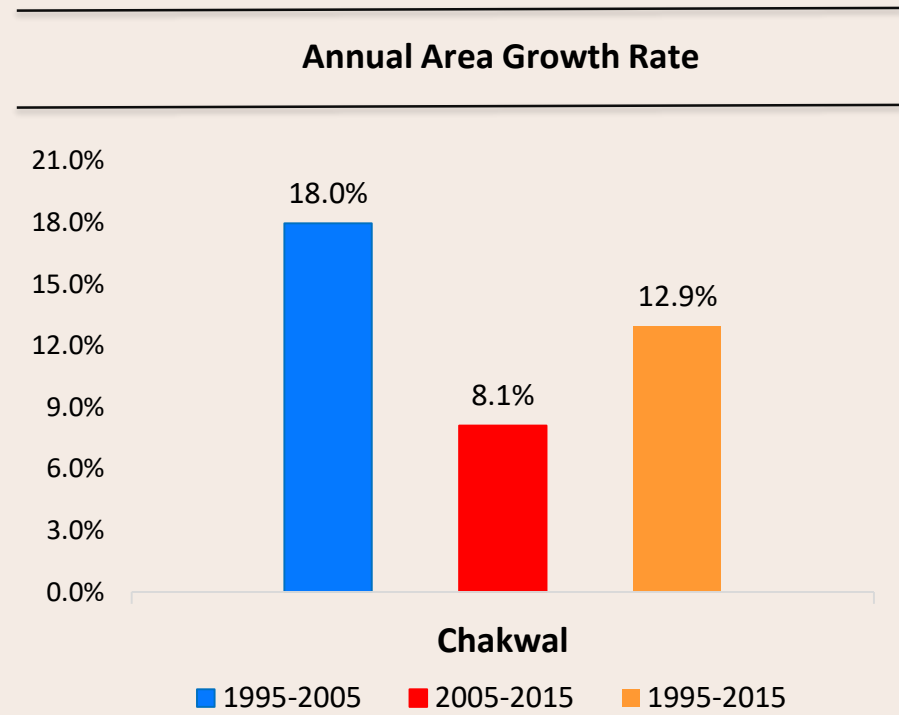
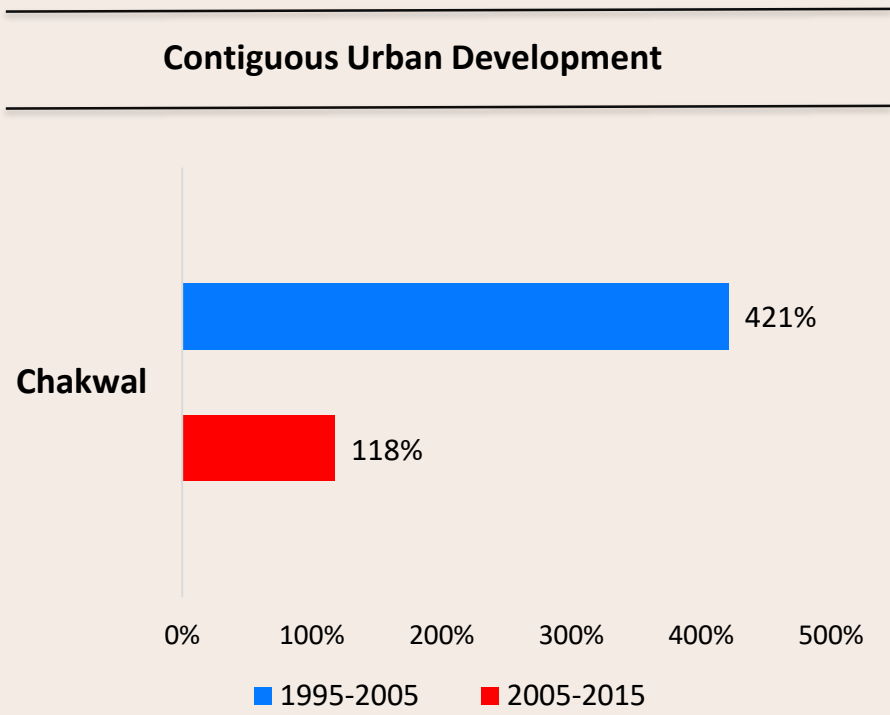
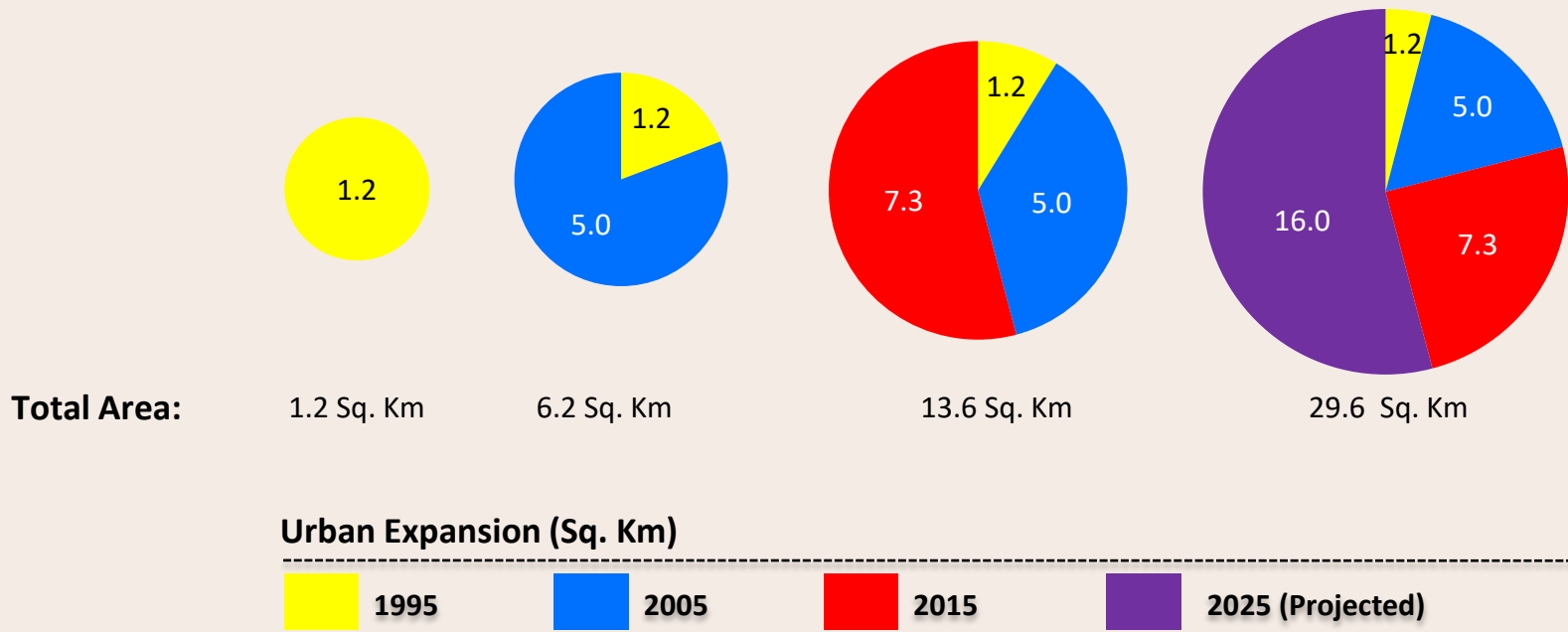
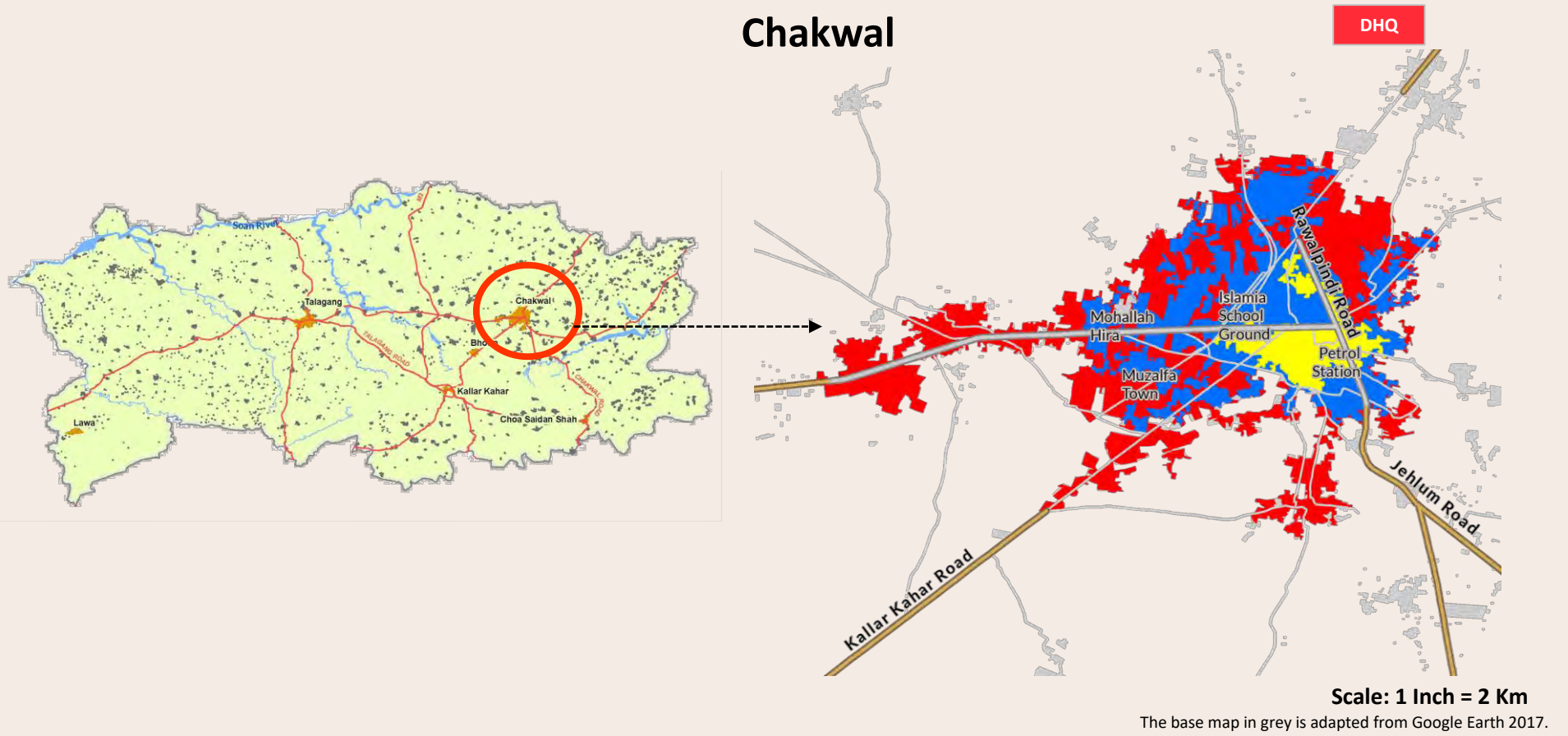
Bhakkar	
Population 2005	64,412
Population 2015	115,729
Pop. Change '05-'15	79.67%
Pop. Annual Growth Rate '05-'15	6.03%
Area 1995 (Sq. Km)	6.23
Area 2005 (Sq. Km)	11.52
Area 2015 (Sq. Km)	20.57
Area Change '95-'05	84.77%
Area Change '05-'15	78.52%
Area Annual Growth Rate '95-'05	6.33%
Area Annual Growth Rate '05-'15	5.97%
Pop. Density 2005 (Per Sq. Km)	5,591
Pop. Density 2015 (Per Sq. Km)	5,627
Density Change '05-'15	0.64%
Land Consumption Index	0.99

Percentage Change in Area Composition (2005-2015)



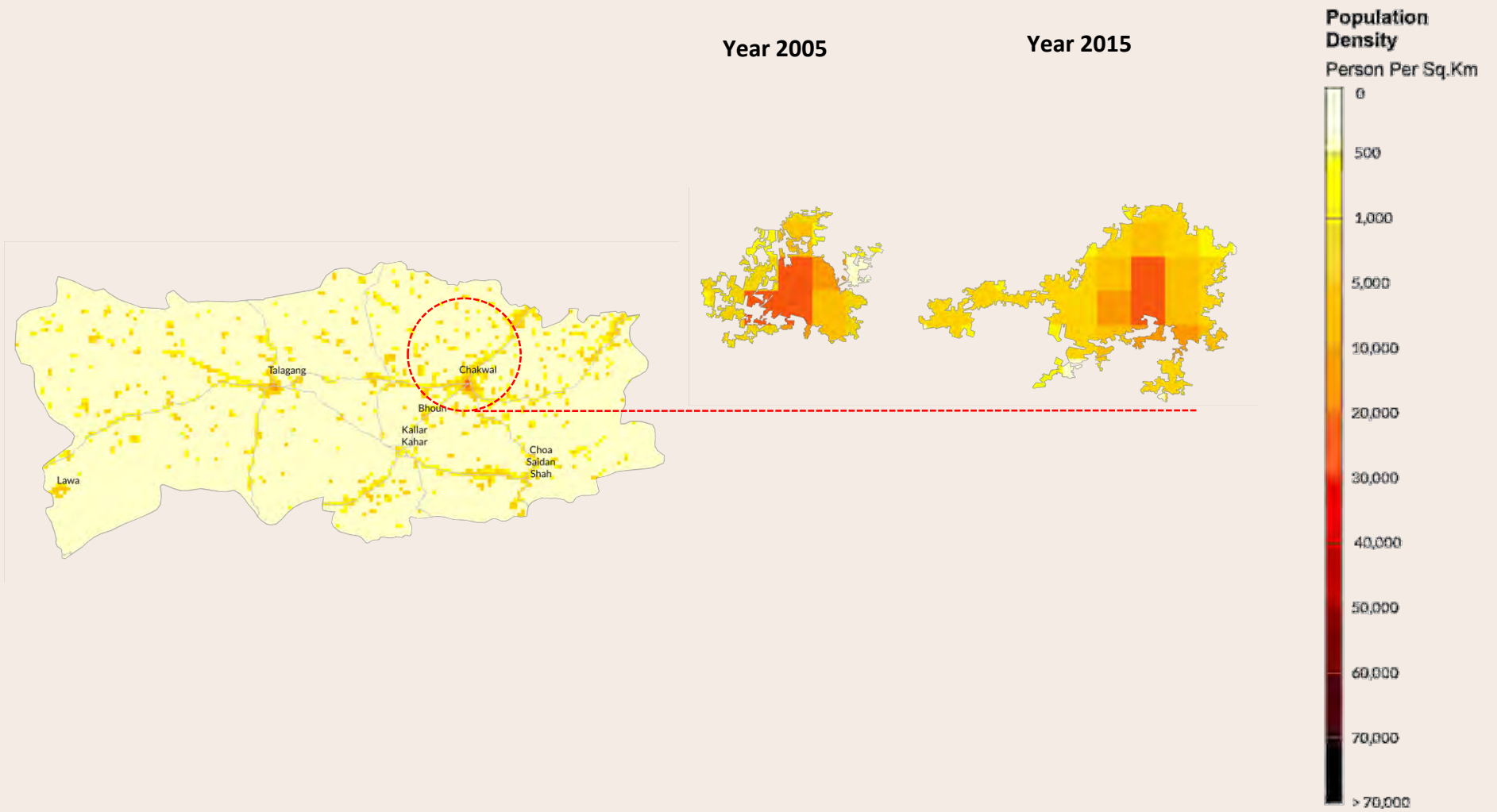
District: Chakwal

Urban Expansion

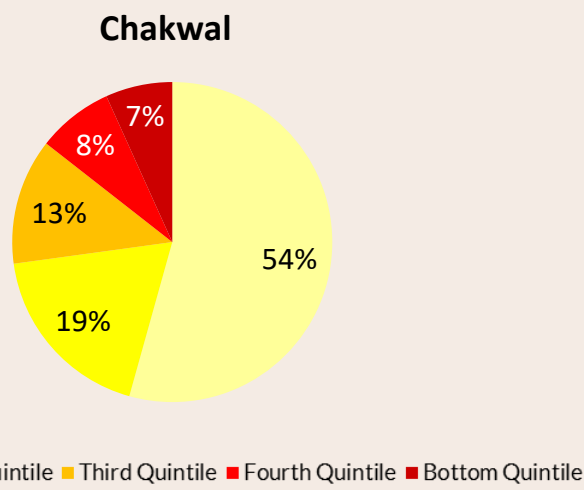


District: Chakwal

Population Density



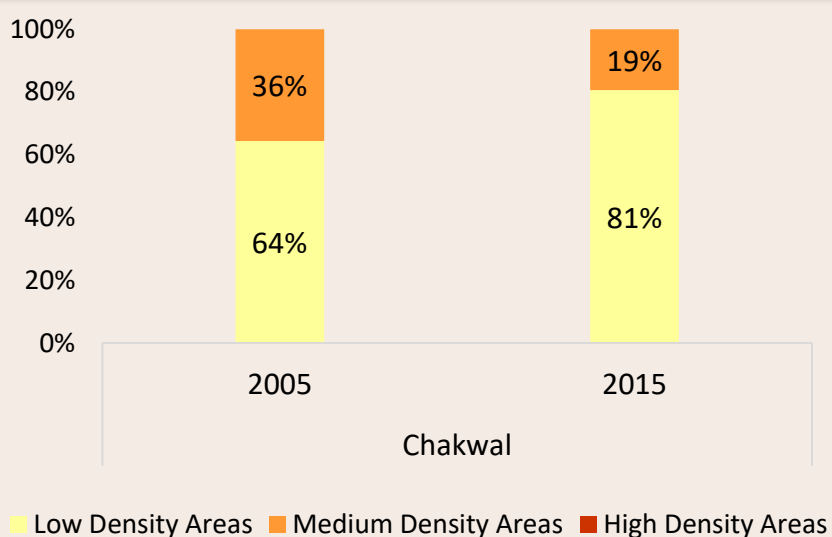
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Chakwal	
Population 2005	62,545
Population 2015	93,142
Pop. Change '05-'15	48.92%
Pop. Annual Growth Rate '05-'15	4.06%
Area 1995 (Sq. Km)	1.19
Area 2005 (Sq. Km)	6.22
Area 2015 (Sq. Km)	13.57
Area Change '95-'05	421.22%
Area Change '05-'15	117.99%
Area Annual Growth Rate '95-'05	17.95%
Area Annual Growth Rate '05-'15	8.10%
Pop. Density 2005 (Per Sq. Km)	10,049
Pop. Density 2015 (Per Sq. Km)	6,865
Density Change '05-'15	-31.68%
Land Consumption Index	2.41

Intra-city Area Composition

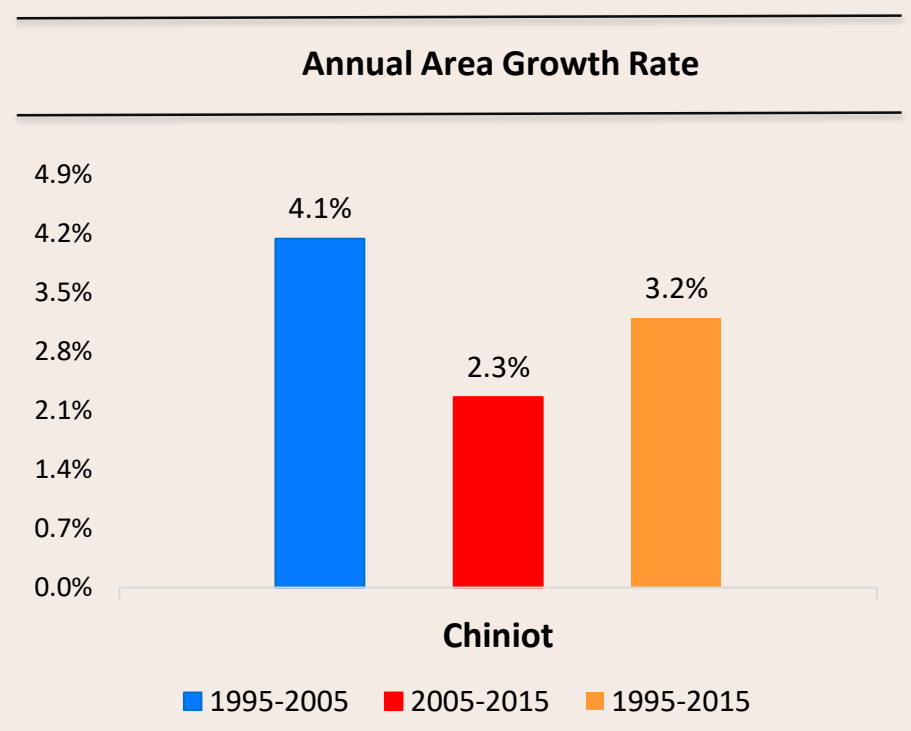
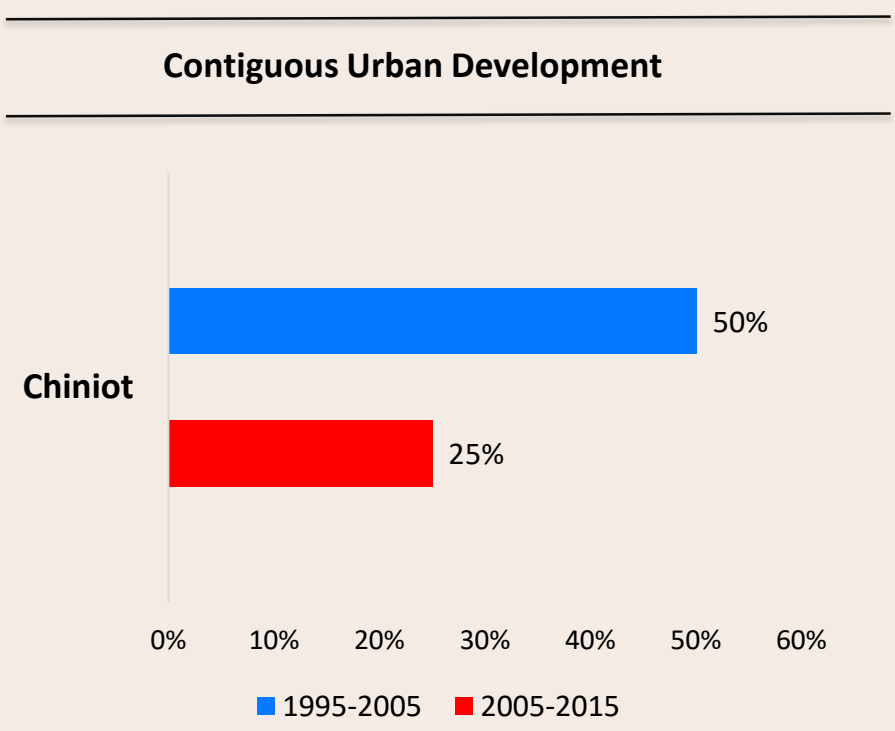
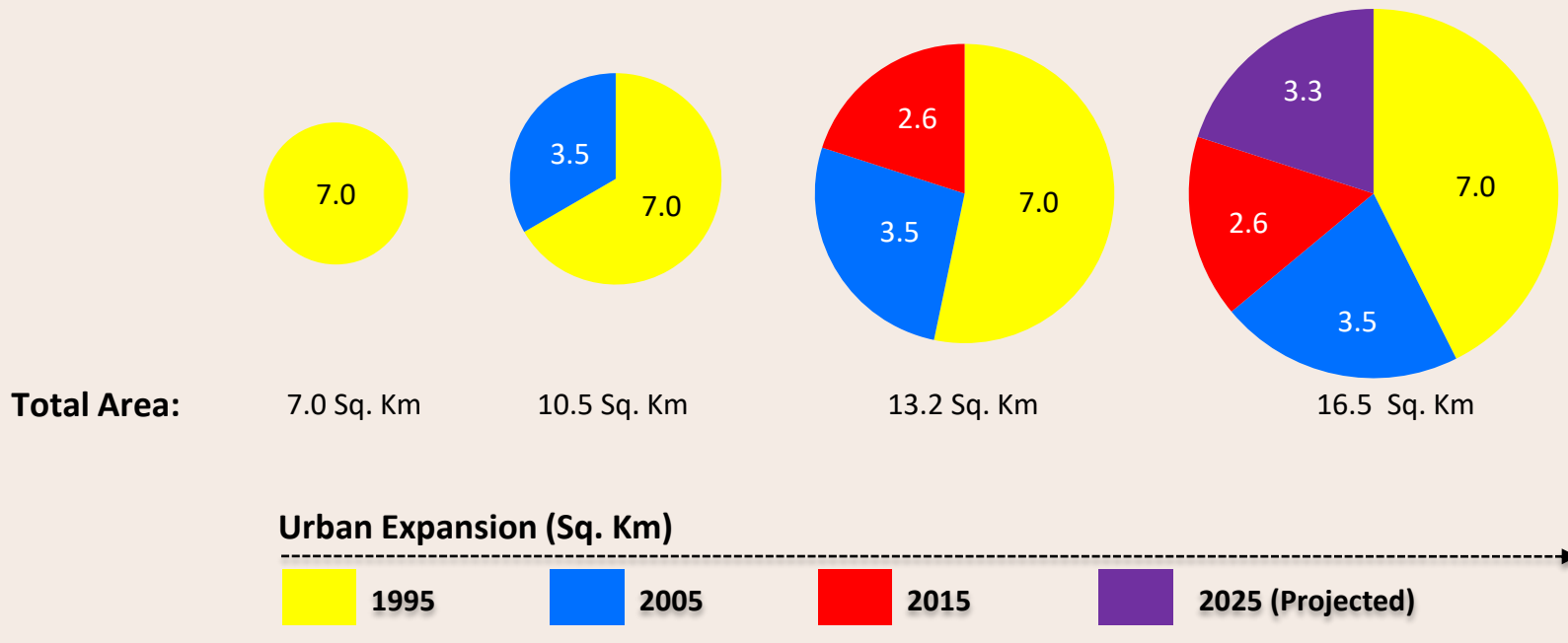
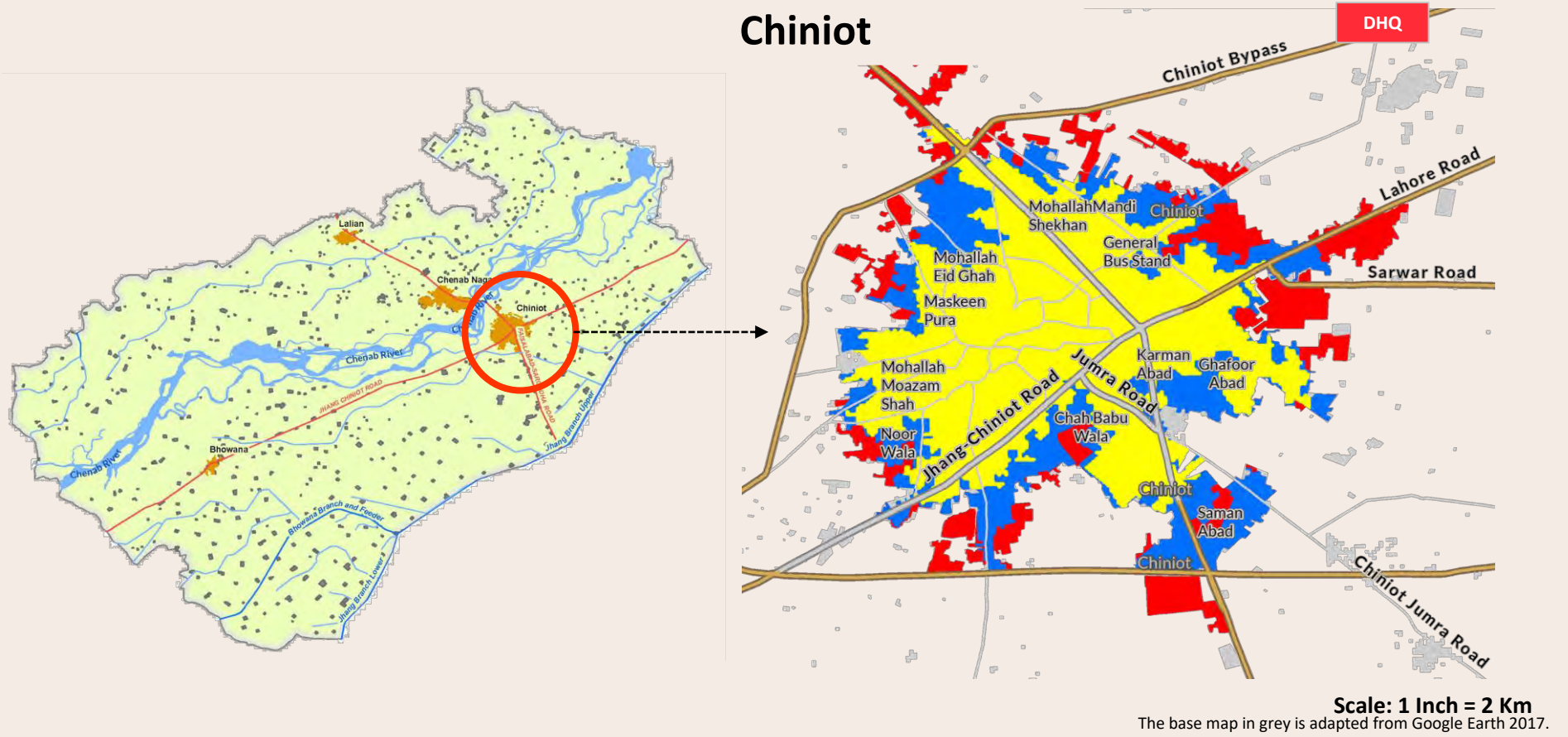


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Chakwal	↑ 25%	↓ -46%	-

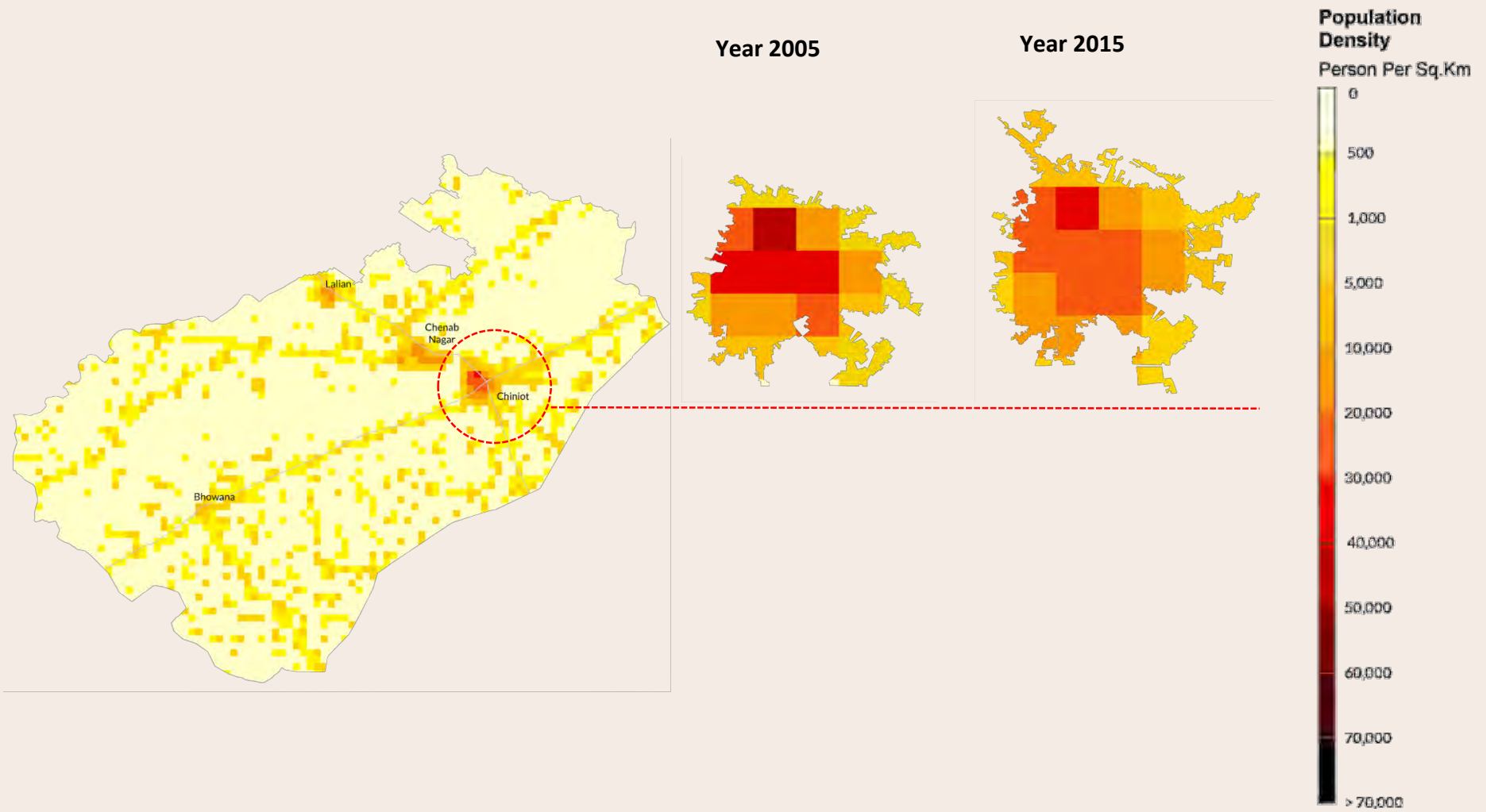
District: Chiniot

Urban Expansion

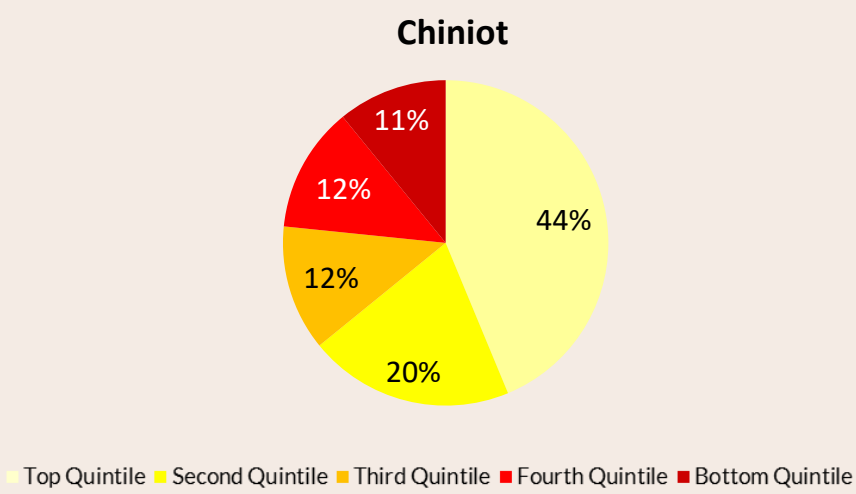


District: Chiniot

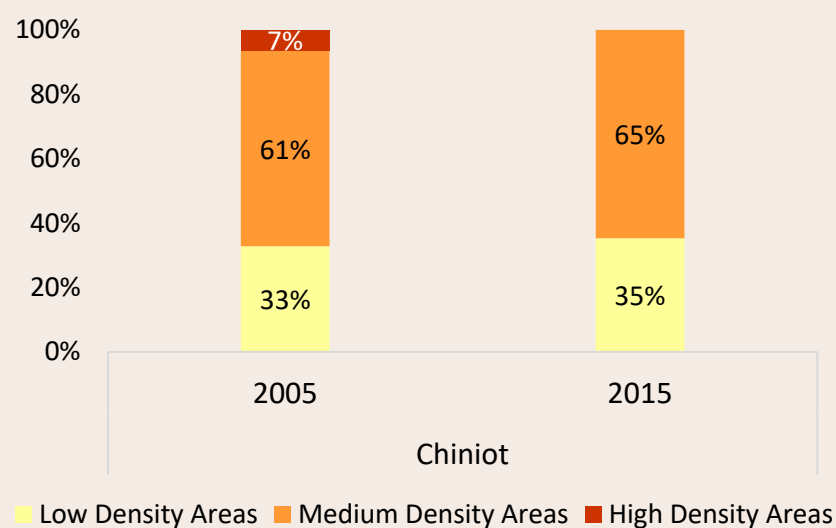
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

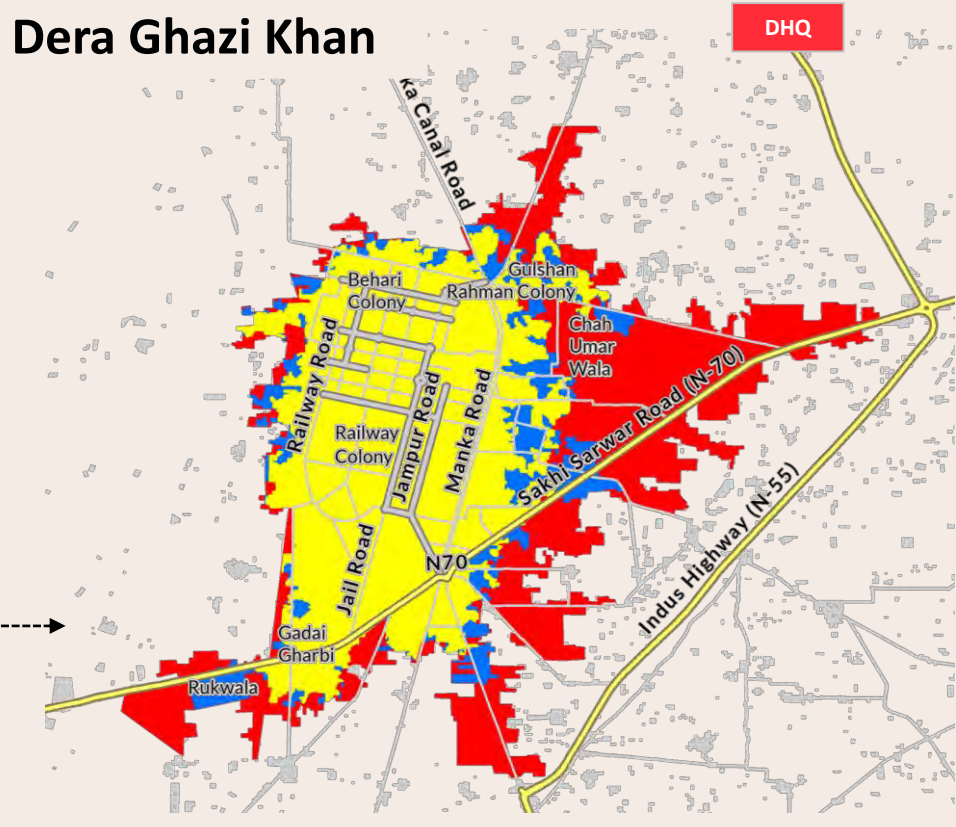
Chiniot	
Population 2005	190,038
Population 2015	205,543
Pop. Change '05-'15	8.16%
Pop. Annual Growth Rate '05-'15	0.79%
Area 1995 (Sq. Km)	7.01
Area 2005 (Sq. Km)	10.52
Area 2015 (Sq. Km)	13.16
Area Change '95-'05	50.08%
Area Change '05-'15	25.04%
Area Annual Growth Rate '95-'05	4.14%
Area Annual Growth Rate '05-'15	2.26%
Pop. Density 2005 (Per Sq. Km)	18,058
Pop. Density 2015 (Per Sq. Km)	15,620
Density Change '05-'15	-13.50%
Land Consumption Index	3.07

Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Chiniot	↑ 8%	↑ 7%	↓ -100%

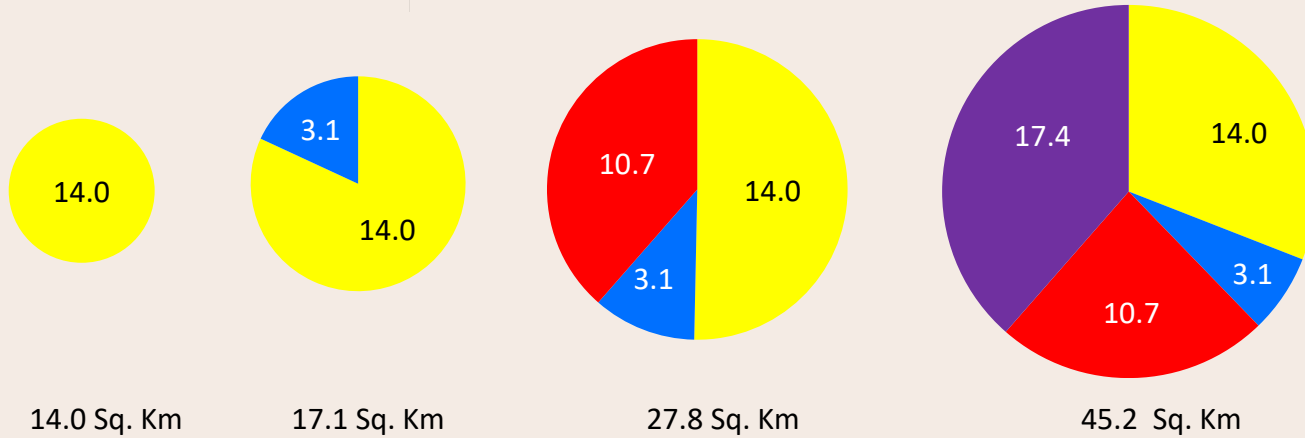
District: Dera Ghazi Khan

Urban Expansion



Scale: 1 Inch = 3 Km

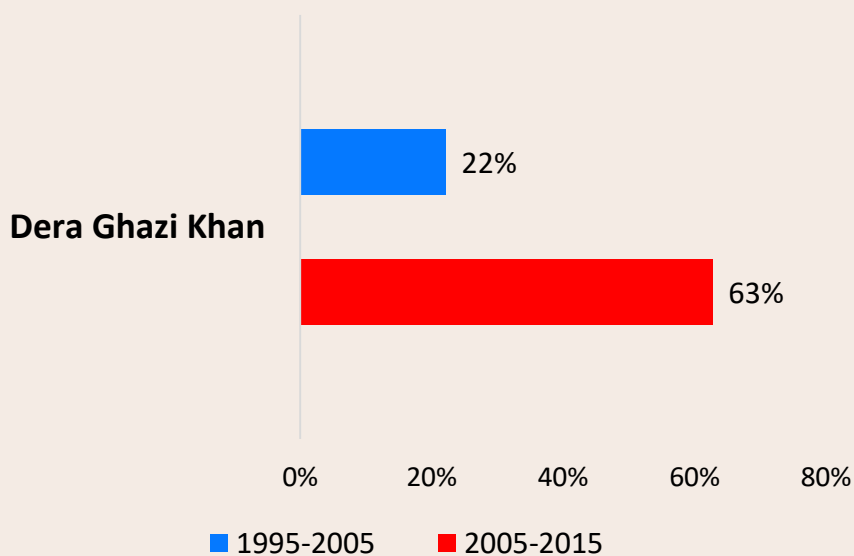
The base map in grey is adapted from Google Earth 2017.



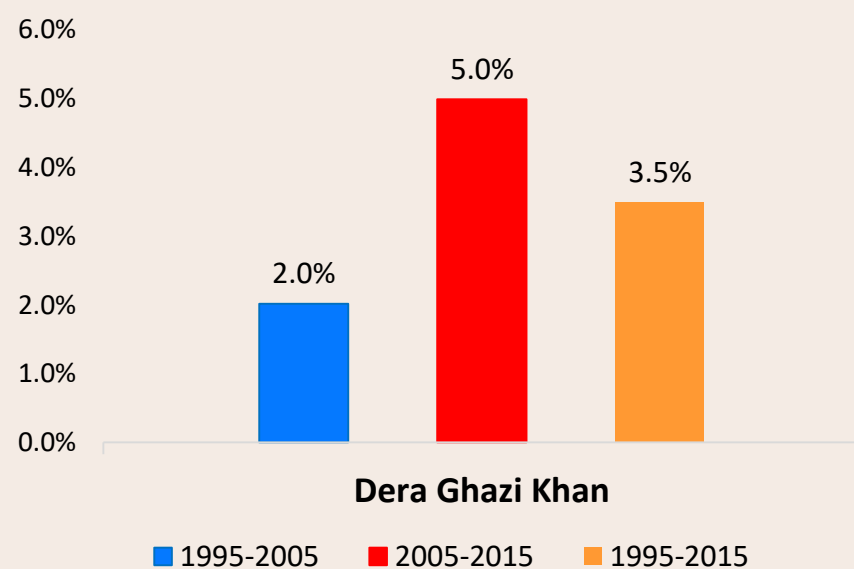
Urban Expansion (Sq. Km)



Contiguous Urban Development

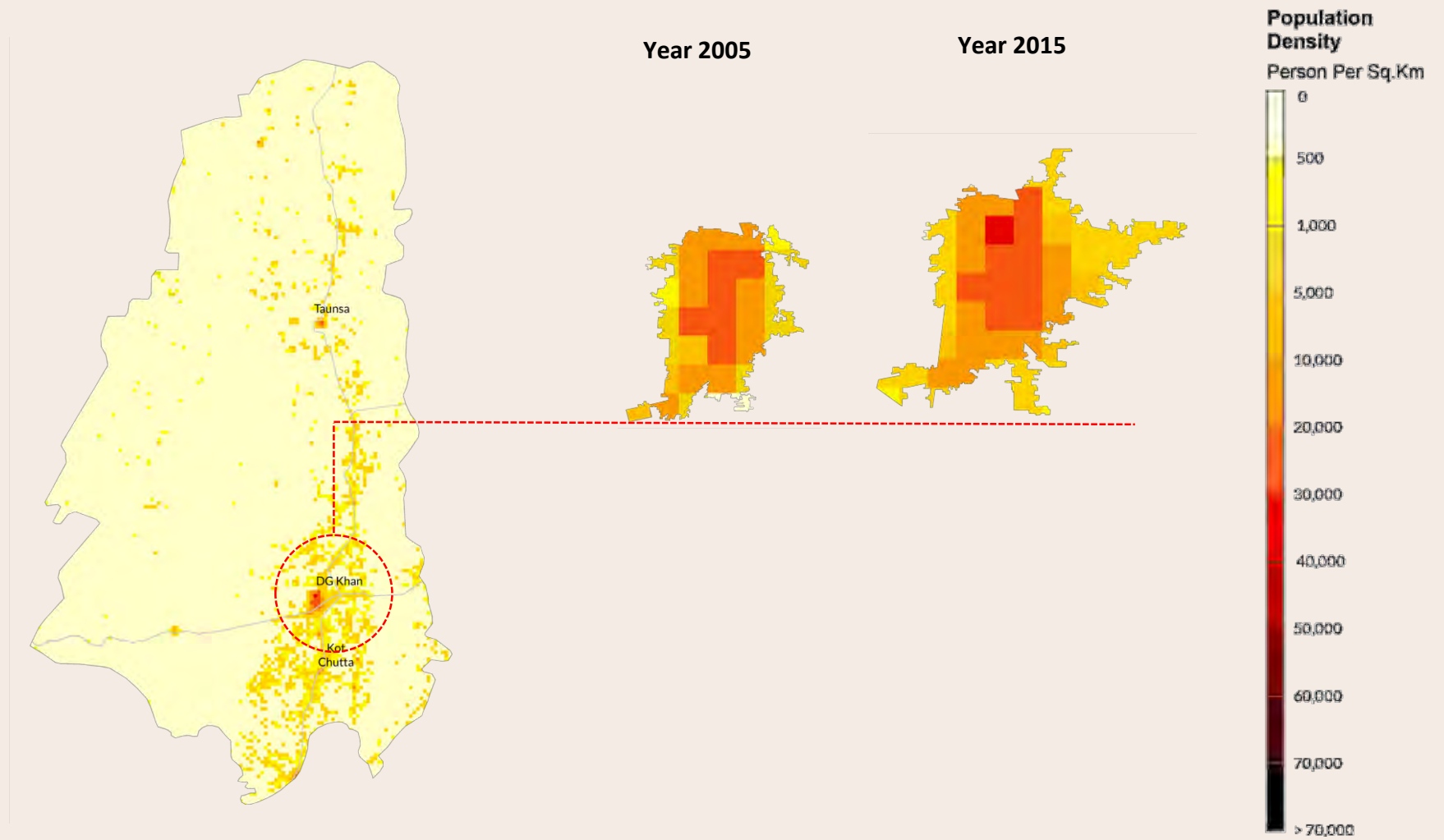


Annual Area Growth Rate



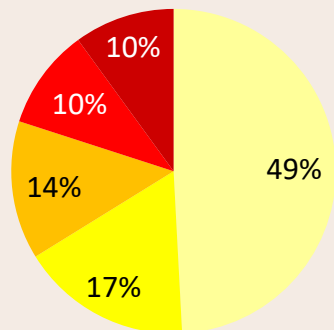
District: Dera Ghazi Khan

Population Density



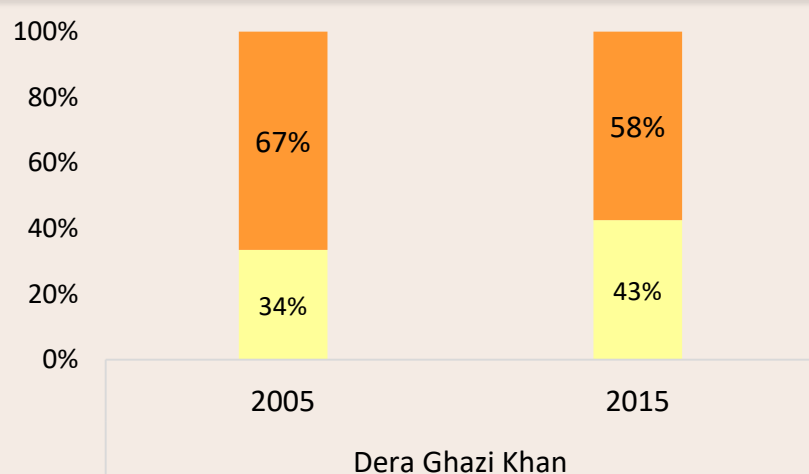
Percentage of Area Occupied by 20% of Population (2015)

Dera Ghazi Khan



Top Quintile Second Quintile Third Quintile Fourth Quintile Bottom Quintile

Intra-city Area Composition



Low Density Areas Medium Density Areas High Density Areas

Population Area Statistics

Dera Ghazi Khan

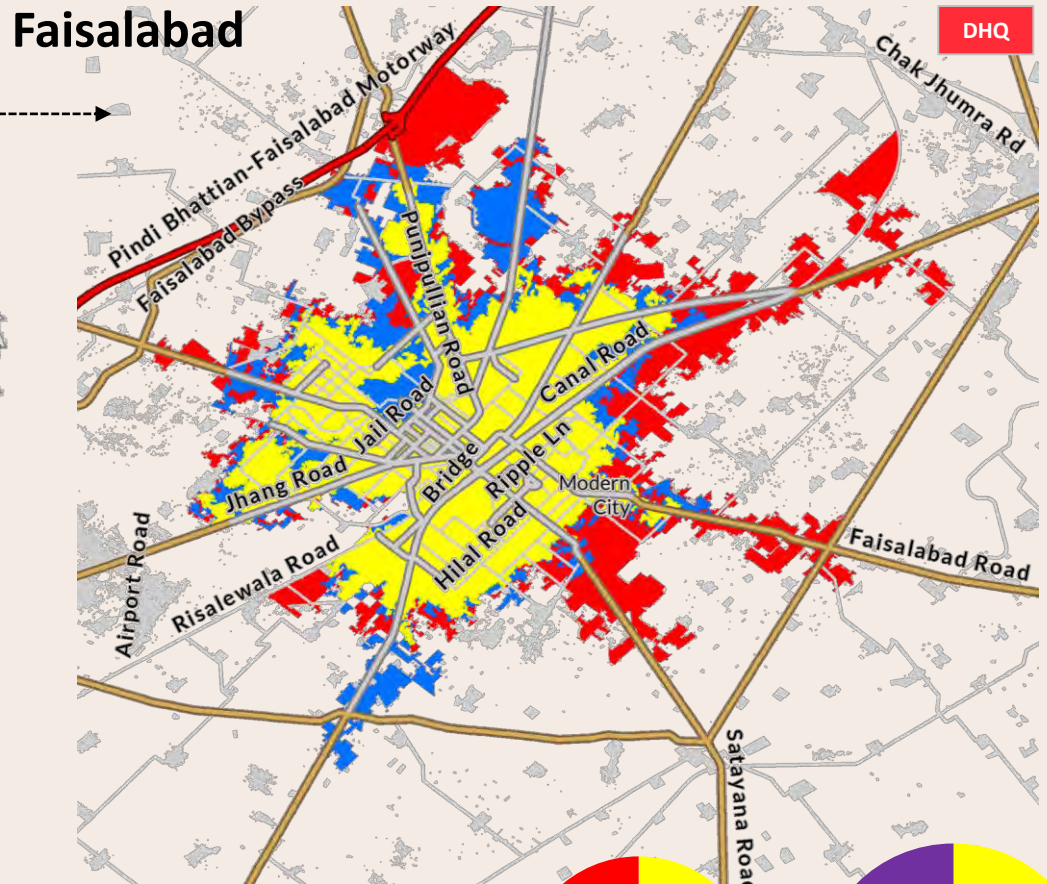
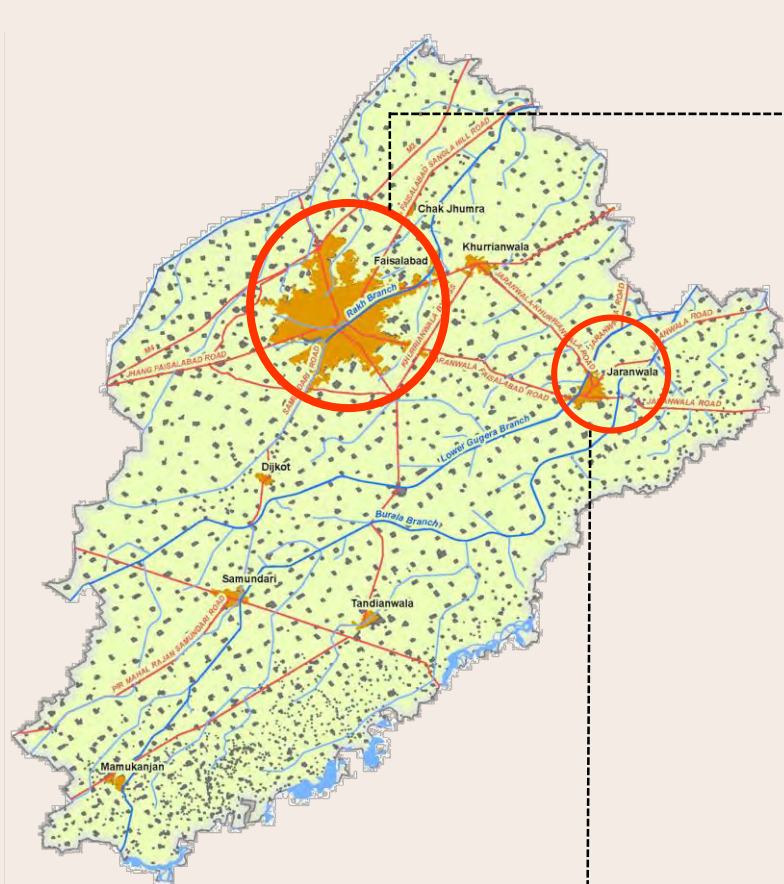
Population 2005	210,462
Population 2015	349,075
Pop. Change '05-'15	65.86%
Pop. Annual Growth Rate '05-'15	5.19%
Area 1995 (Sq. Km)	13.98
Area 2005 (Sq. Km)	17.07
Area 2015 (Sq. Km)	27.77
Area Change '95-'05	22.10%
Area Change '05-'15	62.73%
Area Annual Growth Rate '95-'05	2.02%
Area Annual Growth Rate '05-'15	4.99%
Pop. Density 2005 (Per Sq. Km)	12,333
Pop. Density 2015 (Per Sq. Km)	12,570
Density Change '05-'15	1.92%
Land Consumption Index	0.95

Percentage Change in Area Composition (2005-2015)

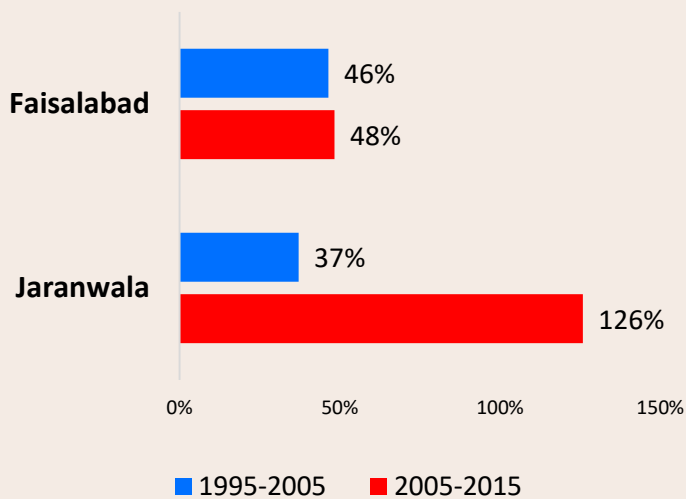
	Low Density Areas	Medium Density Areas	High Density Areas
Dera Ghazi Khan	↑ 27%	↓ -14%	-

District: Faisalabad

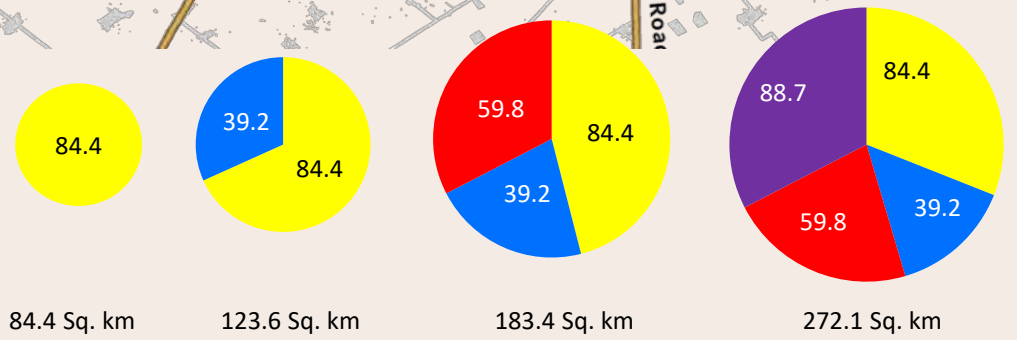
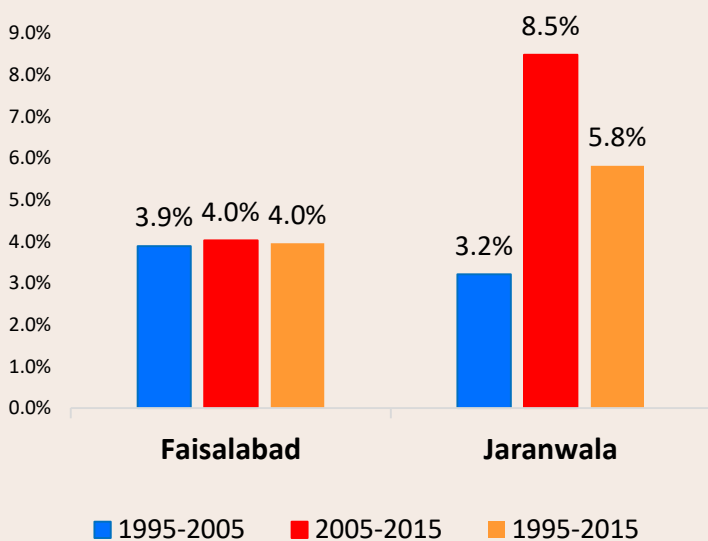
Urban Expansion



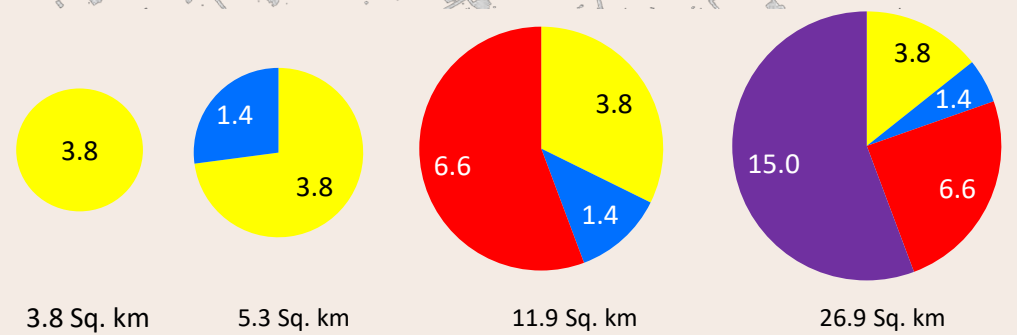
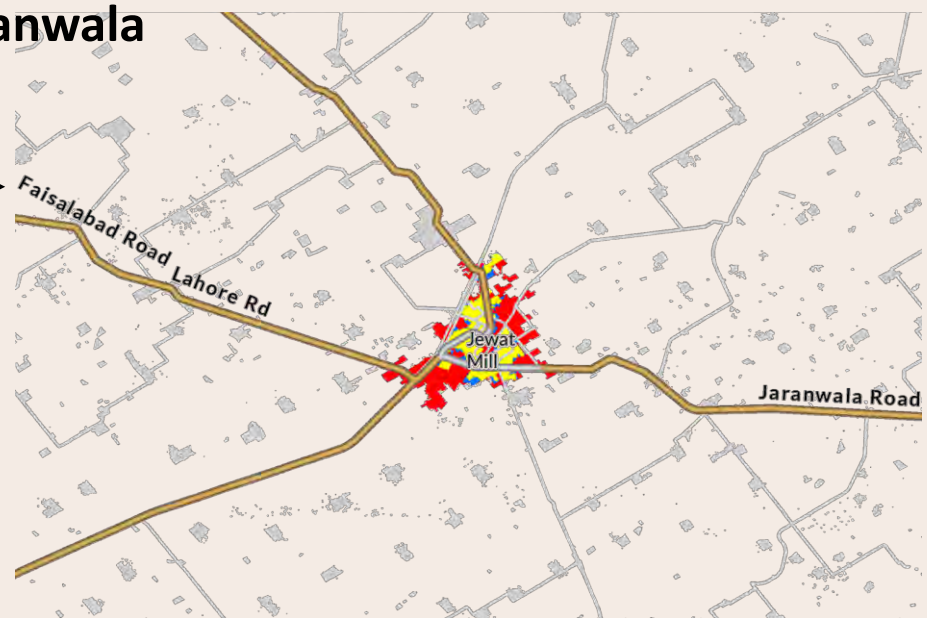
Contiguous Urban Development



Annual Area Growth Rate



Jaranwala



Scale: 1 Inch = 7 Km

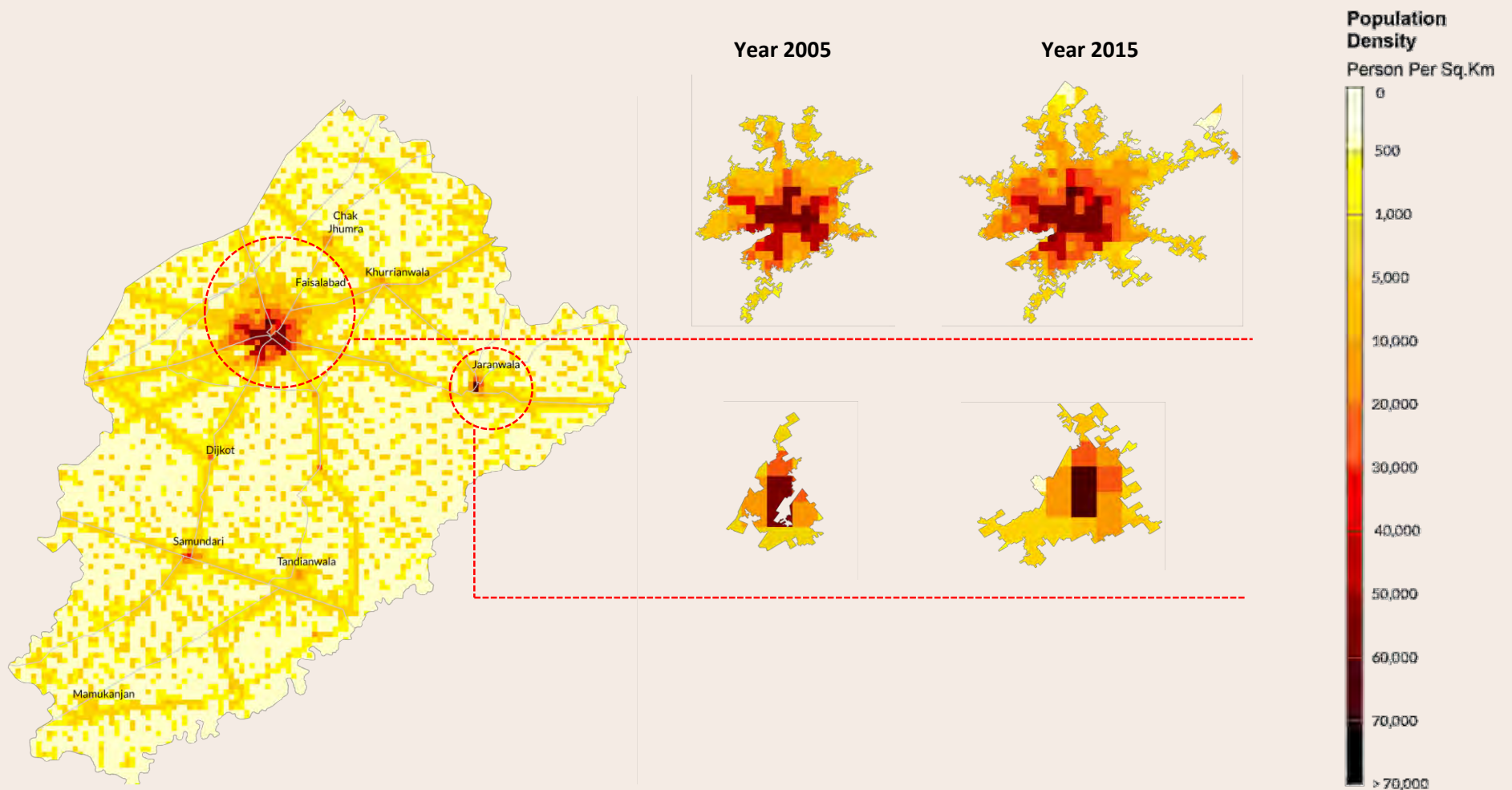
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

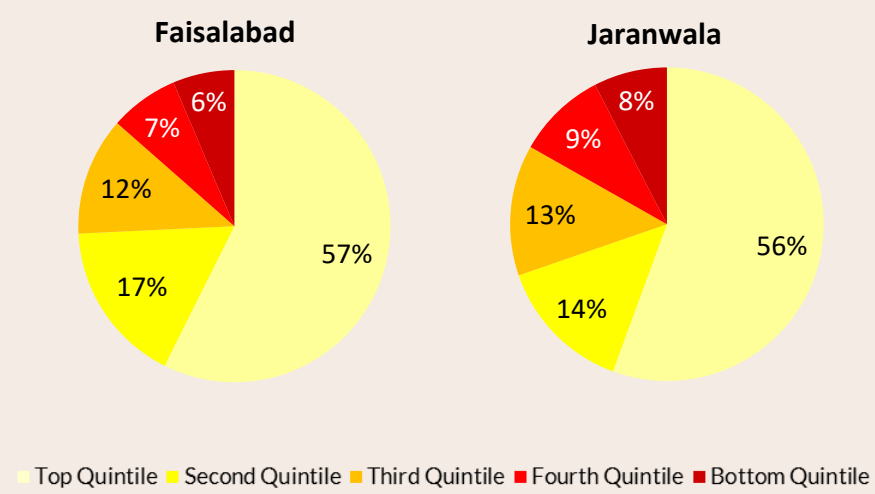


District: Faisalabad

Population Density



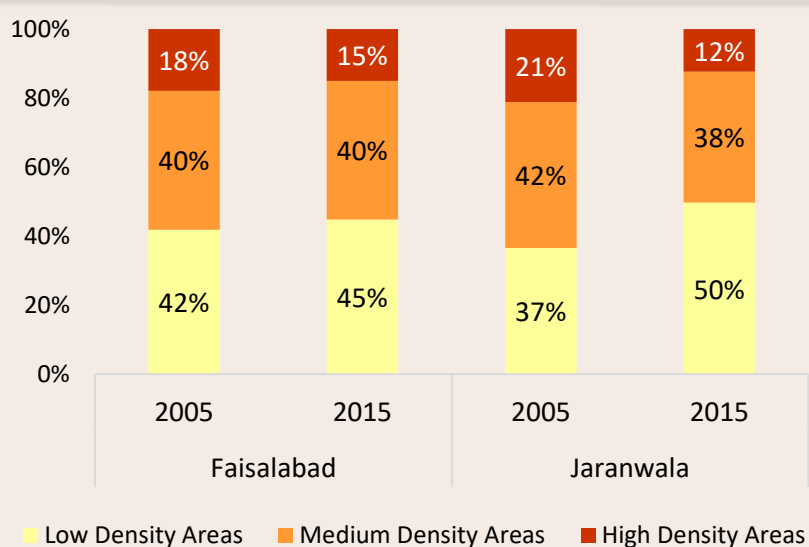
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Faisalabad	Jaranwala
Population 2005	2,279,112	105,376
Population 2015	3,132,345	204,046
Pop. Change '05-'15	37.44%	93.64%
Pop. Annual Growth Rate '05-'15	3.23%	6.83%
Area 1995 (Sq. Km)	84.40	3.85
Area 2005 (Sq. Km)	123.63	5.28
Area 2015 (Sq. Km)	183.42	11.91
Area Change '95-'05	46.49%	37.16%
Area Change '05-'15	48.36%	125.77%
Area Annual Growth Rate '95-'05	3.89%	3.21%
Area Annual Growth Rate '05-'15	4.02%	8.48%
Pop. Density 2005 (Per Sq. Km)	18,435	19,968
Pop. Density 2015 (Per Sq. Km)	17,078	17,126
Density Change '05-'15	-7.36%	-14.23%
Land Consumption Index	1.29	1.34

Intra-city Area Composition

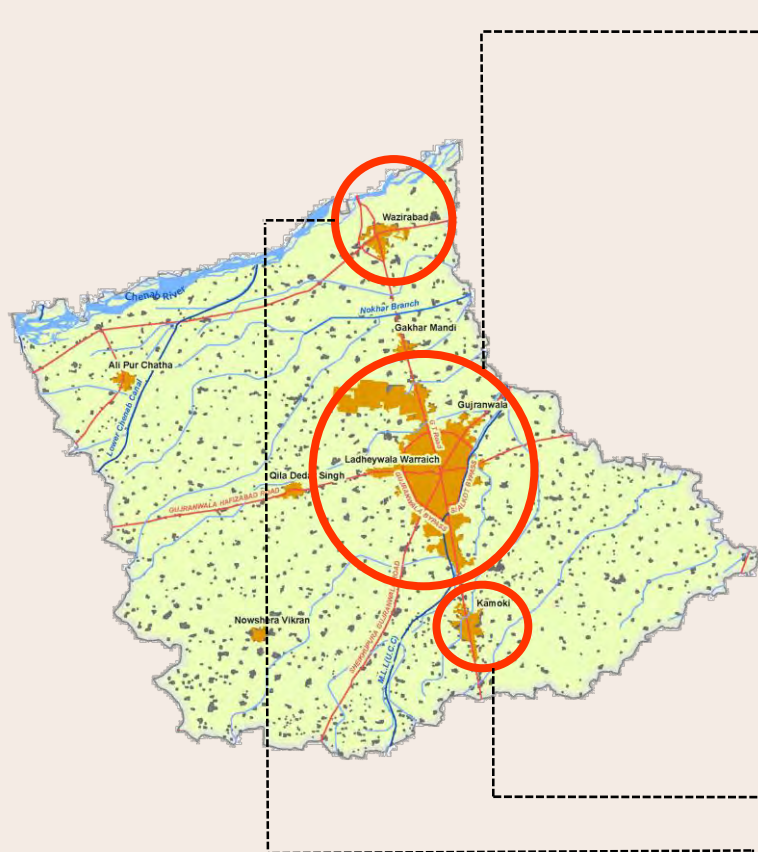


Percentage Change in Area Composition (2005-2015)

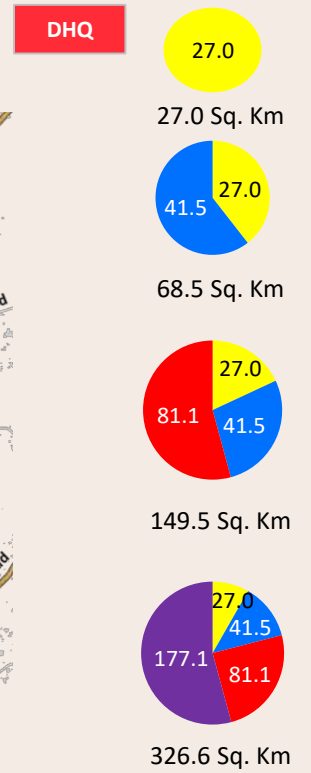
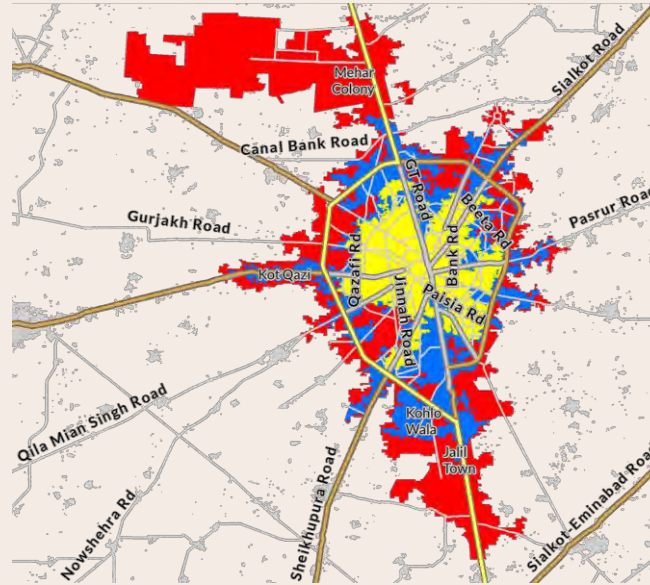
	Low Density Areas	Medium Density Areas	High Density Areas
Faisalabad	↑ 7%	↓ -0.07%	↓ -16%
Jaranwala	↑ 36%	↓ -10%	↓ -42%

District: Gujranwala

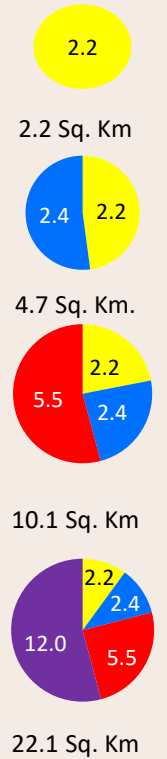
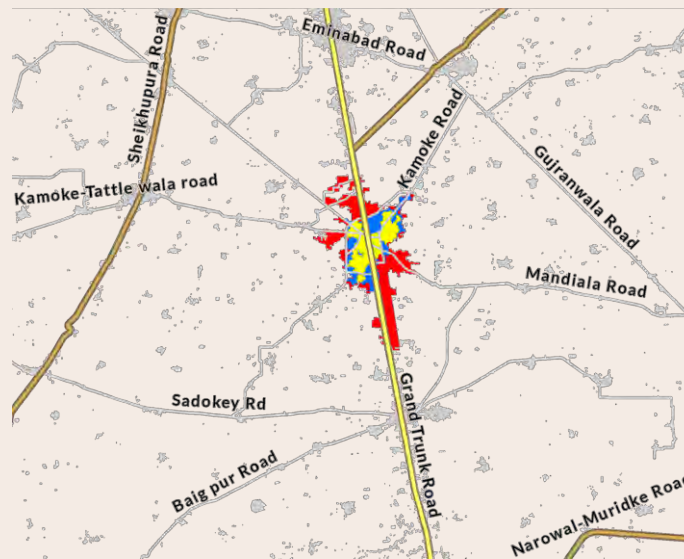
Urban Expansion



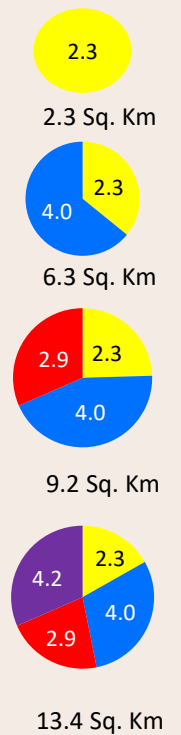
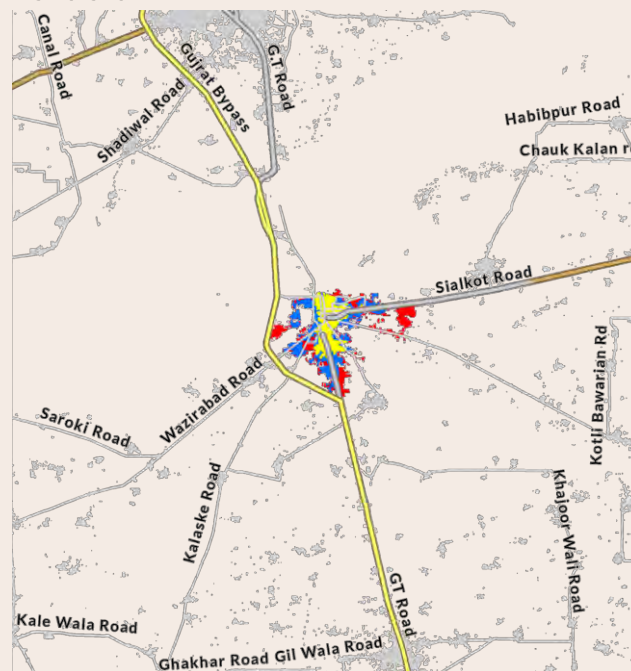
Gujranwala



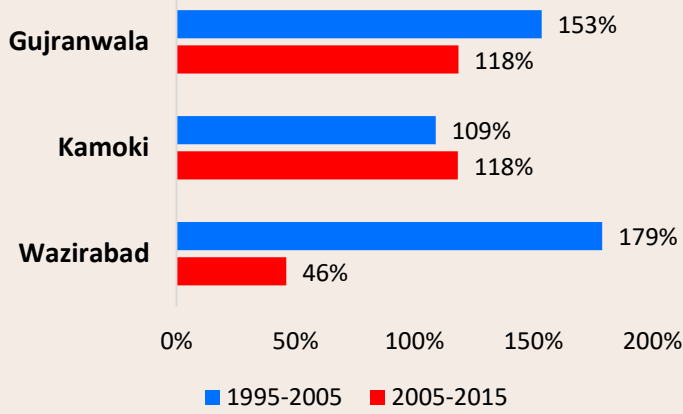
Kamoki



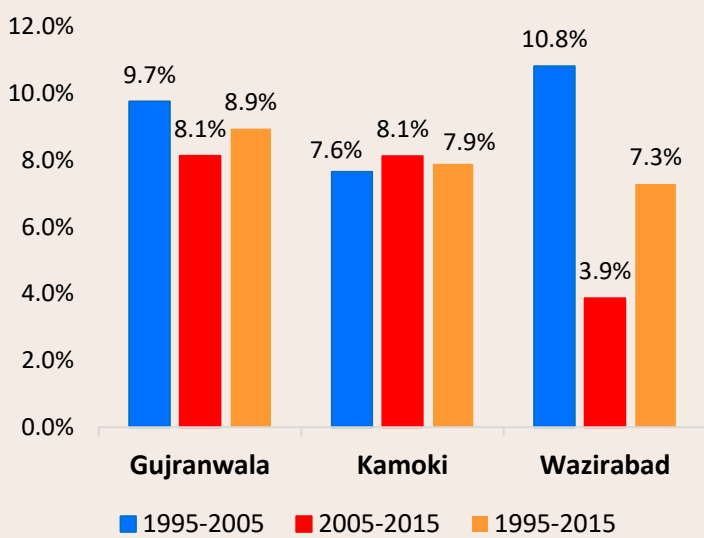
Wazirabad



Contiguous Urban Development



Annual Area Growth Rate



Scale: 1 Inch = 7 Km

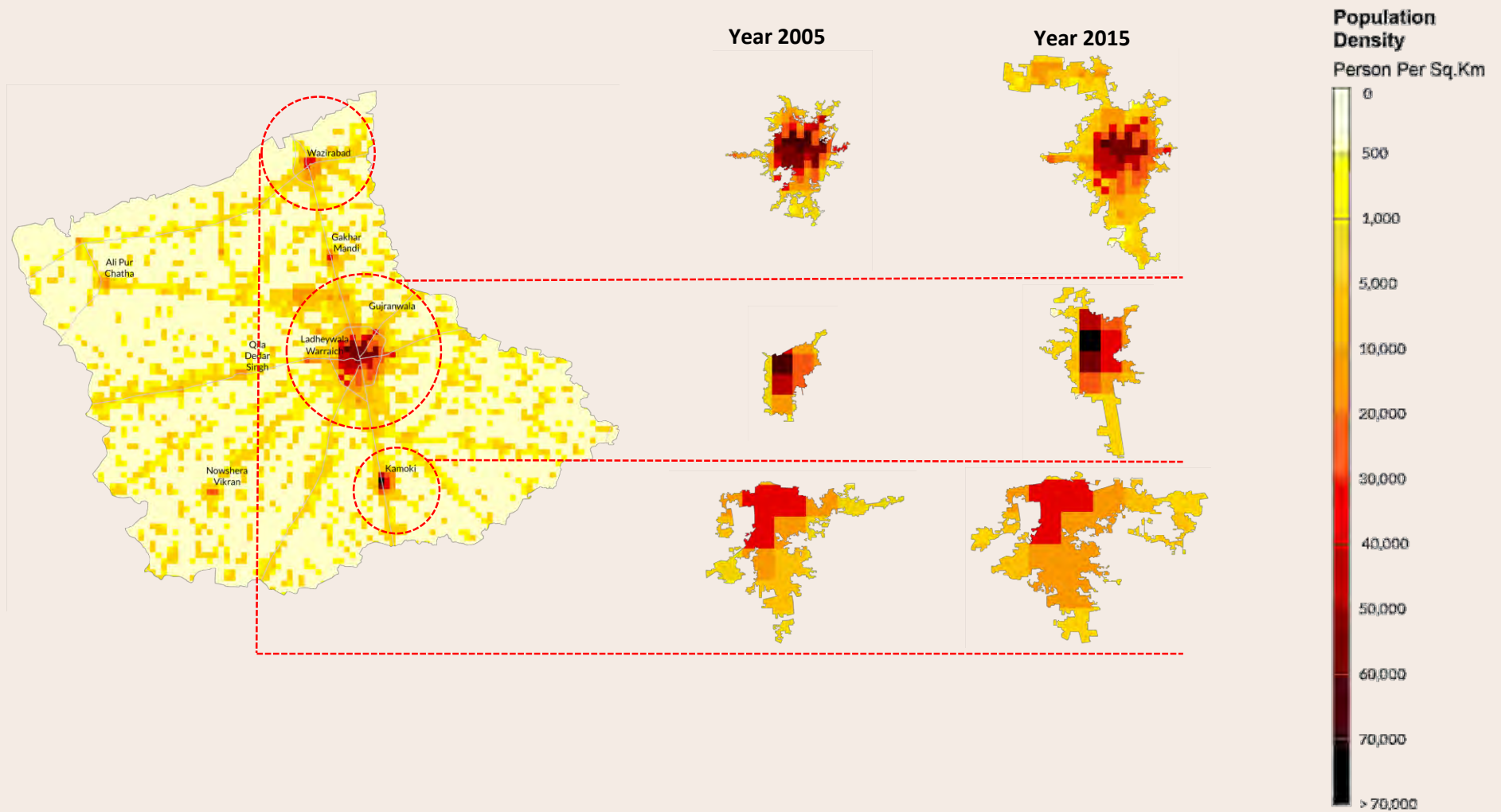
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

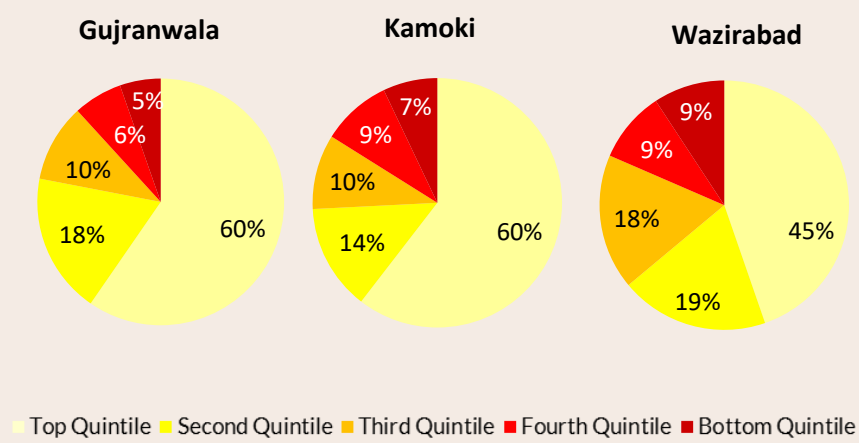


District: Gujranwala

Population Density



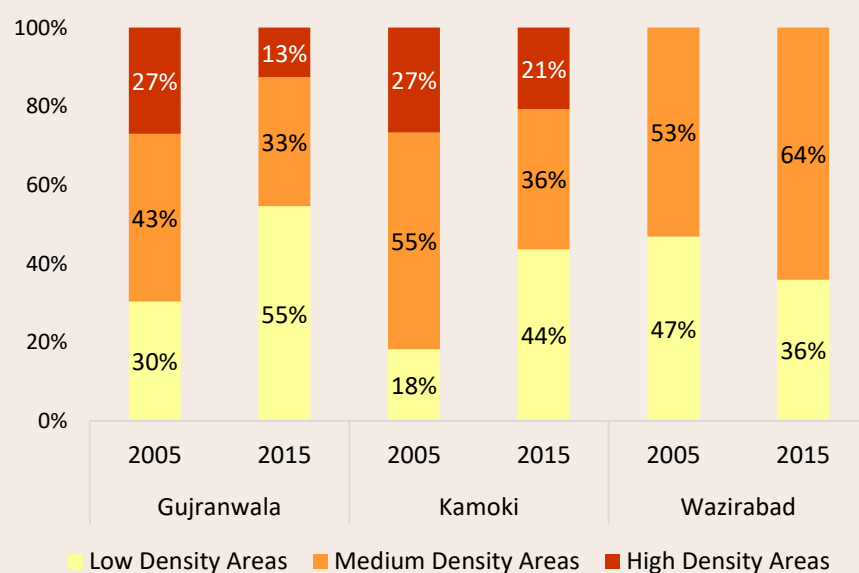
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Gujranwala	Kamoki	Wazirabad
Population 2005	1,730,019	130,069	95,469
Population 2015	2,257,227	242,756	141,842
Pop. Change '05-'15	30.47%	86.64%	48.57%
Pop. Annual Growth Rate '05-'15	2.70%	6.44%	4.04%
Area 1995 (Sq. Km)	27.02	2.23	2.25
Area 2005 (Sq. Km)	68.47	4.65	6.29
Area 2015 (Sq. Km)	149.54	10.14	9.18
Area Change '95-'05	153.42%	108.87%	178.92%
Area Change '05-'15	118.41%	118.21%	46.10%
Area Annual Growth Rate '95-'05	9.74%	7.64%	10.80%
Area Annual Growth Rate '05-'15	8.13%	8.12%	3.86%
Pop. Density 2005 (Per Sq. Km)	25,267	27,978	15,190
Pop. Density 2015 (Per Sq. Km)	15,094	23,929	15,447
Density Change '05-'15	-40.26%	-14.47%	1.70%
Land Consumption Index	3.89	1.36	0.95

Intra-city Area Composition

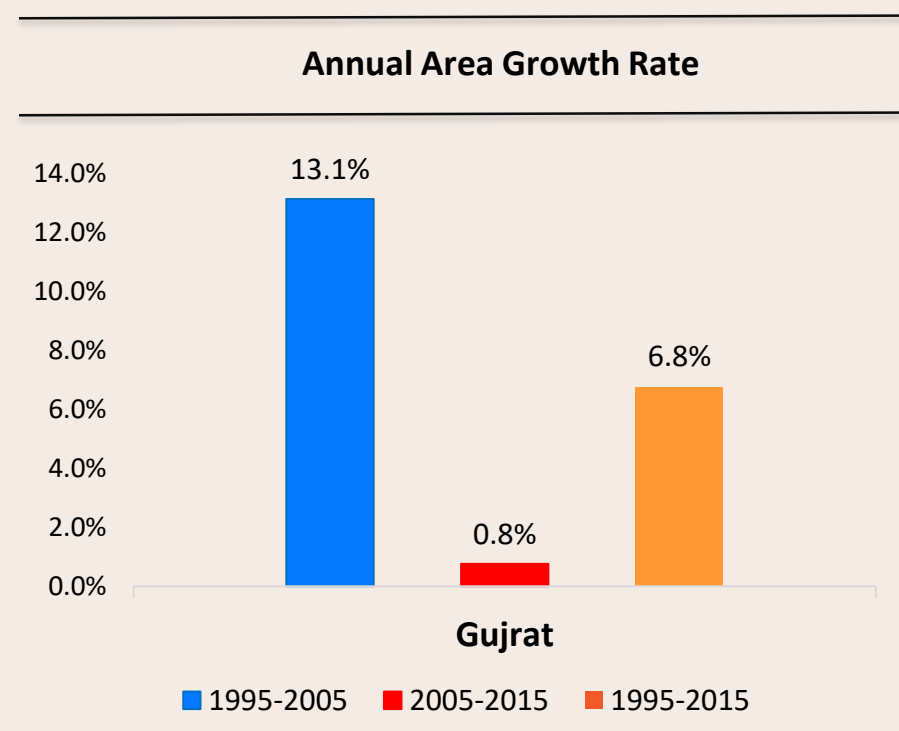
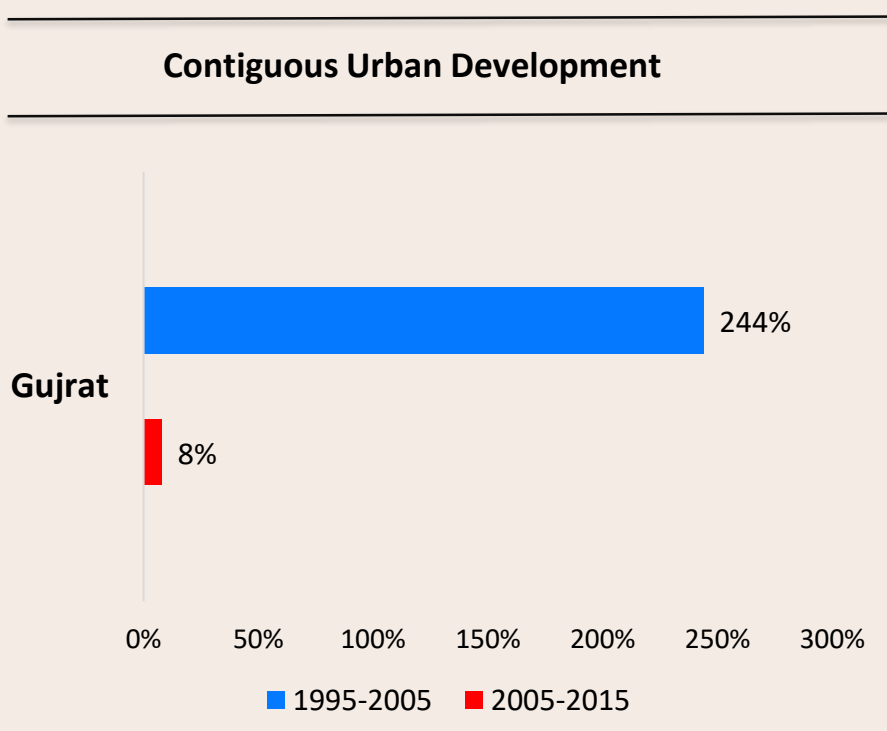
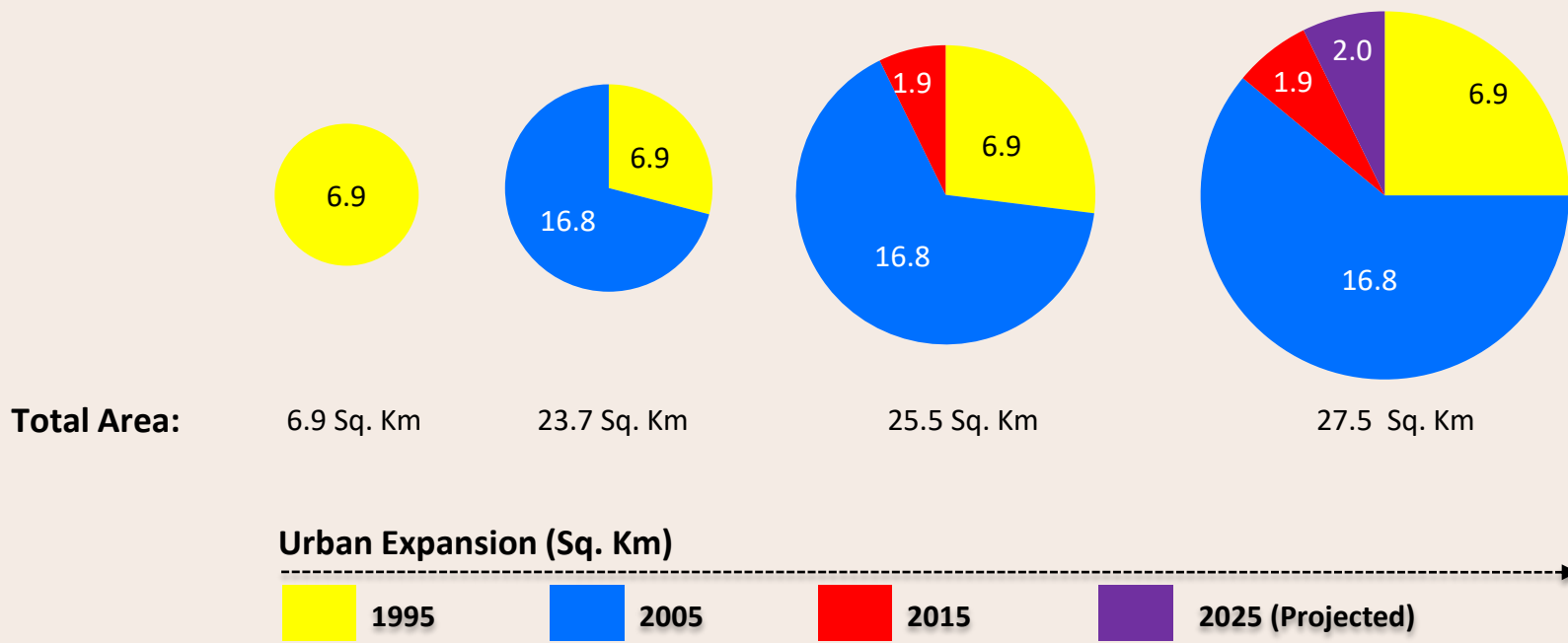
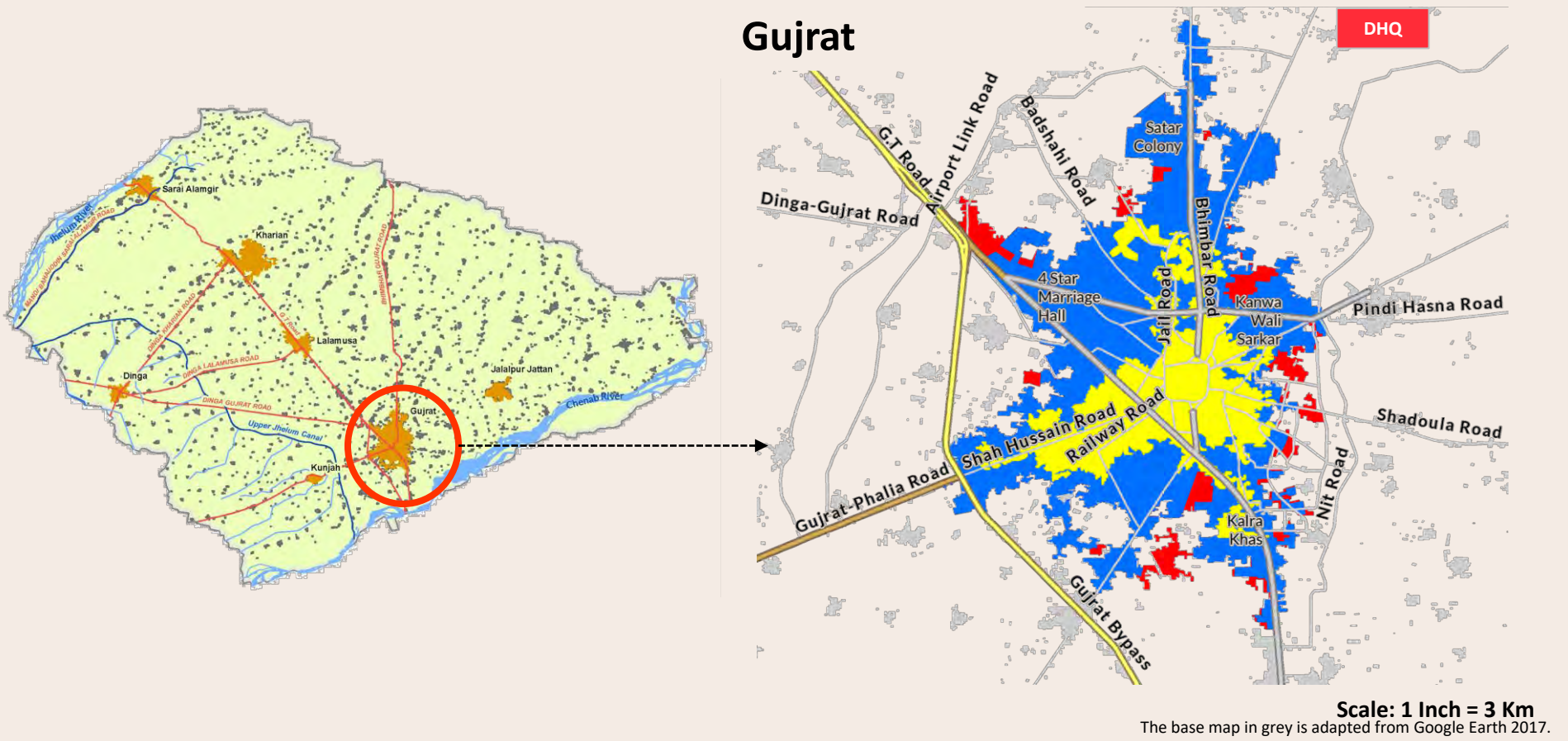


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Gujranwala	↑ 80%	↓ -23%	↓ -53%
Kamoki	↑ 140%	↓ -35%	↓ -23%
Wazirabad	↓ -23%	↑ 21%	-

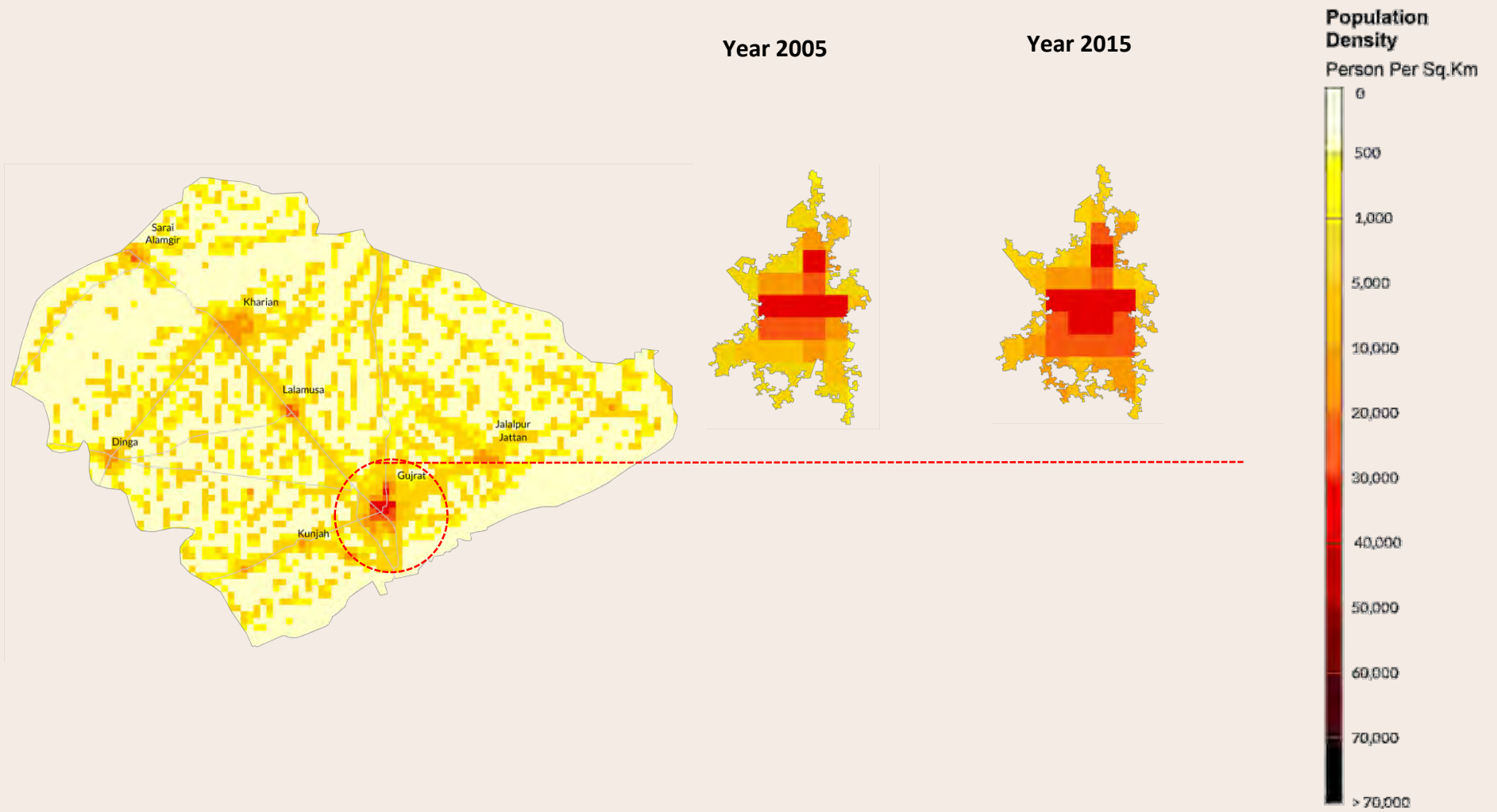
District: Gujrat

Urban Expansion

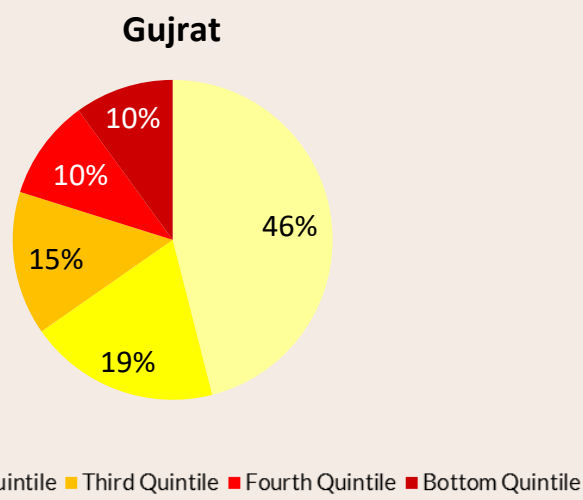


District: Gujrat

Population Density



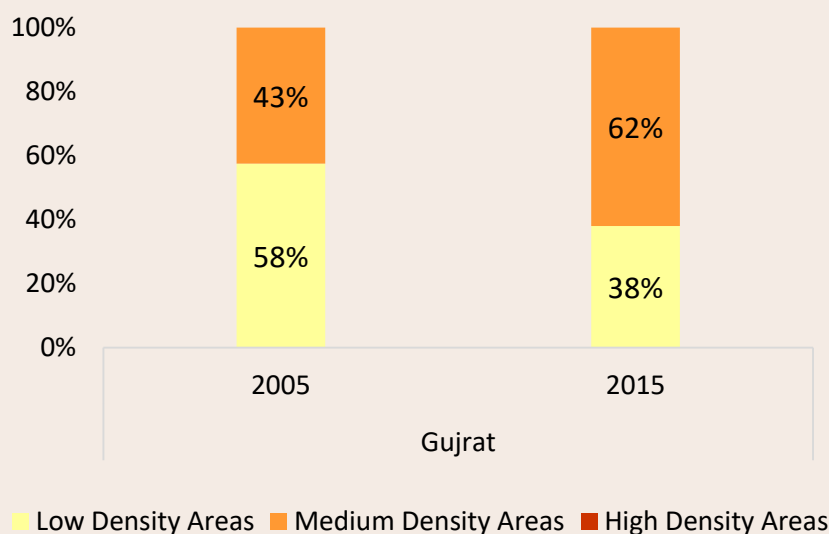
Percentage of Area Occupied by 20% of Population (2015)



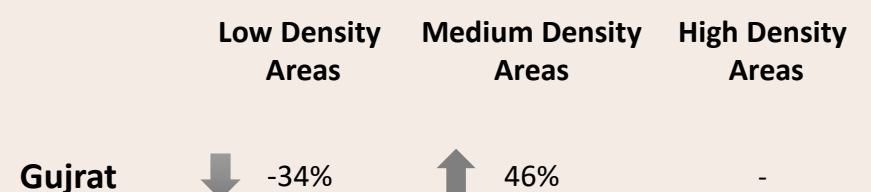
Population Area Statistics

Gujrat	
Population 2005	299,308
Population 2015	418,831
Pop. Change '05-'15	39.93%
Pop. Annual Growth Rate '05-'15	3.42%
Area 1995 (Sq. Km)	6.89
Area 2005 (Sq. Km)	23.68
Area 2015 (Sq. Km)	25.53
Area Change '95-'05	243.85%
Area Change '05-'15	7.83%
Area Annual Growth Rate '95-'05	13.15%
Area Annual Growth Rate '05-'15	0.76%
Pop. Density 2005 (Per Sq. Km)	12,640
Pop. Density 2015 (Per Sq. Km)	16,402
Density Change '05-'15	29.77%
Land Consumption Index	0.20

Intra-city Area Composition

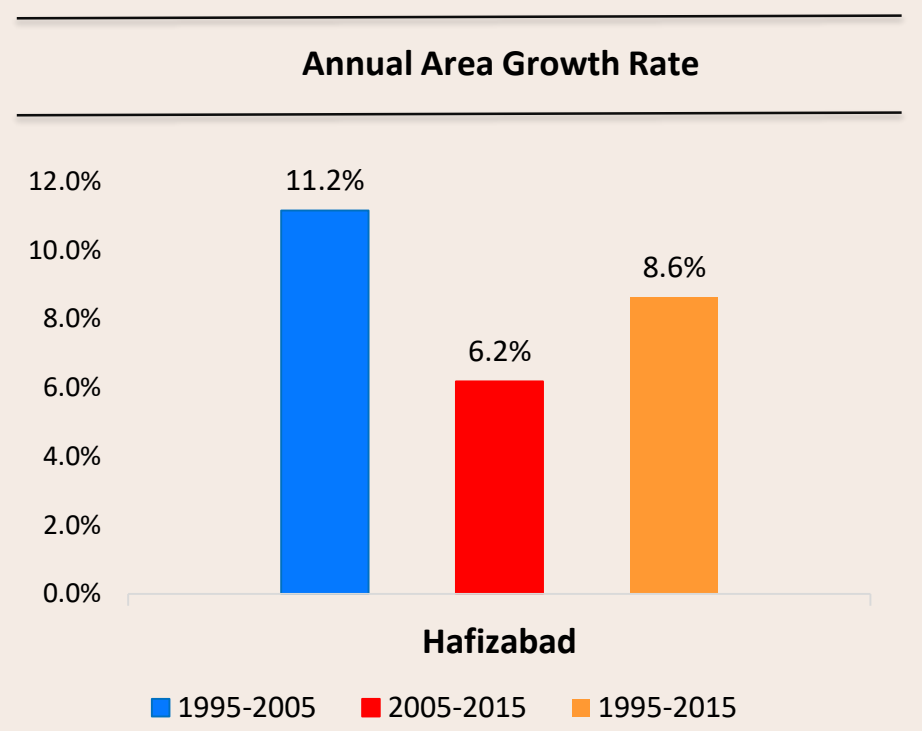
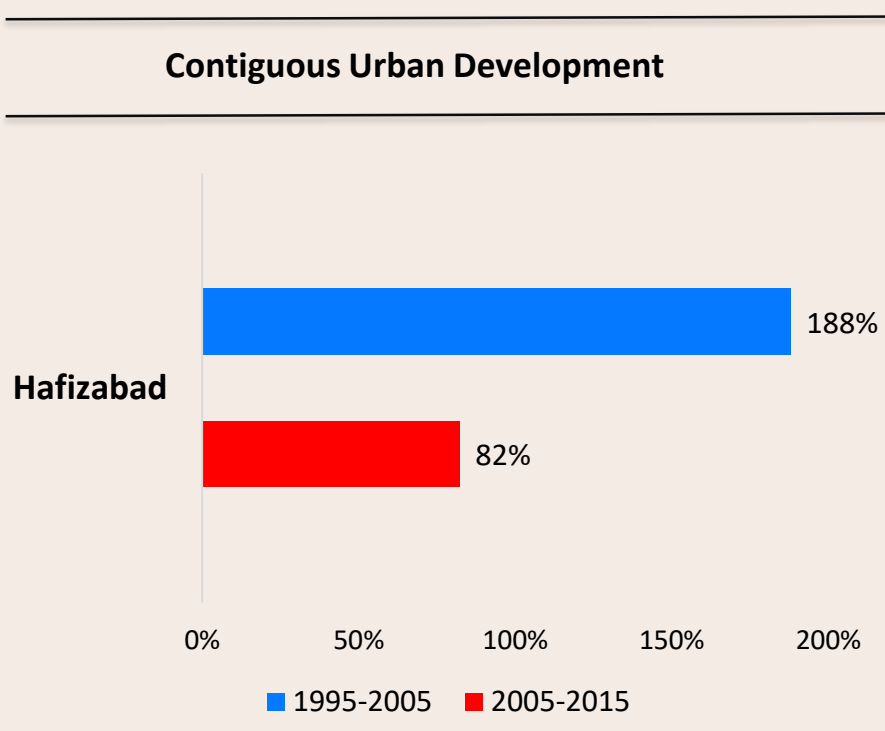
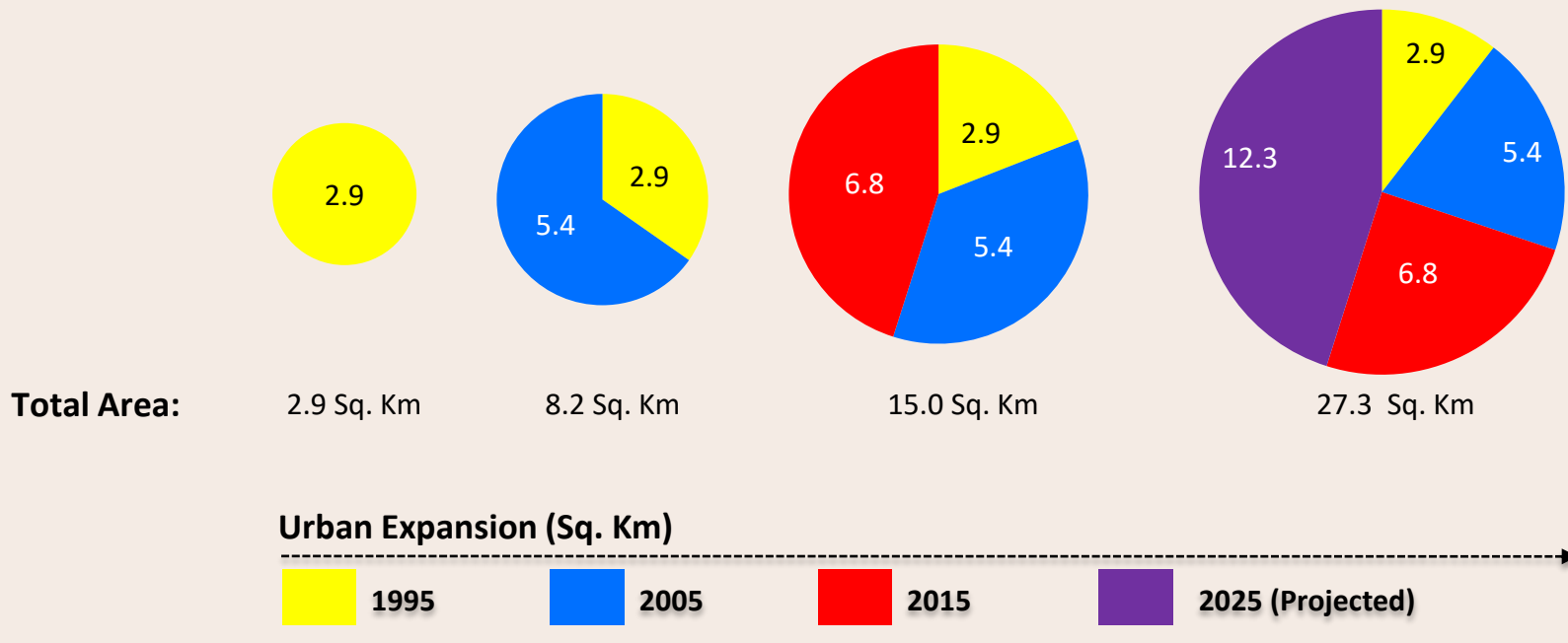
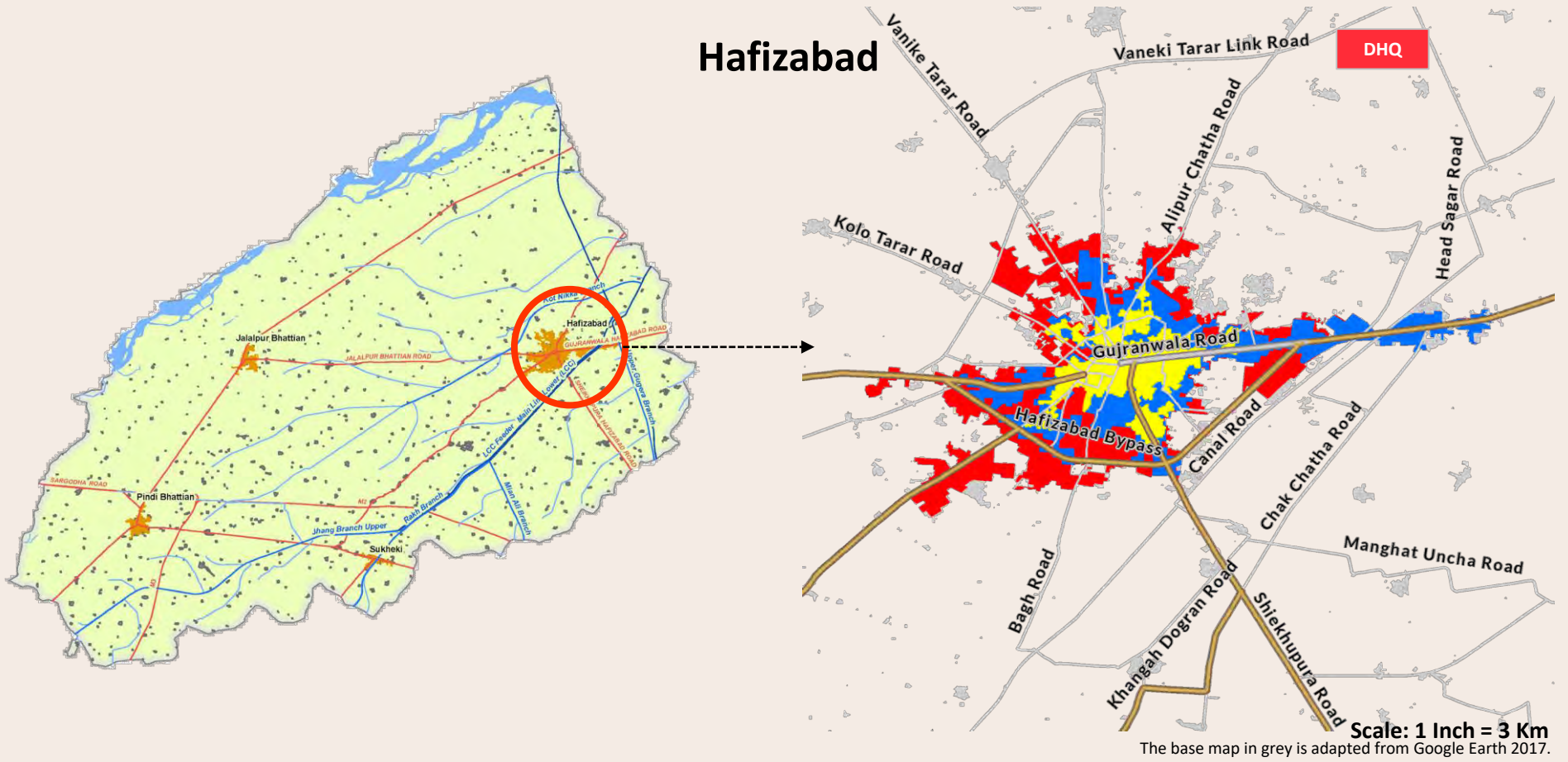


Percentage Change in Area Composition (2005-2015)



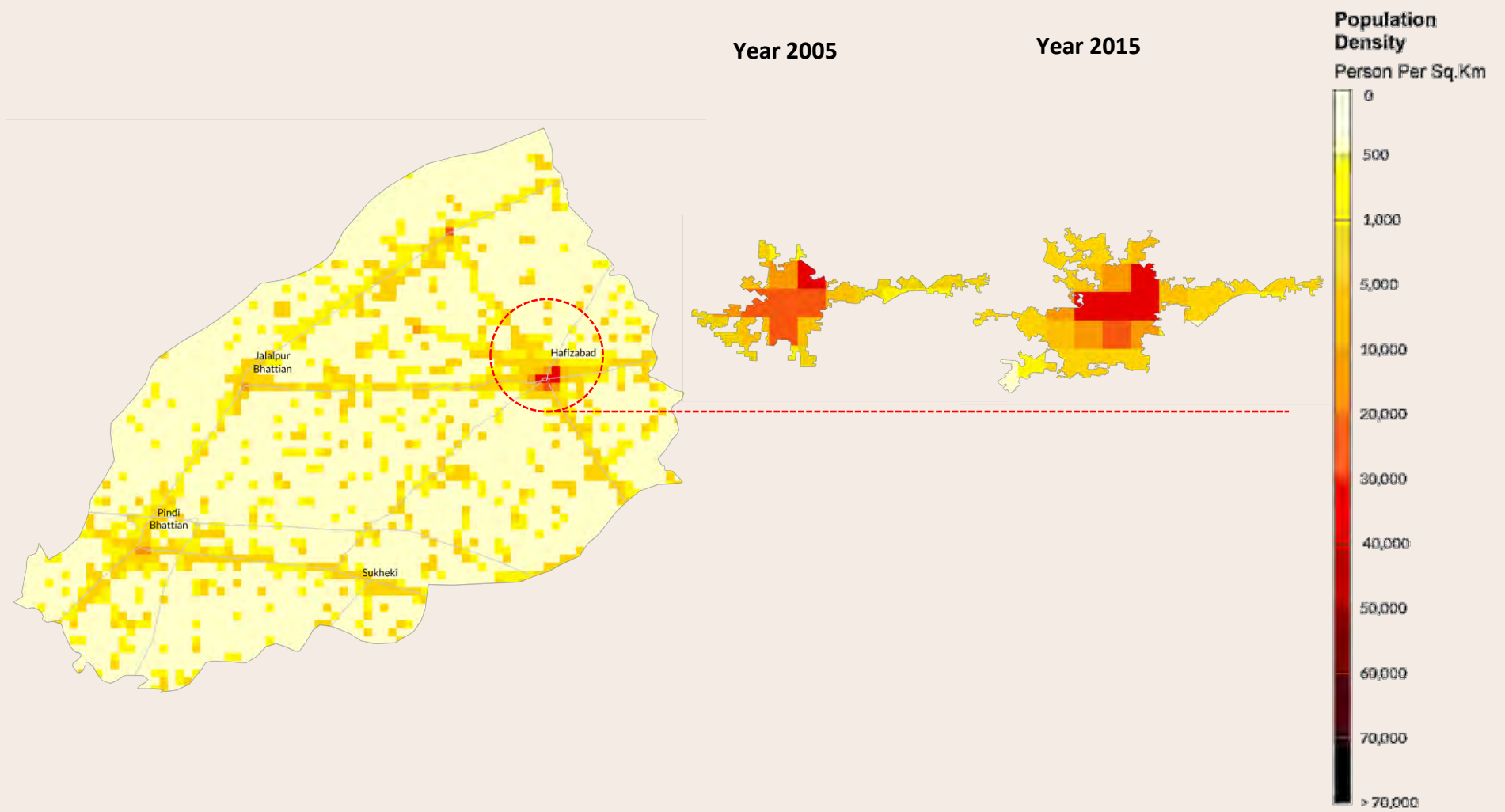
District: Hafizabad

Urban Expansion

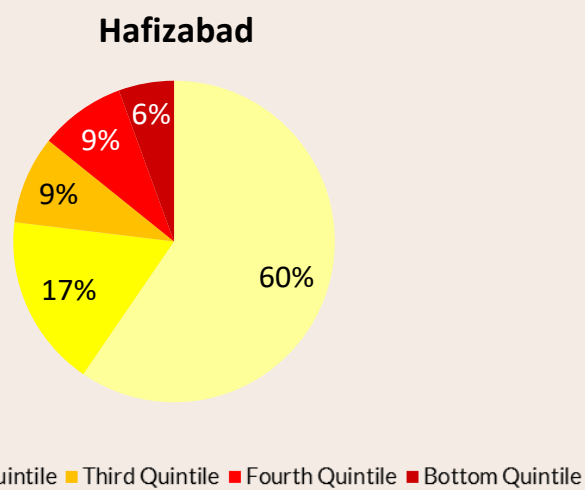


District: Hafizabad

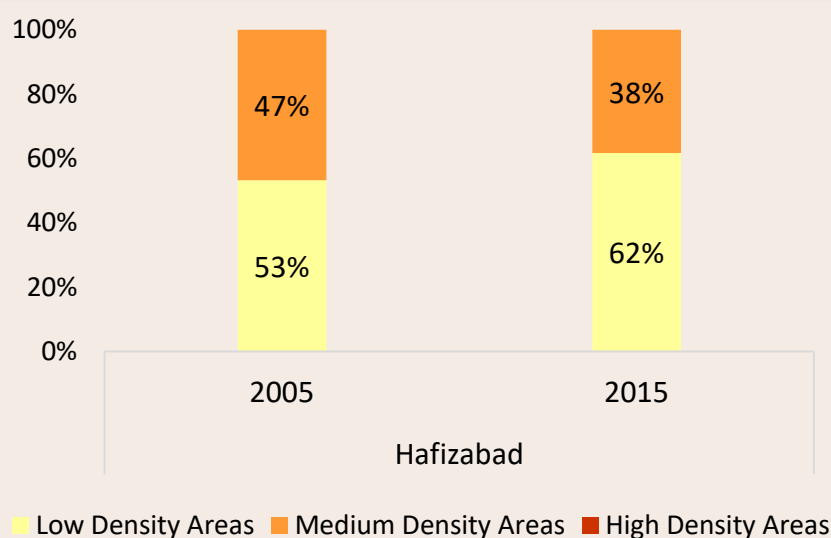
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

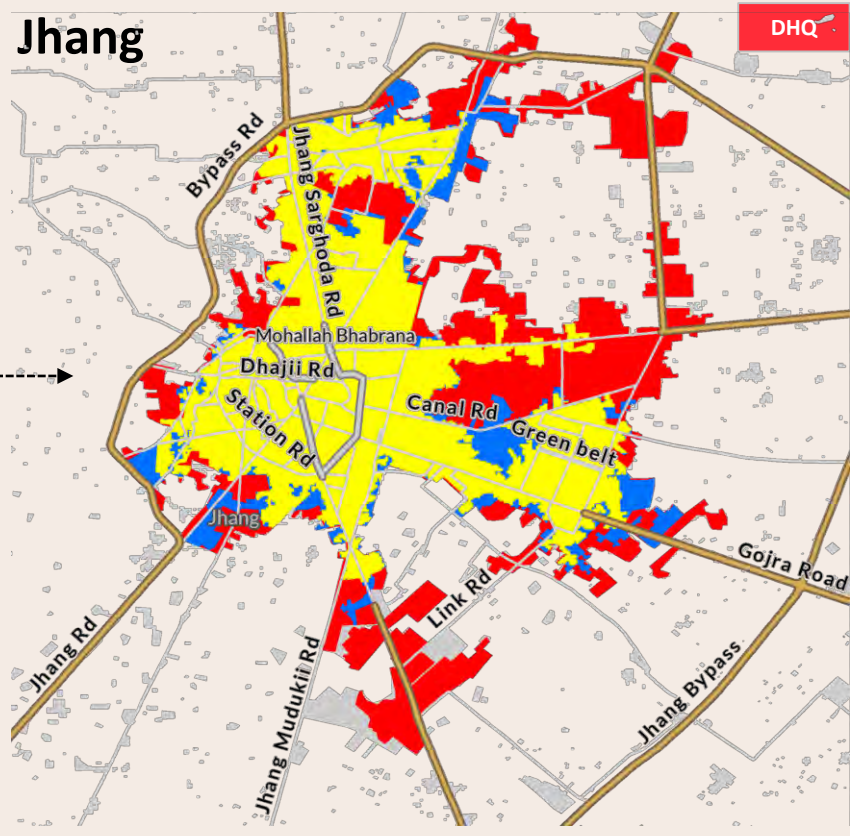
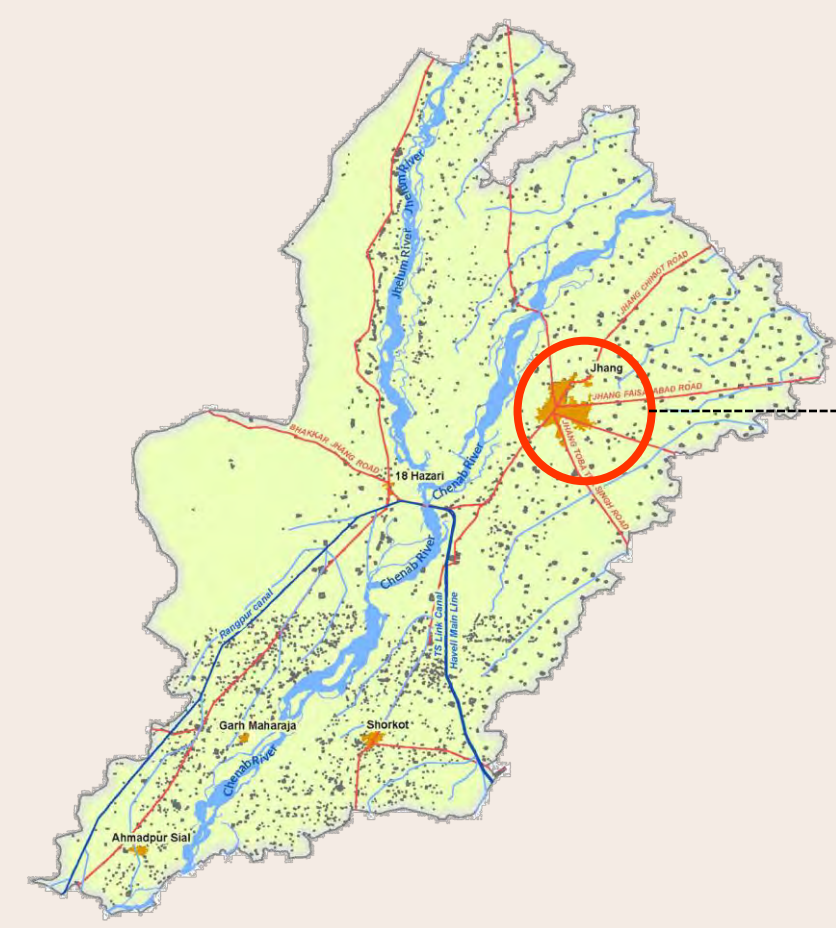
Hafizabad	
Population 2005	112,581
Population 2015	170,528
Pop. Change '05-'15	51.47%
Pop. Annual Growth Rate '05-'15	4.24%
Area 1995 (Sq. Km)	2.86
Area 2005 (Sq. Km)	8.22
Area 2015 (Sq. Km)	14.97
Area Change '95-'05	187.95%
Area Change '05-'15	82.14%
Area Annual Growth Rate '95-'05	11.16%
Area Annual Growth Rate '05-'15	6.18%
Pop. Density 2005 (Per Sq. Km)	13,694
Pop. Density 2015 (Per Sq. Km)	11,388
Density Change '05-'15	-16.84%
Land Consumption Index	1.60

Percentage Change in Area Composition (2005-2015)

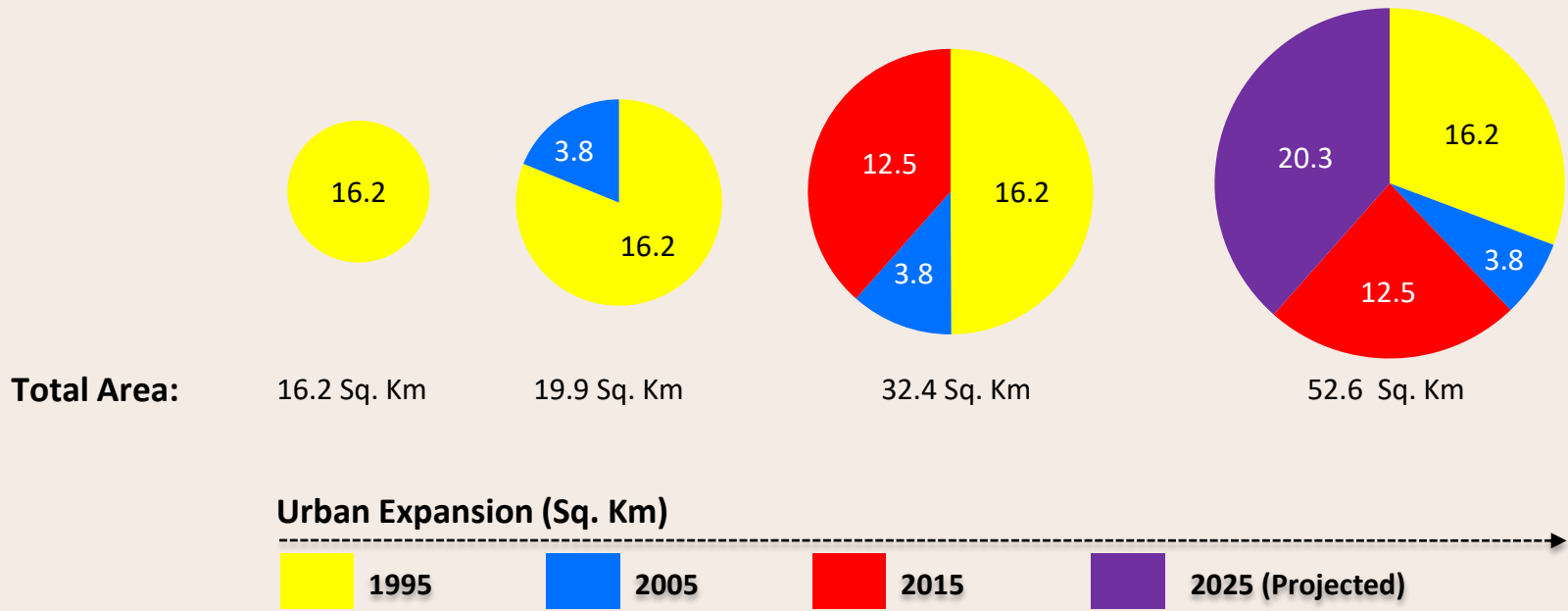
	Low Density Areas	Medium Density Areas	High Density Areas
Hafizabad	↑ 16%	↓ -18%	-

District: Jhang

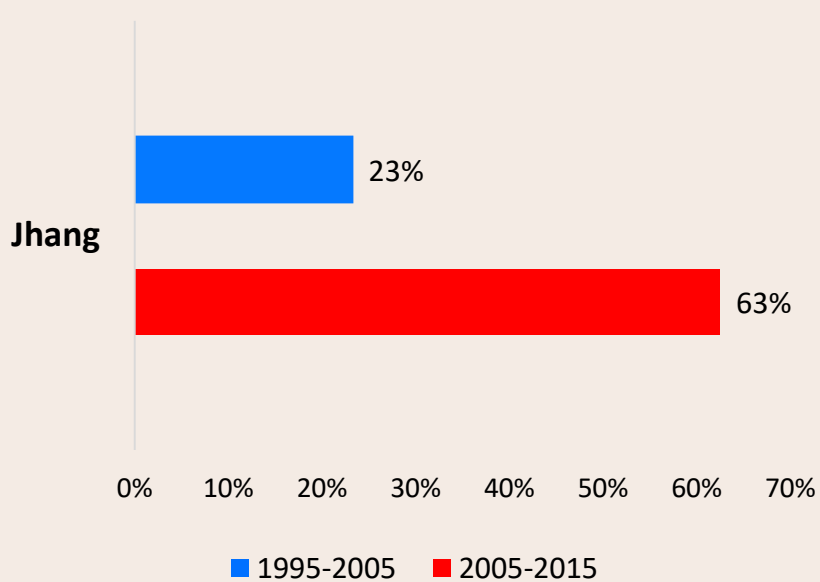
Urban Expansion



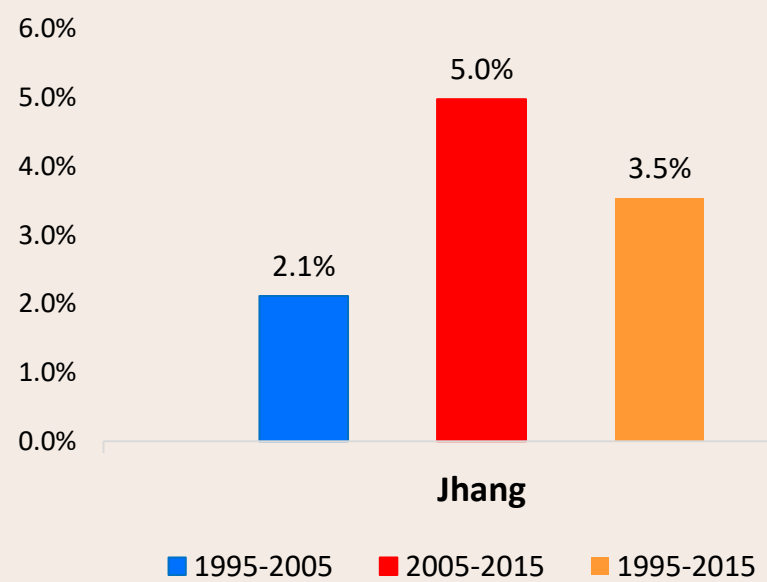
Scale: 1 Inch = 3 Km
The base map in grey is adapted from Google Earth 2017.



Contiguous Urban Development

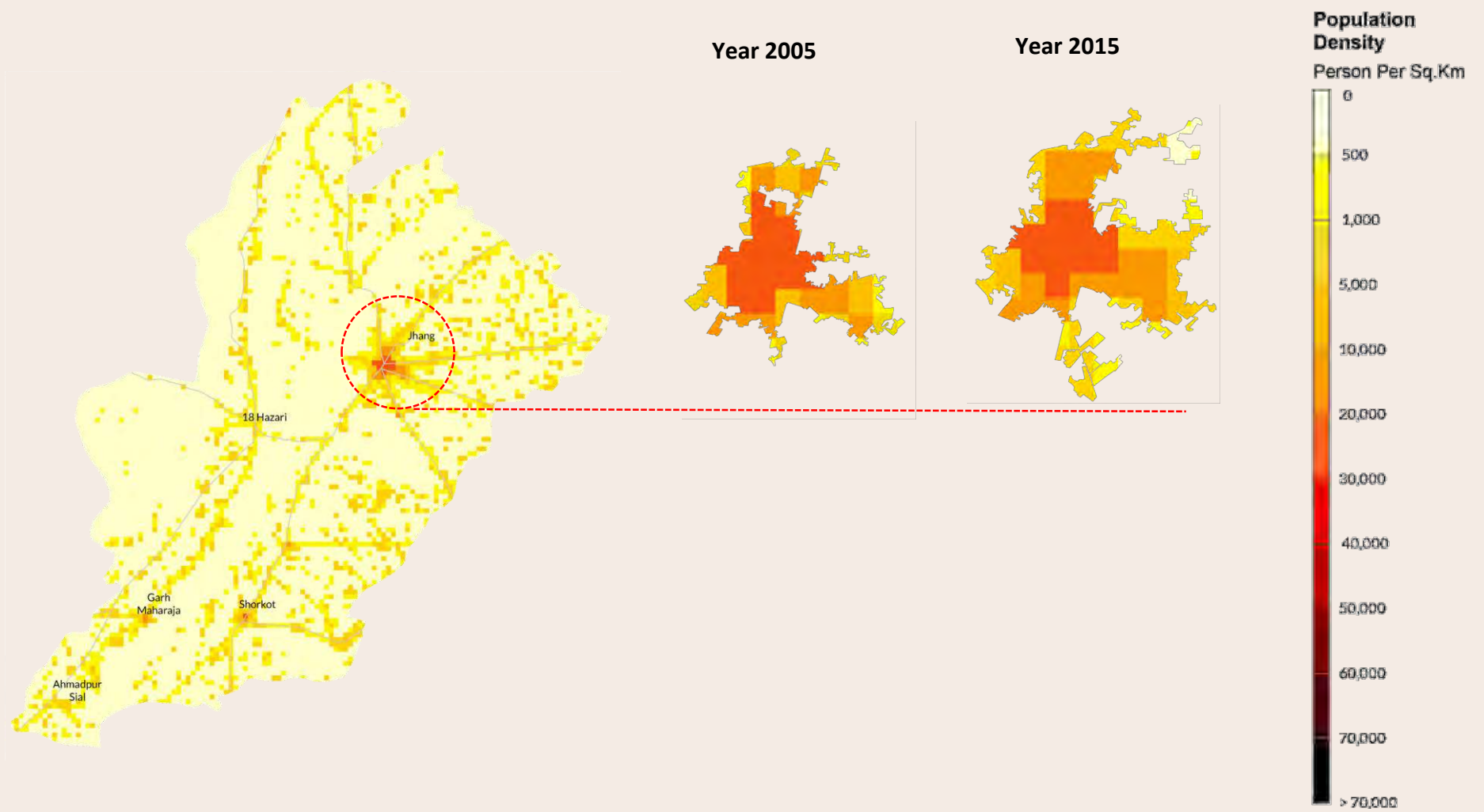


Annual Area Growth Rate

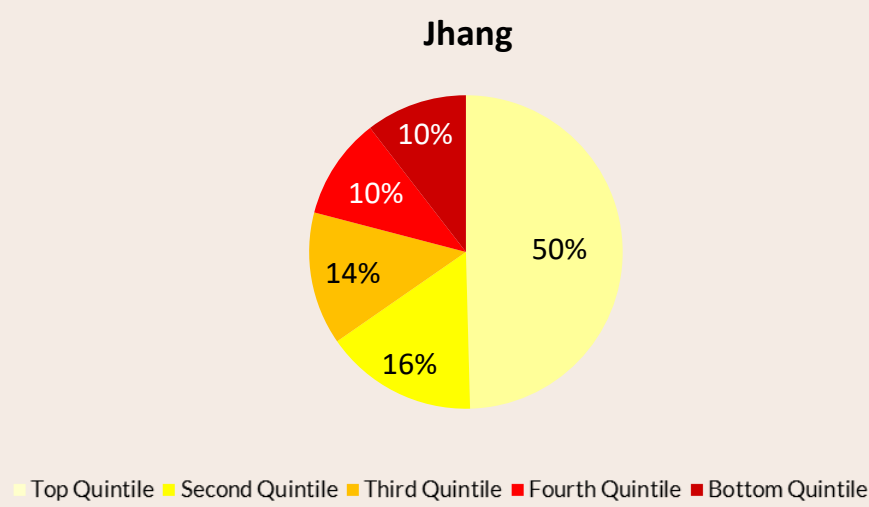


District: Jhang

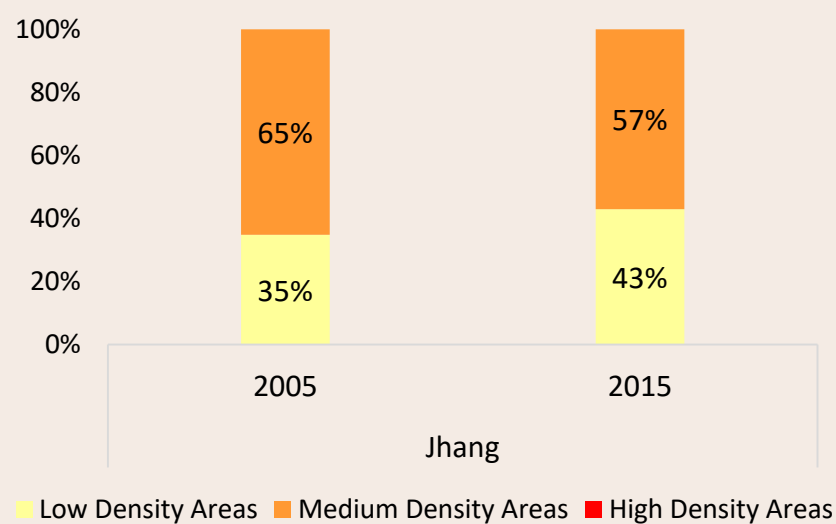
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

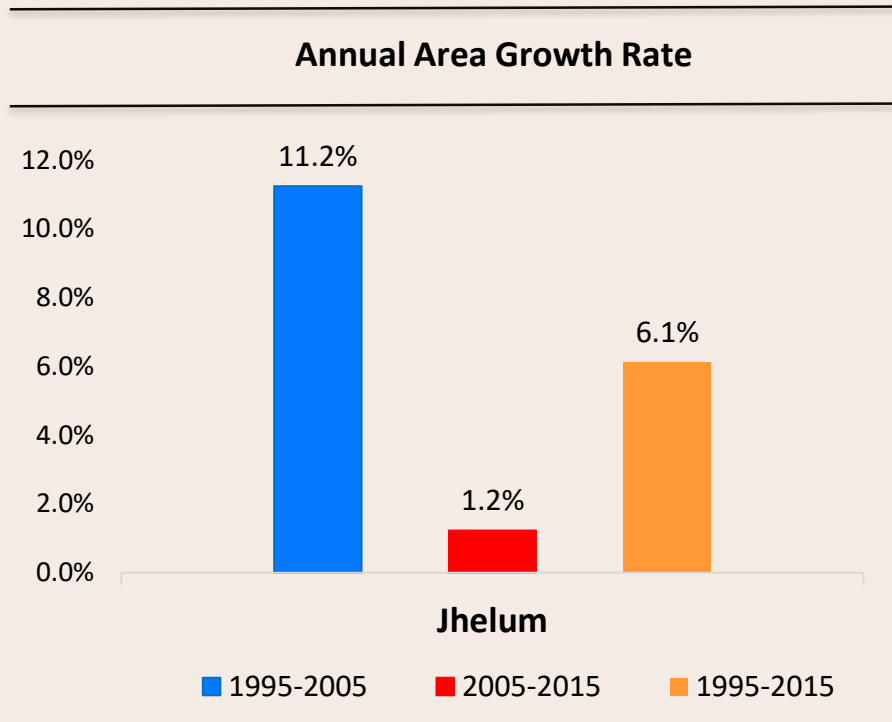
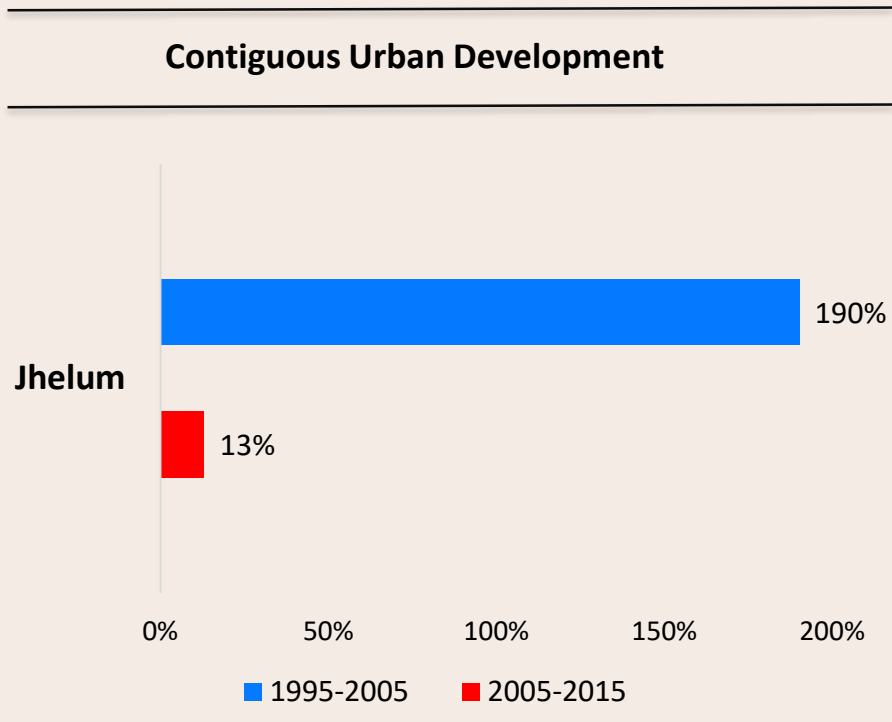
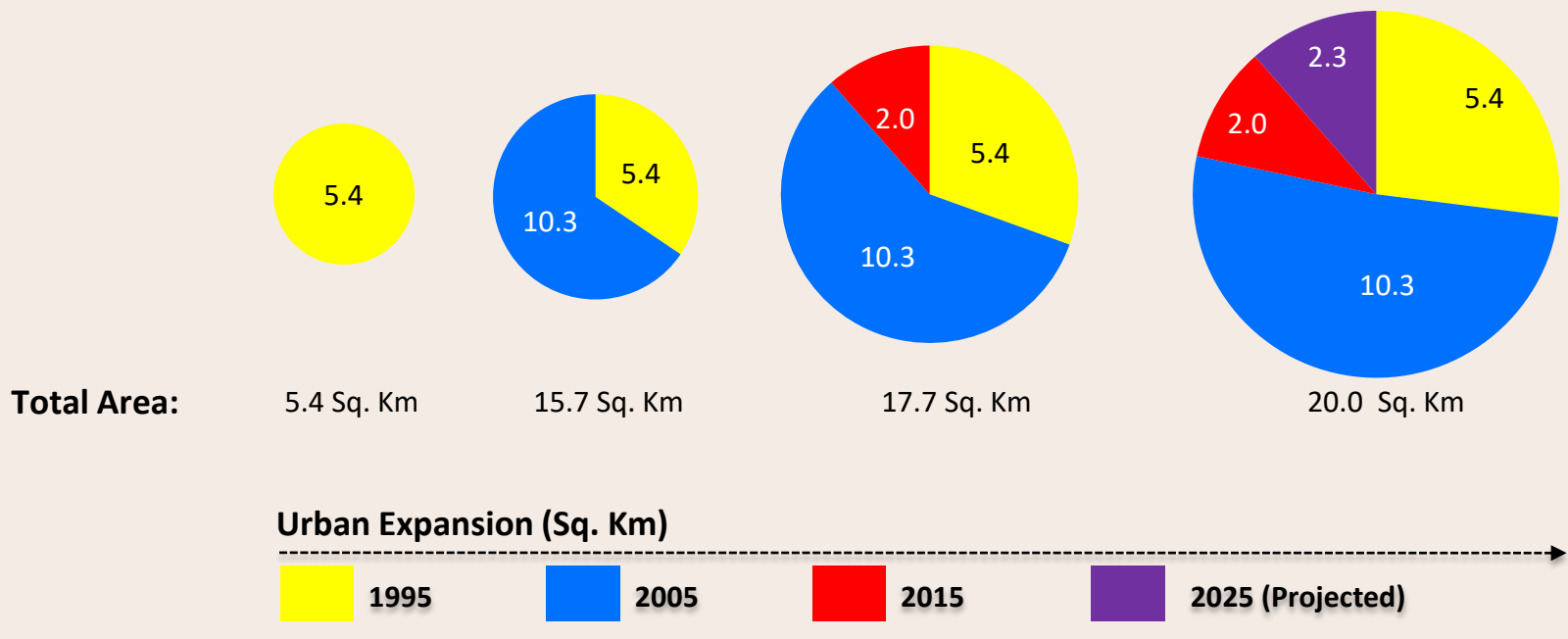
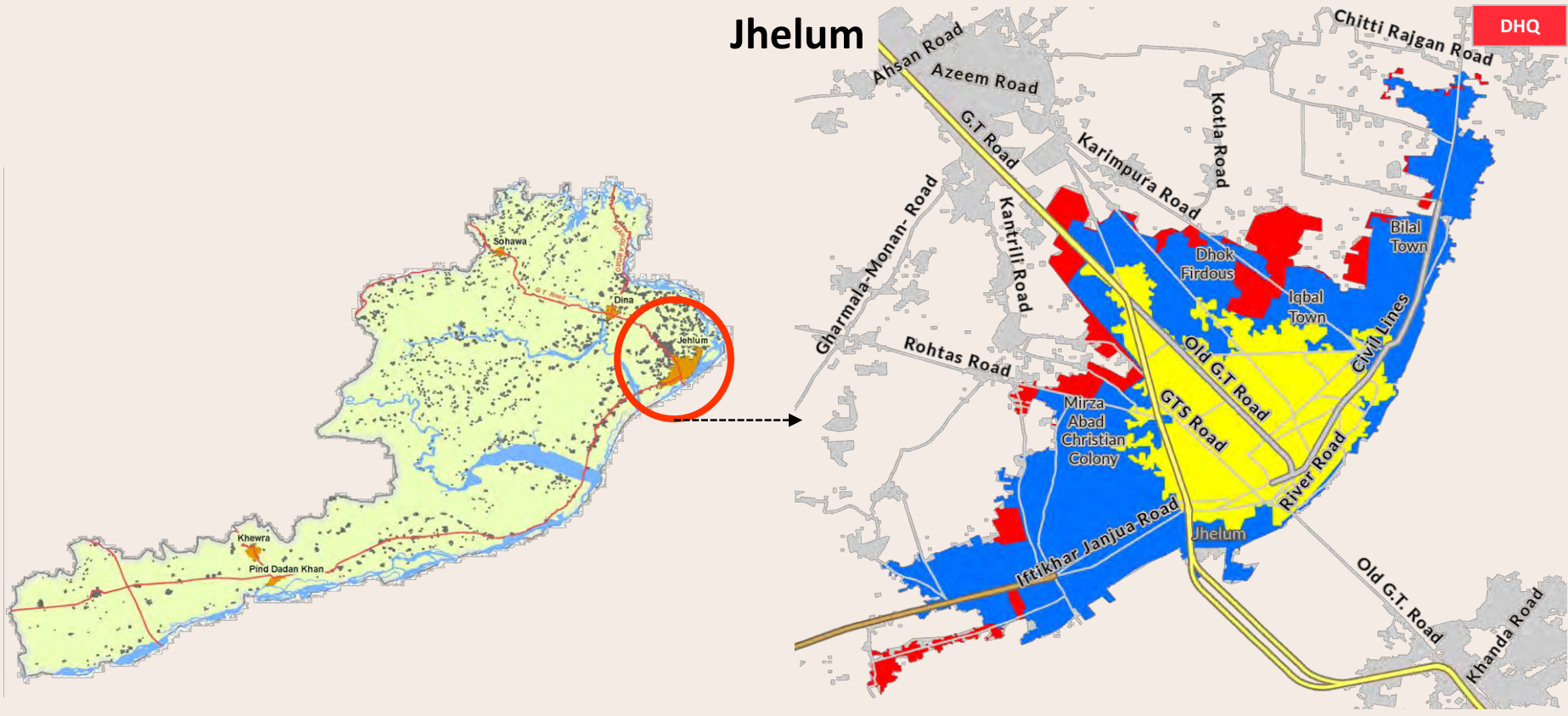
Jhang	
Population 2005	315,895
Population 2015	404,915
Pop. Change '05-'15	28.18%
Pop. Annual Growth Rate '05-'15	2.51%
Area 1995 (Sq. Km)	16.17
Area 2005 (Sq. Km)	19.93
Area 2015 (Sq. Km)	32.39
Area Change '95-'05	23.26%
Area Change '05-'15	62.52%
Area Annual Growth Rate '95-'05	2.11%
Area Annual Growth Rate '05-'15	4.98%
Pop. Density 2005 (Per Sq. Km)	15,848
Pop. Density 2015 (Per Sq. Km)	12,499
Density Change '05-'15	-21.13%
Land Consumption Index	2.22

Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Jhang	↑ 23%	↓ -12%	-

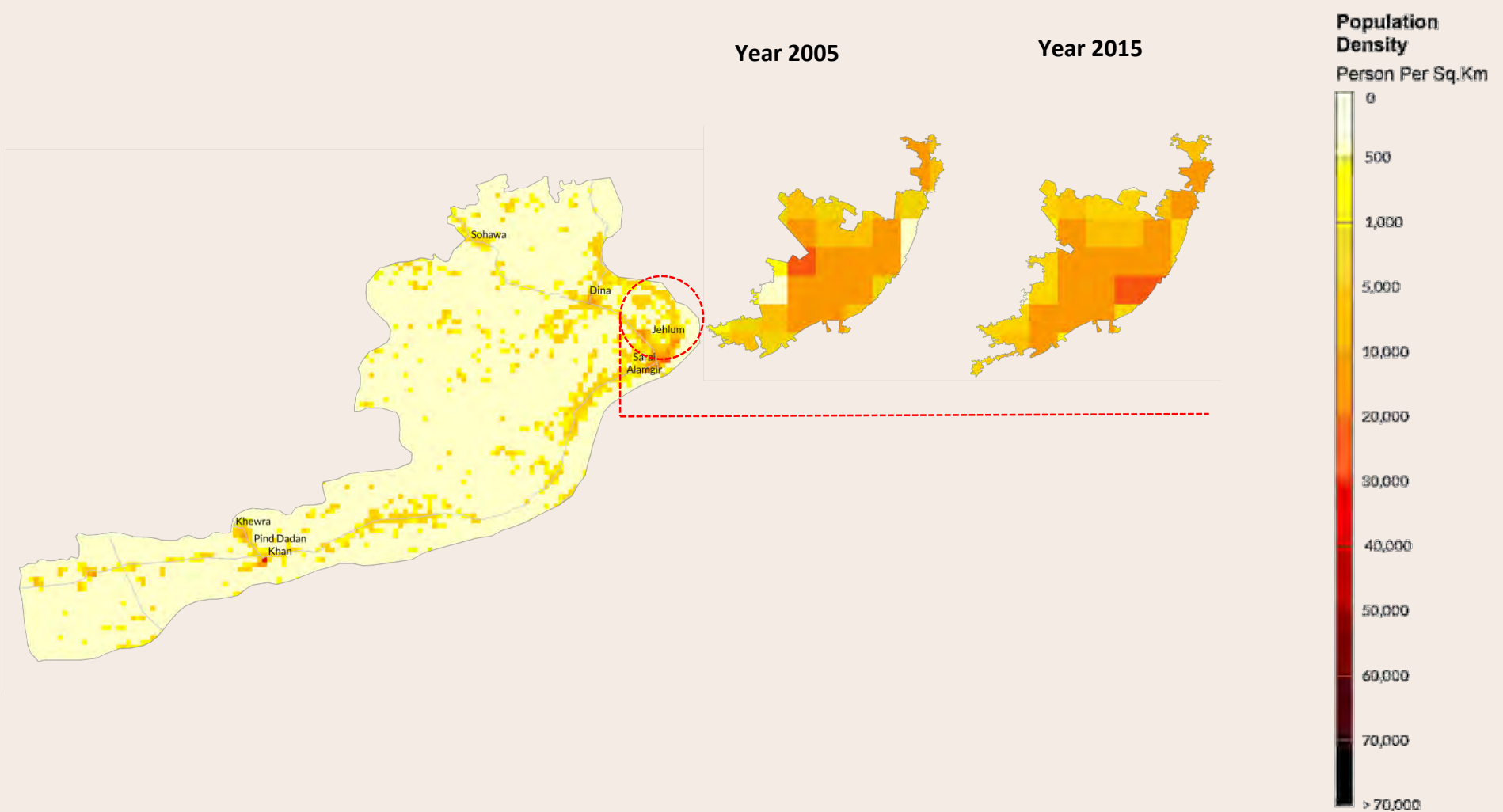
District: Jhelum

Urban Expansion

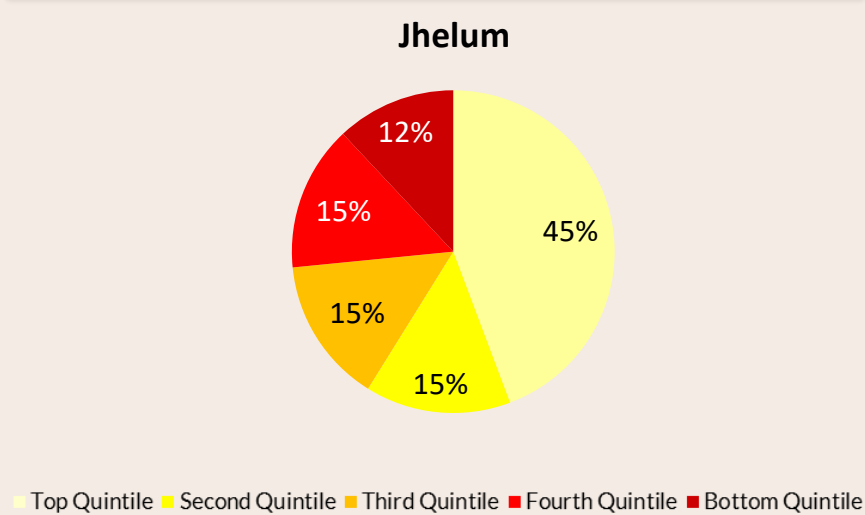


District: Jhelum

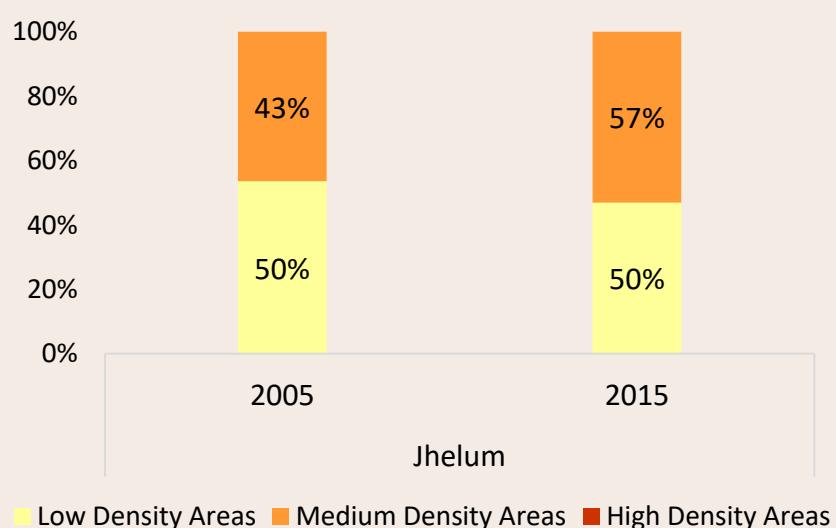
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

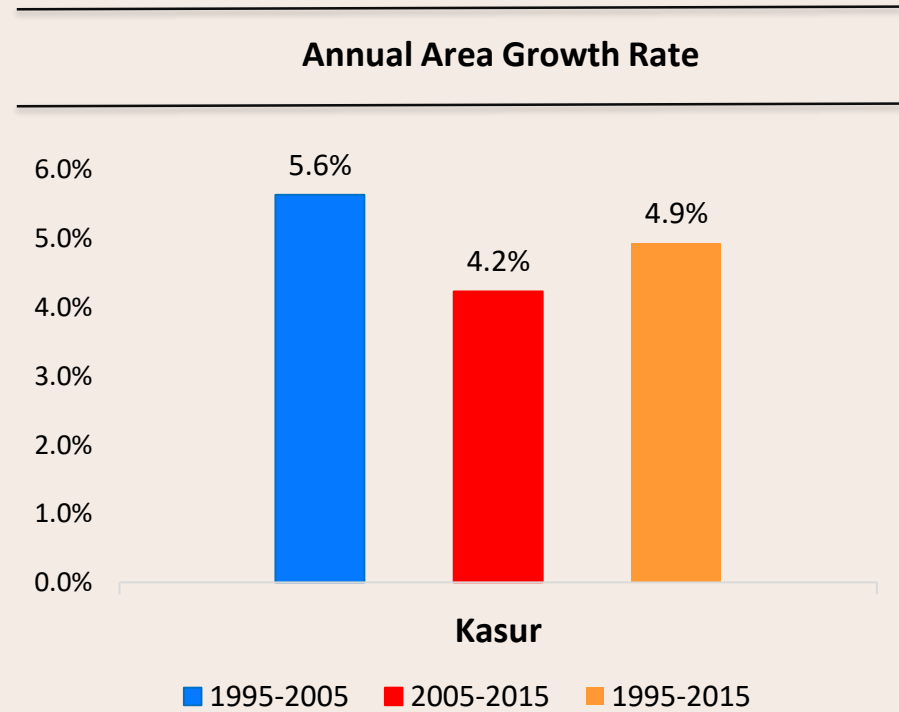
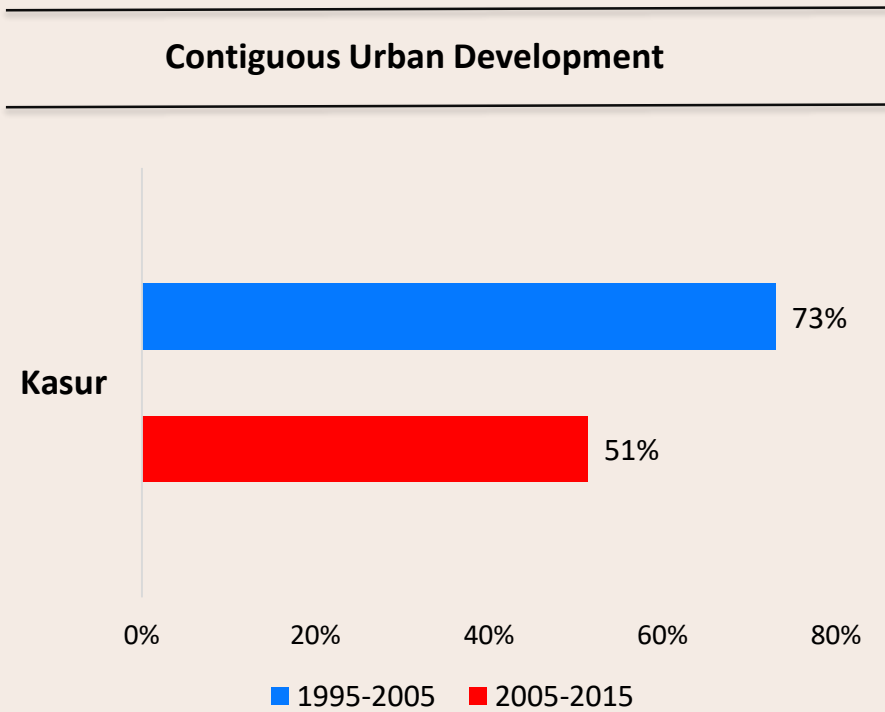
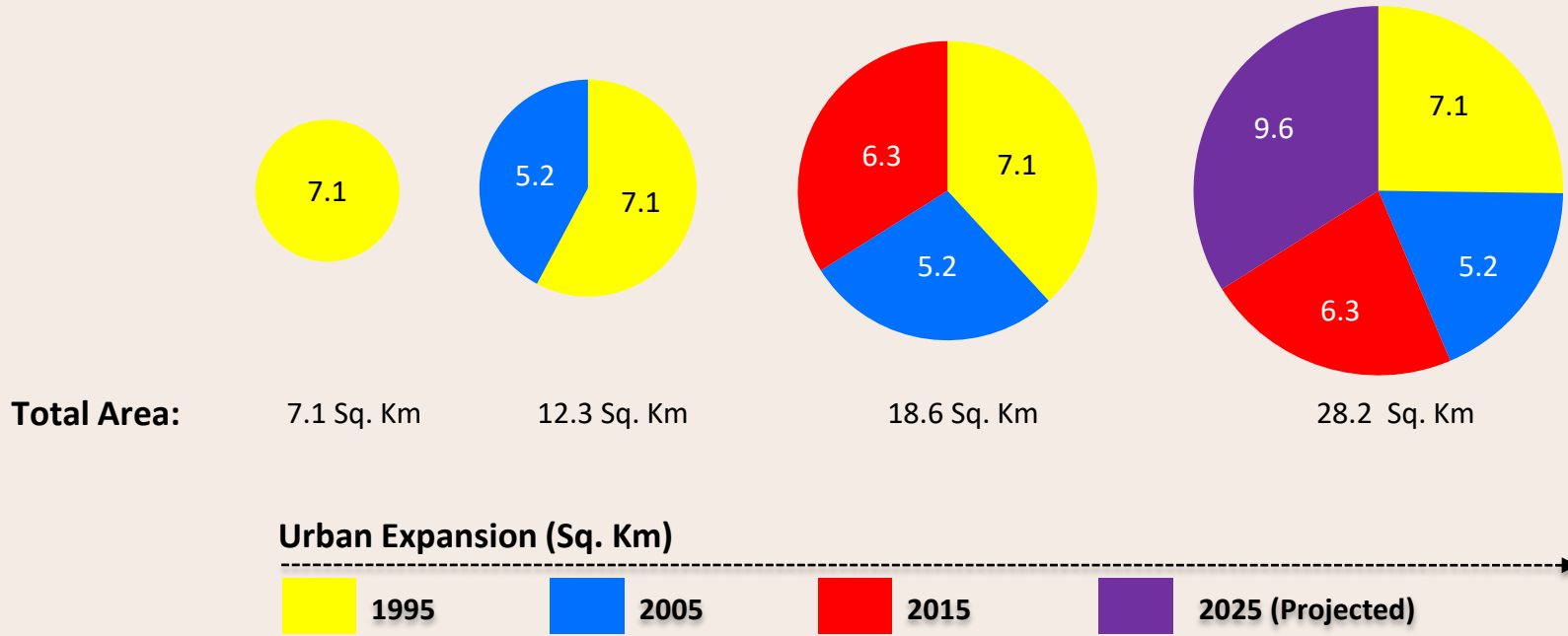
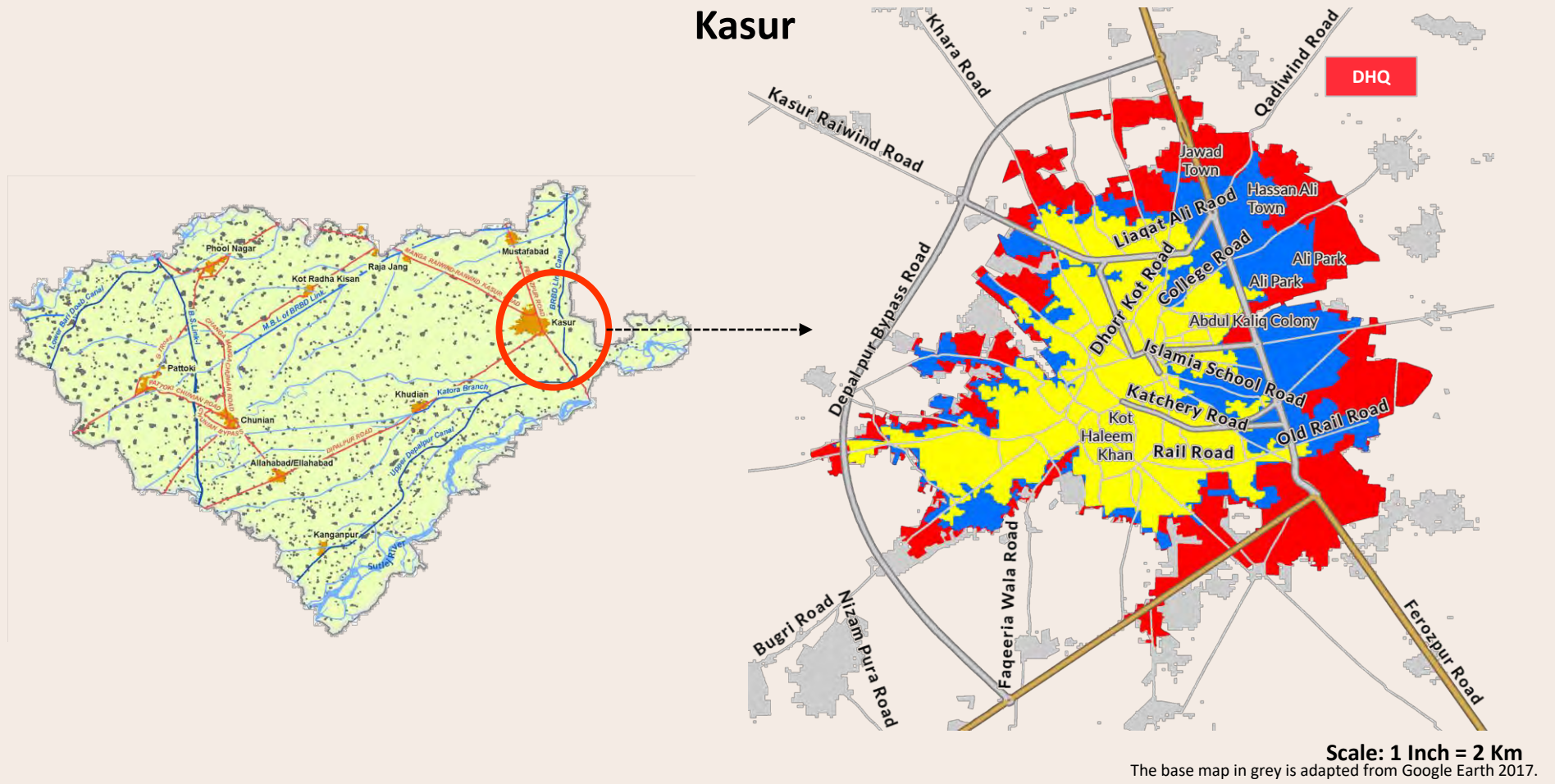
Jhelum	
Population 2005	163,876
Population 2015	185,894
Pop. Change '05-'15	13.44%
Pop. Annual Growth Rate '05-'15	1.27%
Area 1995 (Sq. Km)	5.39
Area 2005 (Sq. Km)	15.64
Area 2015 (Sq. Km)	17.67
Area Change '95-'05	190.31%
Area Change '05-'15	12.98%
Area Annual Growth Rate '95-'05	11.25%
Area Annual Growth Rate '05-'15	1.23%
Pop. Density 2005 (Per Sq. Km)	10,477
Pop. Density 2015 (Per Sq. Km)	10,520
Density Change '05-'15	0.41%
Land Consumption Index	0.97

Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Jhelum	↓ -13%	↑ 13%	-

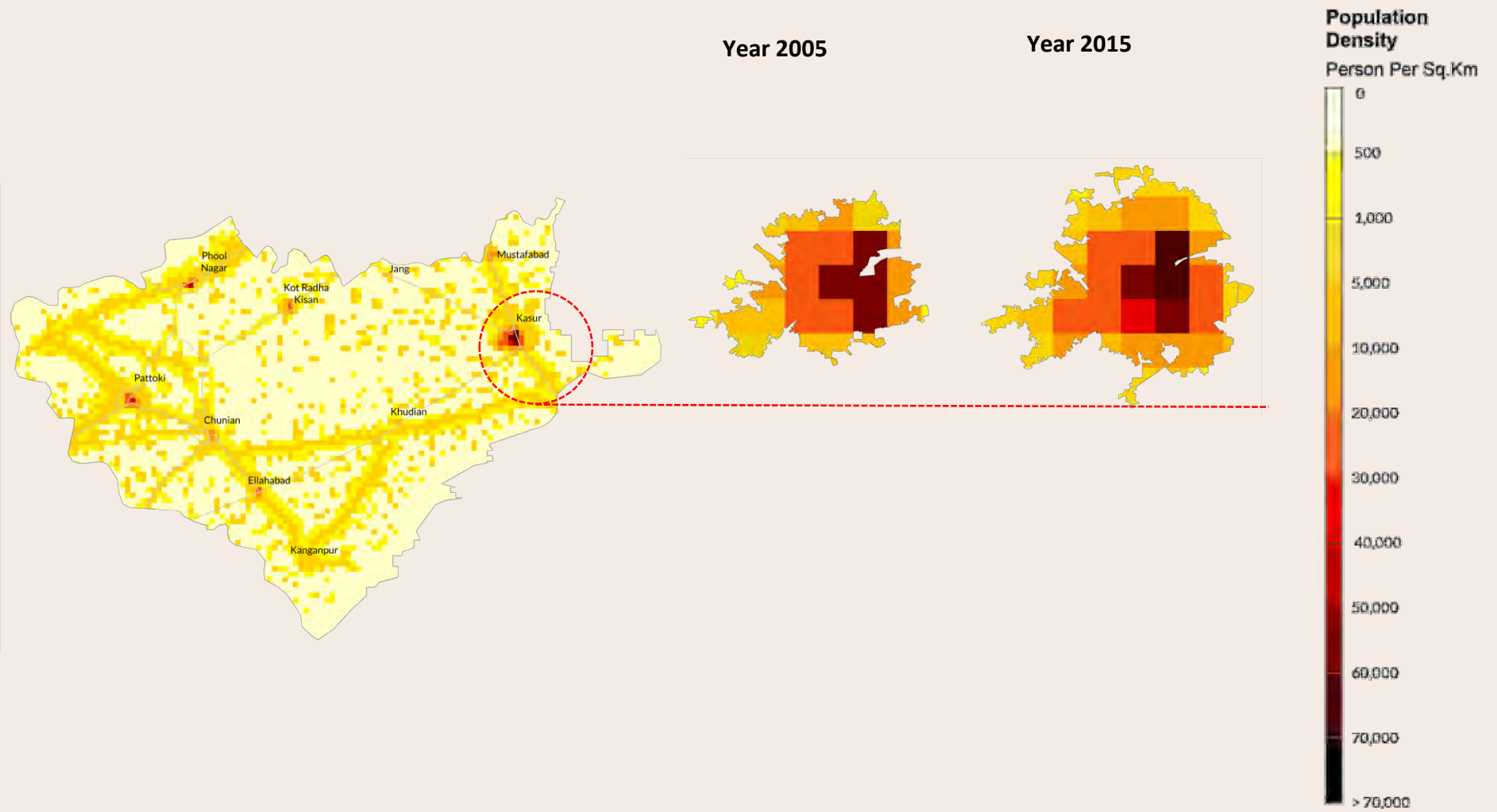
District: Kasur

Urban Expansion

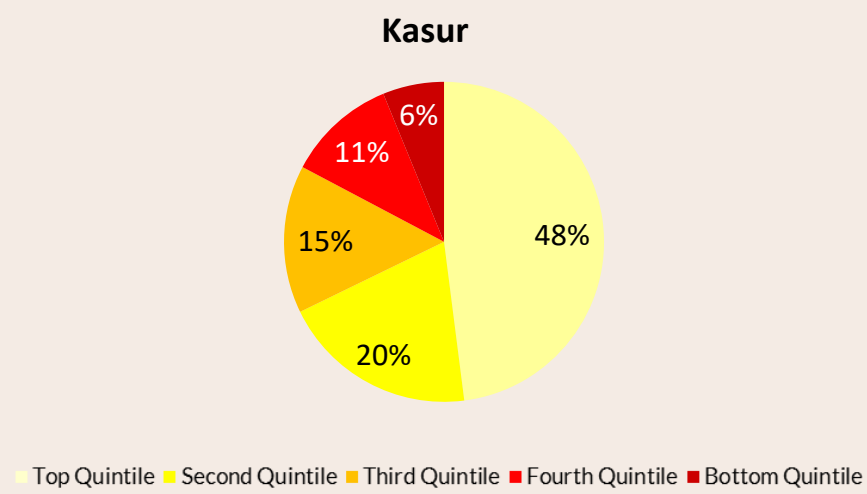


District: Kasur

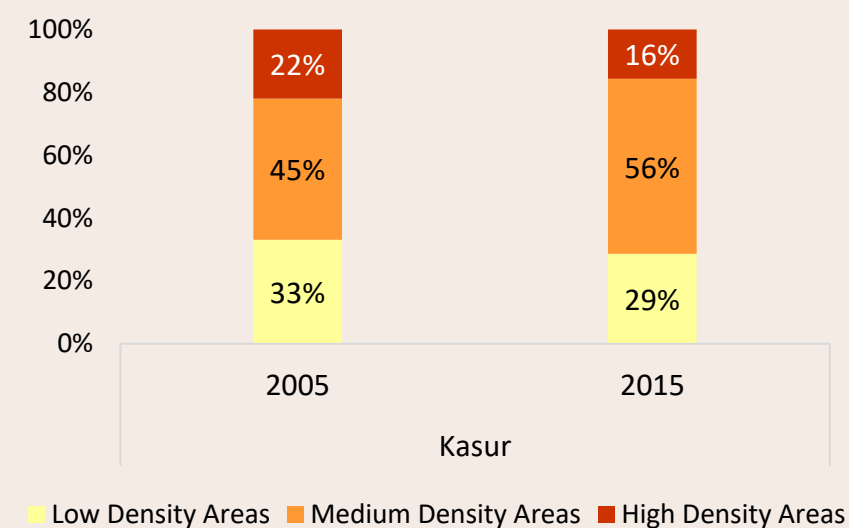
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

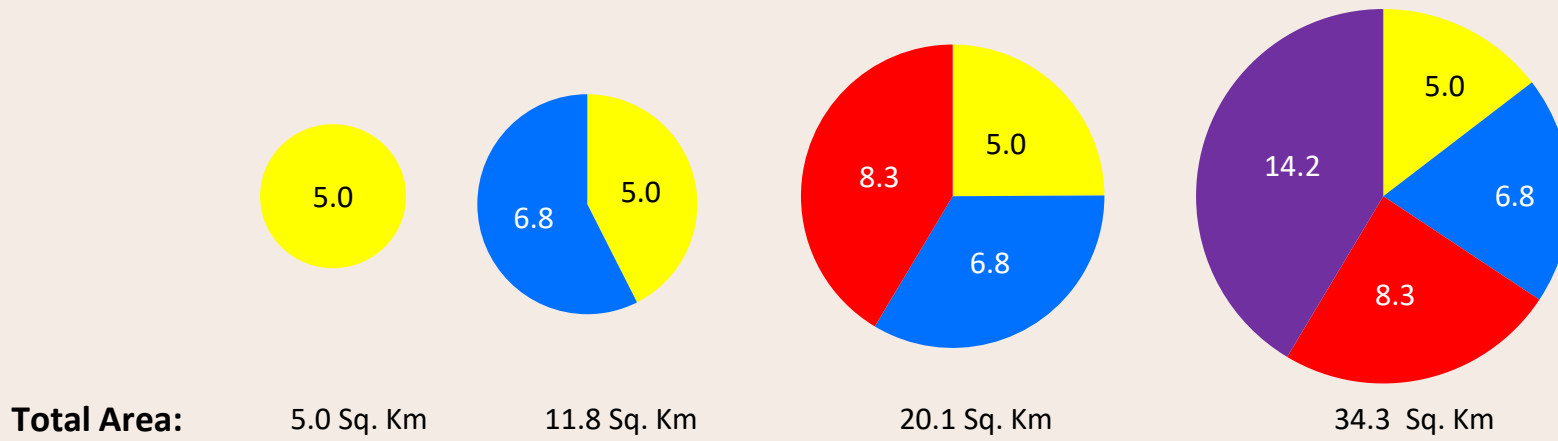
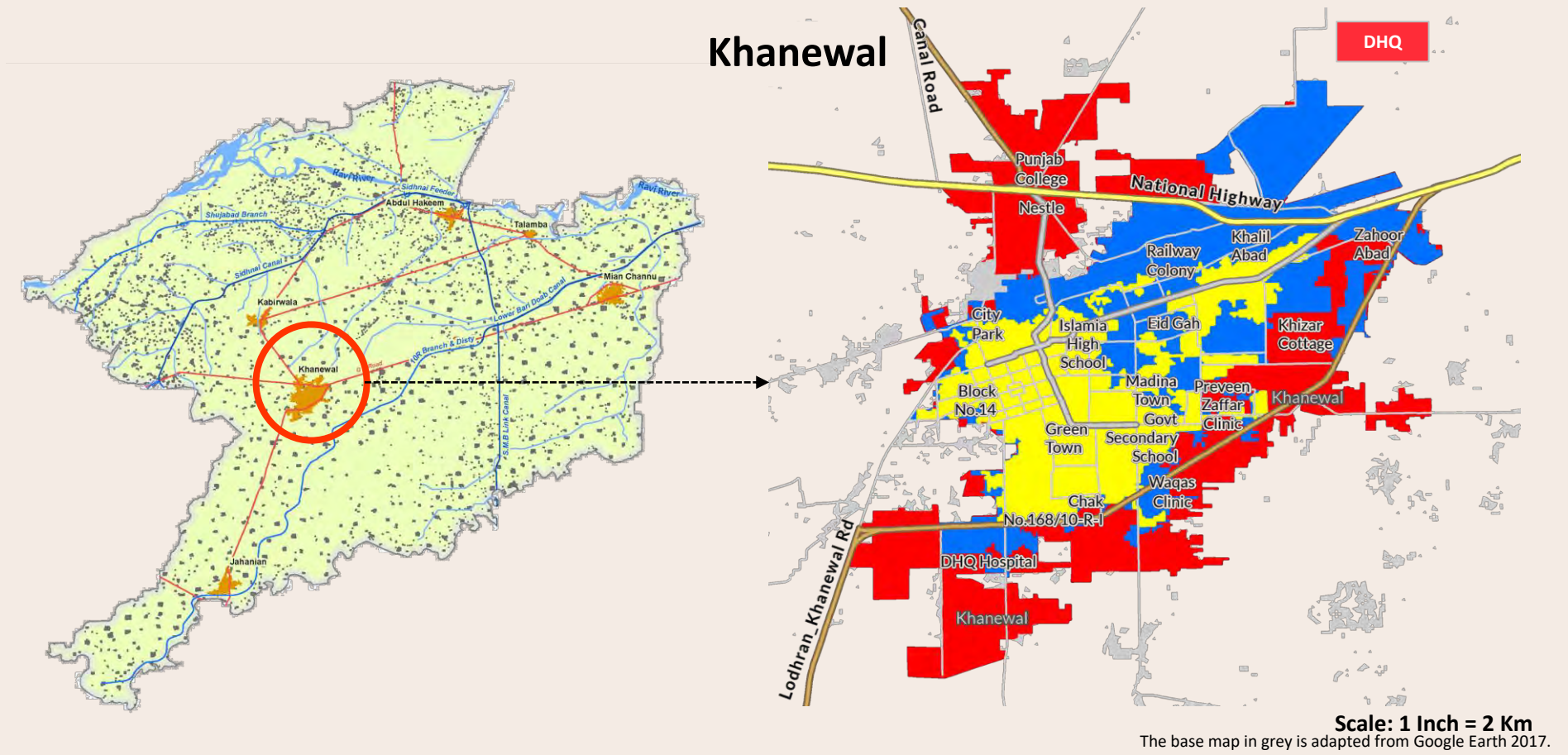
Kasur	
Population 2005	277,507
Population 2015	415,405
Pop. Change '05-'15	49.69%
Pop. Annual Growth Rate '05-'15	4.12%
Area 1995 (Sq. Km)	7.11
Area 2005 (Sq. Km)	12.30
Area 2015 (Sq. Km)	18.62
Area Change '95-'05	73.04%
Area Change '05-'15	51.40%
Area Annual Growth Rate '95-'05	5.64%
Area Annual Growth Rate '05-'15	4.23%
Pop. Density 2005 (Per Sq. Km)	22,569
Pop. Density 2015 (Per Sq. Km)	22,314
Density Change '05-'15	-1.13%
Land Consumption Index	1.03

Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Kasur	↓ -14%	↑ 24%	↓ -29%

District: Khanewal

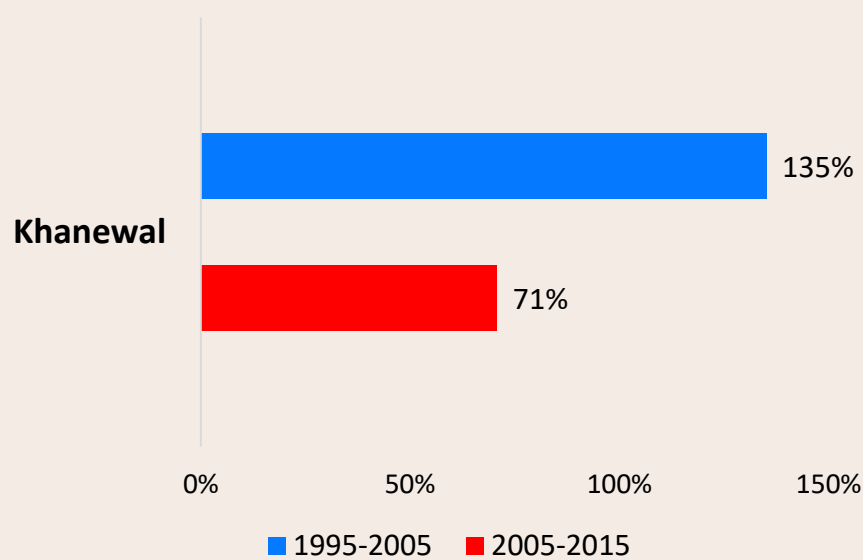
Urban Expansion



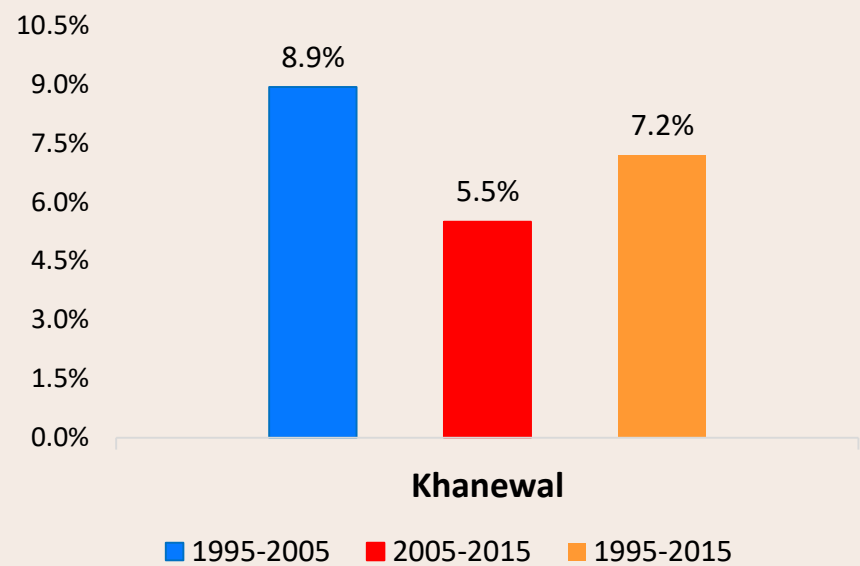
Urban Expansion (Sq. Km)



Contiguous Urban Development

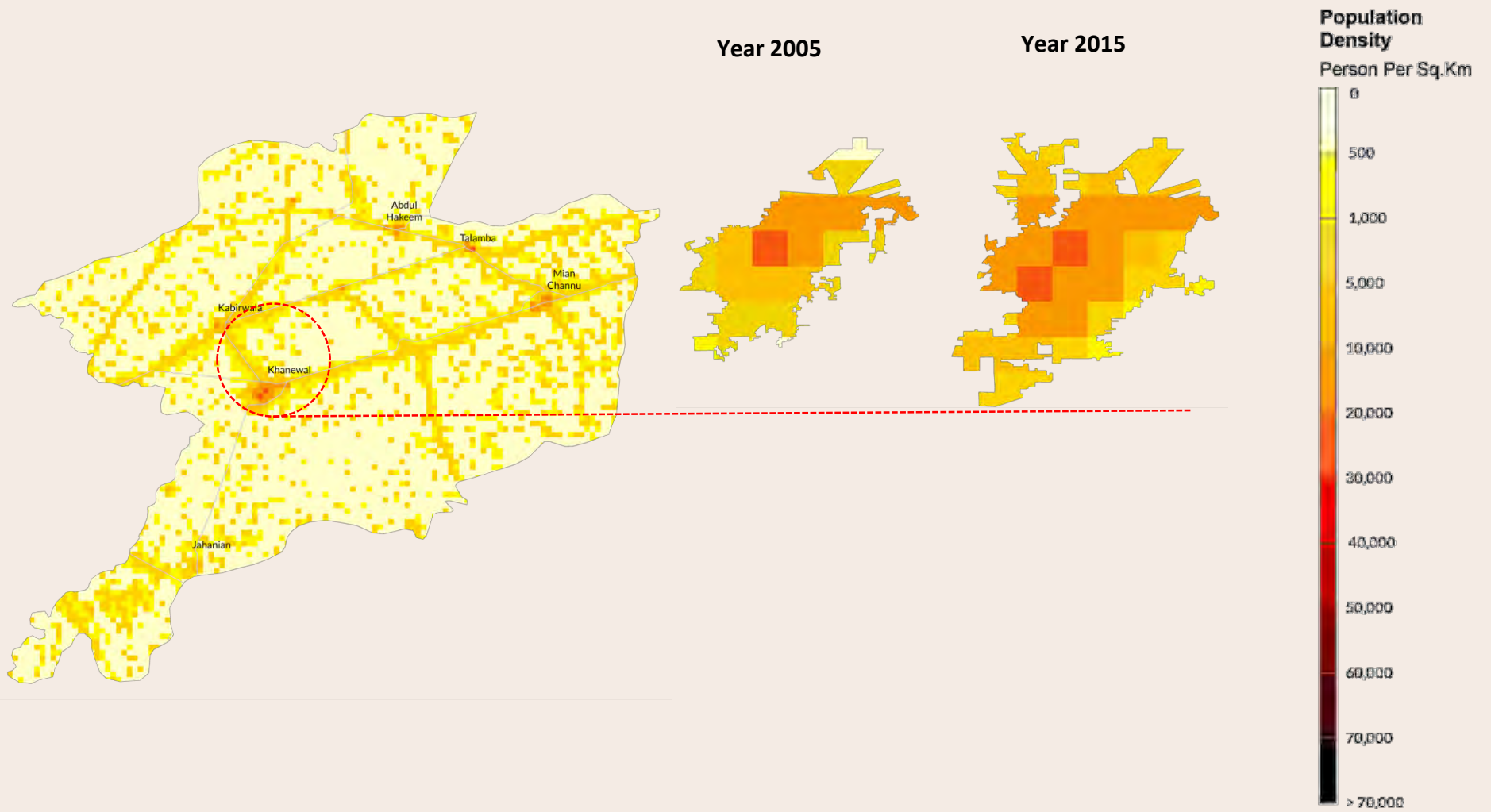


Annual Area Growth Rate

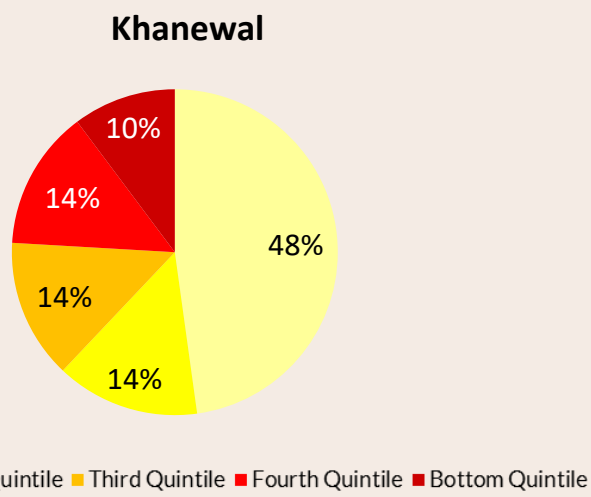


District: Khanewal

Population Density



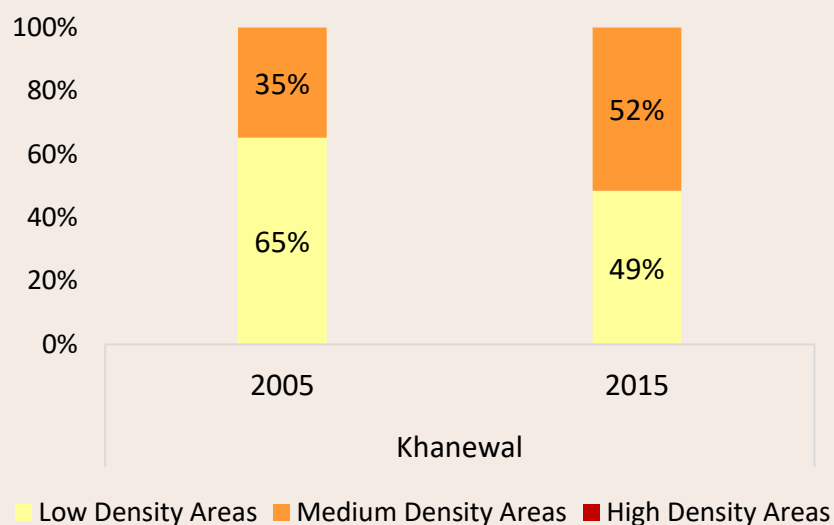
Percentage of Area Occupied by 20% of Population (2015)



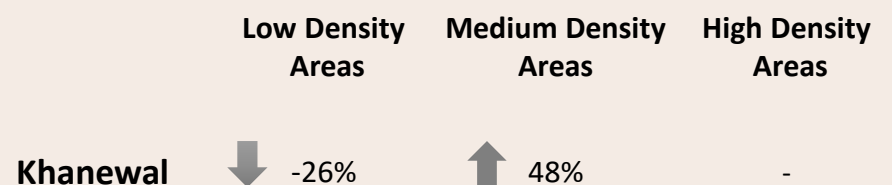
Population Area Statistics

Khanewal	
Population 2005	96,242
Population 2015	206,955
Pop. Change '05-'15	115.04%
Pop. Annual Growth Rate '05-'15	7.96%
Area 1995 (Sq. Km)	5.01
Area 2005 (Sq. Km)	11.77
Area 2015 (Sq. Km)	20.10
Area Change '95-'05	135.10%
Area Change '05-'15	70.71%
Area Annual Growth Rate '95-'05	8.92%
Area Annual Growth Rate '05-'15	5.49%
Pop. Density 2005 (Per Sq. Km)	8,175
Pop. Density 2015 (Per Sq. Km)	10,297
Density Change '05-'15	25.97%
Land Consumption Index	0.61

Intra-city Area Composition

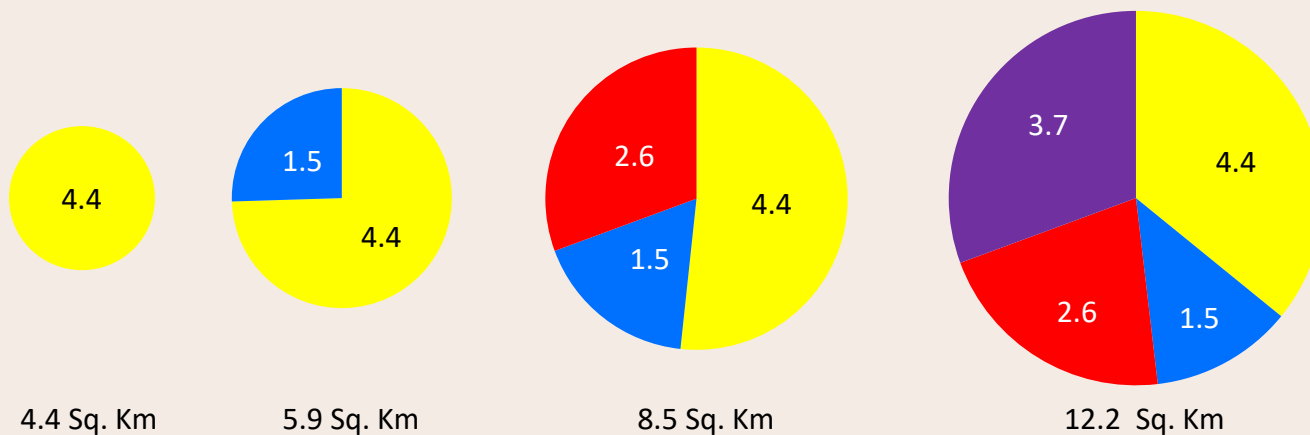
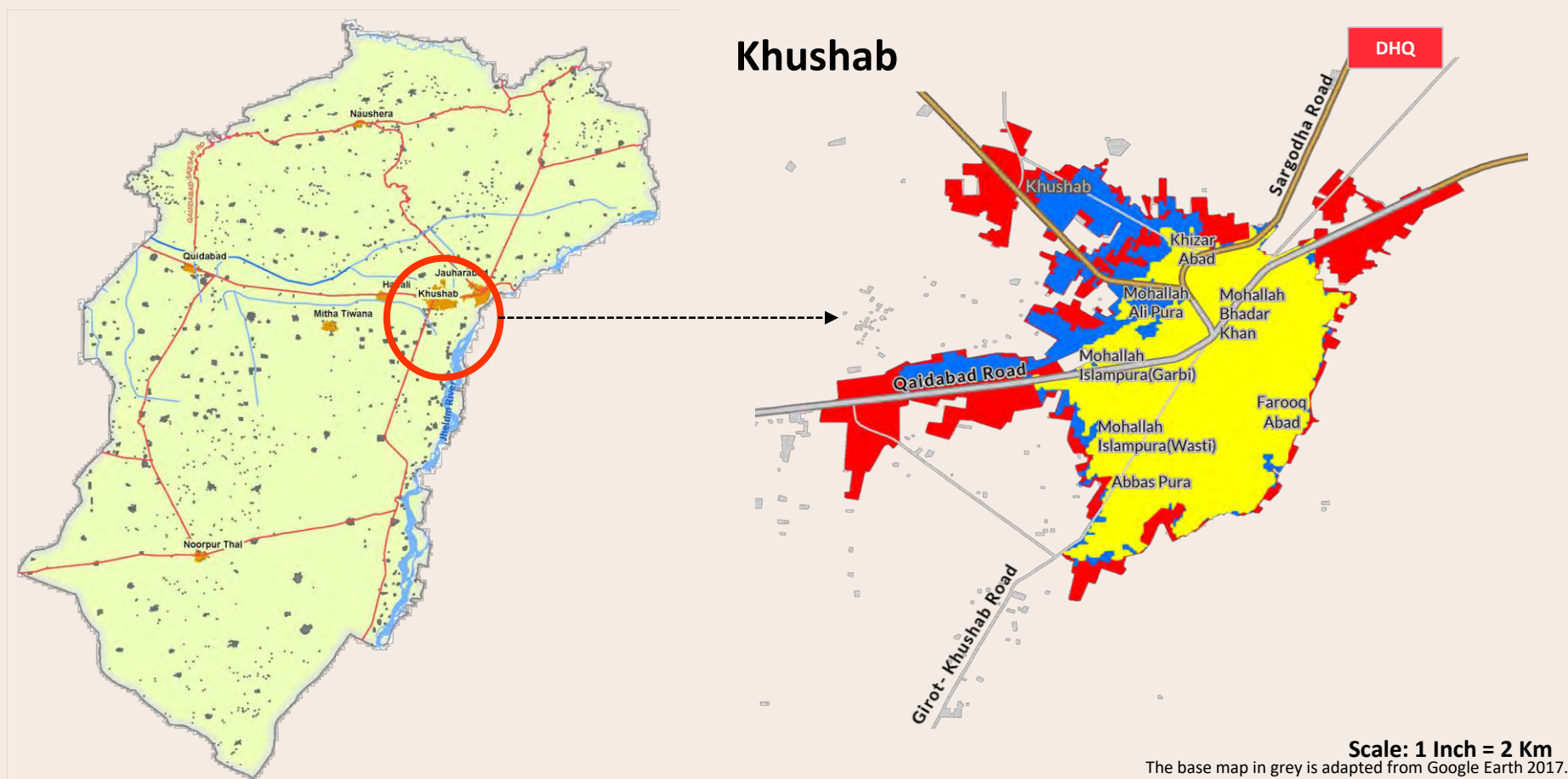


Percentage Change in Area Composition (2005-2015)

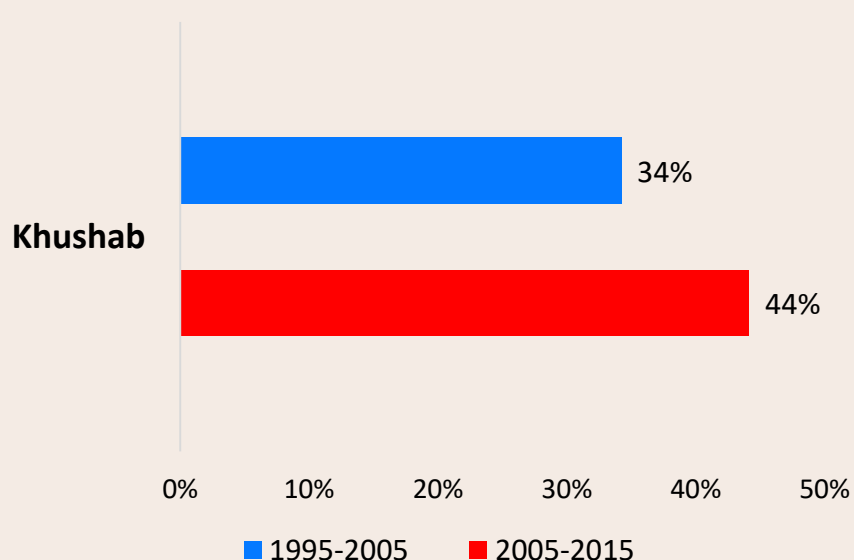


District: Khushab

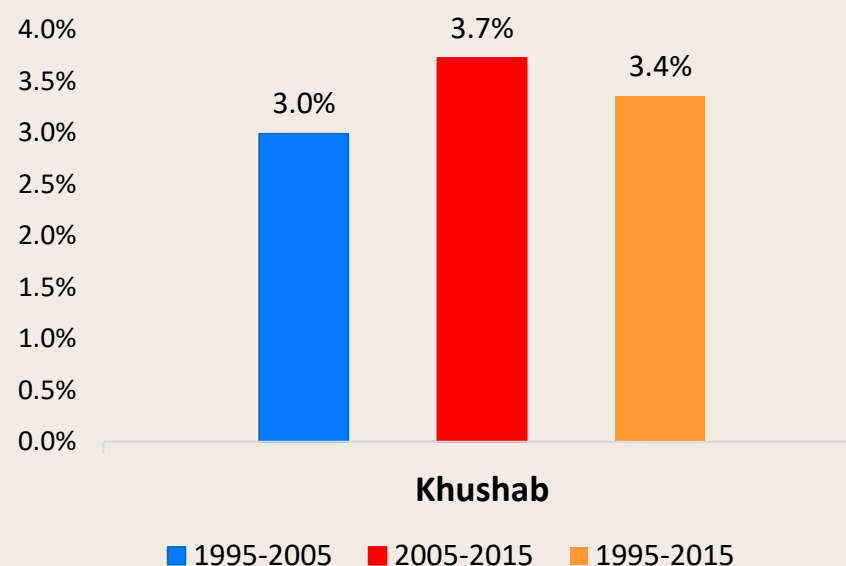
Urban Expansion



Contiguous Urban Development

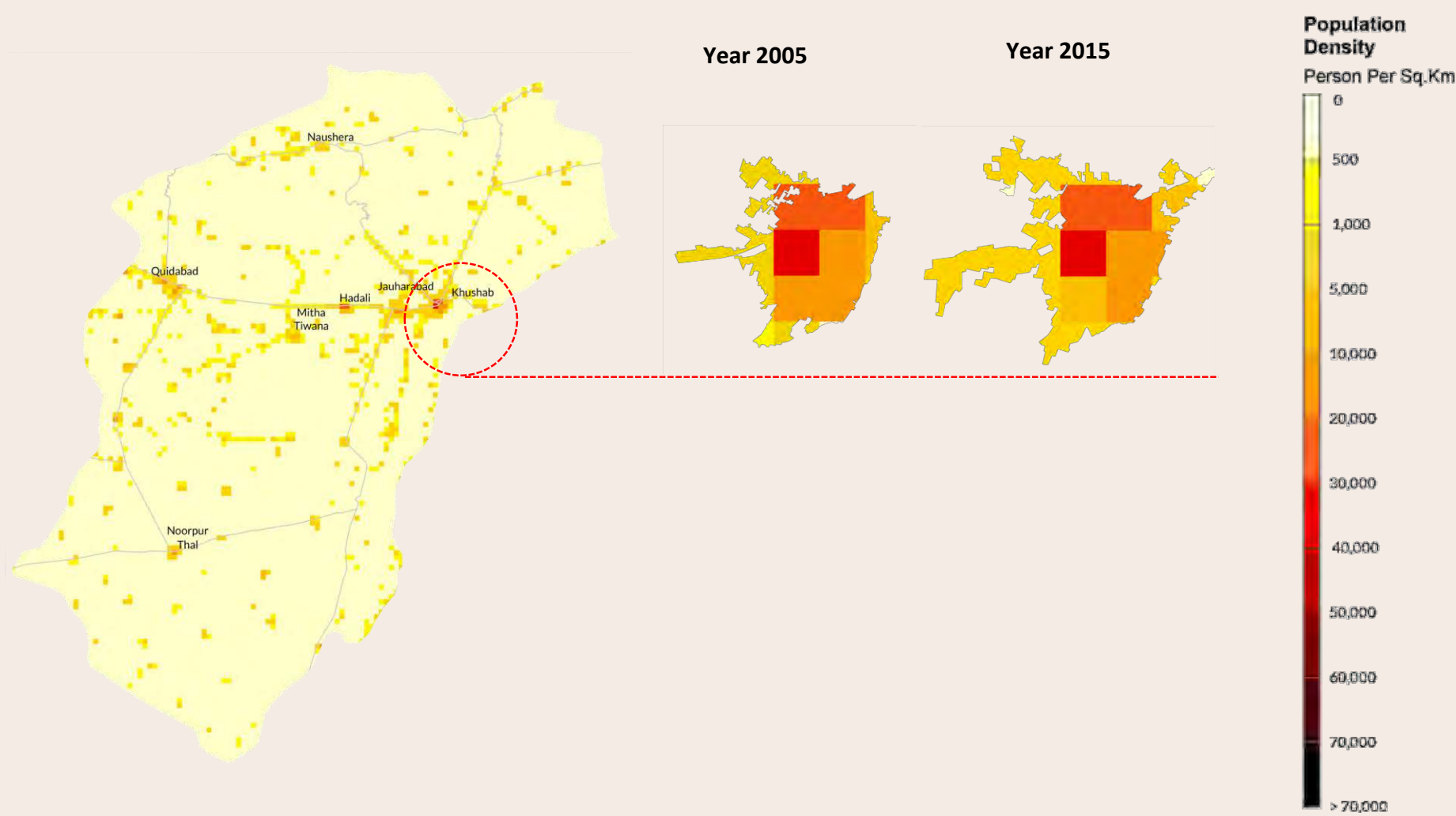


Annual Area Growth Rate



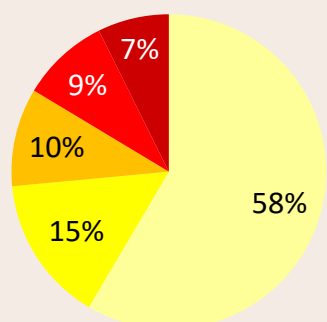
District: Khushab

Population Density



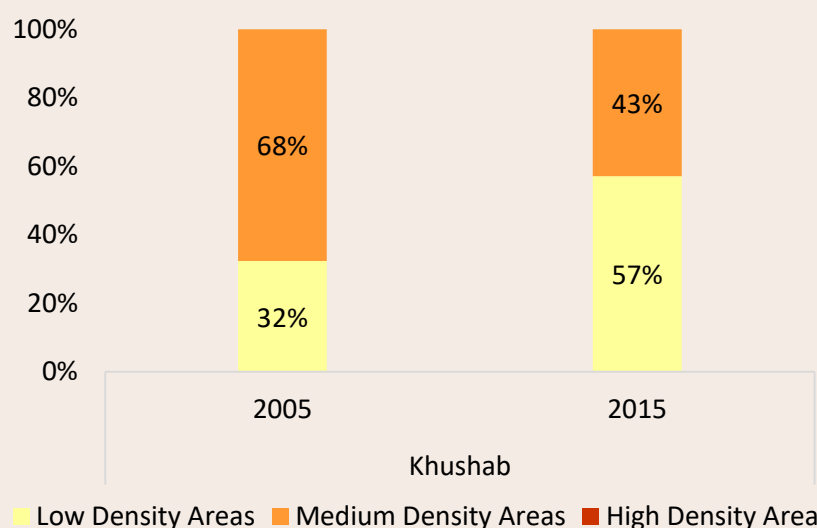
Percentage of Area Occupied by 20% of Population (2015)

Khushab



Top Quintile Second Quintile Third Quintile Fourth Quintile Bottom Quintile

Intra-city Area Composition



Population Area Statistics

Khushab

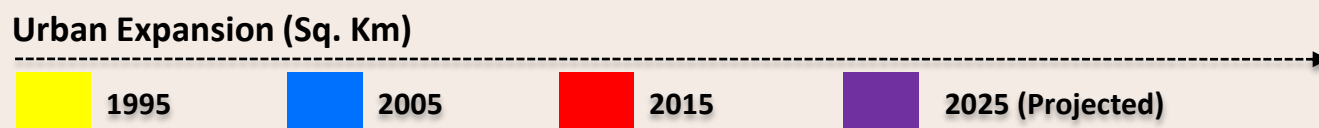
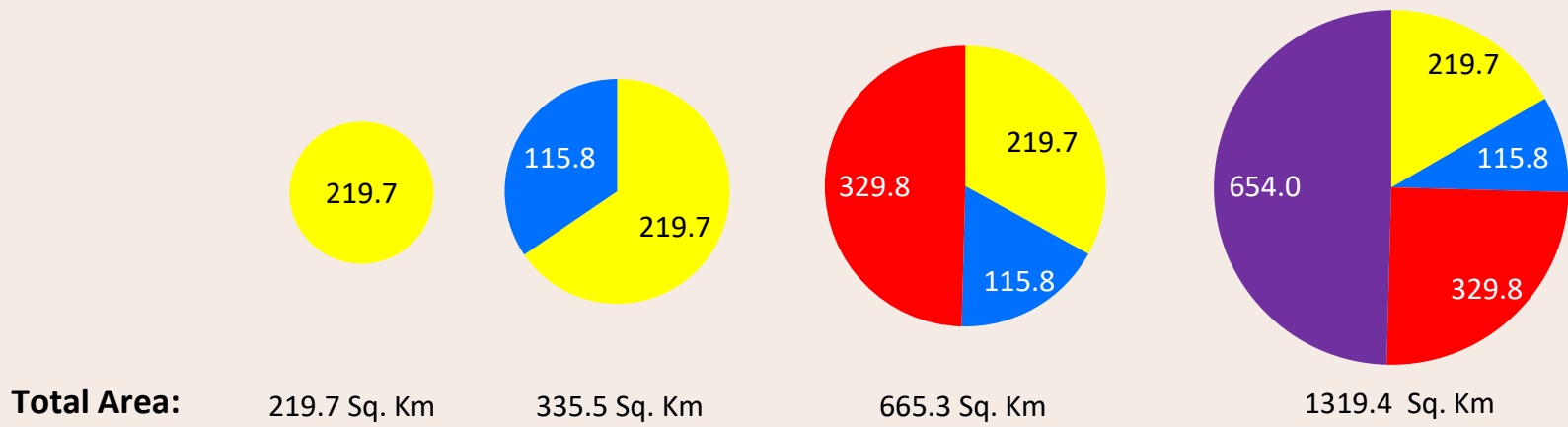
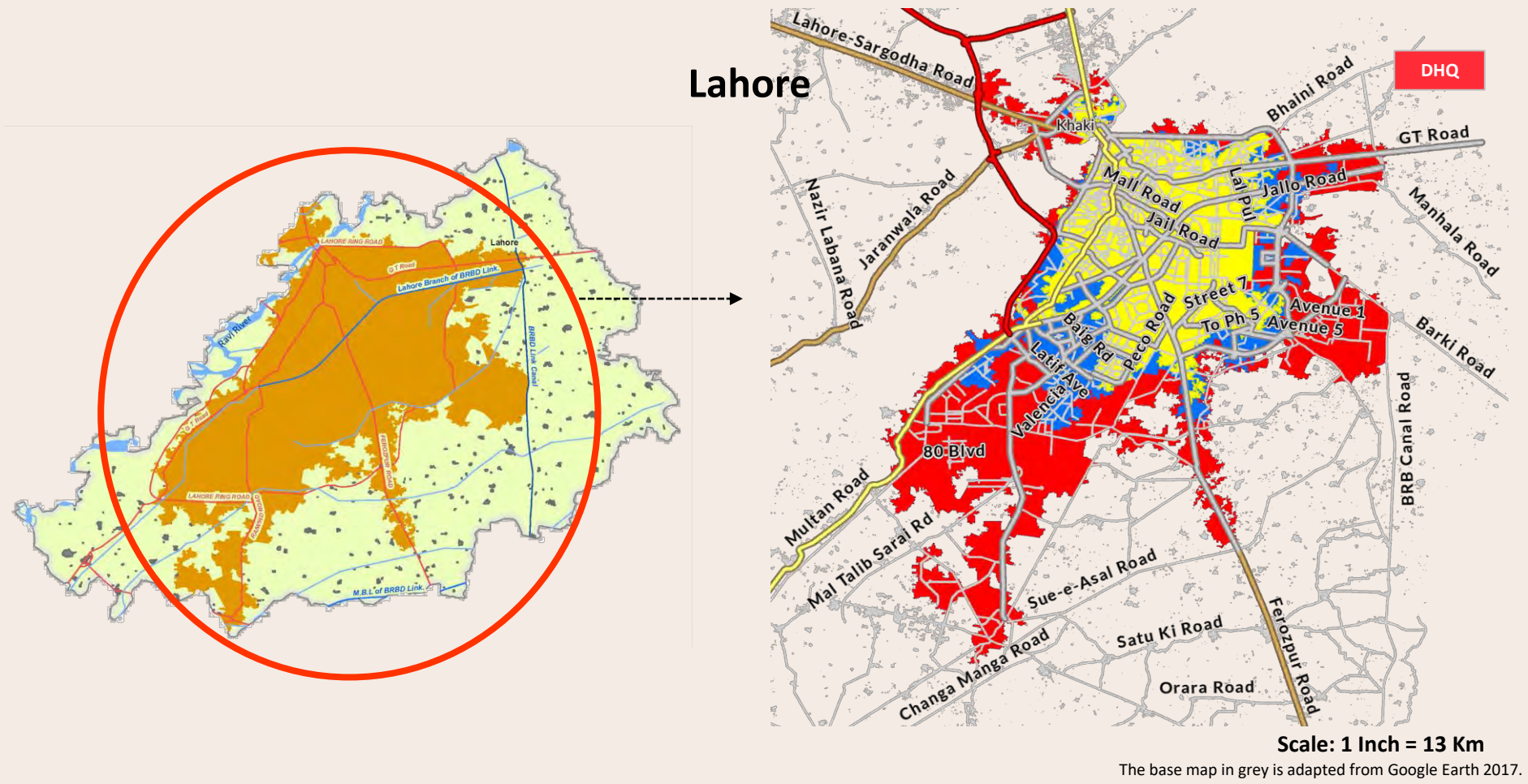
Population 2005	88,836
Population 2015	101,628
Pop. Change '05-'15	14.40%
Pop. Annual Growth Rate '05-'15	1.35%
Area 1995 (Sq. Km)	4.37
Area 2005 (Sq. Km)	5.86
Area 2015 (Sq. Km)	8.45
Area Change '95-'05	34.21%
Area Change '05-'15	44.13%
Area Annual Growth Rate '95-'05	2.99%
Area Annual Growth Rate '05-'15	3.72%
Pop. Density 2005 (Per Sq. Km)	15,157
Pop. Density 2015 (Per Sq. Km)	12,030
Density Change '05-'15	-20.63%
Land Consumption Index	3.06

Percentage Change in Area Composition (2005-2015)

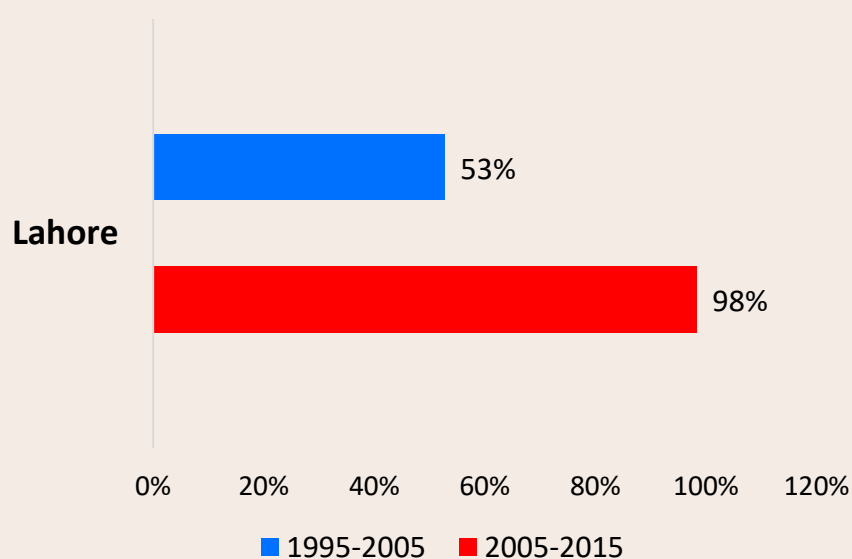
	Low Density Areas	Medium Density Areas	High Density Areas
Khushab	↑ 77%	↓ -37%	-

District: Lahore

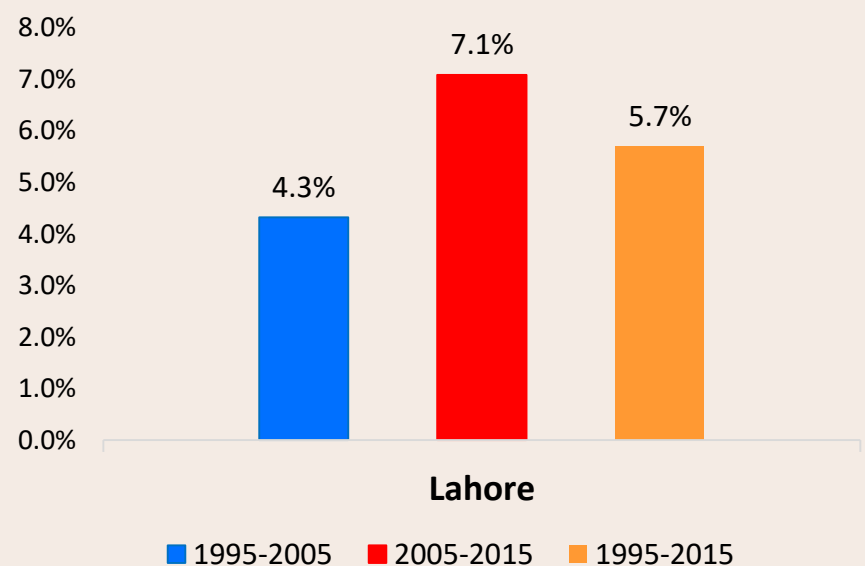
Urban Expansion



Contiguous Urban Development

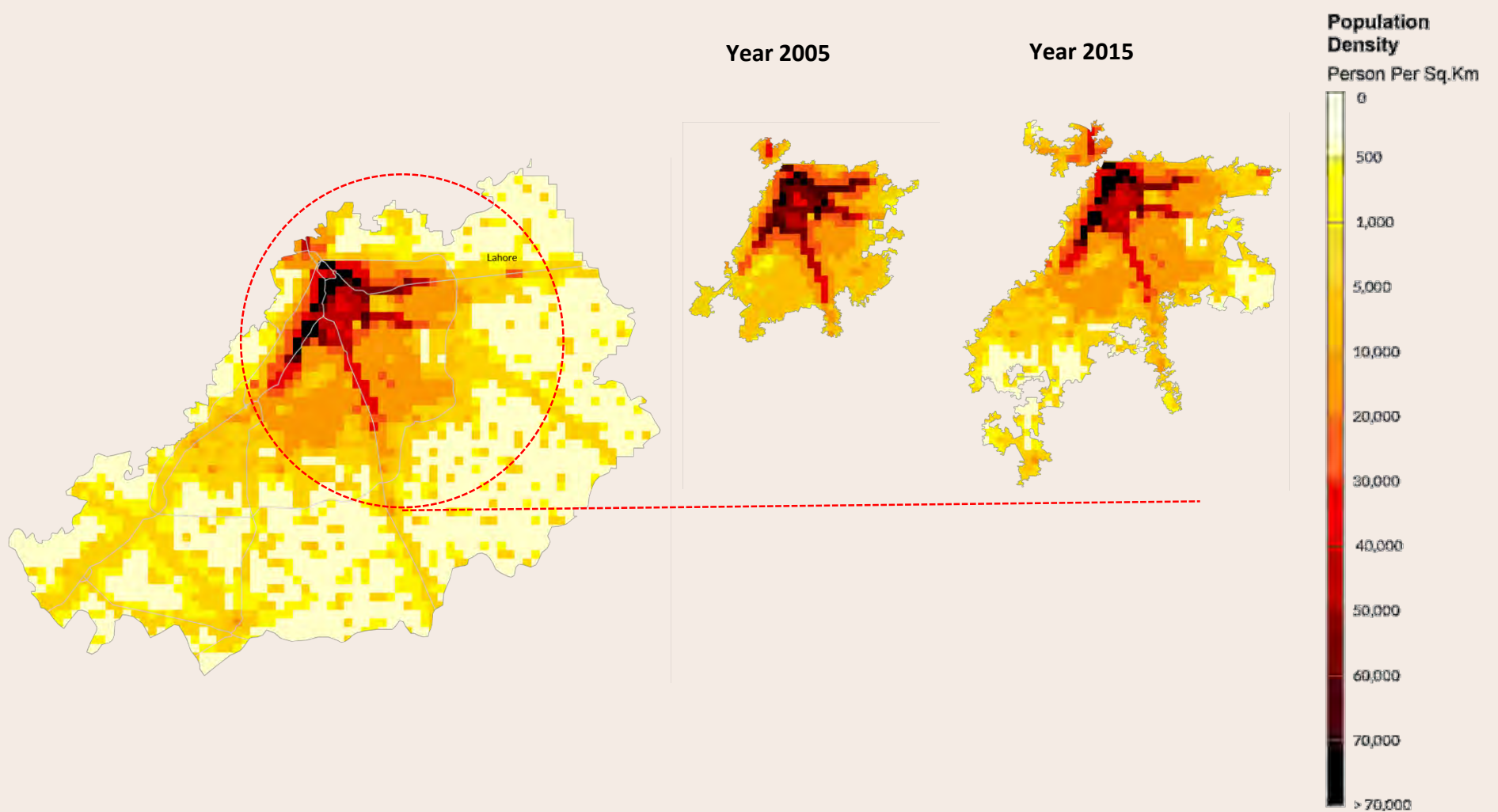


Annual Area Growth Rate

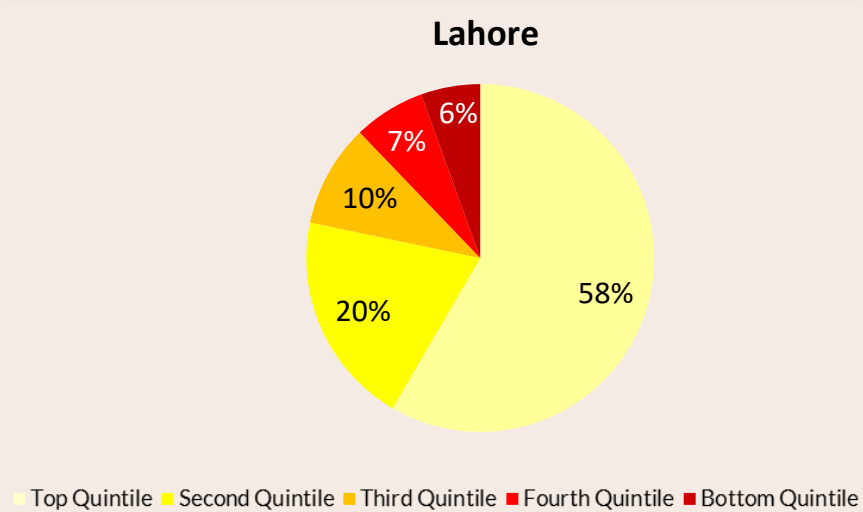


District: Lahore

Population Density



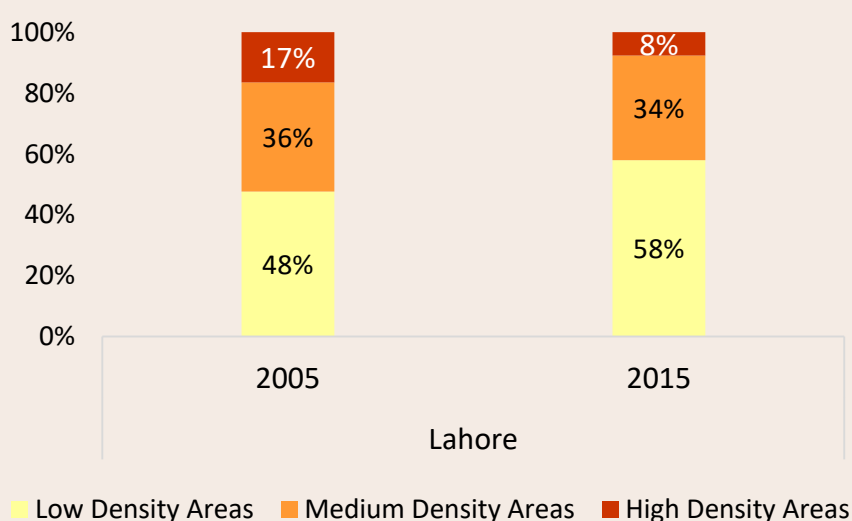
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Lahore	
Population 2005	6,280,091
Population 2015	8,468,553
Pop. Change '05-'15	34.85%
Pop. Annual Growth Rate '05-'15	3.03%
Area 1995 (Sq. Km)	219.70
Area 2005 (Sq. Km)	335.50
Area 2015 (Sq. Km)	665.32
Area Change '95-'05	52.71%
Area Change '05-'15	98.30%
Area Annual Growth Rate '95-'05	4.32%
Area Annual Growth Rate '05-'15	7.09%
Pop. Density 2005 (Per Sq. Km)	18,718
Pop. Density 2015 (Per Sq. Km)	12,729
Density Change '05-'15	-32.00%
Land Consumption Index	2.82

Intra-city Area Composition

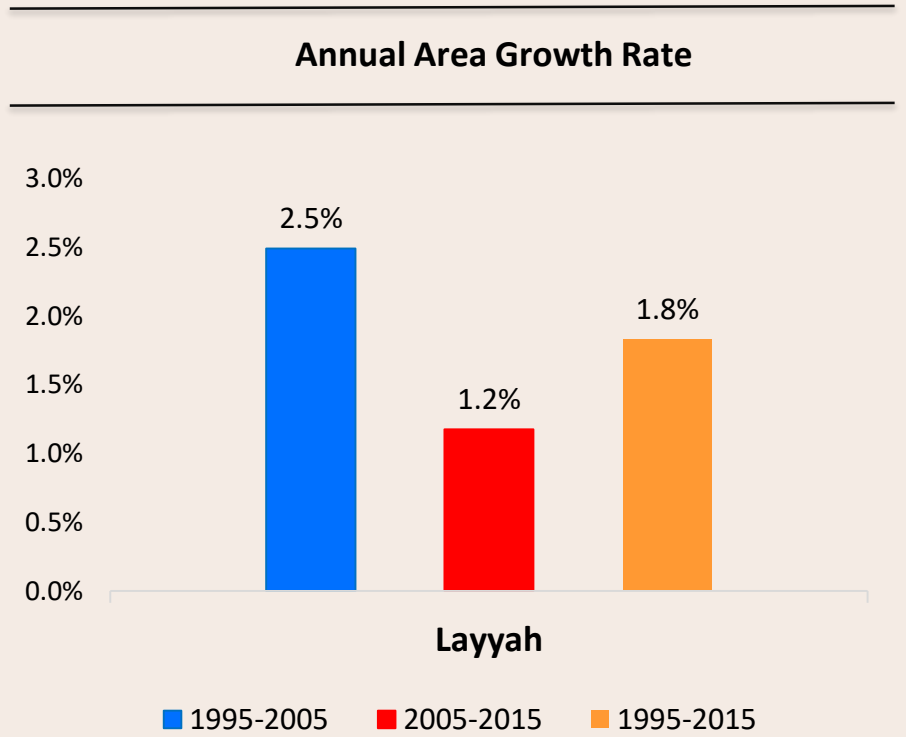
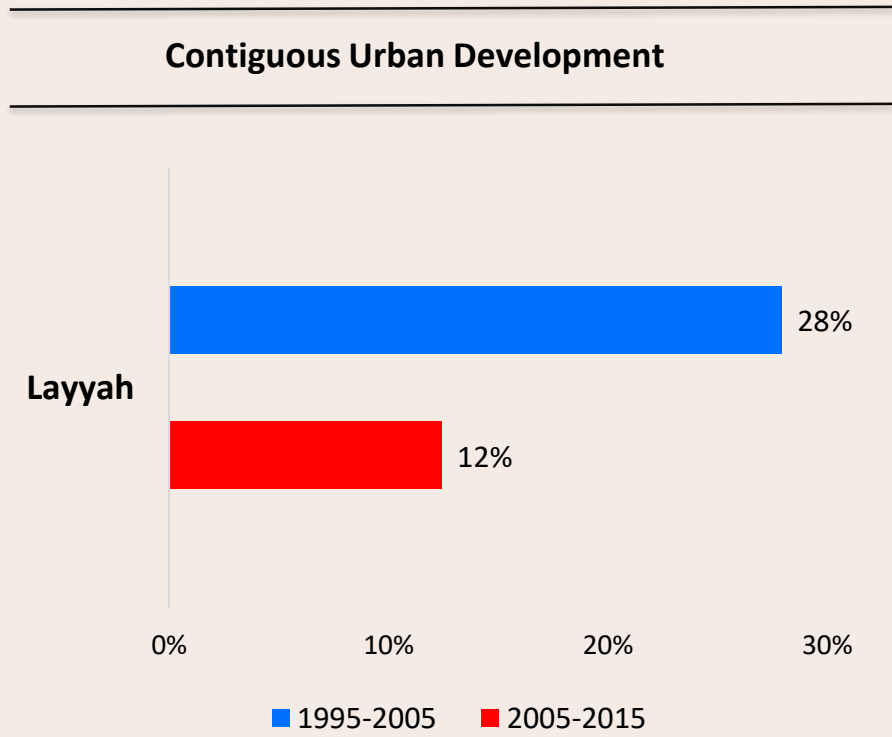
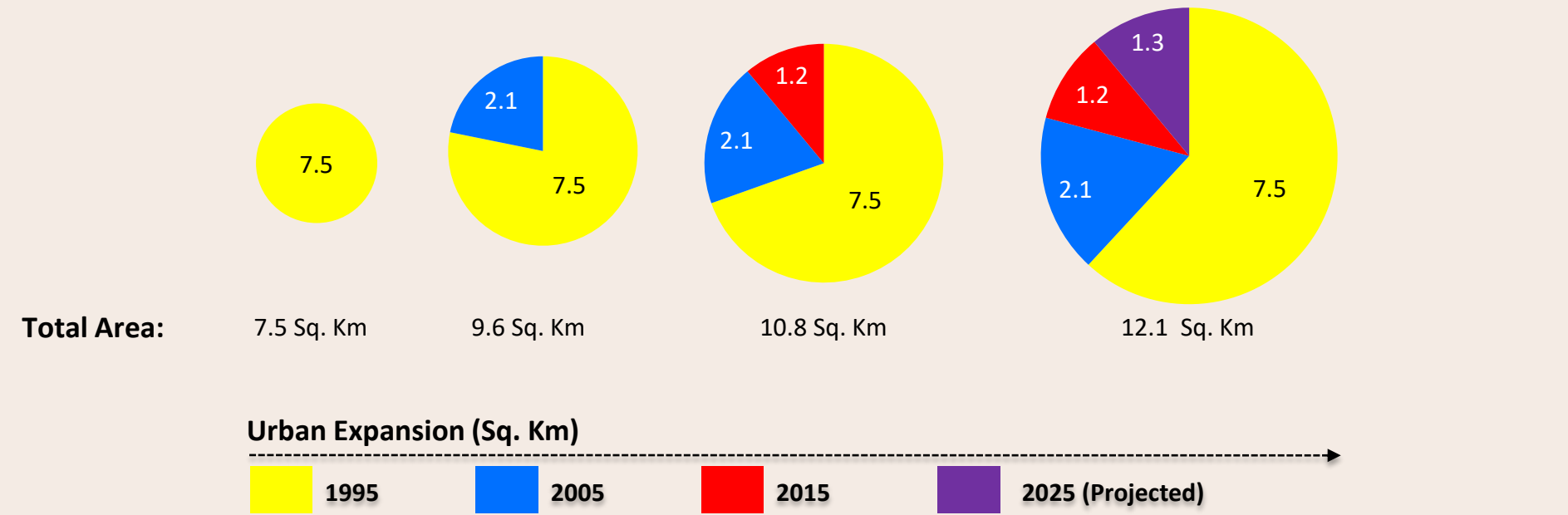
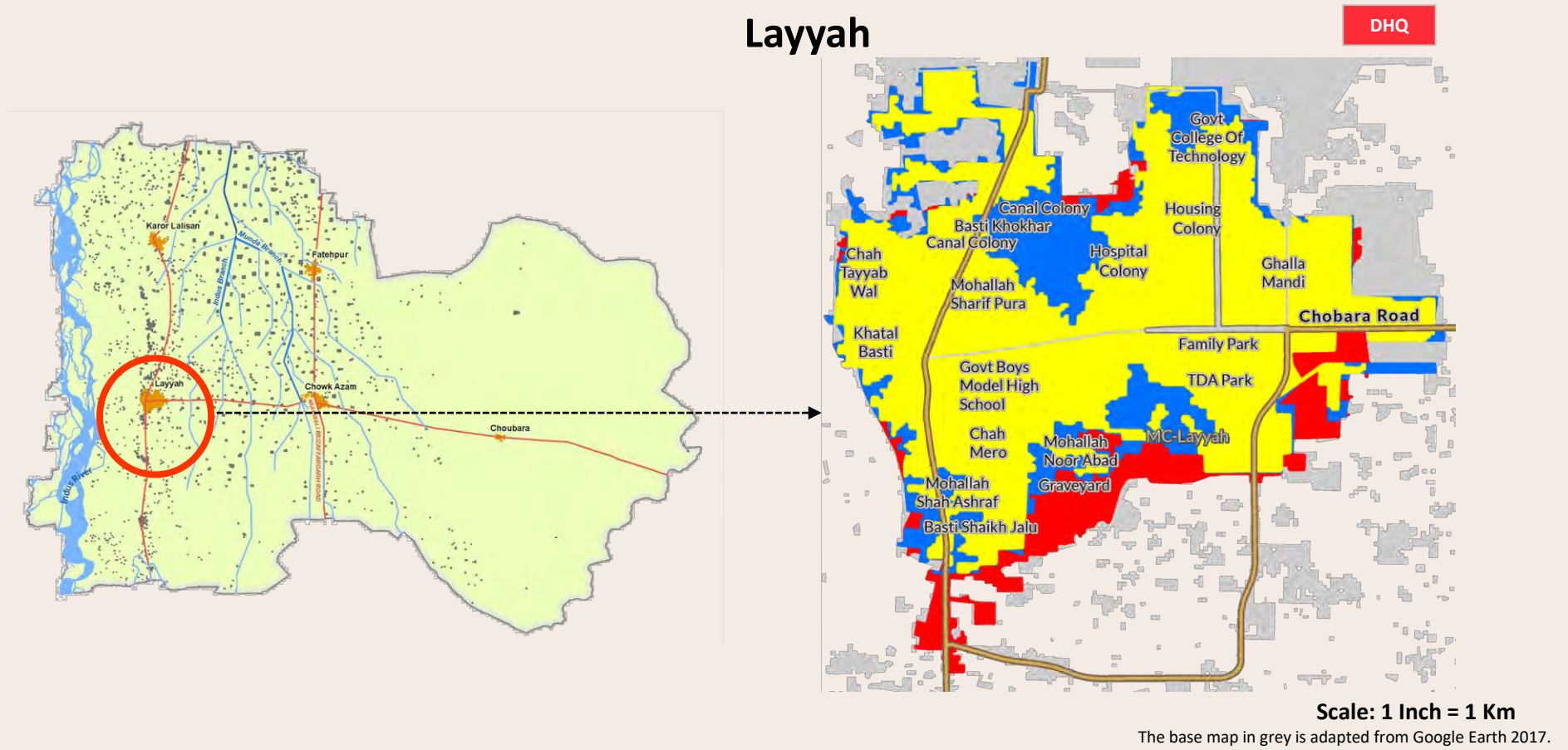


Percentage Change in Area Composition (2005-2015)



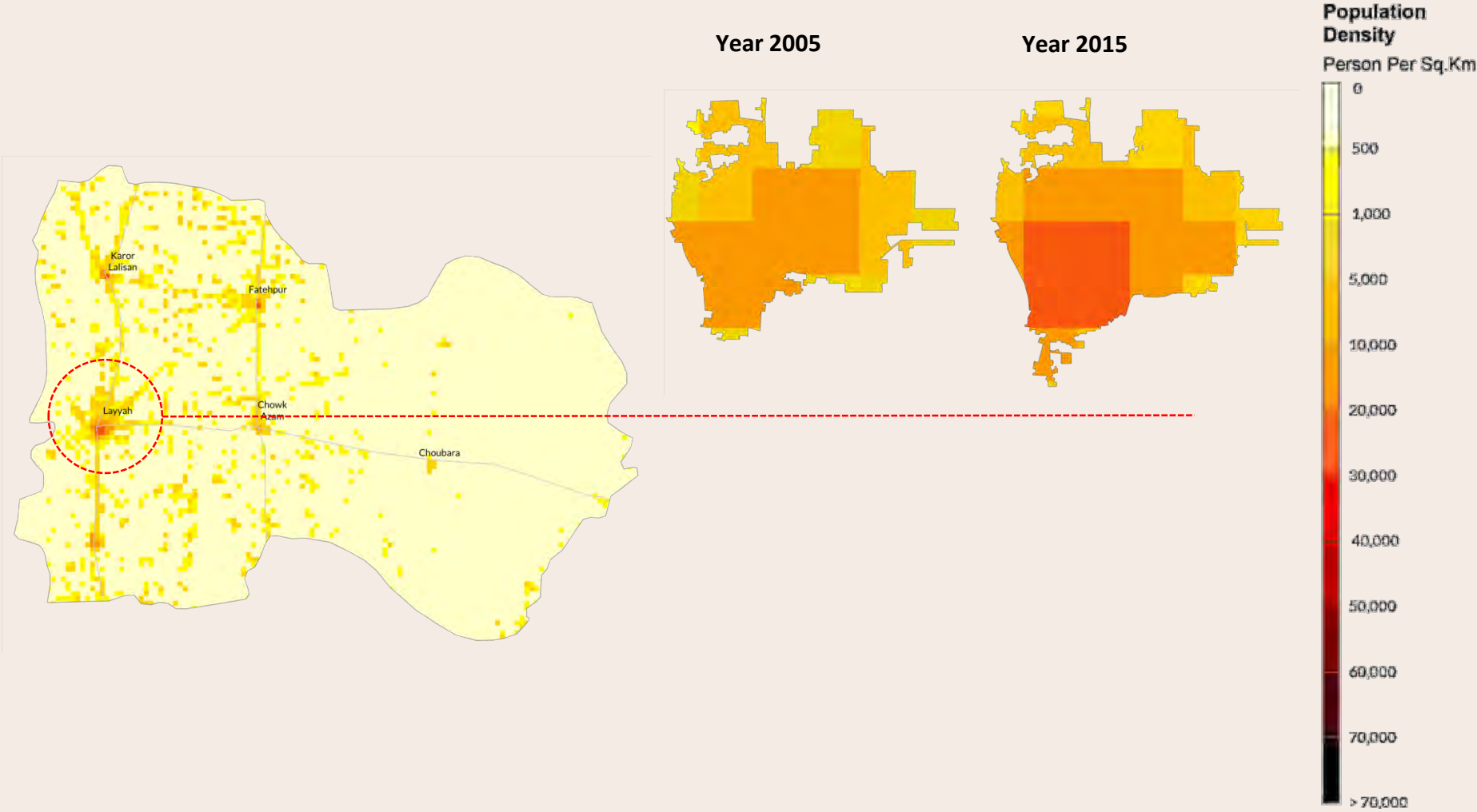
District: Layyah

Urban Expansion

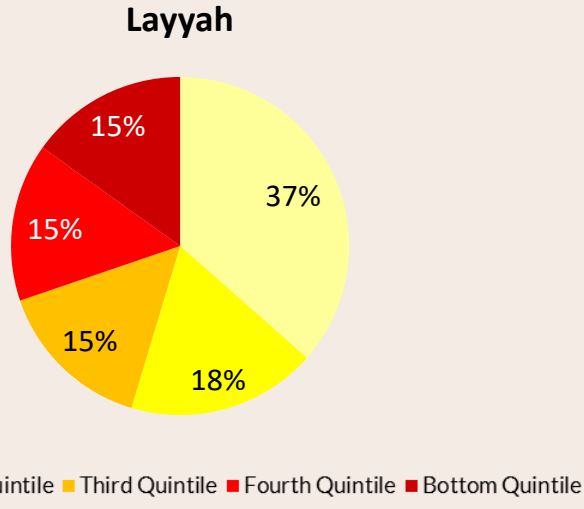


District: Layyah

Population Density



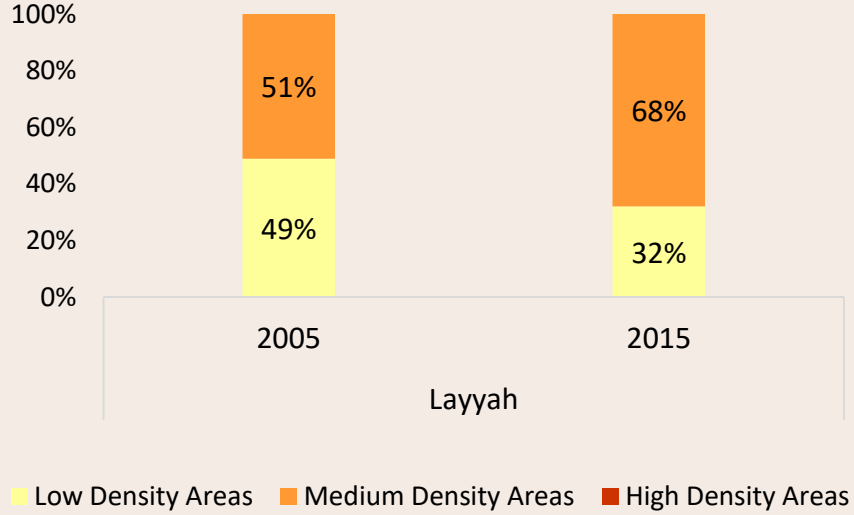
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Layyah	
Population 2005	90,461
Population 2015	144,984
Pop. Change '05-'15	60.27%
Pop. Annual Growth Rate '05-'15	4.83%
Area 1995 (Sq. Km)	7.50
Area 2005 (Sq. Km)	9.59
Area 2015 (Sq. Km)	10.78
Area Change '95-'05	27.91%
Area Change '05-'15	12.40%
Area Annual Growth Rate '95-'05	2.49%
Area Annual Growth Rate '05-'15	1.18%
Pop. Density 2005 (Per Sq. Km)	9,429
Pop. Density 2015 (Per Sq. Km)	13,445
Density Change '05-'15	42.59%
Land Consumption Index	0.21

Intra-city Area Composition

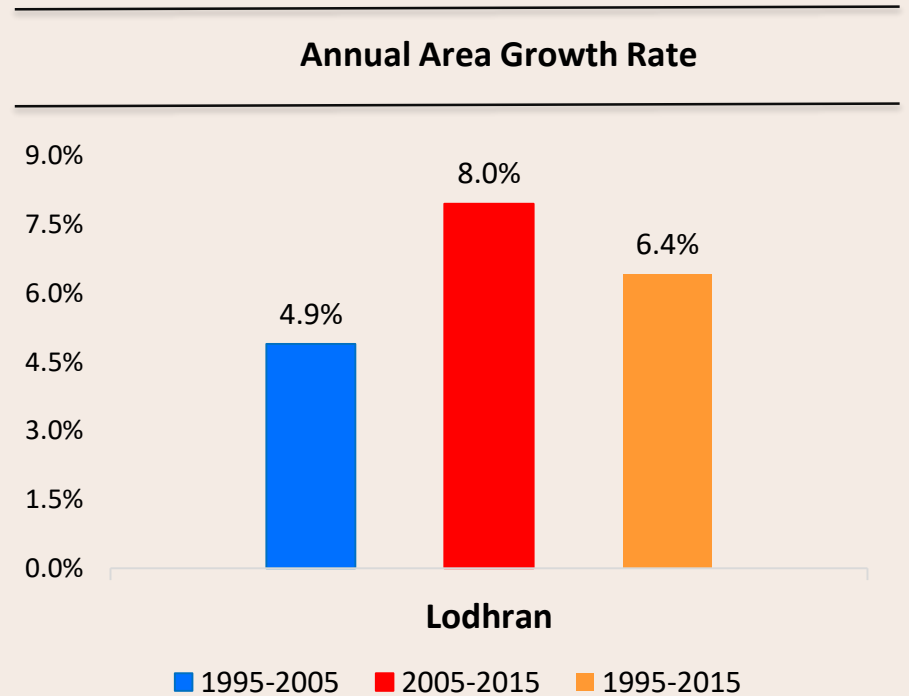
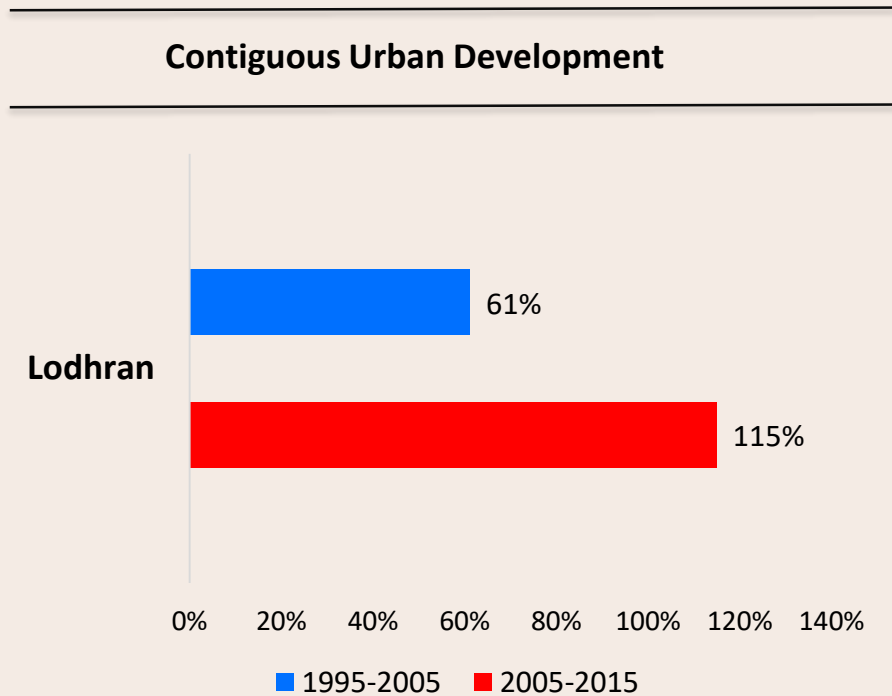
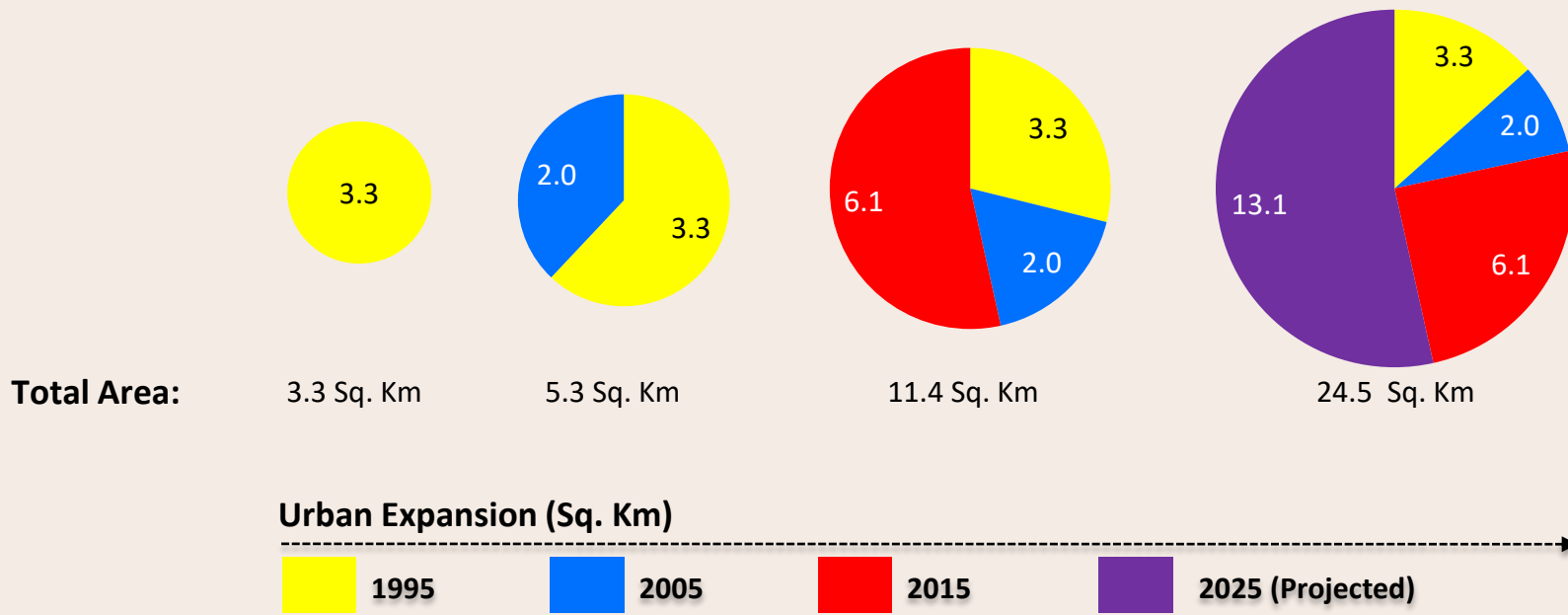
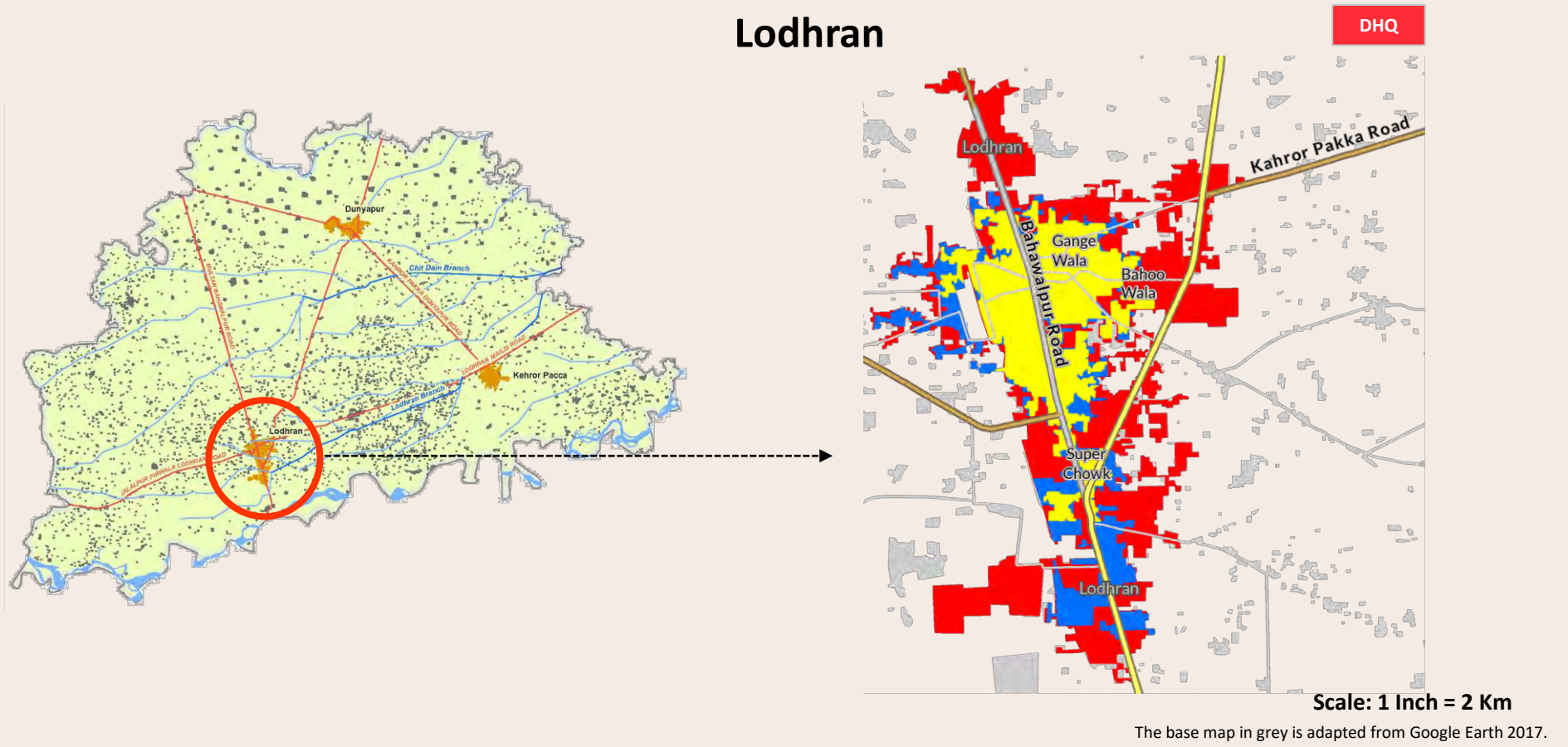


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Layyah	↓ -34%	↑ 33%	-

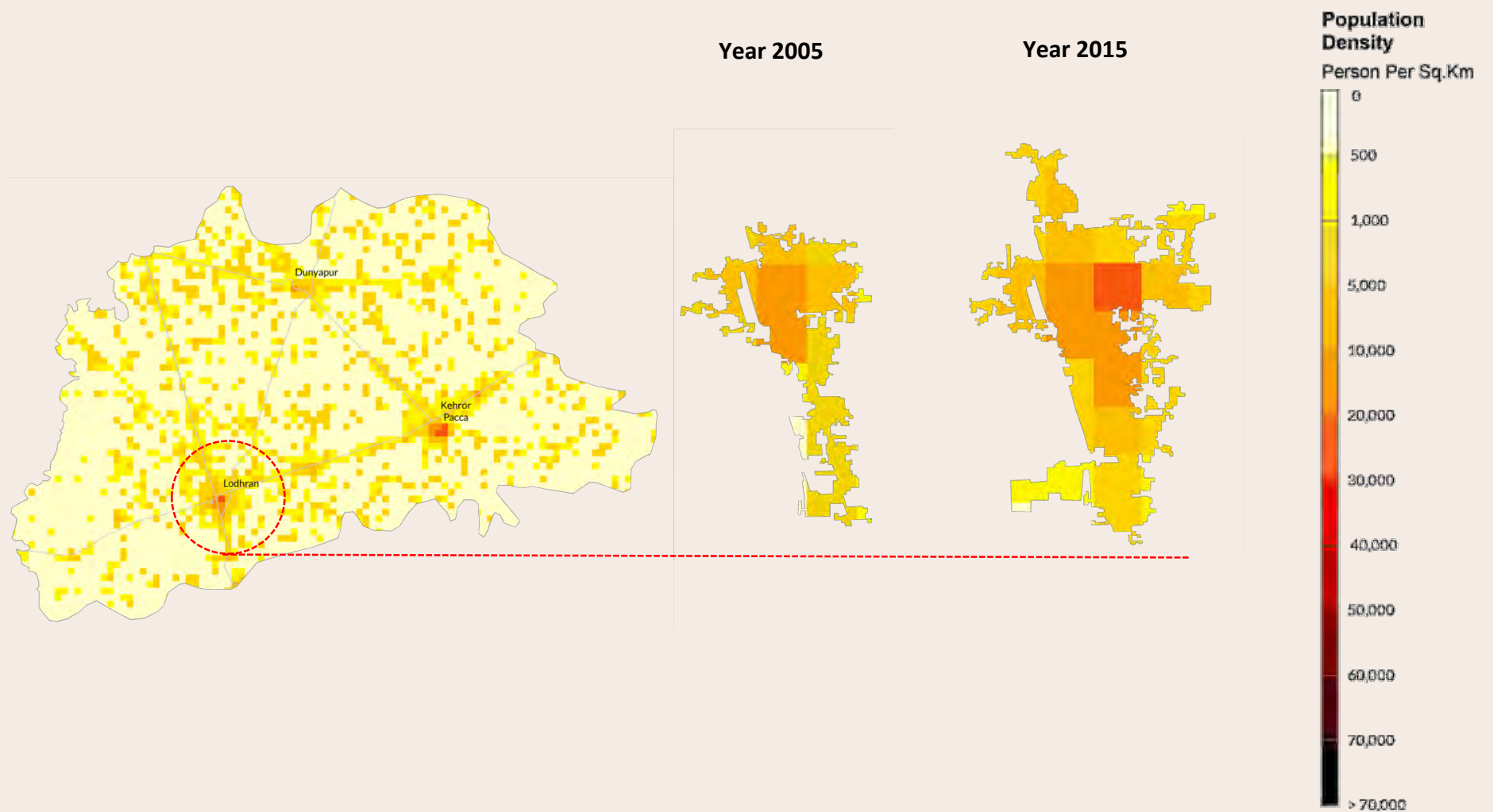
District: Lodhran

Urban Expansion

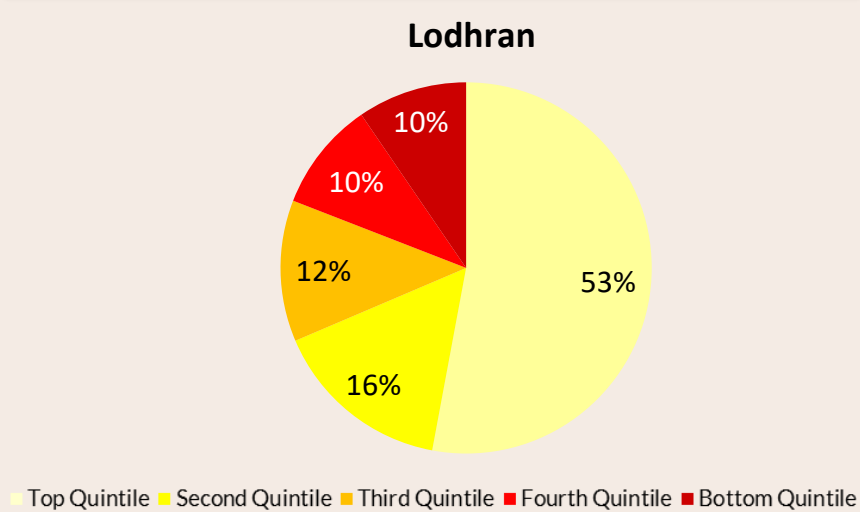


District: Lodhran

Population Density



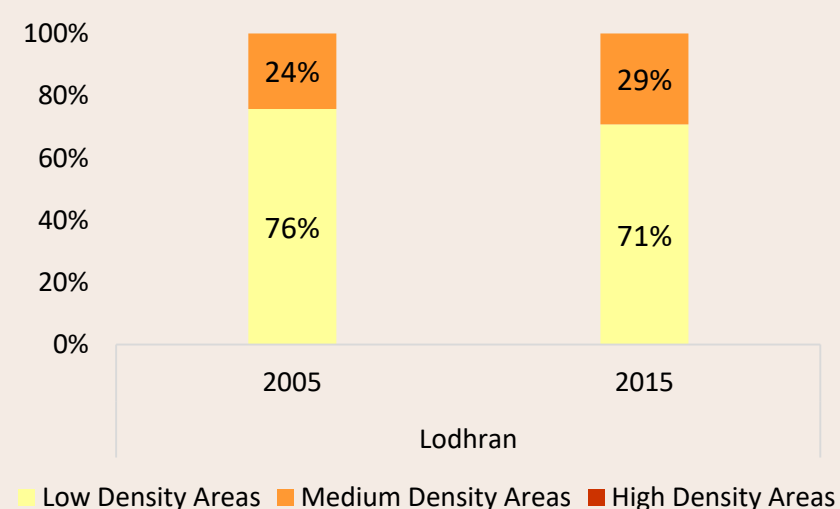
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Lodhran	
Population 2005	30,658
Population 2015	93,151
Pop. Change '05-'15	203.84%
Pop. Annual Growth Rate '05-'15	11.75%
Area 1995 (Sq. Km)	3.28
Area 2005 (Sq. Km)	5.30
Area 2015 (Sq. Km)	11.39
Area Change '95-'05	61.21%
Area Change '05-'15	115.01%
Area Annual Growth Rate '95-'05	4.89%
Area Annual Growth Rate '05-'15	7.96%
Pop. Density 2005 (Per Sq. Km)	5,789
Pop. Density 2015 (Per Sq. Km)	8,181
Density Change '05-'15	41.32%
Land Consumption Index	0.56

Intra-city Area Composition

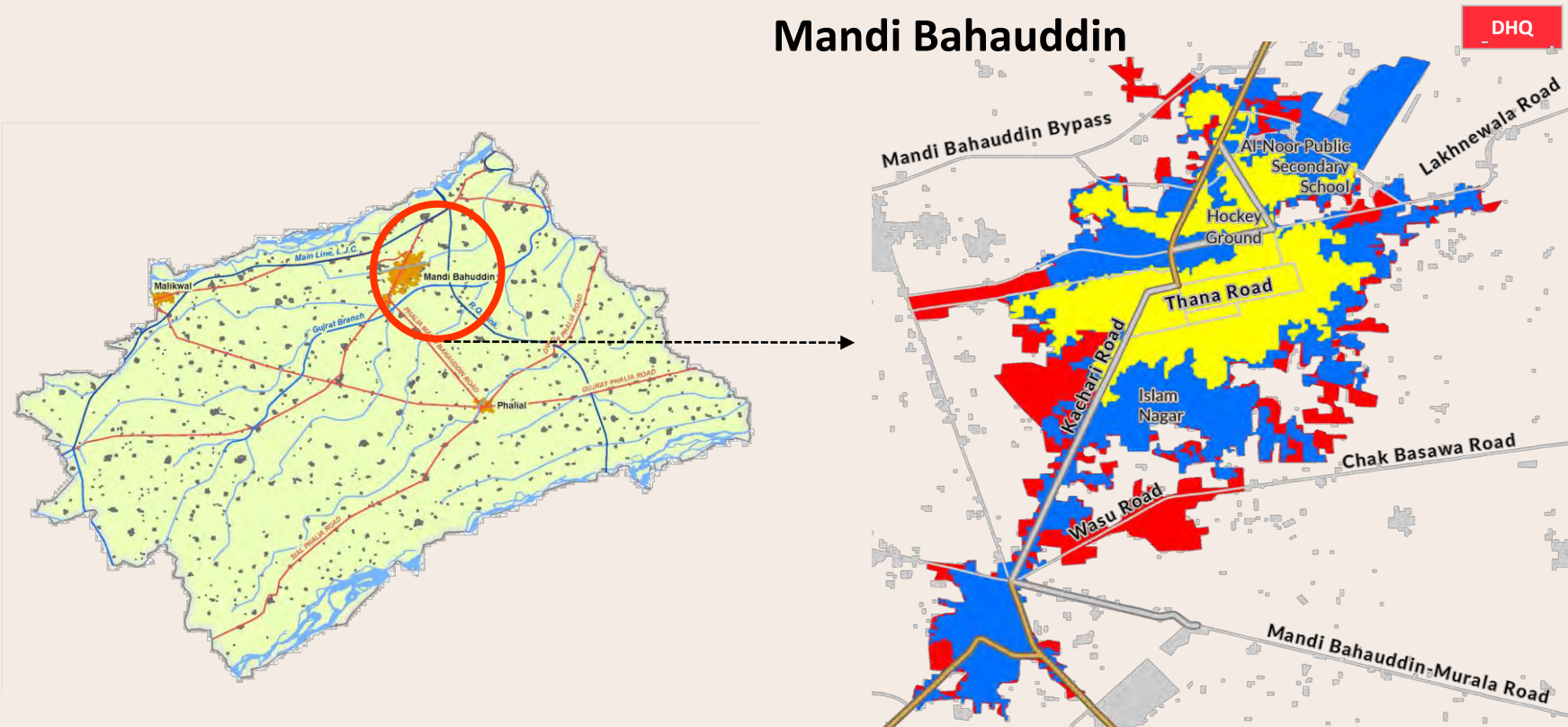


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Lodhran	↓ -7%	↑ 20%	-

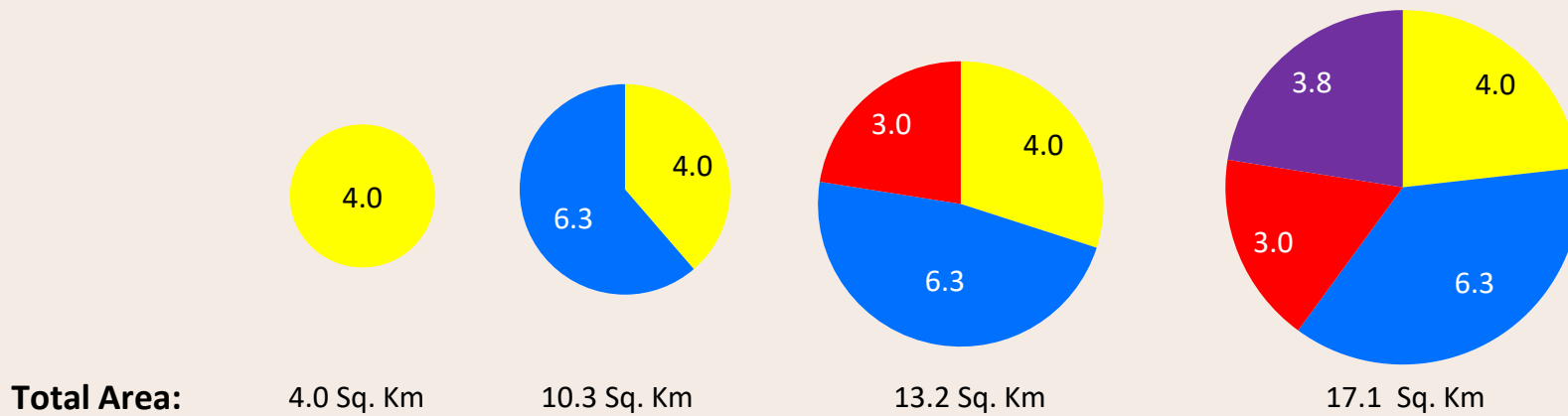
District: Mandi Bahauddin

Urban Expansion



Scale: 1 Inch = 2 Km

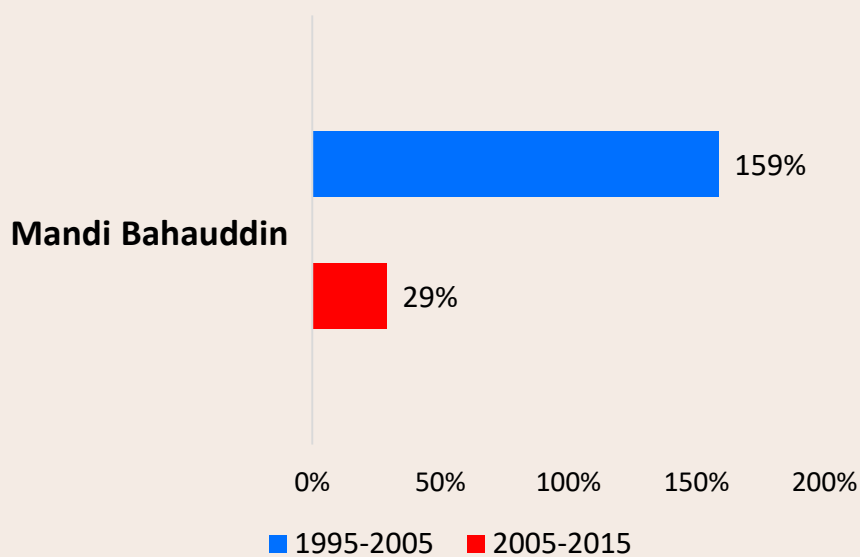
The base map in grey is adapted from Google Earth 2017.



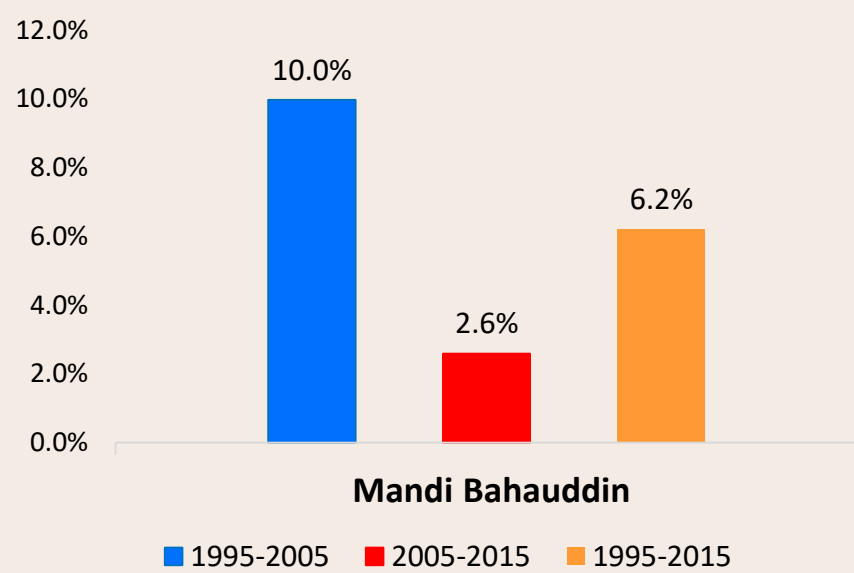
Urban Expansion (Sq. Km)



Contiguous Urban Development

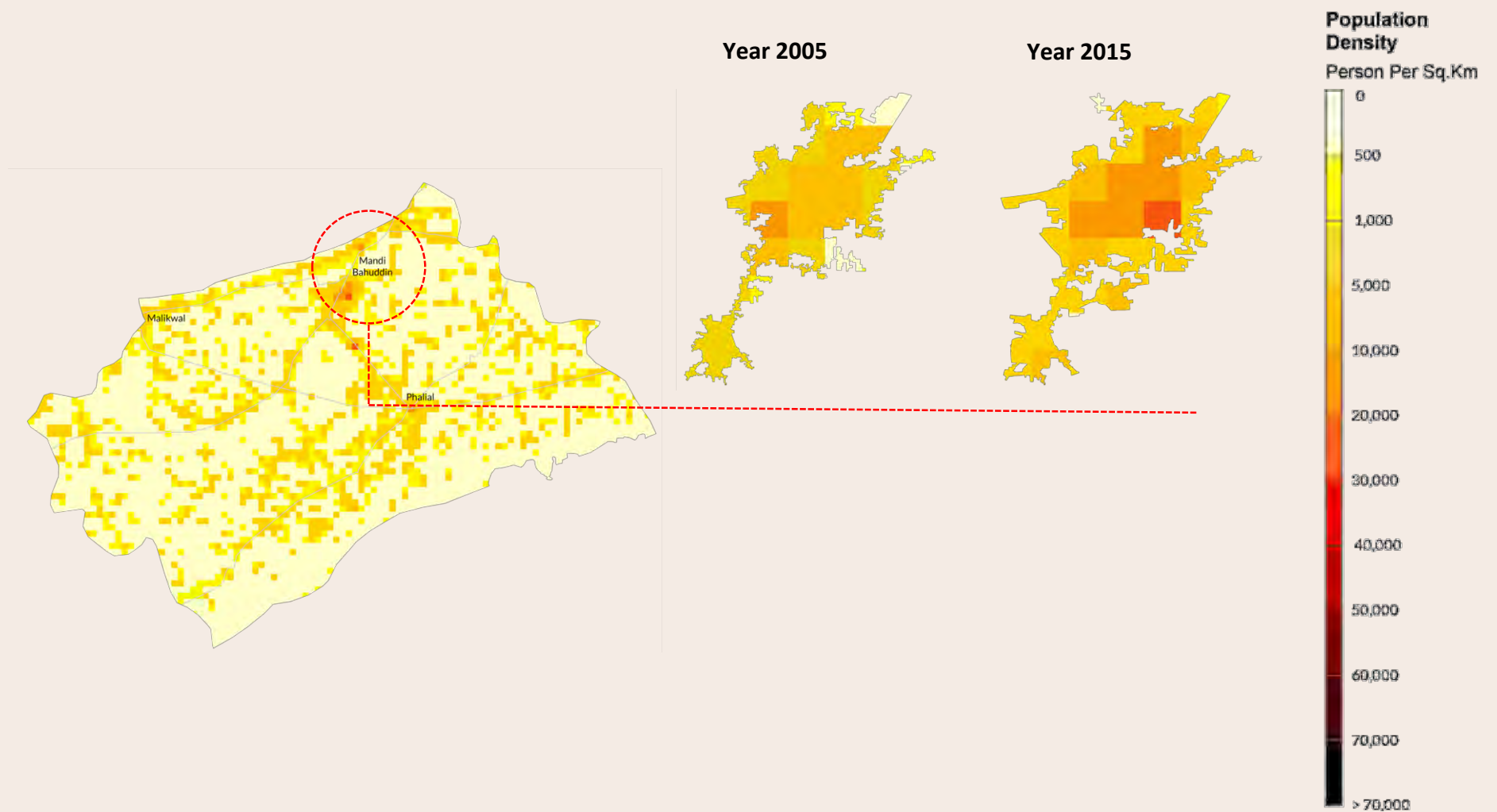


Annual Area Growth Rate



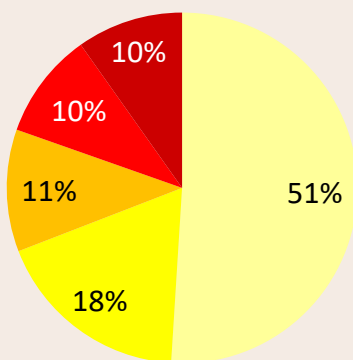
District: Mandi Bahauddin

Population Density



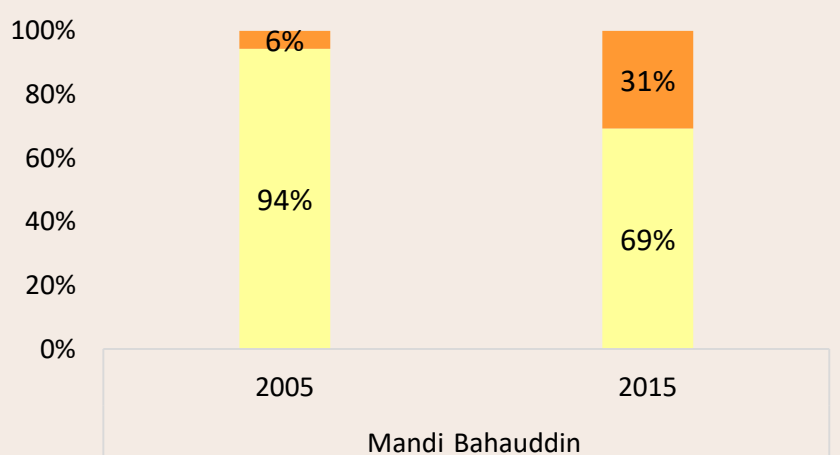
Percentage of Area Occupied by 20% of Population (2015)

Mandi Bahauddin



Top Quintile Second Quintile Third Quintile Fourth Quintile Bottom Quintile

Intra-city Area Composition



Low Density Areas Medium Density Areas High Density Areas

Population Area Statistics

Mandi Bahauddin

Population 2005	48,750
Population 2015	112,119
Pop. Change '05-'15	129.99%
Pop. Annual Growth Rate '05-'15	8.69%
Area 1995 (Sq. Km)	3.97
Area 2005 (Sq. Km)	10.26
Area 2015 (Sq. Km)	13.24
Area Change '95-'05	158.58%
Area Change '05-'15	29.05%
Area Annual Growth Rate '95-'05	9.97%
Area Annual Growth Rate '05-'15	2.58%
Pop. Density 2005 (Per Sq. Km)	4,753
Pop. Density 2015 (Per Sq. Km)	8,471
Density Change '05-'15	78.22%
Land Consumption Index	0.22

Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Mandi Bahauddin	↓ -27%	↑ 444%	-

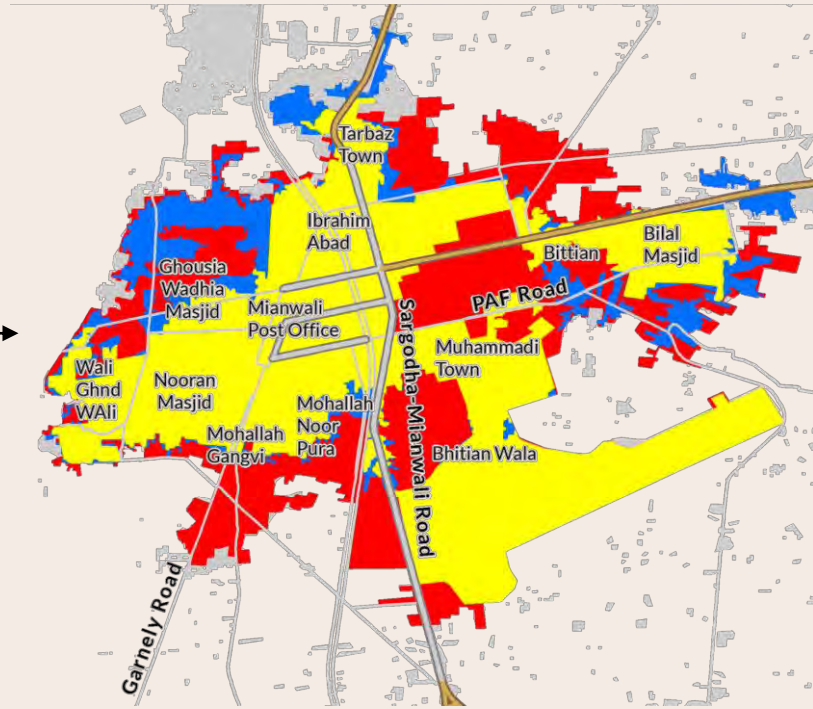
District: Mianwali

Urban Expansion

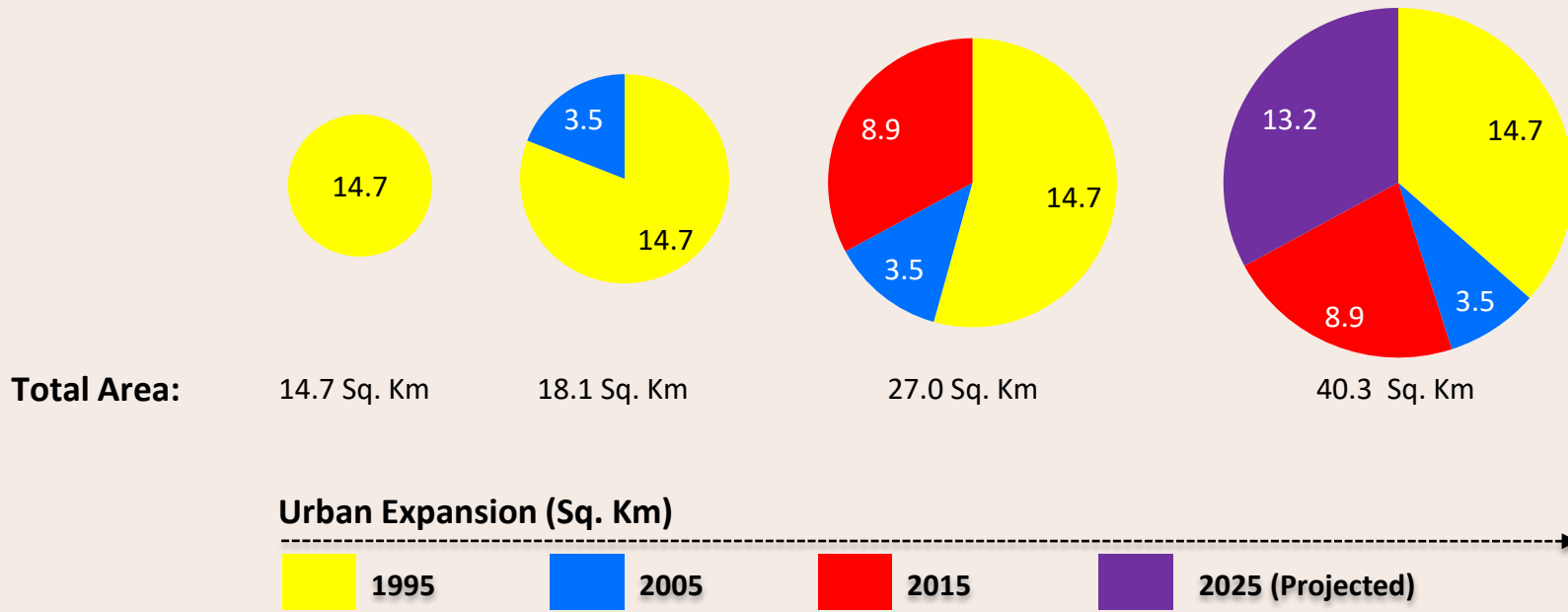


Mianwali

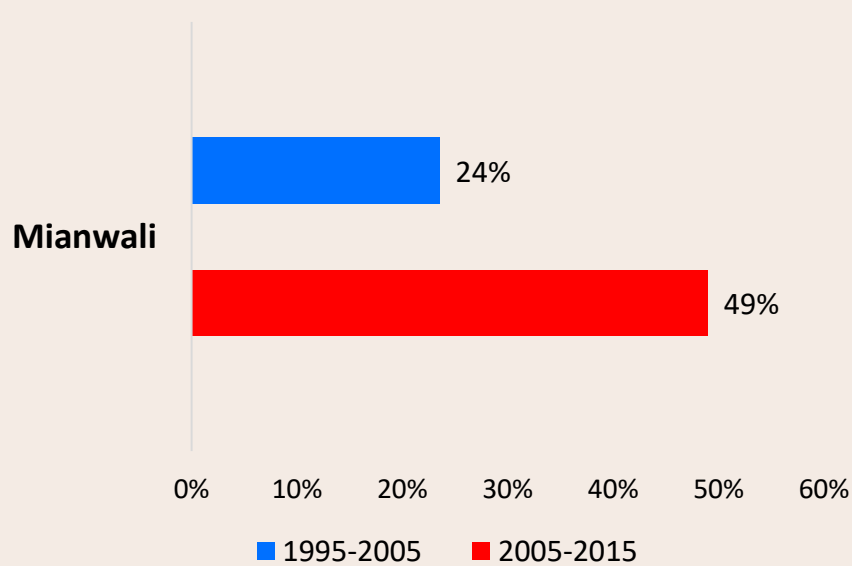
DHQ



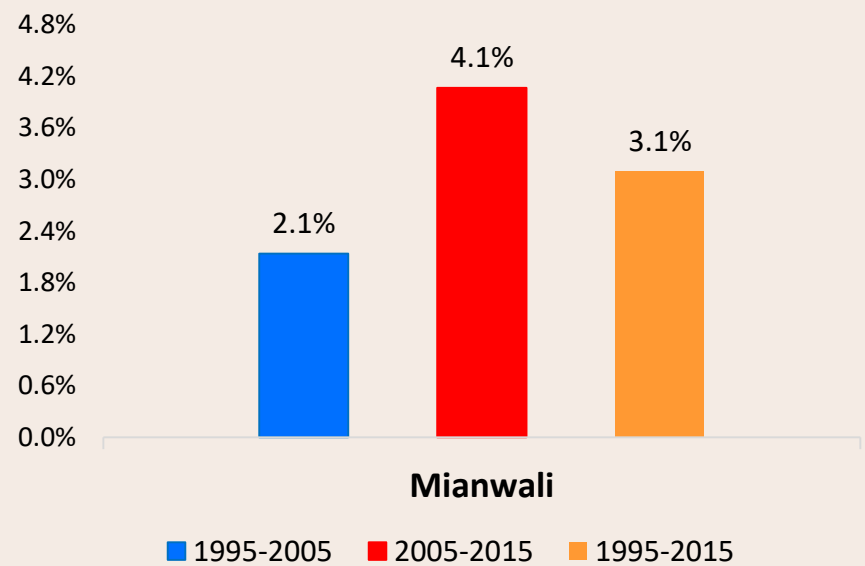
Scale: 1 Inch = 2 Km
The base map in grey is adapted from Google Earth 2017.



Contiguous Urban Development

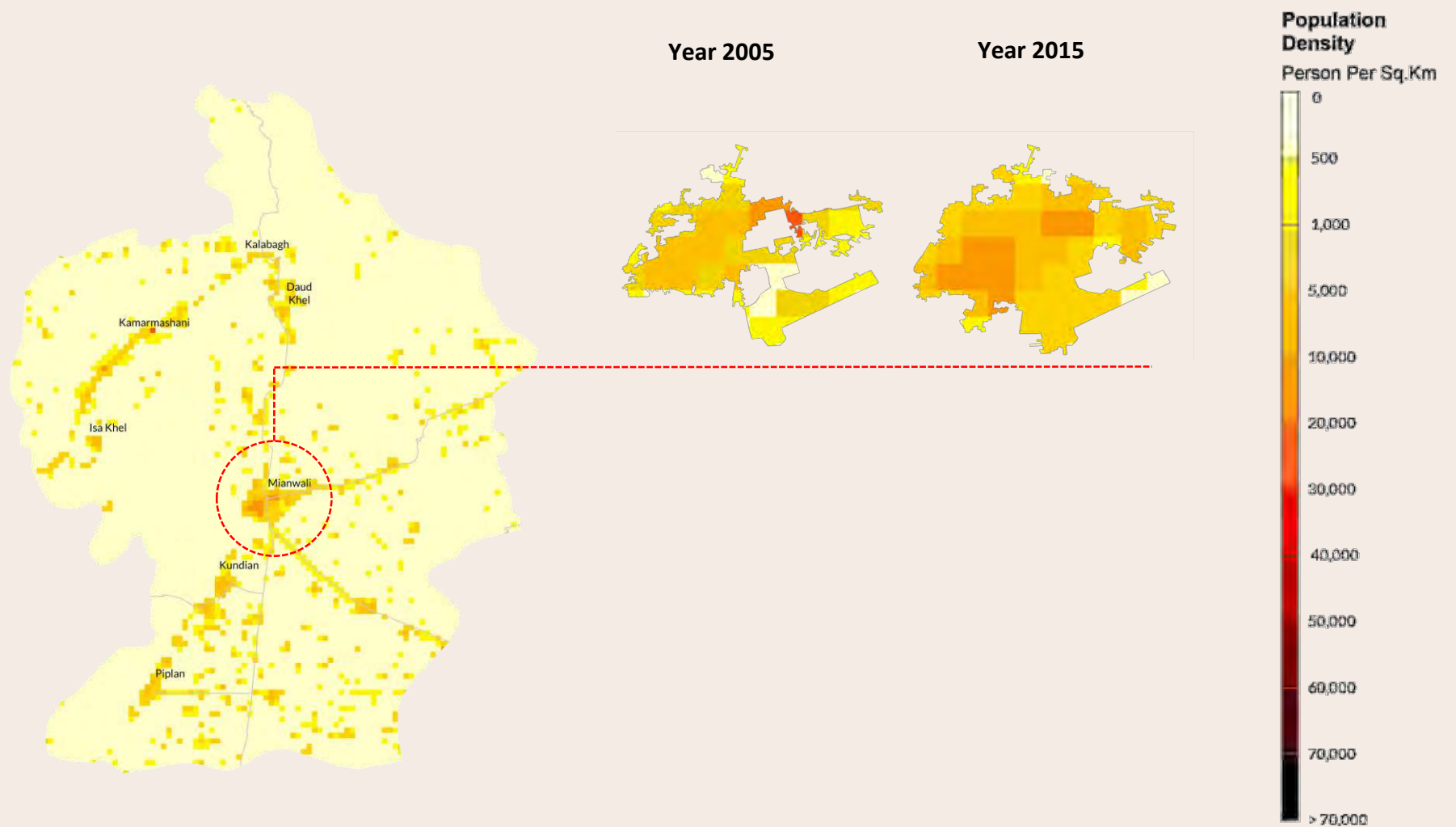


Annual Area Growth Rate



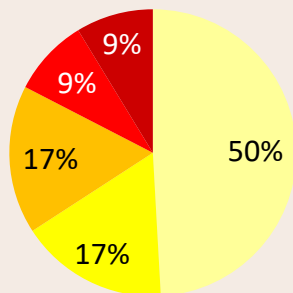
District: Mianwali

Population Density



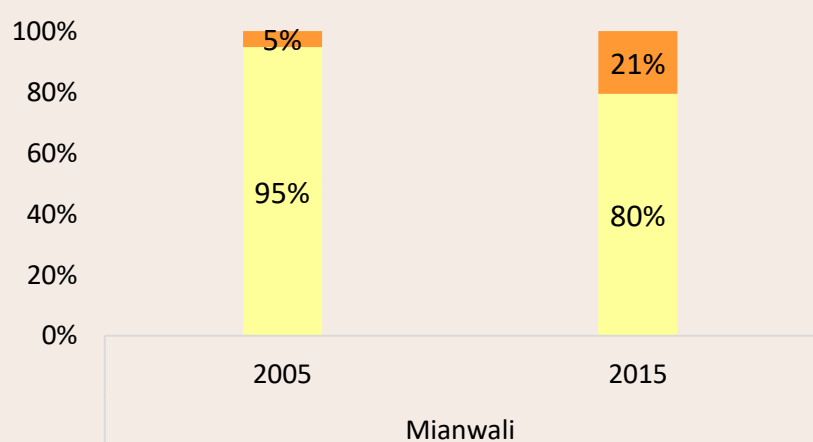
Percentage of Area Occupied by 20% of Population (2015)

Mianwali



Top Quintile Second Quintile Third Quintile Fourth Quintile Bottom Quintile

Intra-city Area Composition



Low Density Areas Medium Density Areas High Density Areas

Population Area Statistics

Mianwali

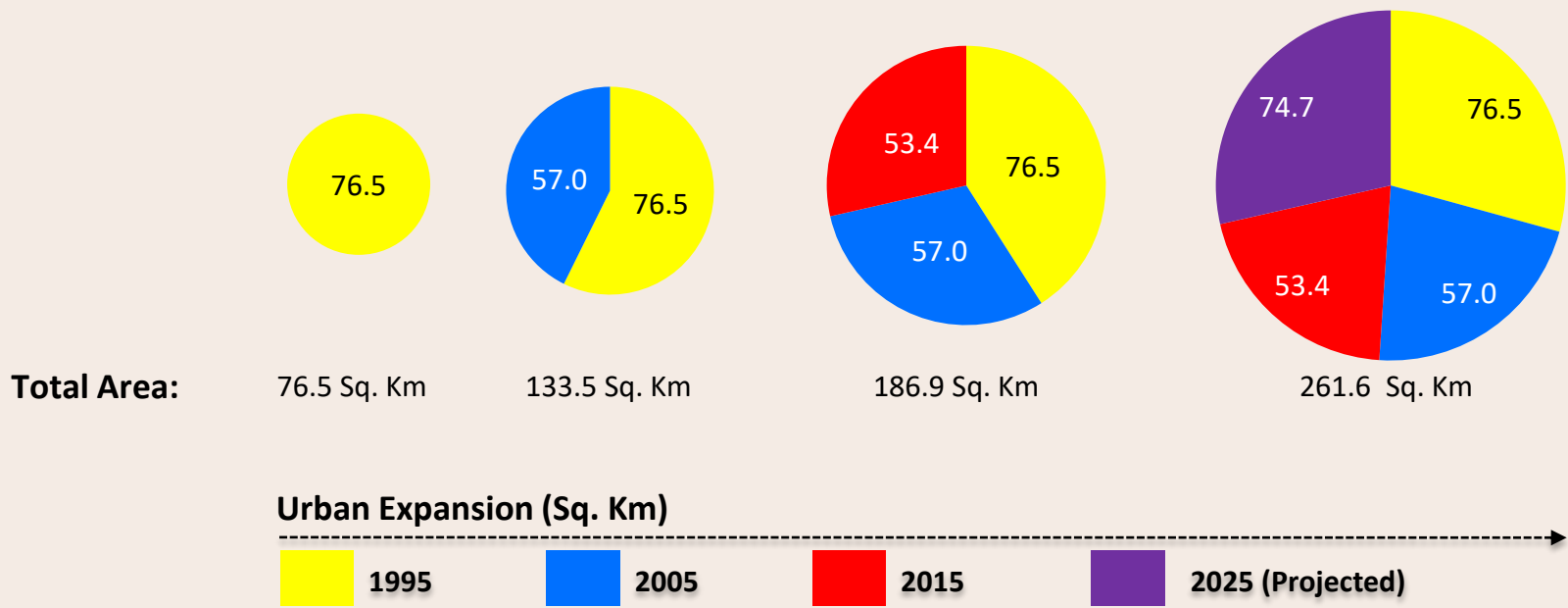
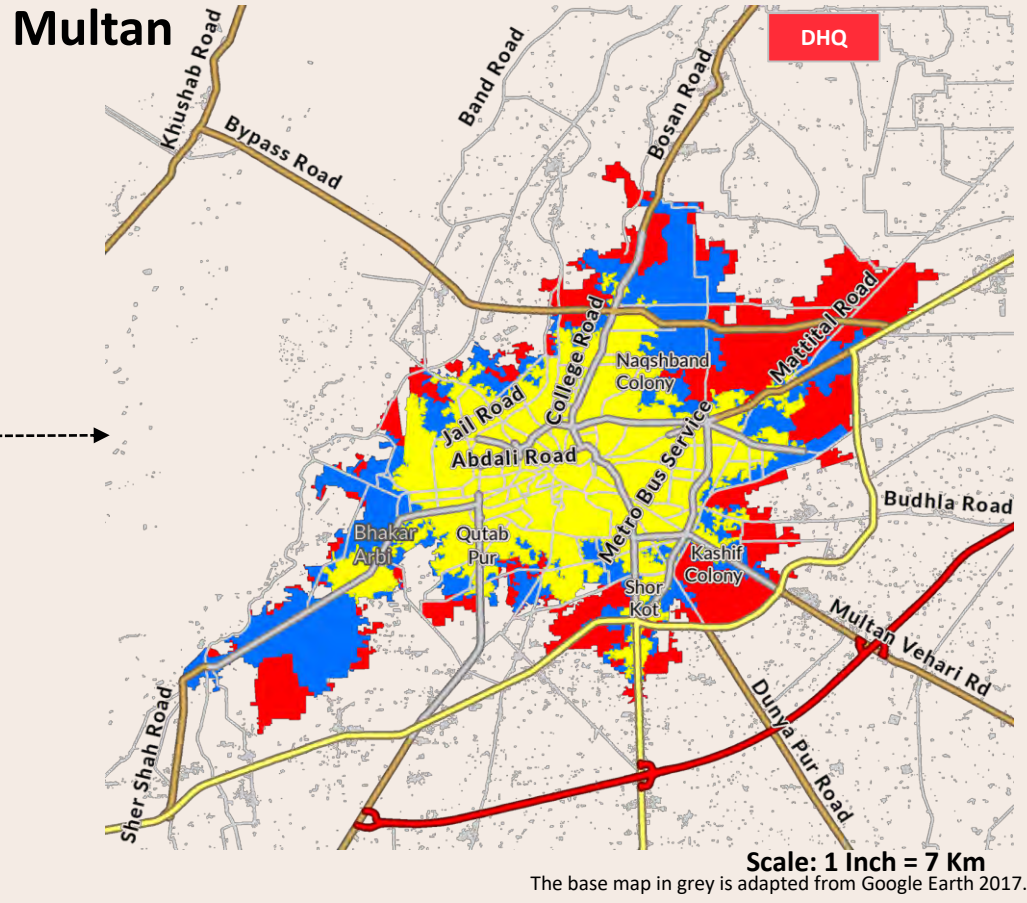
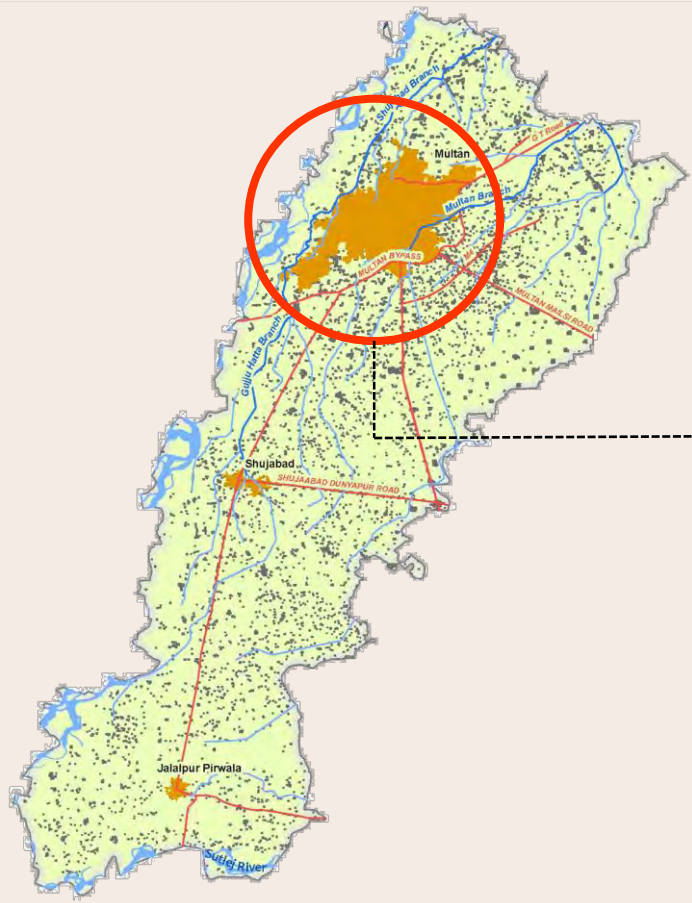
Population 2005	82,422
Population 2015	178,892
Pop. Change '05-'15	117.04%
Pop. Annual Growth Rate '05-'15	8.06%
Area 1995 (Sq. Km)	14.68
Area 2005 (Sq. Km)	18.14
Area 2015 (Sq. Km)	27.03
Area Change '95-'05	23.53%
Area Change '05-'15	49.00%
Area Annual Growth Rate '95-'05	2.14%
Area Annual Growth Rate '05-'15	4.07%
Pop. Density 2005 (Per Sq. Km)	4,544
Pop. Density 2015 (Per Sq. Km)	6,619
Density Change '05-'15	45.67%
Land Consumption Index	0.42

Percentage Change in Area Composition (2005-2015)

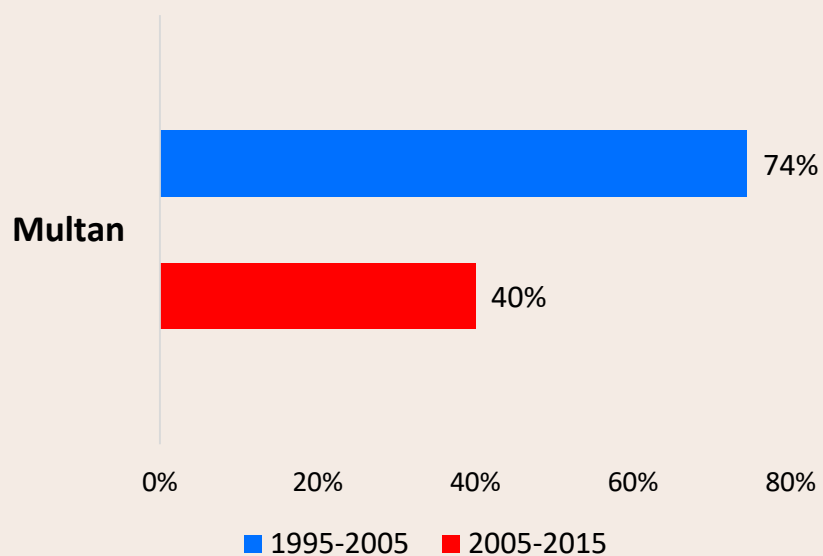
	Low Density Areas	Medium Density Areas	High Density Areas
Mianwali	↓ -16%	↑ 297%	-

District: Multan

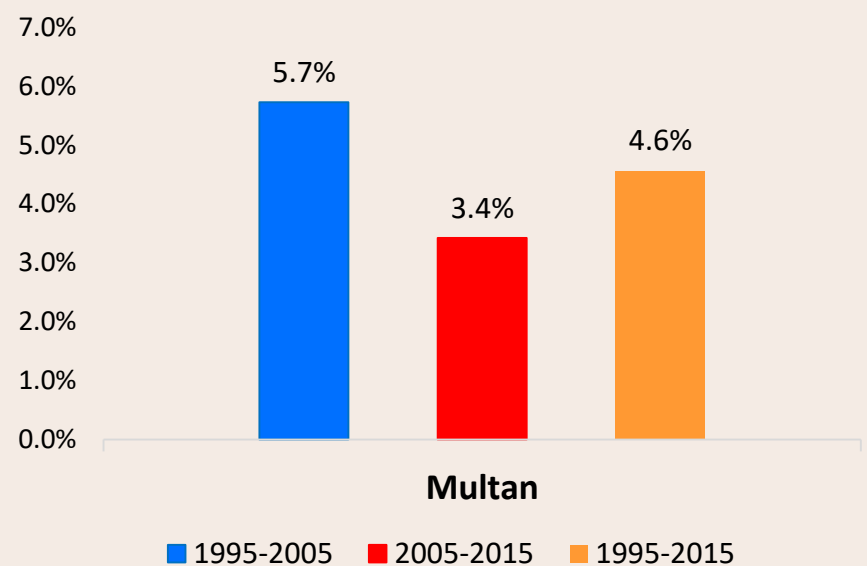
Urban Expansion



Contiguous Urban Development

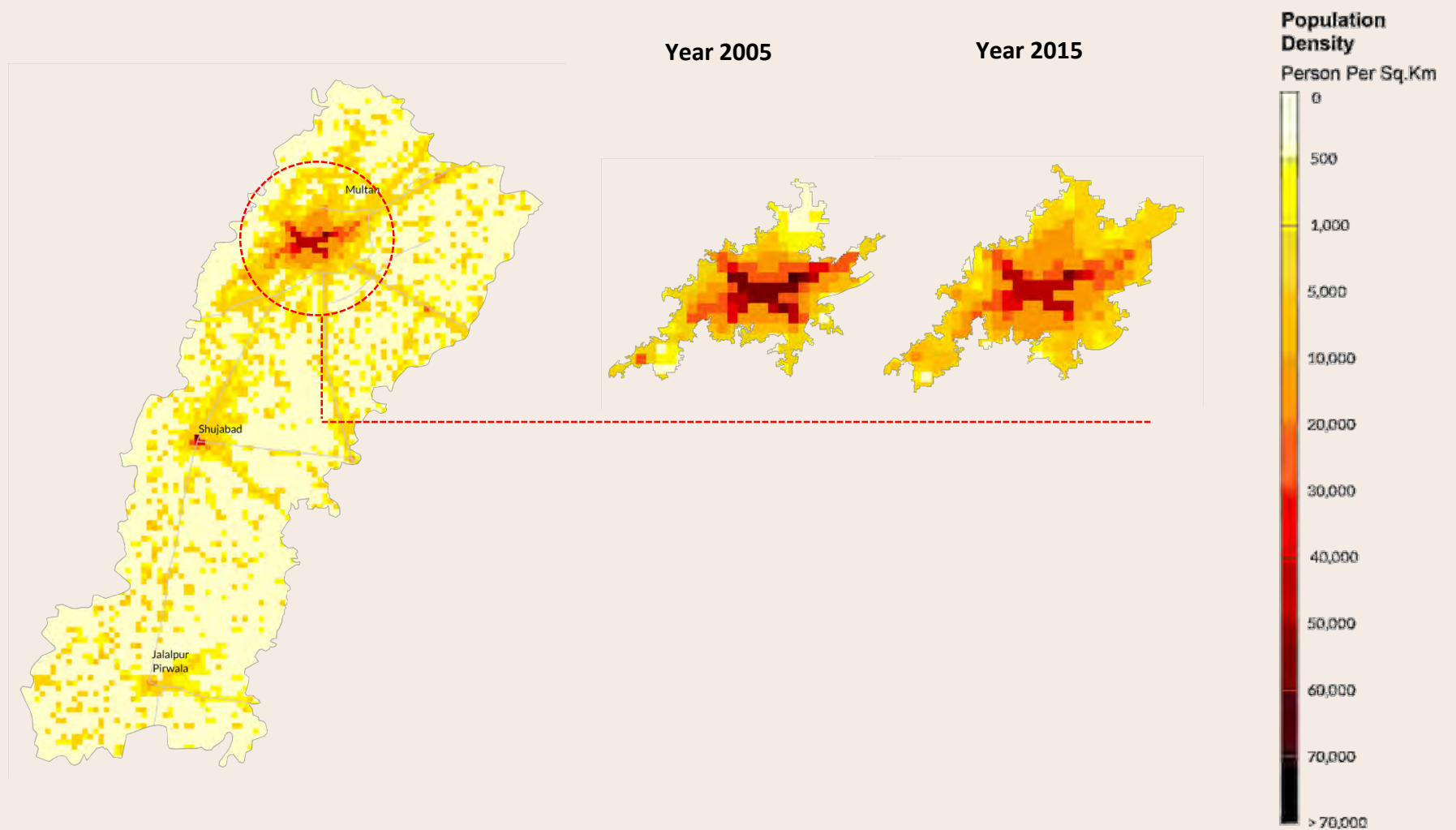


Annual Area Growth Rate

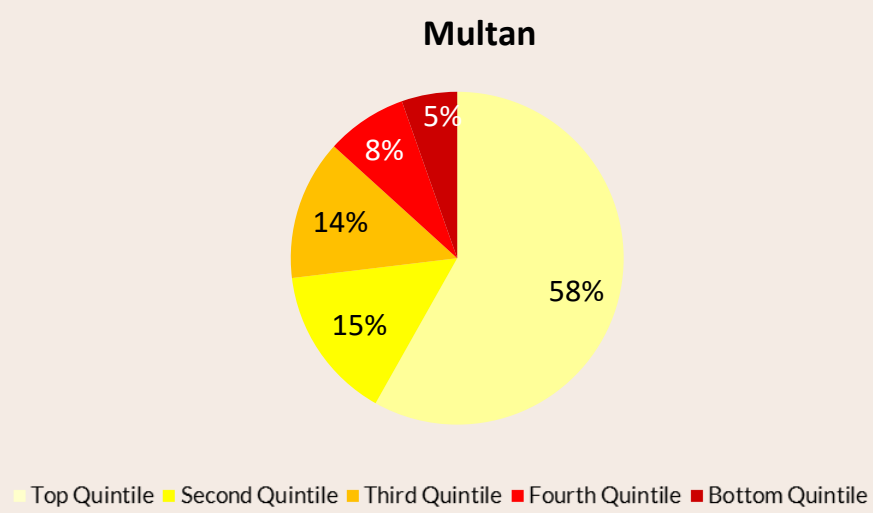


District: Multan

Population Density



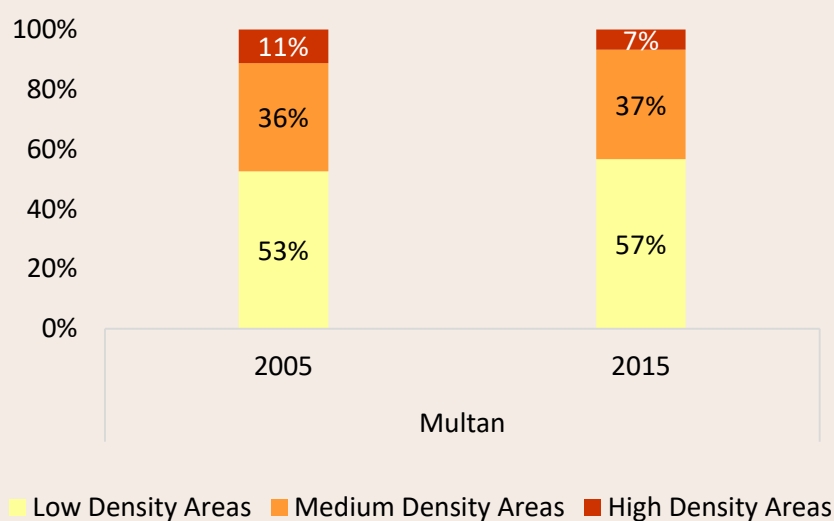
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Multan	
Population 2005	1,893,475
Population 2015	2,245,453
Pop. Change '05-'15	18.59%
Pop. Annual Growth Rate '05-'15	1.72%
Area 1995 (Sq. Km)	76.54
Area 2005 (Sq. Km)	133.52
Area 2015 (Sq. Km)	186.88
Area Change '95-'05	74.45%
Area Change '05-'15	39.97%
Area Annual Growth Rate '95-'05	5.72%
Area Annual Growth Rate '05-'15	3.42%
Pop. Density 2005 (Per Sq. Km)	14,182
Pop. Density 2015 (Per Sq. Km)	12,016
Density Change '05-'15	-15.27%
Land Consumption Index	2.15

Intra-city Area Composition

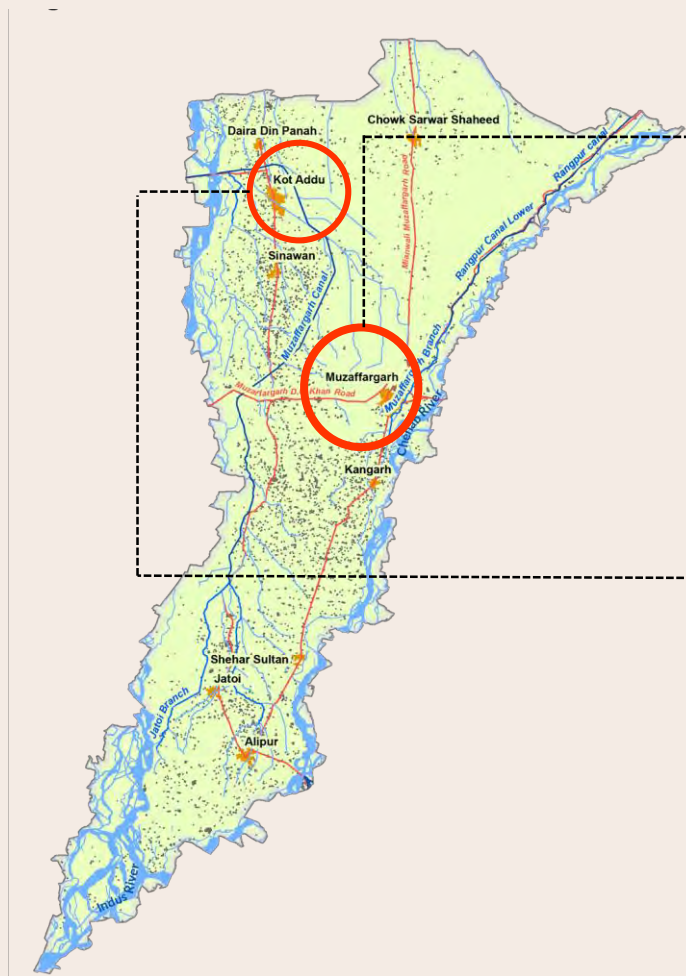


Percentage Change in Area Composition (2005-2015)

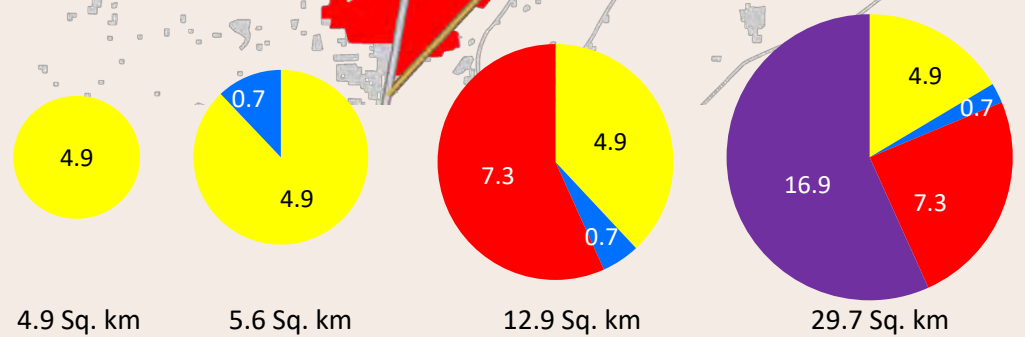
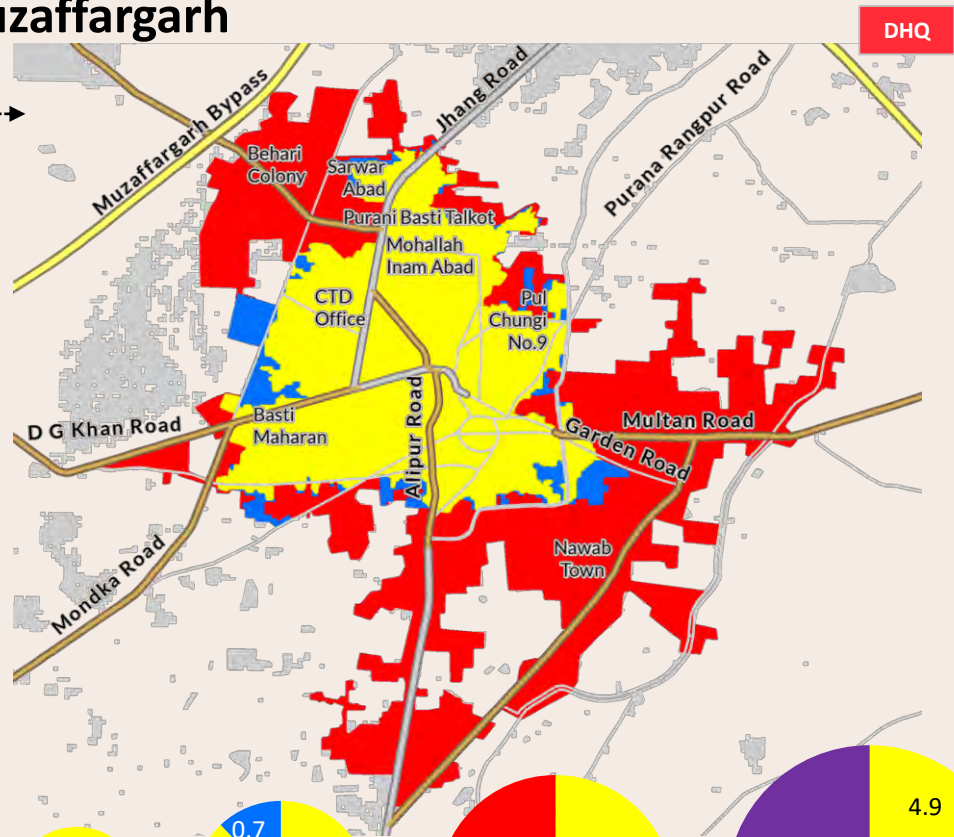
	Low Density Areas	Medium Density Areas	High Density Areas
Multan	↑ 8%	↑ 1%	↓ -40%

District: Muzaffargarh

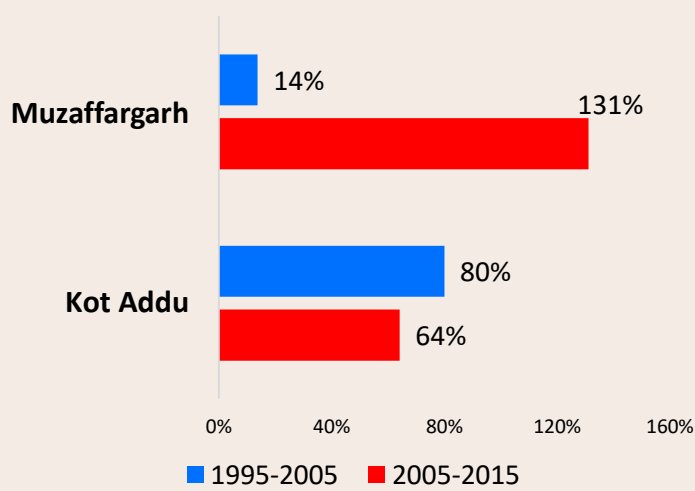
Urban Expansion



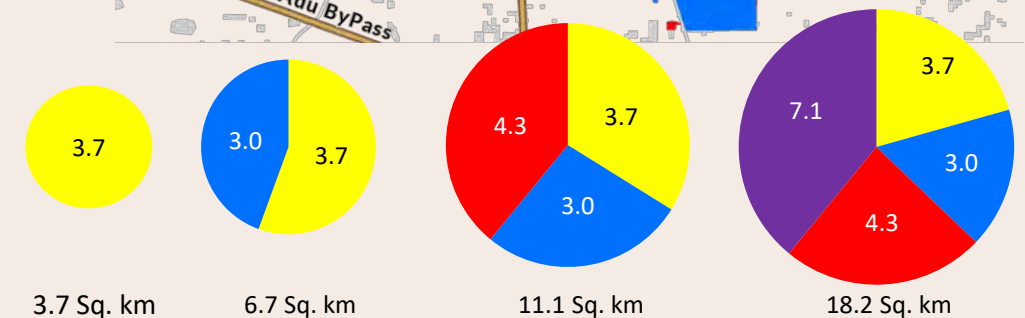
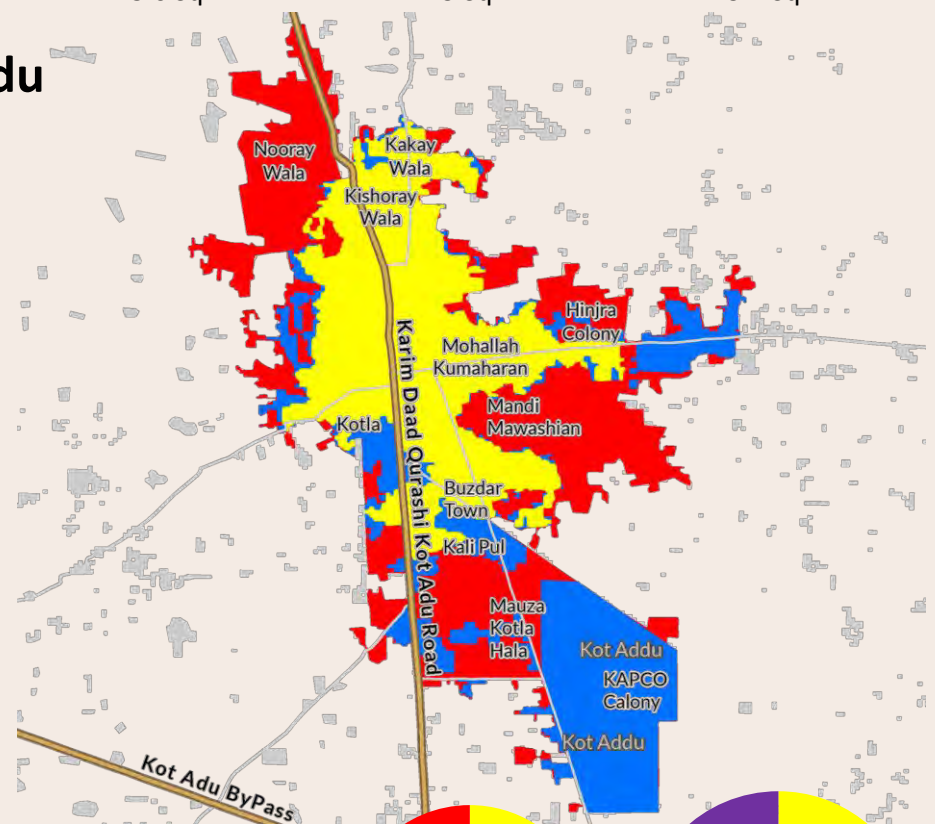
Muzaffargarh



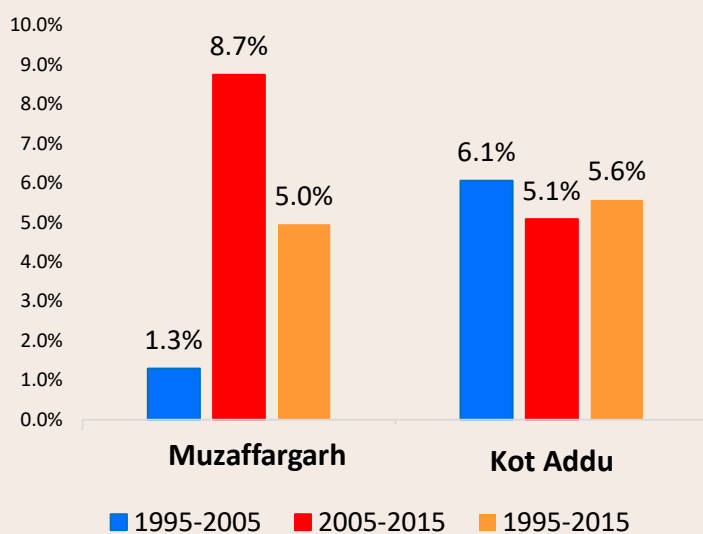
Contiguous Urban Development



Kot Addu



Annual Area Growth Rate



Scale: 1 Inch = 2 Km

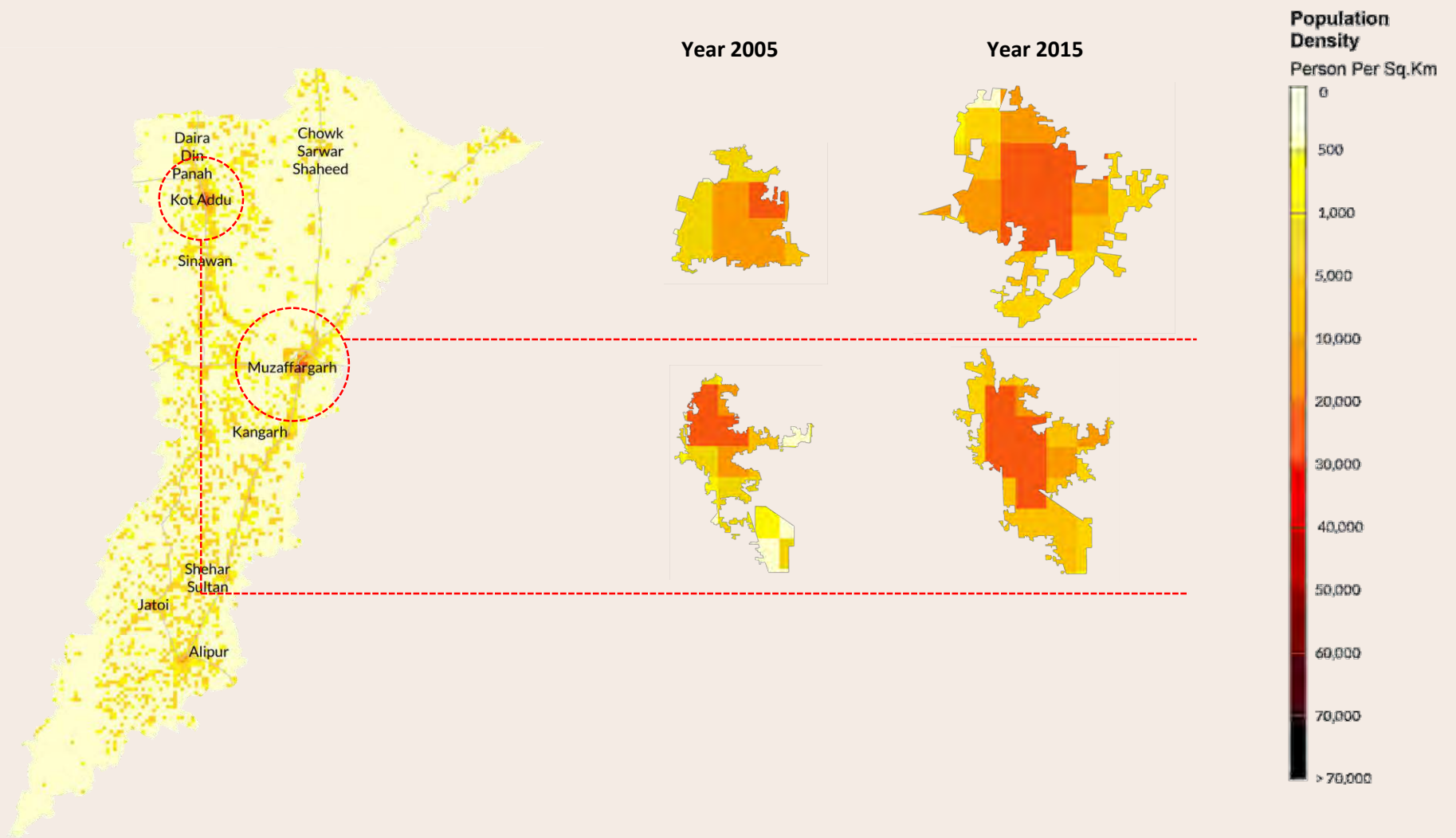
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

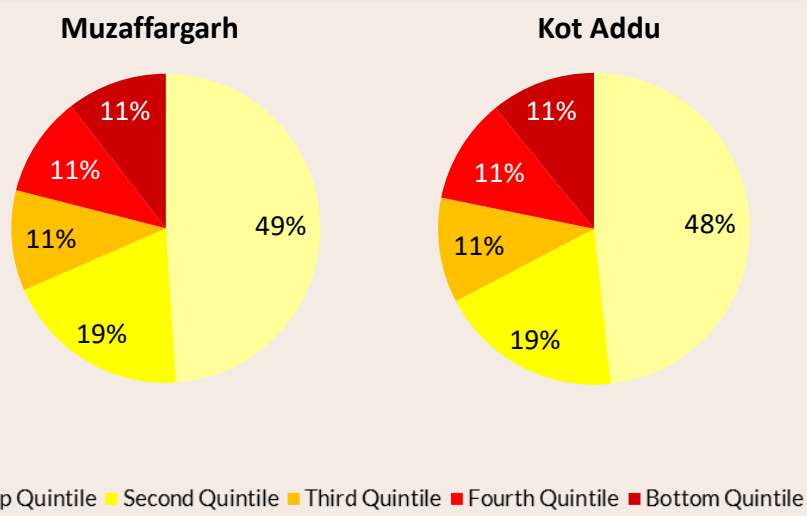


District: Muzaffargarh

Population Density



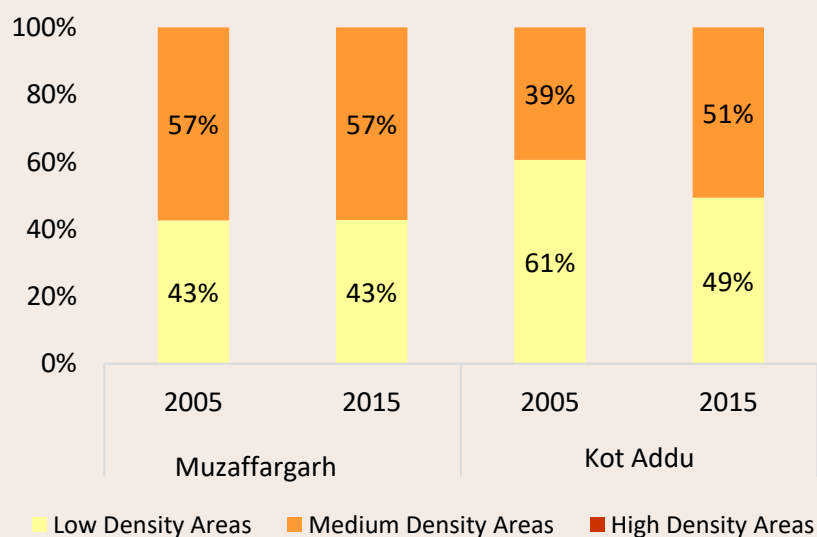
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Muzaffargarh	Kot Addu
Population 2005	60,692	64,311
Population 2015	171,321	153,174
Pop. Change '05-'15	182.28%	138.18%
Pop. Annual Growth Rate '05-'15	10.93%	9.07%
Area 1995 (Sq. Km)	4.89	3.75
Area 2005 (Sq. Km)	5.57	6.75
Area 2015 (Sq. Km)	12.86	11.07
Area Change '95-'05	13.75%	79.97%
Area Change '05-'15	131.11%	64.10%
Area Annual Growth Rate '95-'05	1.30%	6.05%
Area Annual Growth Rate '05-'15	8.74%	5.08%
Pop. Density 2005 (Per Sq. Km)	10,905	9,530
Pop. Density 2015 (Per Sq. Km)	13,320	13,832
Density Change '05-'15	22.14%	45.14%
Land Consumption Index	0.72	0.46

Intra-city Area Composition

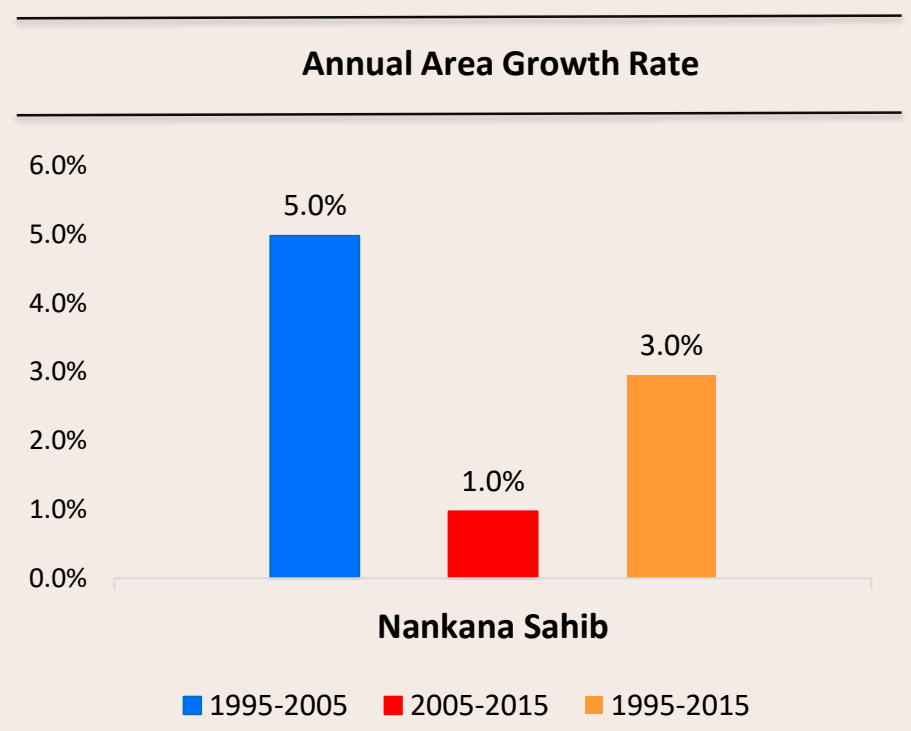
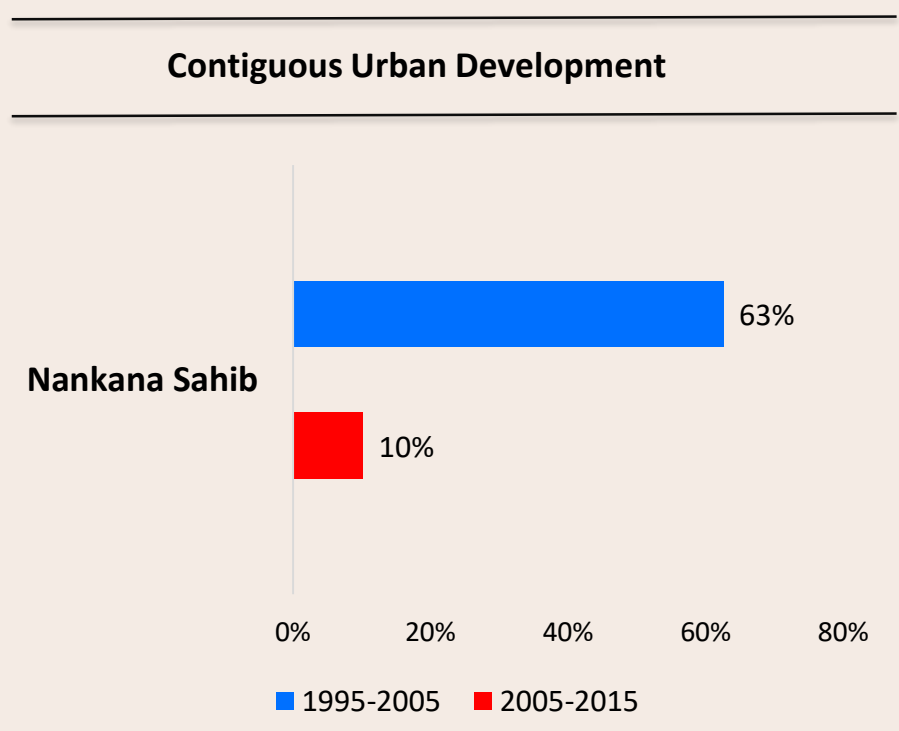
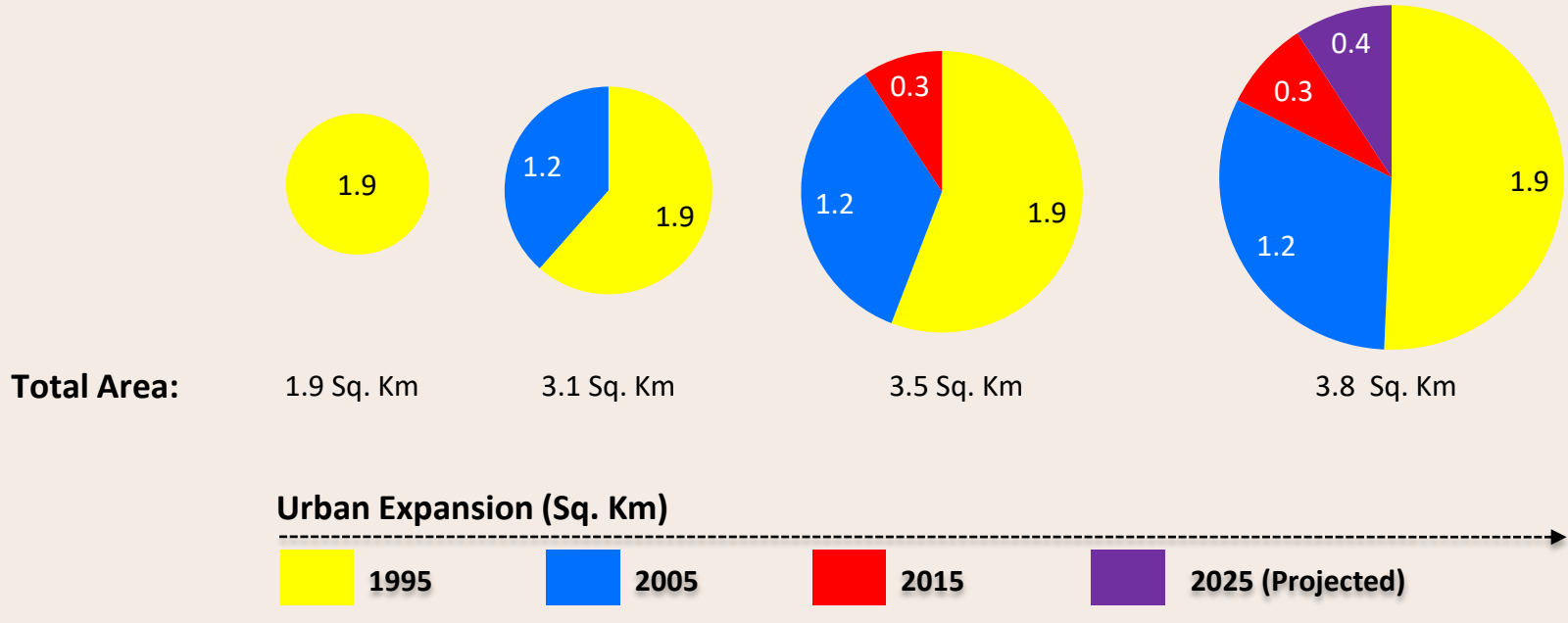
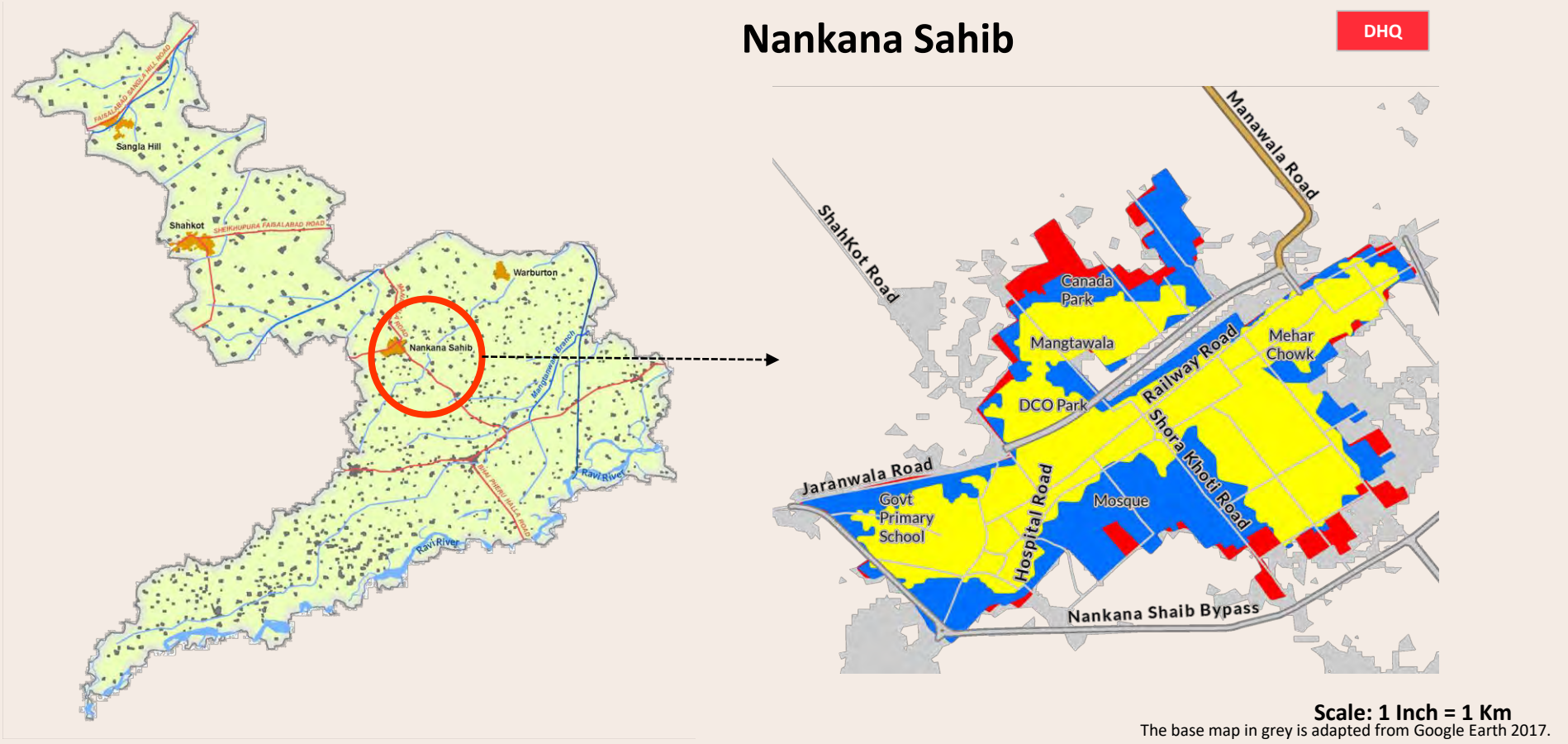


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Muzaffargarh	↑ 0.34%	↓ -0.25%	-
Kot Addu	↓ -18%	↑ 28%	-

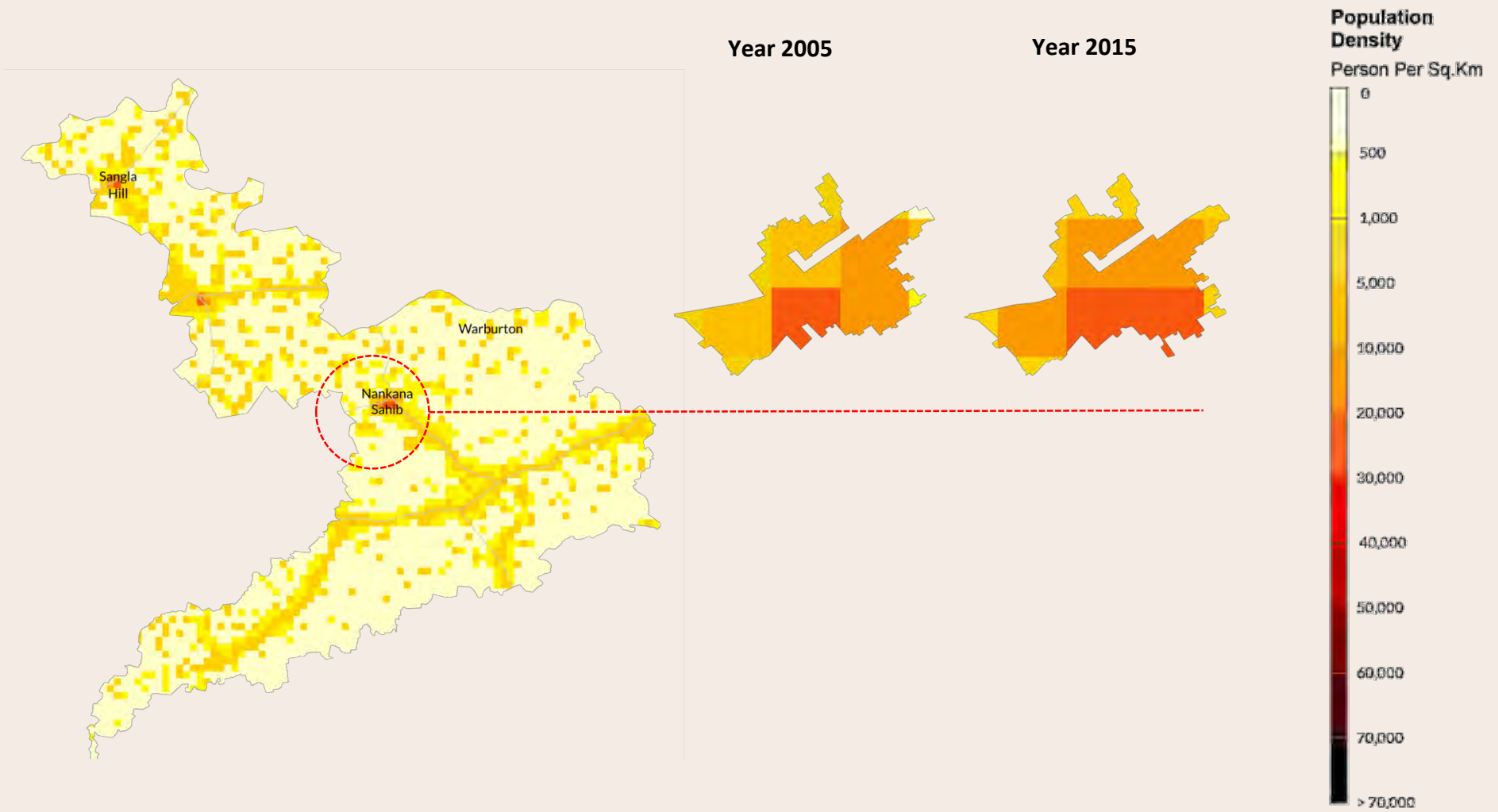
District: Nankana Sahib

Urban Expansion



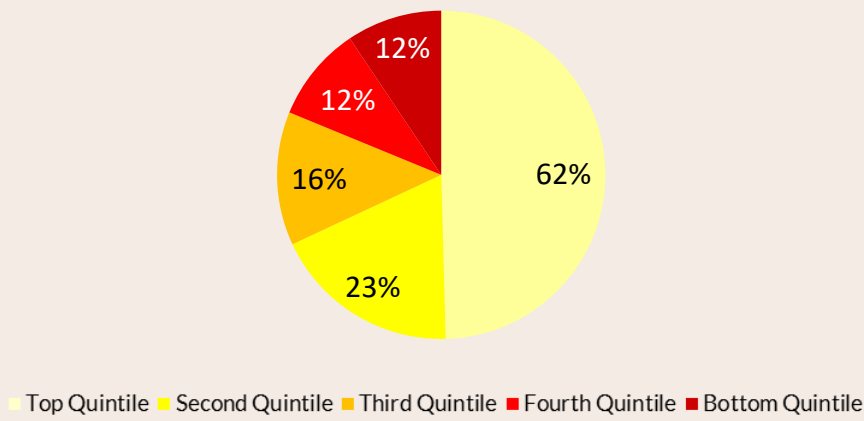
District: Nankana Sahib

Population Density

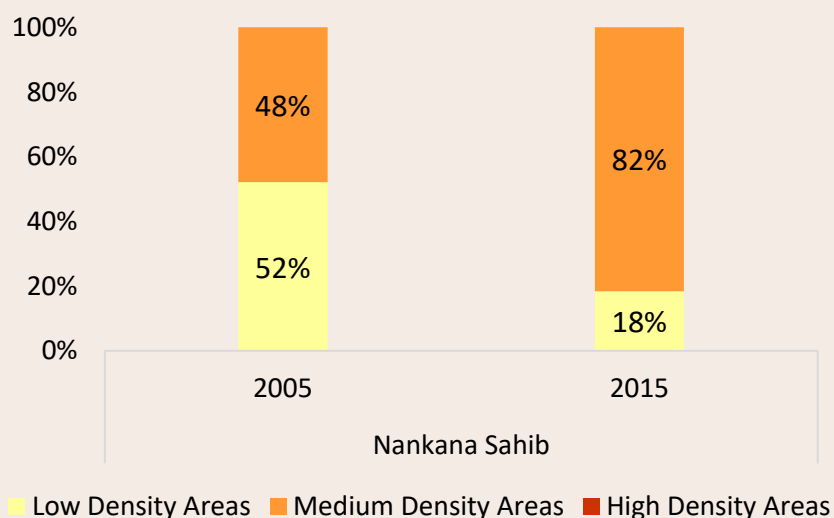


Percentage of Area Occupied by 20% of Population (2015)

Nankana Sahib



Intra-city Area Composition



Population Area Statistics

Nankana Sahib

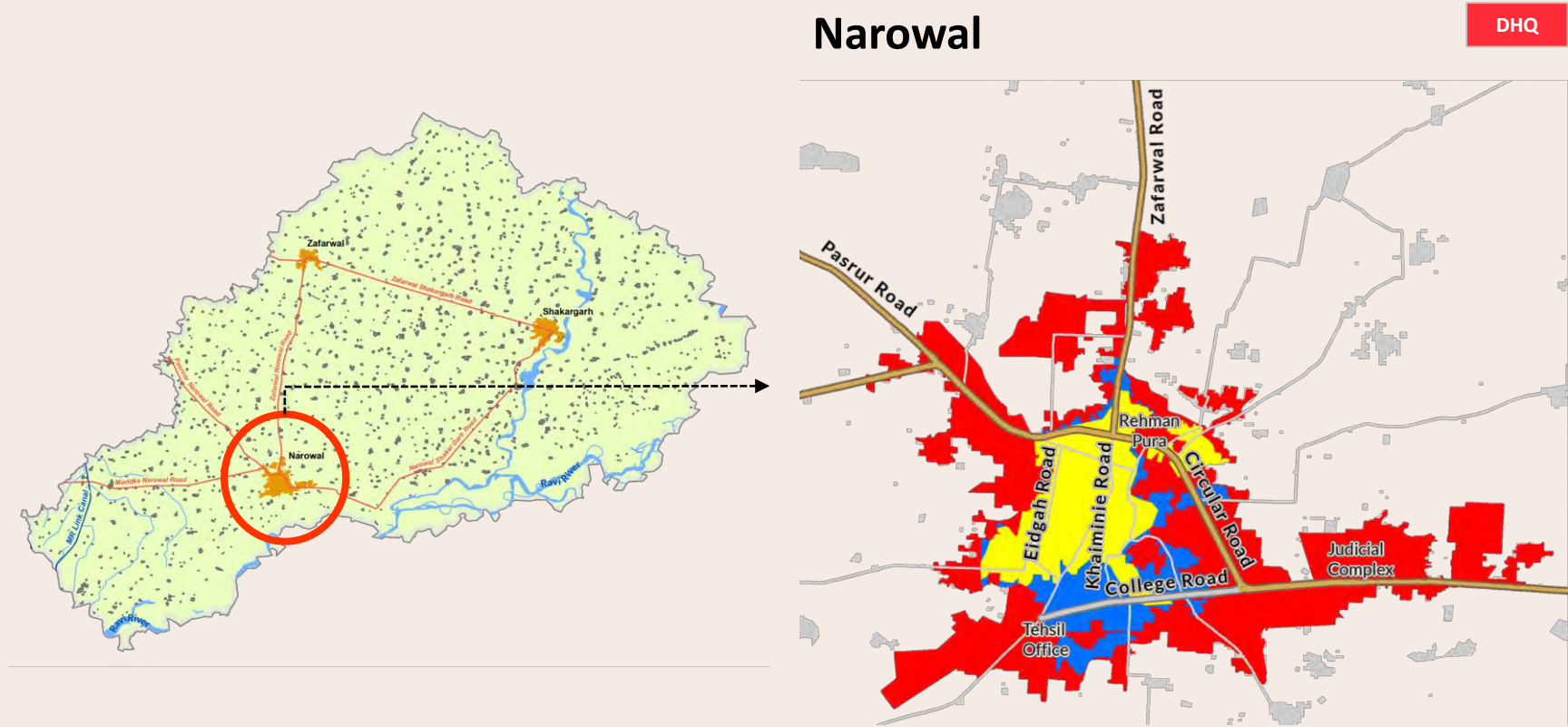
Population 2005	33,297
Population 2015	56,726
Pop. Change '05-'15	70.36%
Pop. Annual Growth Rate '05-'15	5.47%
Area 1995 (Sq. Km)	1.93
Area 2005 (Sq. Km)	3.14
Area 2015 (Sq. Km)	3.46
Area Change '95-'05	62.57%
Area Change '05-'15	10.15%
Area Annual Growth Rate '95-'05	4.98%
Area Annual Growth Rate '05-'15	0.97%
Pop. Density 2005 (Per Sq. Km)	10,610
Pop. Density 2015 (Per Sq. Km)	16,409
Density Change '05-'15	54.66%
Land Consumption Index	0.14

Percentage Change in Area Composition (2005-2015)

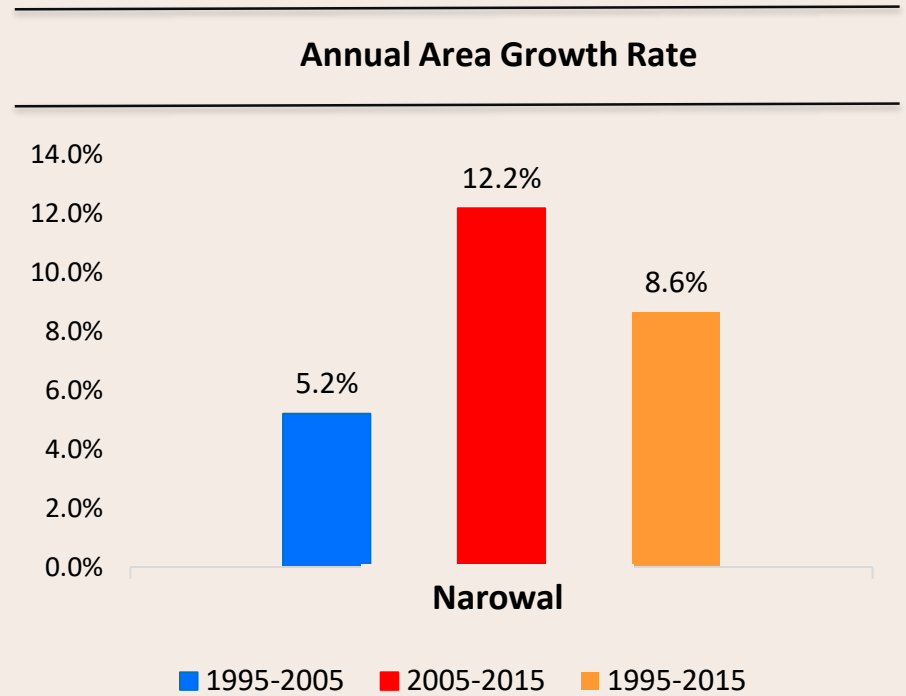
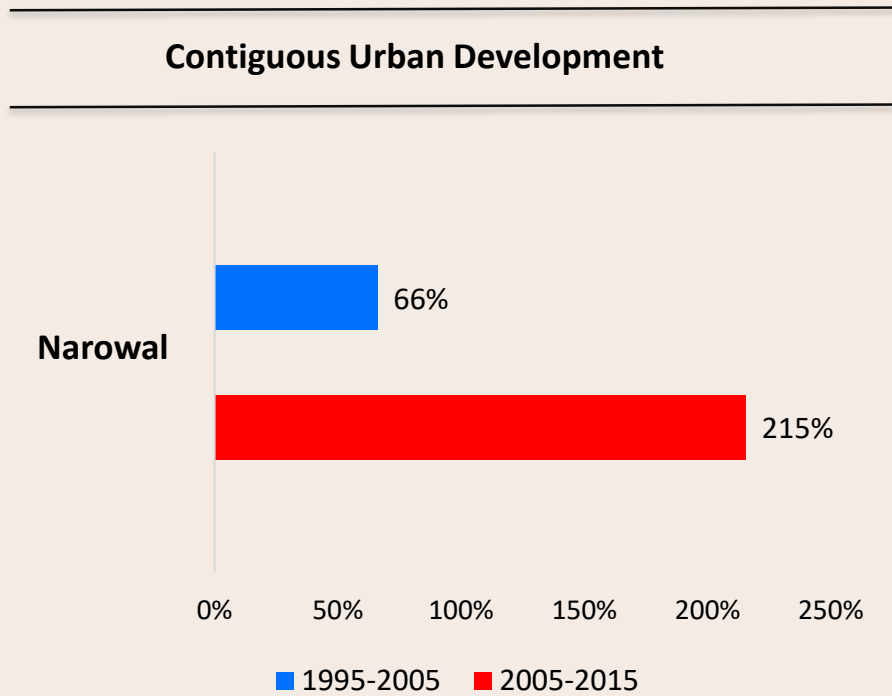
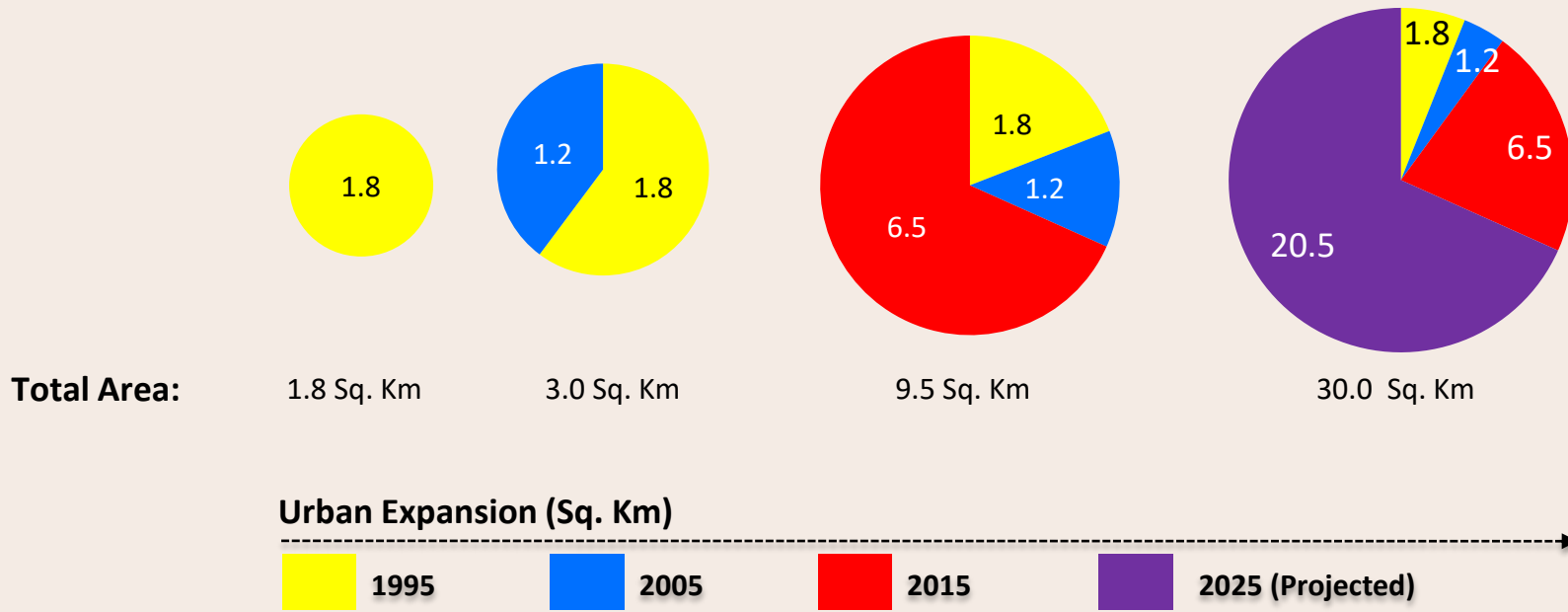
	Low Density Areas	Medium Density Areas	High Density Areas
Nankana Sahib	-65%	70%	-

District: Narowal

Urban Expansion

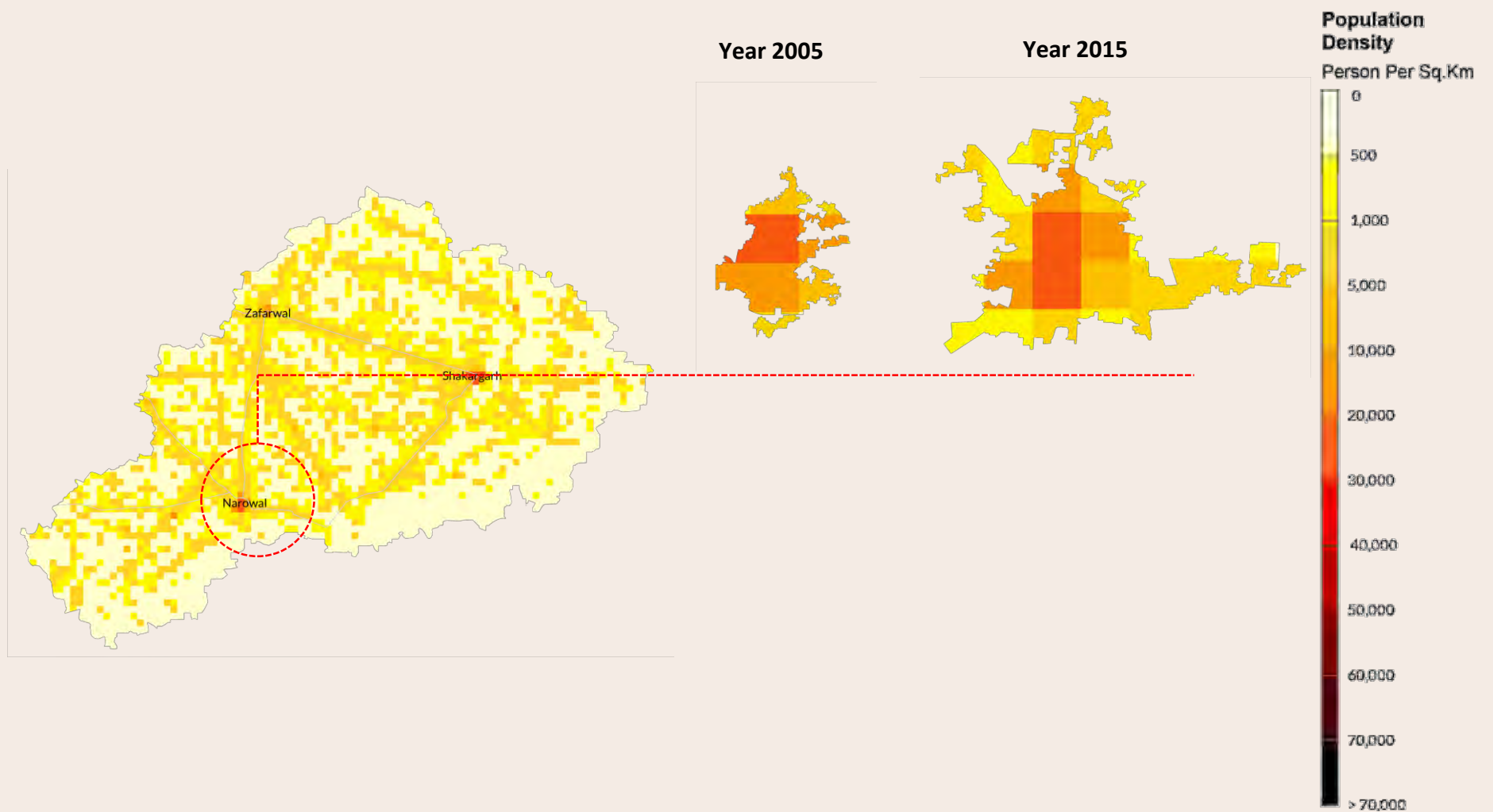


Scale: 1 Inch = 2 Km
The base map in grey is adapted from Google Earth 2017.

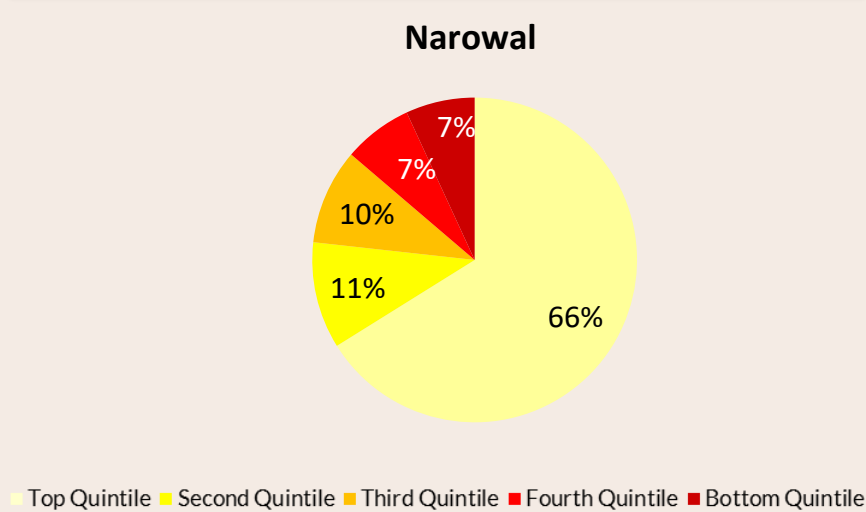


District: Narowal

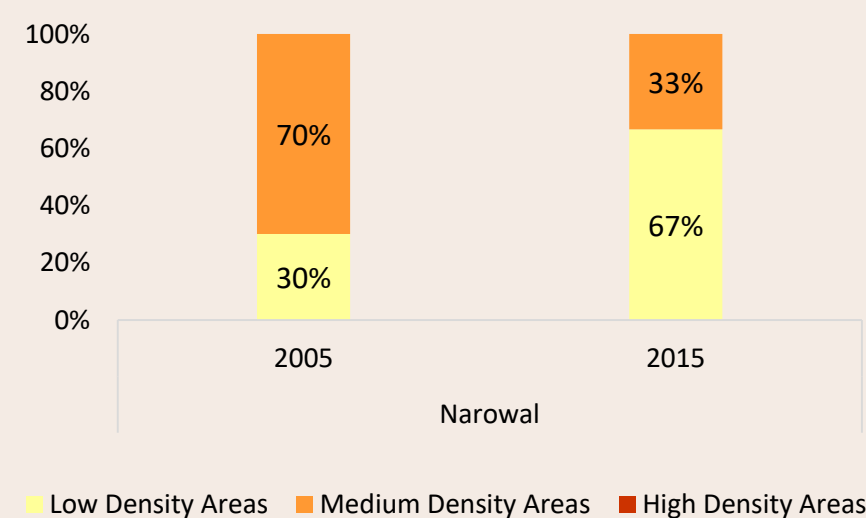
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

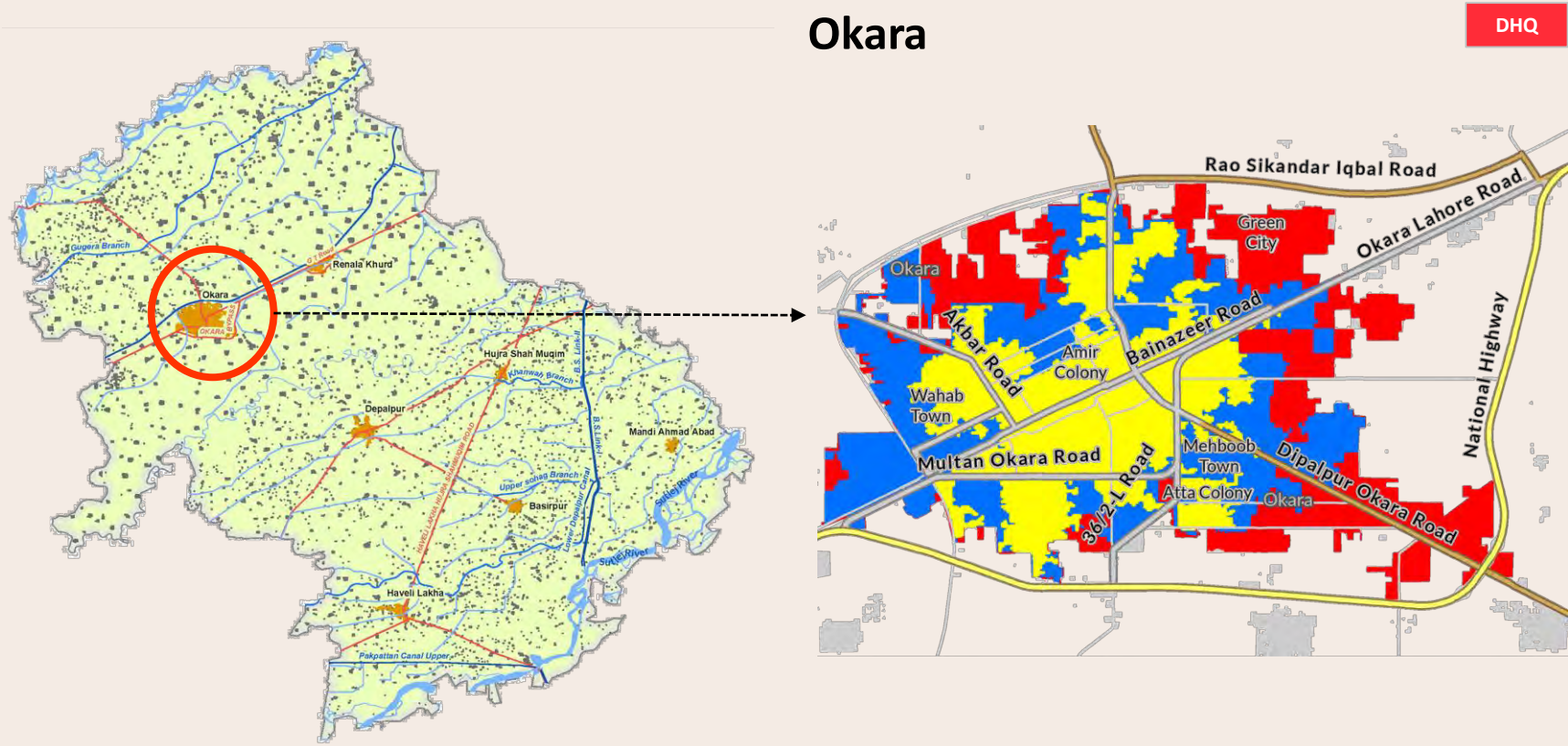
Narowal	
Population 2005	45,575
Population 2015	75,295
Pop. Change '05-'15	65.21%
Pop. Annual Growth Rate '05-'15	5.15%
Area 1995 (Sq. Km)	1.82
Area 2005 (Sq. Km)	3.02
Area 2015 (Sq. Km)	9.52
Area Change '95-'05	66.07%
Area Change '05-'15	215.44%
Area Annual Growth Rate '95-'05	5.20%
Area Annual Growth Rate '05-'15	12.17%
Pop. Density 2005 (Per Sq. Km)	15,103
Pop. Density 2015 (Per Sq. Km)	7,910
Density Change '05-'15	-47.63%
Land Consumption Index	3.30

Percentage Change in Area Composition (2005-2015)

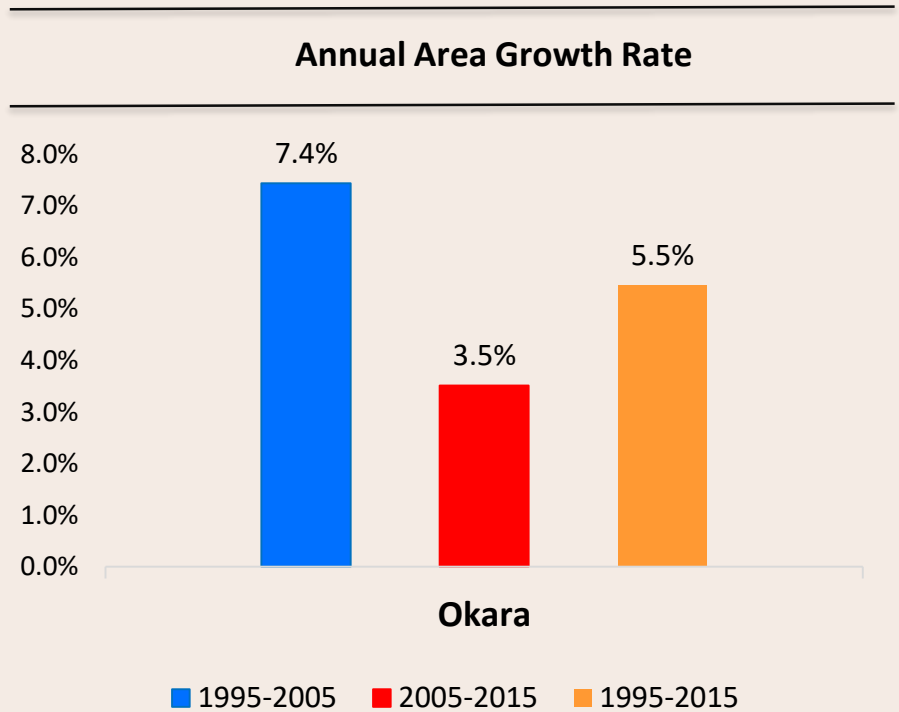
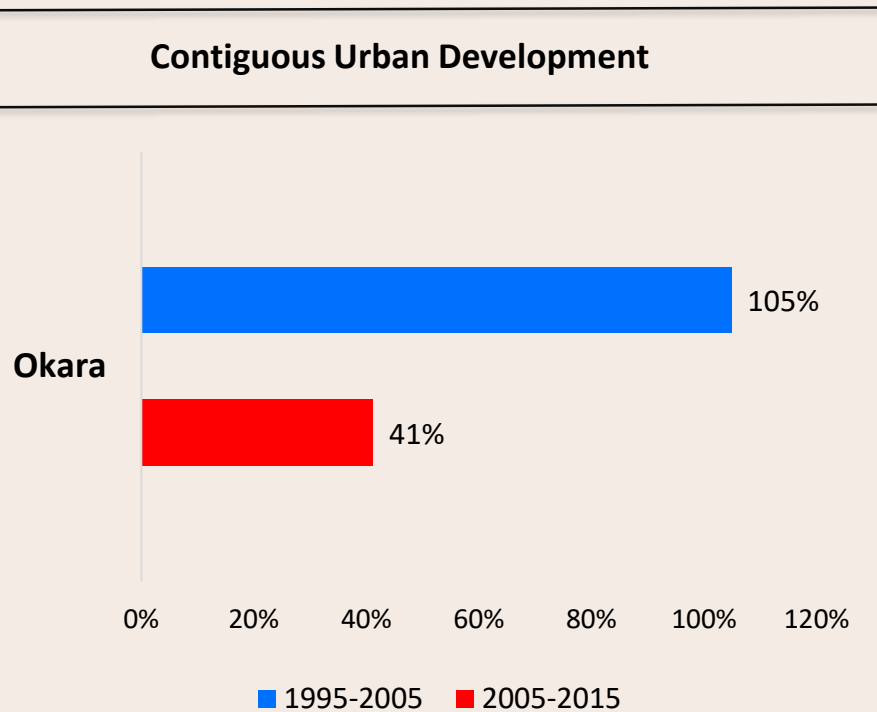
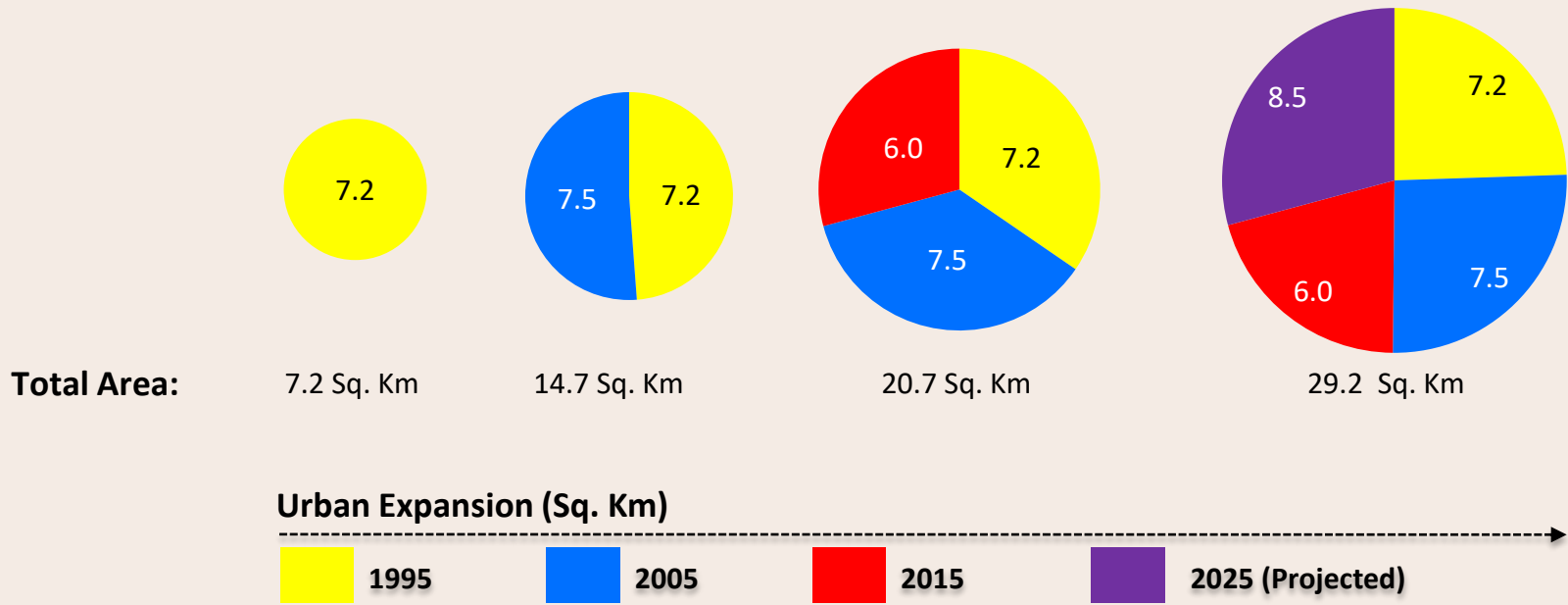
	Low Density Areas	Medium Density Areas	High Density Areas
Narowal	↑ 122%	↓ -52%	-

District: Okara

Urban Expansion

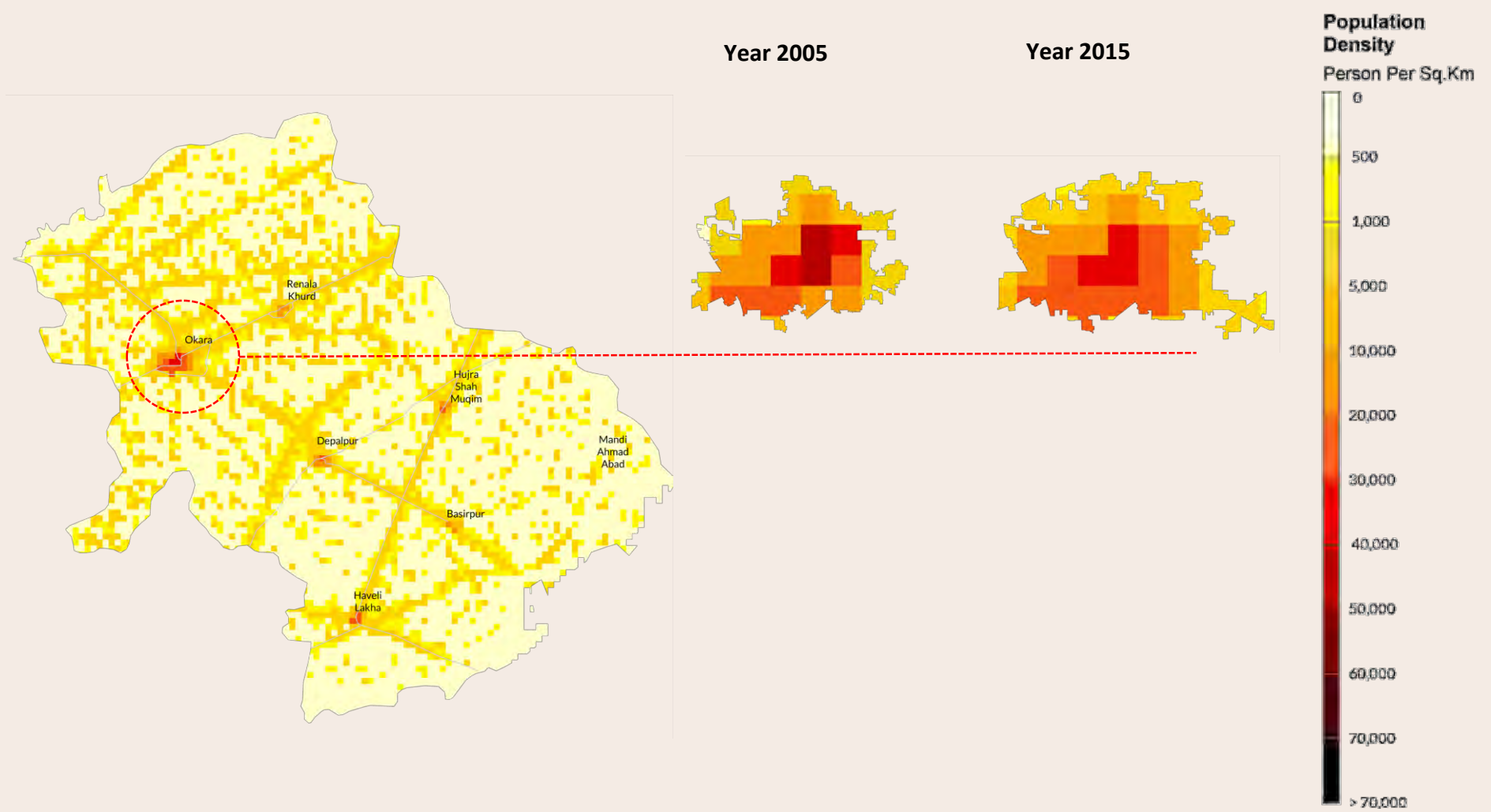


Scale: 1 Inch = 2 Km
The base map in grey is adapted from Google Earth 2017.

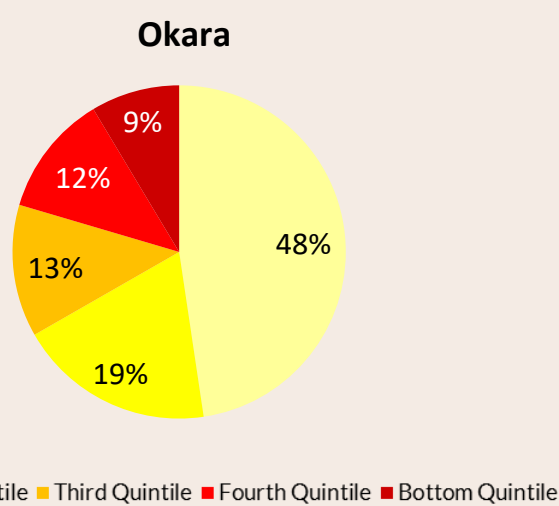


District: Okara

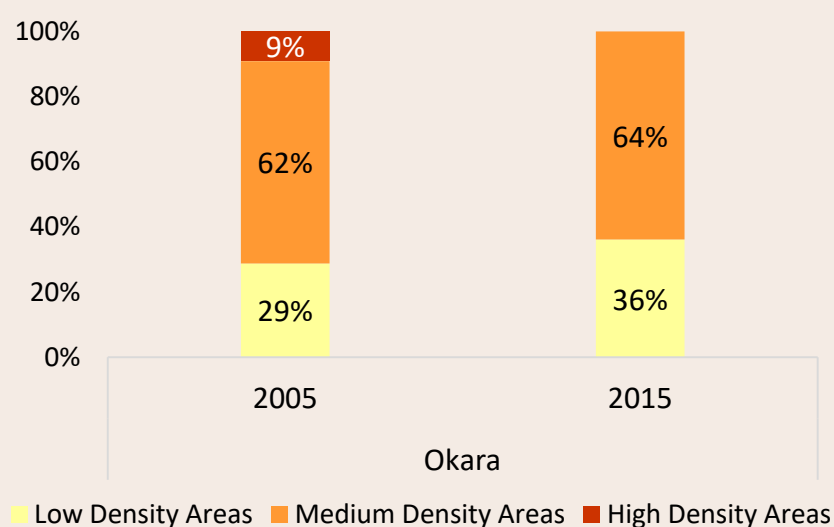
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

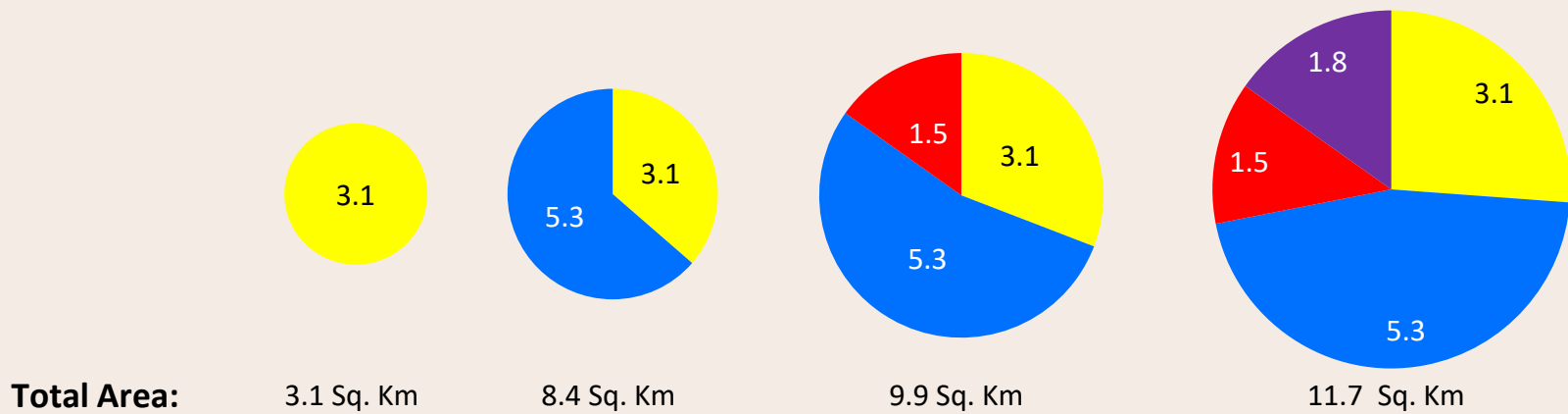
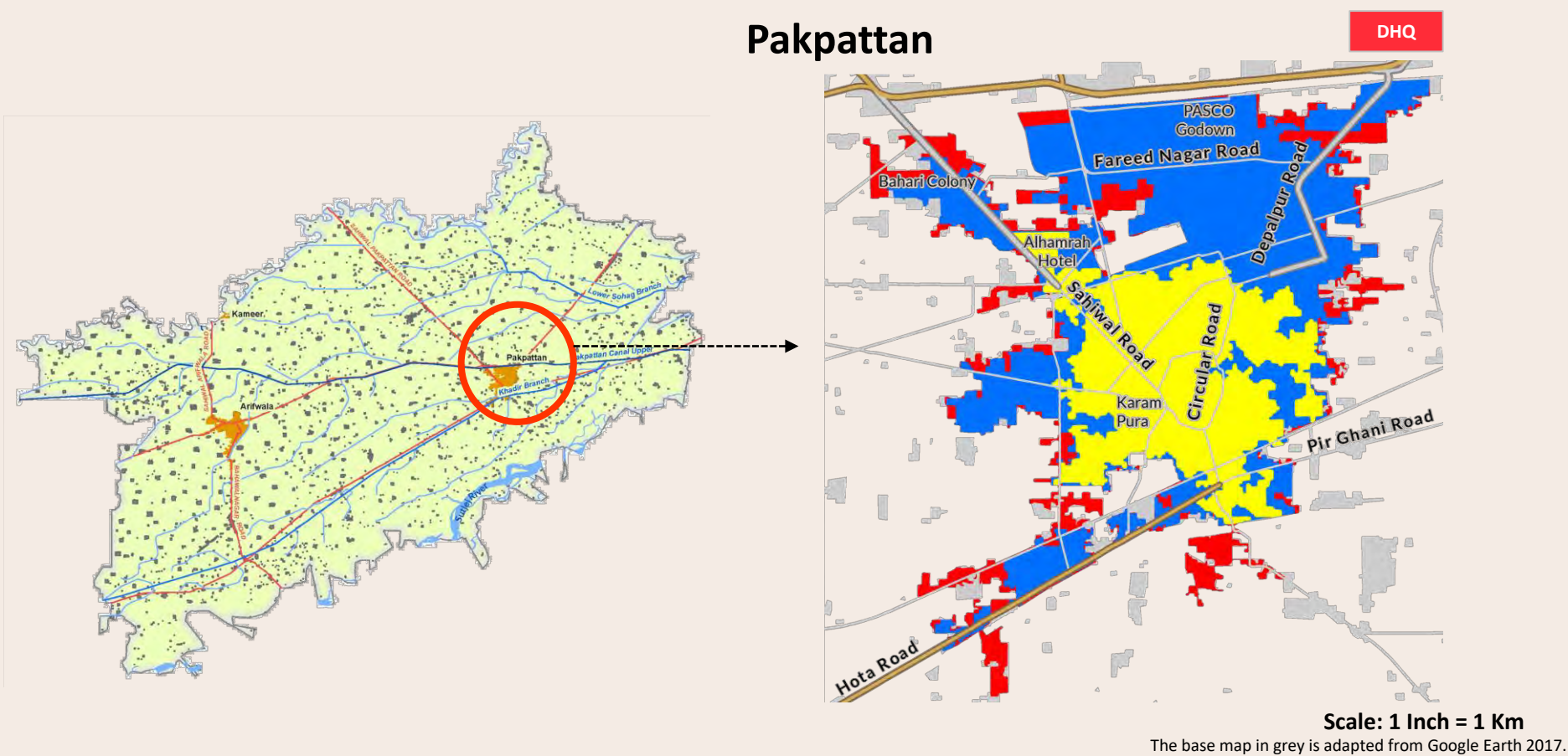
Okara	
Population 2005	251,946
Population 2015	344,344
Pop. Change '05-'15	36.67%
Pop. Annual Growth Rate '05-'15	3.17%
Area 1995 (Sq. Km)	7.15
Area 2005 (Sq. Km)	14.66
Area 2015 (Sq. Km)	20.69
Area Change '95-'05	104.87%
Area Change '05-'15	41.21%
Area Annual Growth Rate '95-'05	7.44%
Area Annual Growth Rate '05-'15	3.51%
Pop. Density 2005 (Per Sq. Km)	17,191
Pop. Density 2015 (Per Sq. Km)	16,639
Density Change '05-'15	-3.21%
Land Consumption Index	1.12

Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Okara	↑ 25%	↑ 3%	↓ -100%

District: Pakpattan

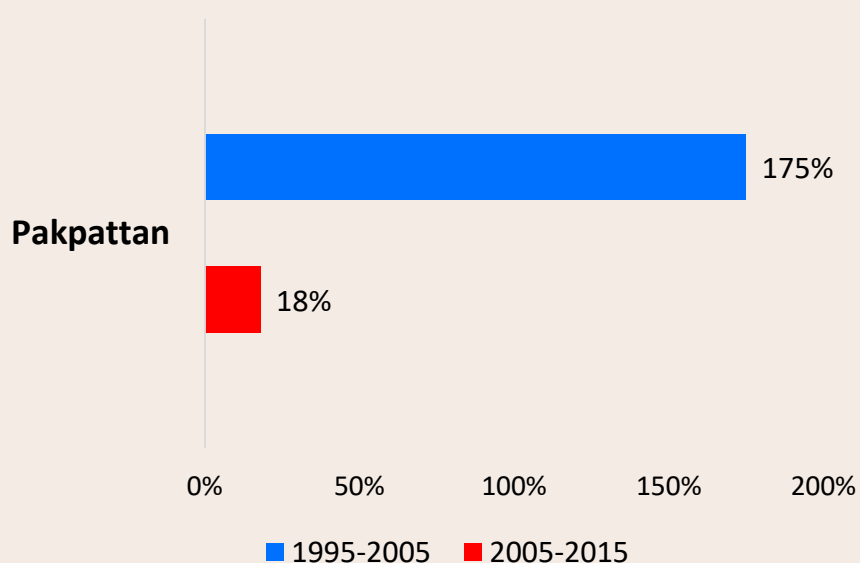
Urban Expansion



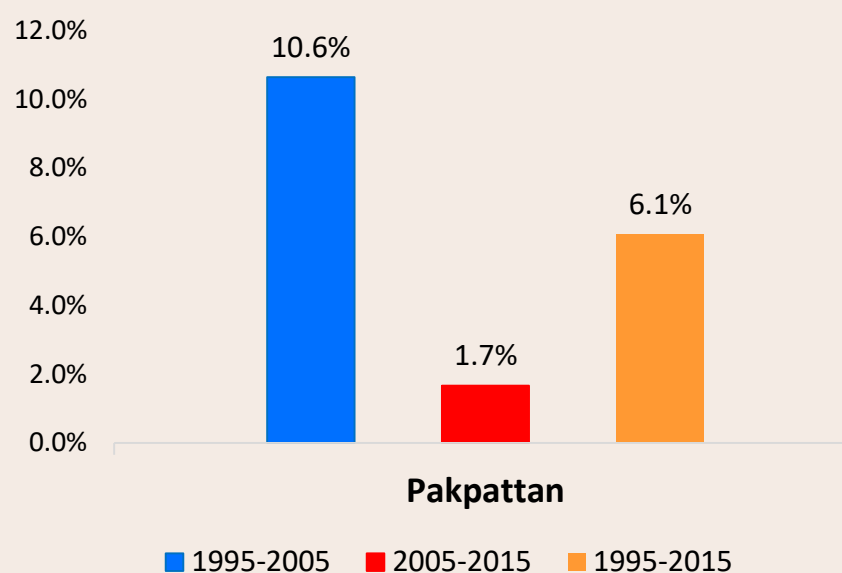
Urban Expansion (Sq. Km)



Contiguous Urban Development

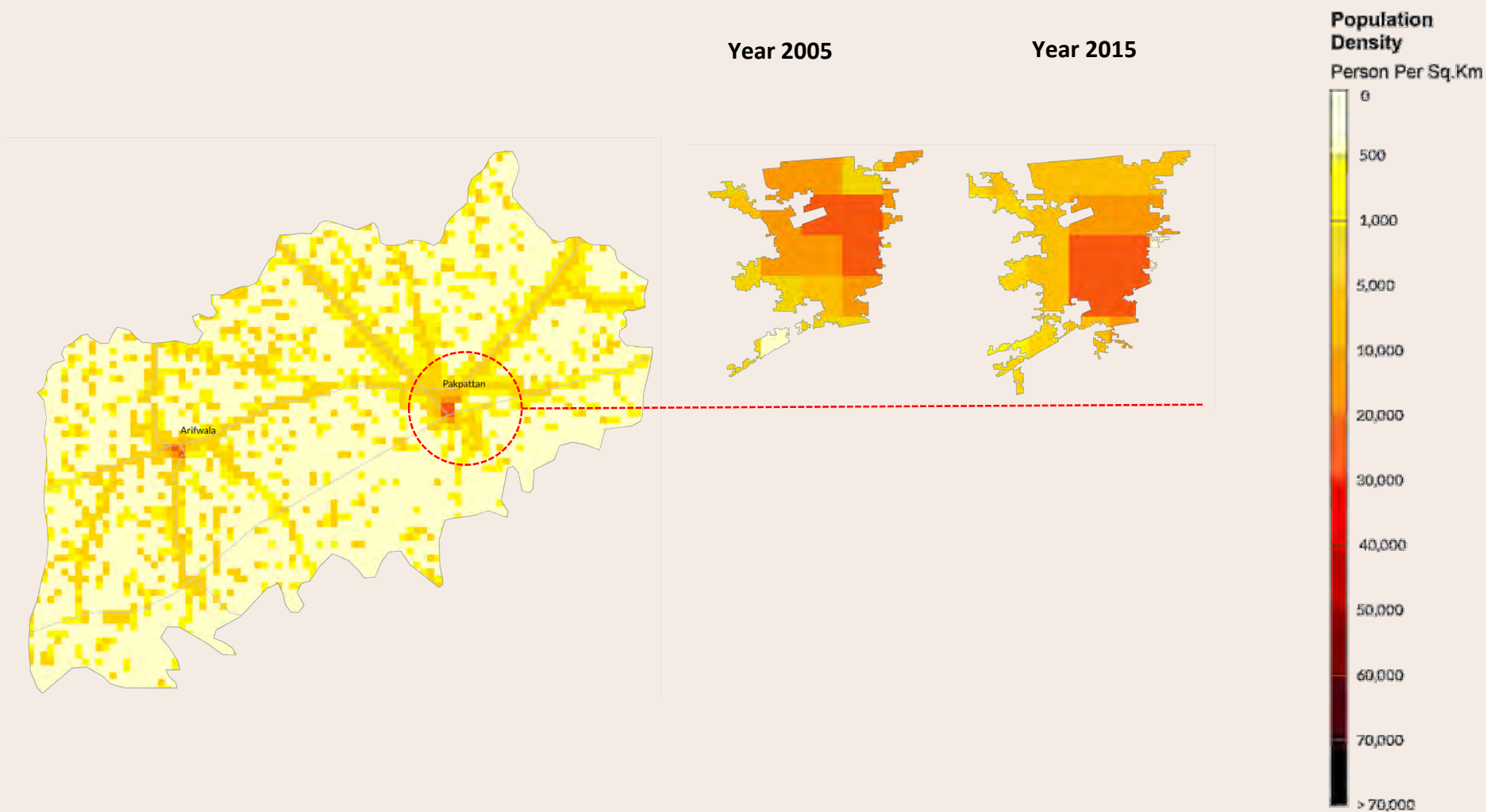


Annual Area Growth Rate

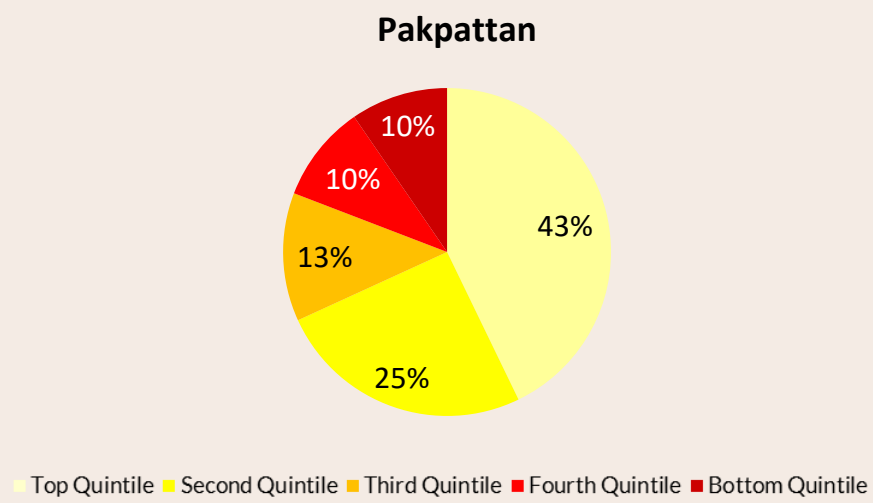


District: Pakpattan

Population Density



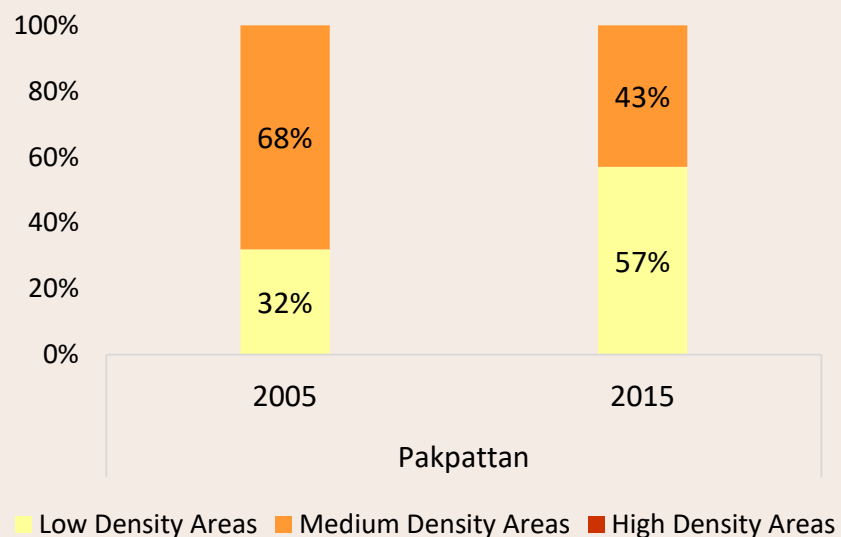
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Pakpattan	
Population 2005	106,171
Population 2015	120,893
Pop. Change '05-'15	13.87%
Pop. Annual Growth Rate '05-'15	1.31%
Area 1995 (Sq. Km)	3.06
Area 2005 (Sq. Km)	8.40
Area 2015 (Sq. Km)	9.91
Area Change '95-'05	174.92%
Area Change '05-'15	17.91%
Area Annual Growth Rate '95-'05	10.64%
Area Annual Growth Rate '05-'15	1.66%
Pop. Density 2005 (Per Sq. Km)	12,634
Pop. Density 2015 (Per Sq. Km)	12,200
Density Change '05-'15	-3.43%
Land Consumption Index	1.29

Intra-city Area Composition

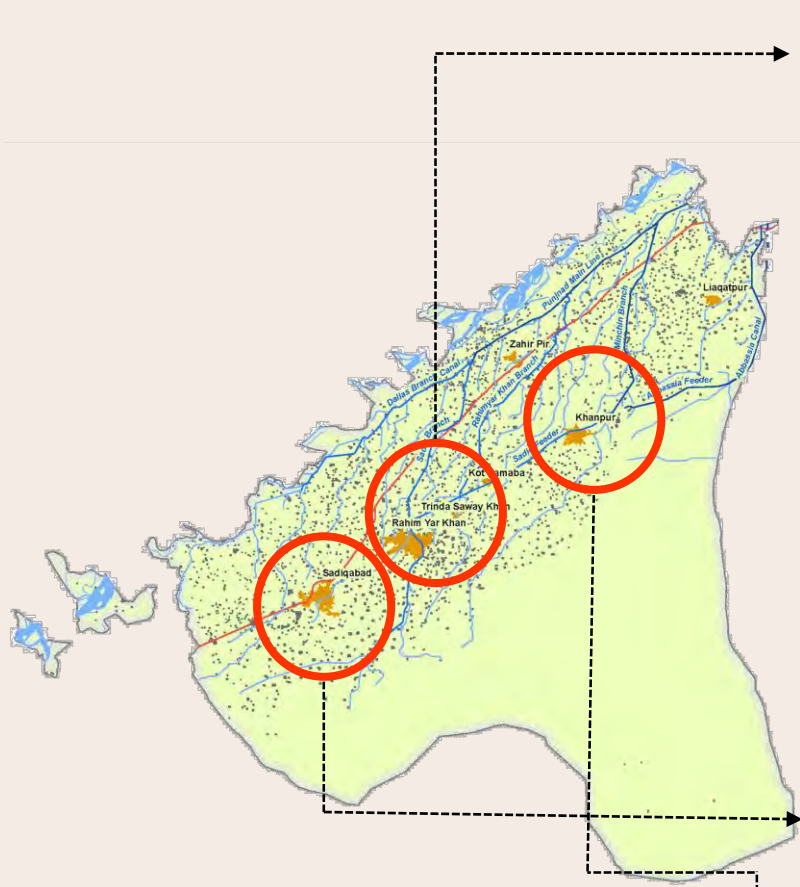


Percentage Change in Area Composition (2005-2015)

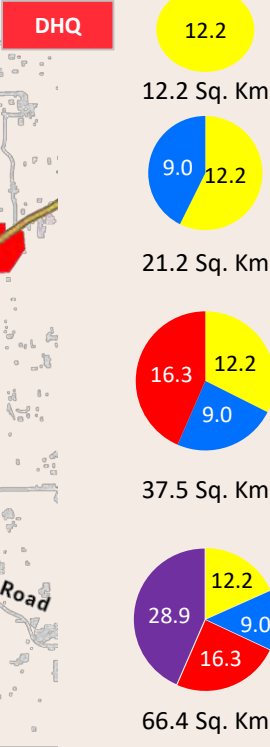
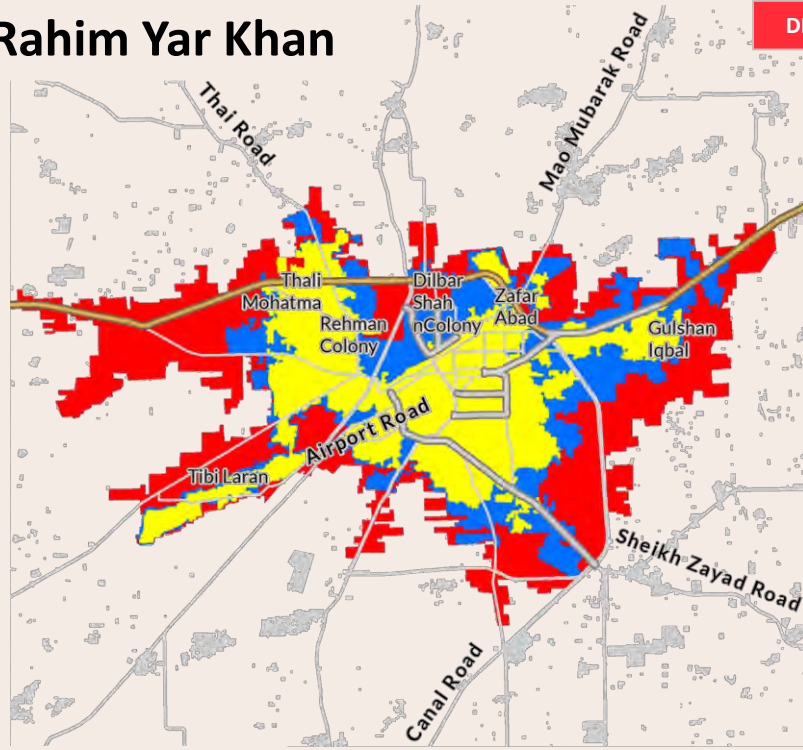
	Low Density Areas	Medium Density Areas	High Density Areas
Pakpattan	↑ 78%	↓ -37%	-

District: Rahim Yar Khan

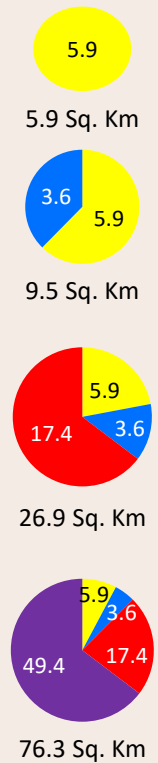
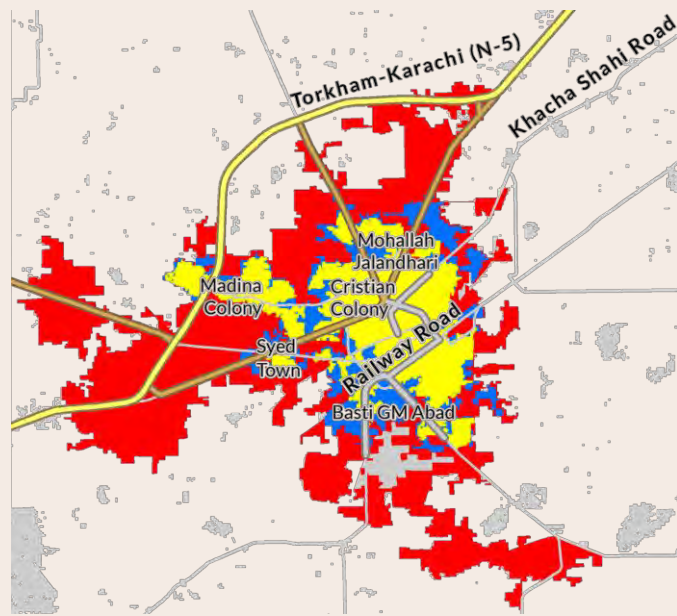
Urban Expansion



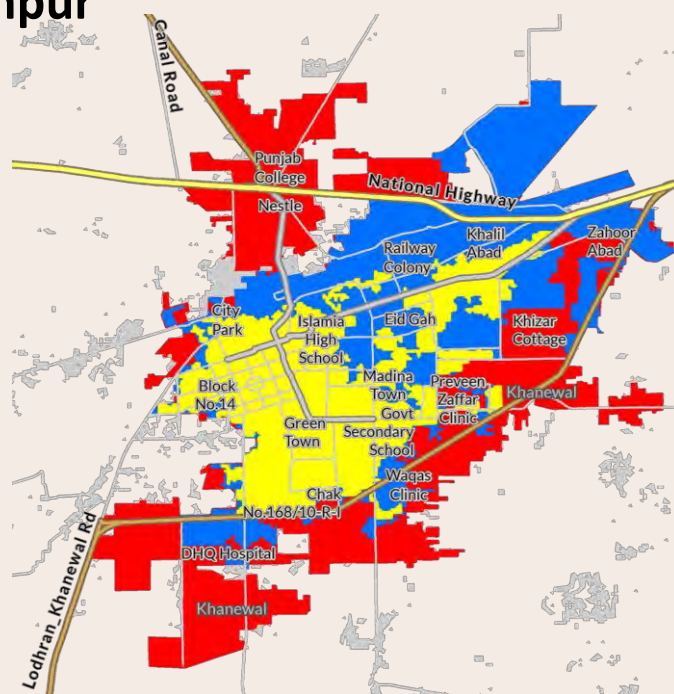
Rahim Yar Khan



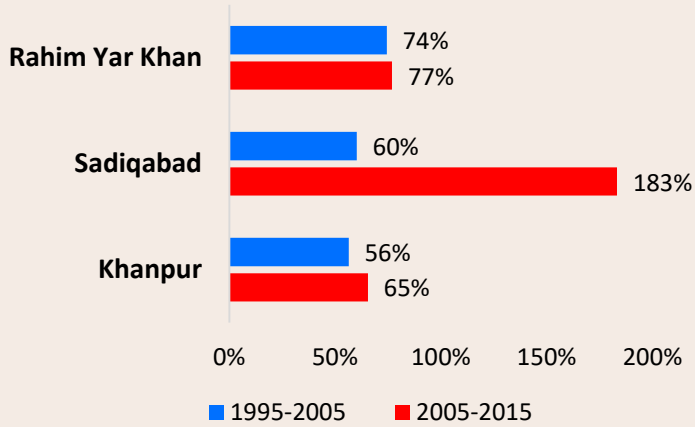
Sadiqabad



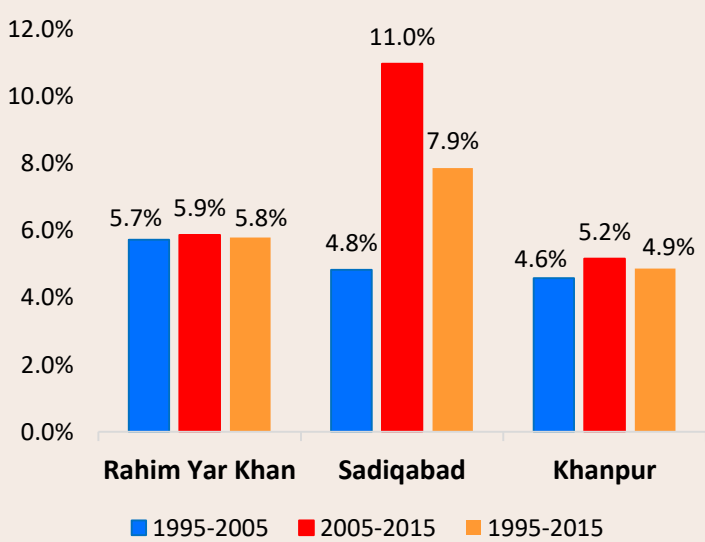
Khanpur



Contiguous Urban Development



Annual Area Growth Rate



Scale: 1 Inch = 3 Km

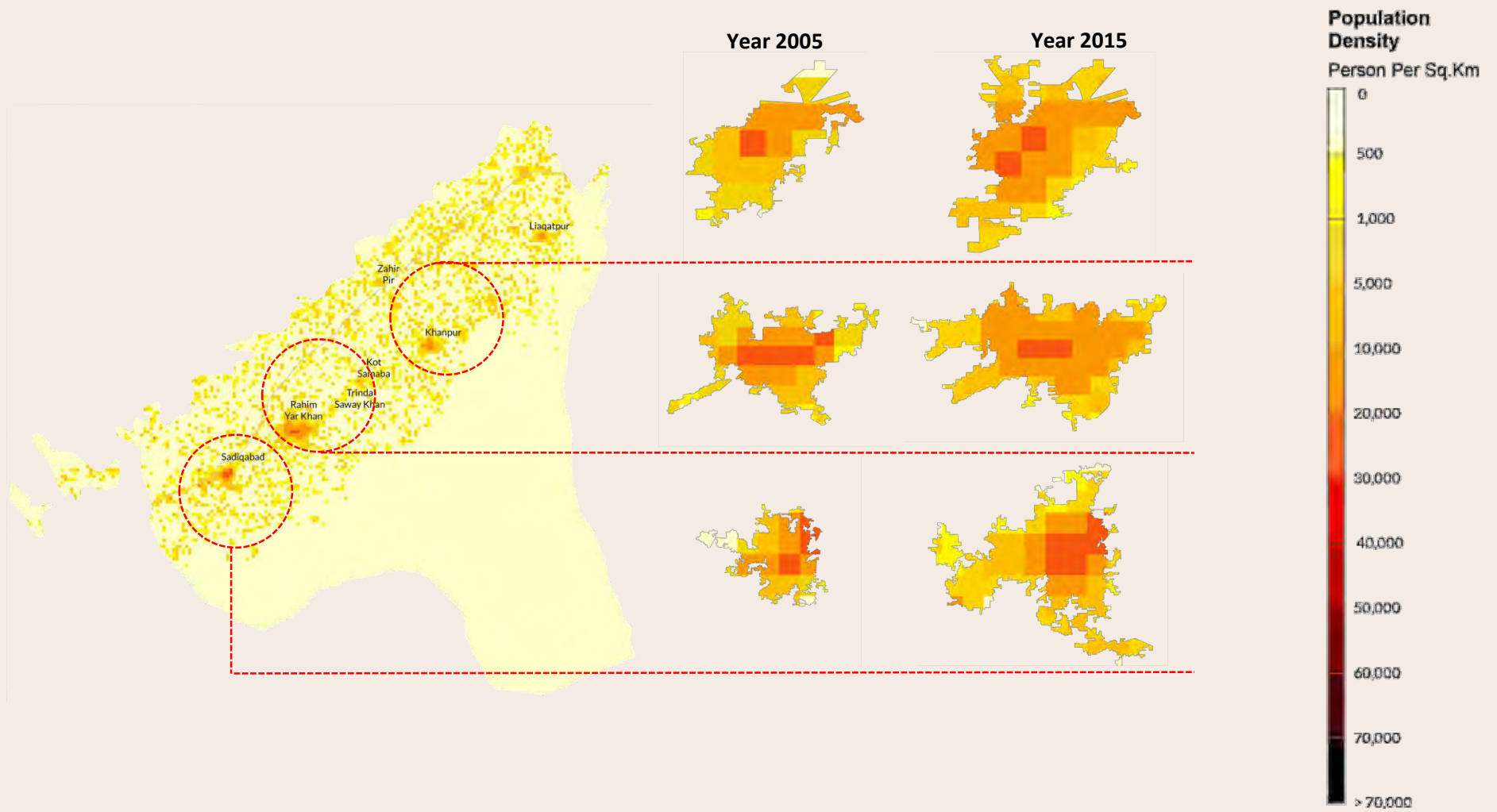
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km.)

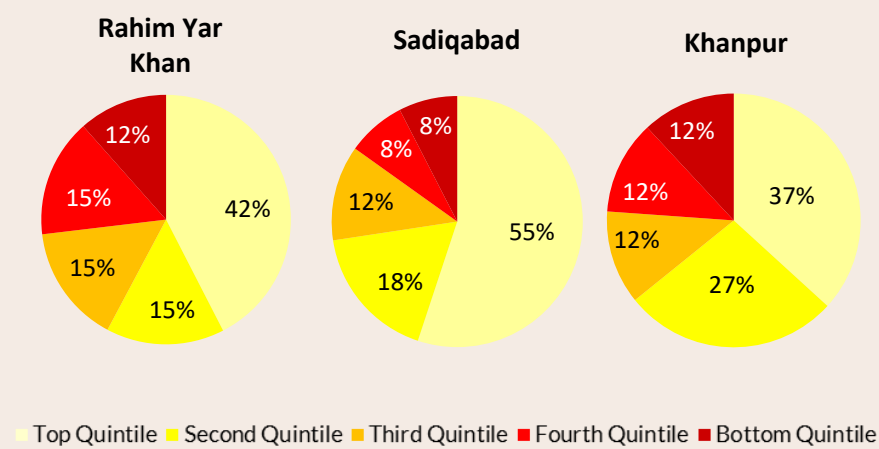


District: Rahim Yar Khan

Population Density



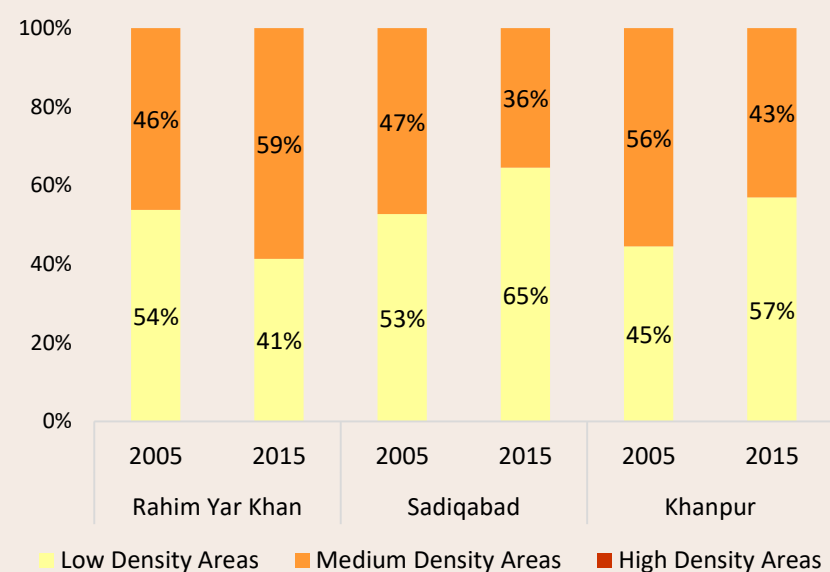
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Rahim Yar Khan	Sadiqabad	Khanpur
Population 2005	233,792	103,303	88,264
Population 2015	402,314	245,773	120,184
Pop. Change '05-'15	72.08%	137.91%	36.16%
Pop. Annual Growth Rate '05-'15	5.58%	9.05%	3.14%
Area 1995 (Sq. Km)	12.16	5.94	5.39
Area 2005 (Sq. Km)	21.21	9.52	8.44
Area 2015 (Sq. Km)	37.52	26.97	13.96
Area Change '95-'05	74.42%	60.29%	56.44%
Area Change '05-'15	76.90%	183.18%	65.46%
Area Annual Growth Rate '95-'05	5.72%	4.83%	4.58%
Area Annual Growth Rate '05-'15	5.87%	10.97%	5.16%
Pop. Density 2005 (Per Sq. Km)	11,023	10,848	10,461
Pop. Density 2015 (Per Sq. Km)	10,723	9,114	8,609
Density Change '05-'15	-2.72%	-15.98%	-17.71%
Land Consumption Index	1.07	1.33	1.81

Intra-city Area Composition

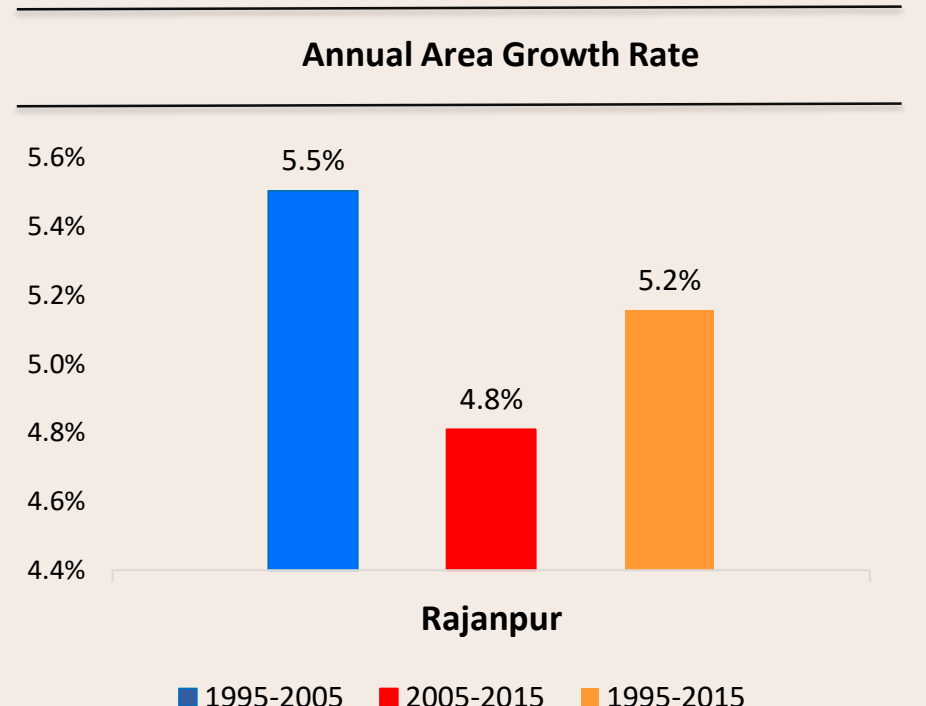
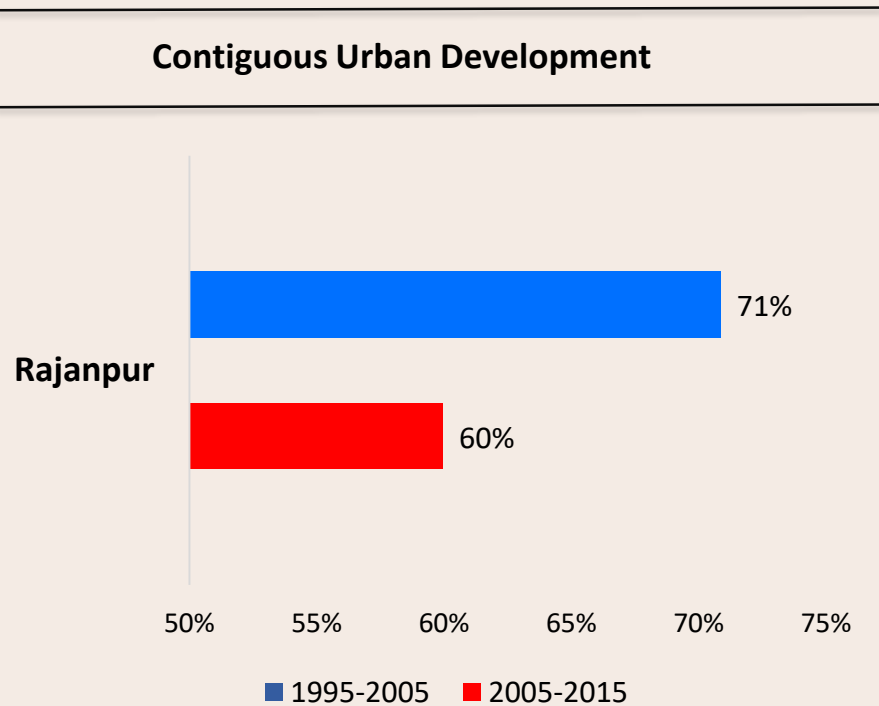
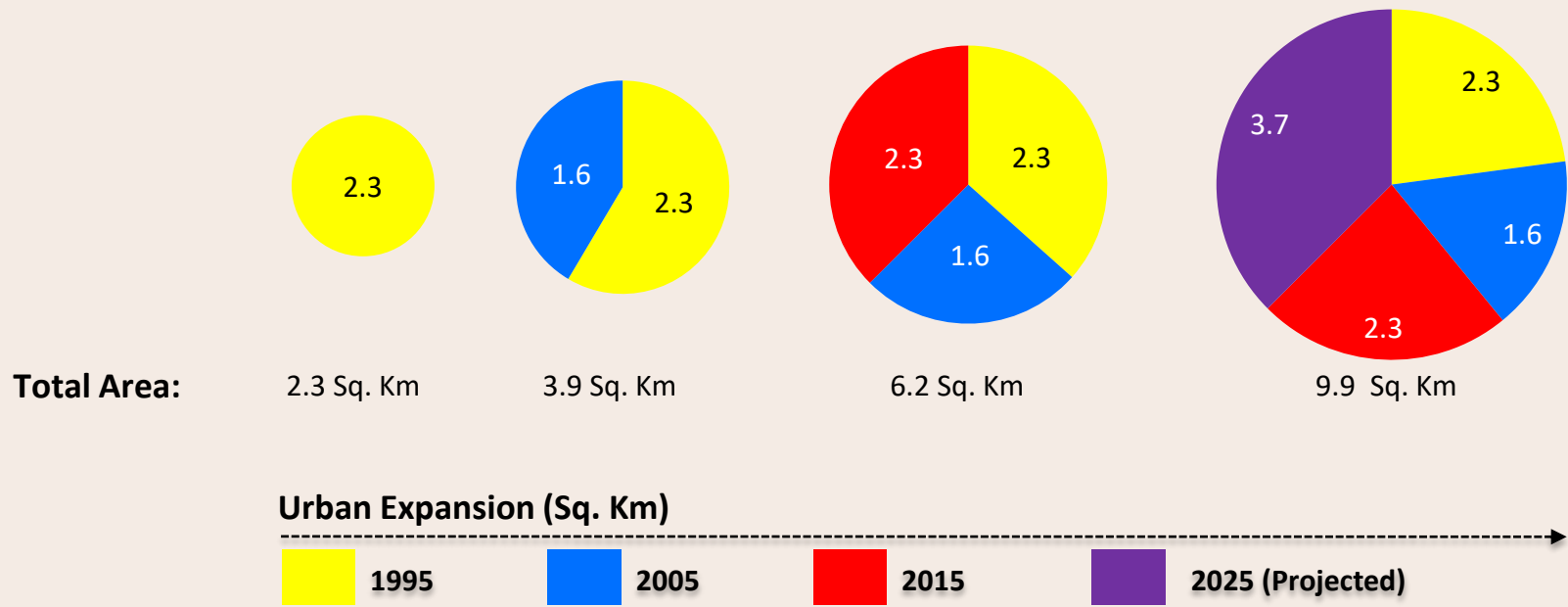
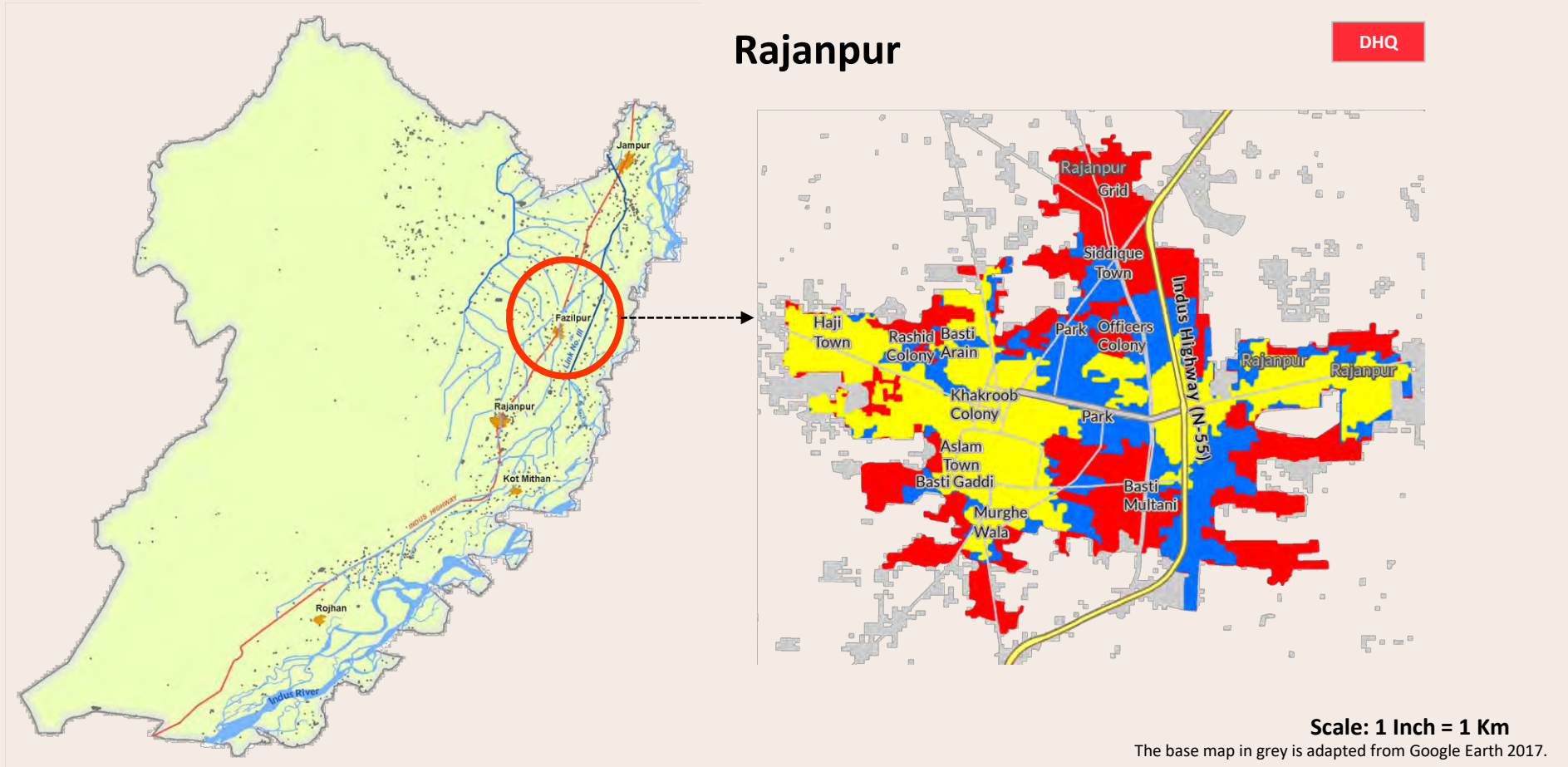


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Rahim Yar Khan	↓ -23%	↑ 27%	-
Sadiqabad	↑ 22%	↓ -25%	-
Khanpur	↑ 28%	↓ -23%	-

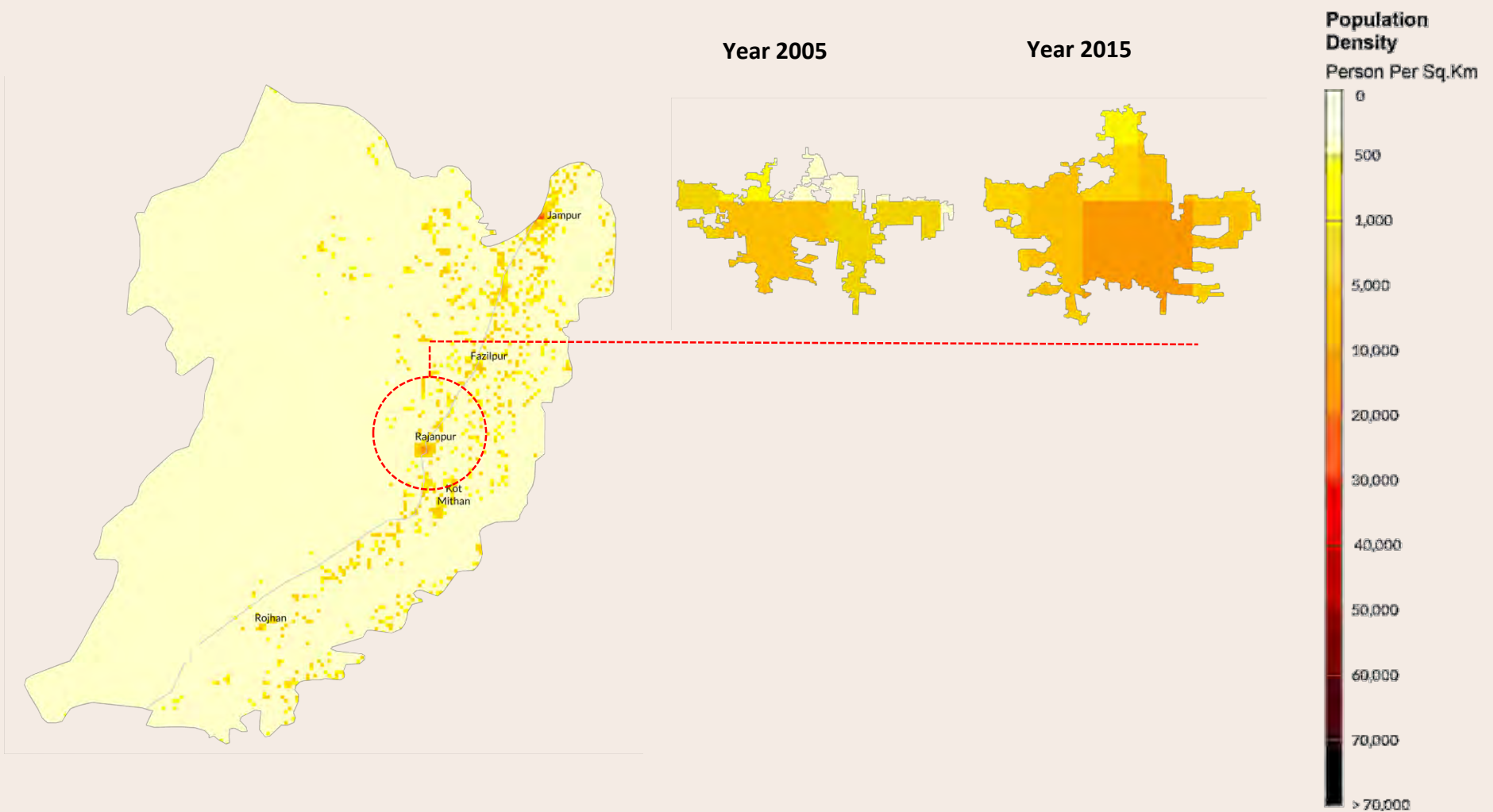
District: Rajanpur

Urban Expansion

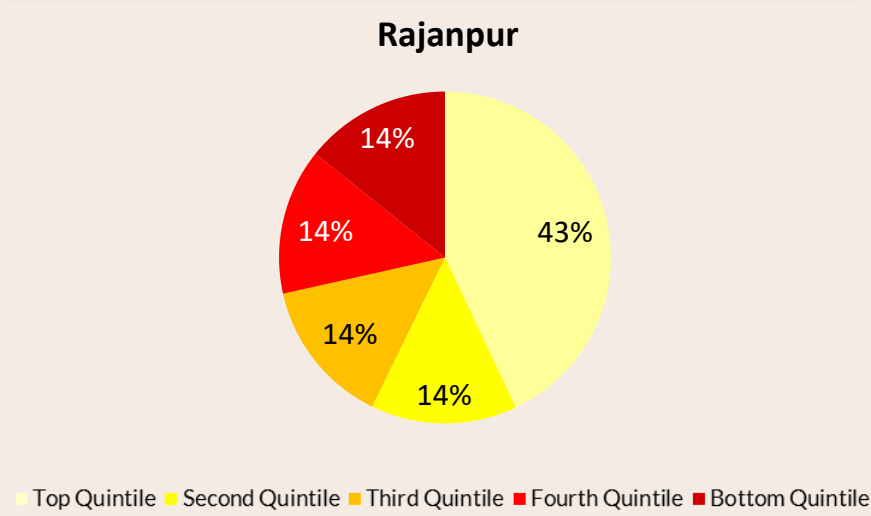


District: Rajanpur

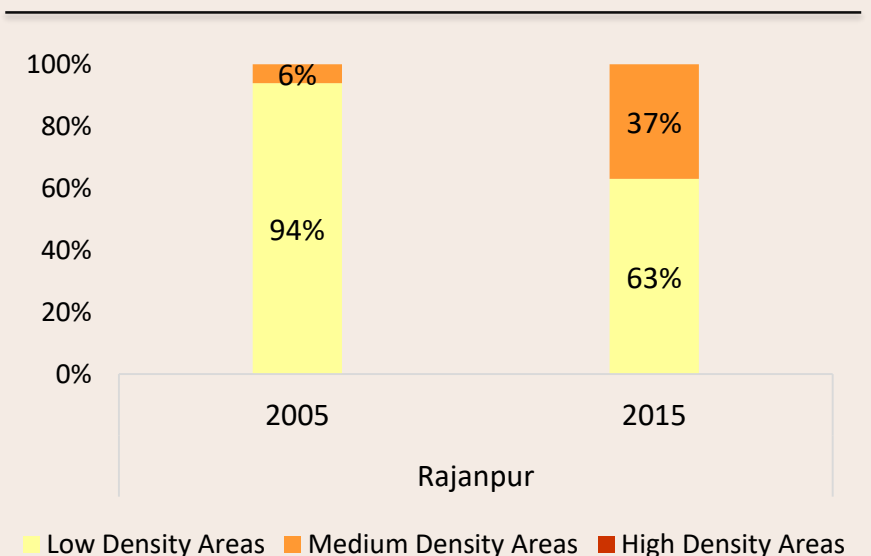
Population Density



Percentage of Area Occupied by 20% of Population (2015)



Intra-city Area Composition



Population Area Statistics

Rajanpur	
Population 2005	16,927
Population 2015	50,708
Pop. Change '05-'15	199.57%
Pop. Annual Growth Rate '05-'15	11.60%
Area 1995 (Sq. Km)	2.26
Area 2005 (Sq. Km)	3.86
Area 2015 (Sq. Km)	6.17
Area Change '95-'05	70.87%
Area Change '05-'15	59.96%
Area Annual Growth Rate '95-'05	5.50%
Area Annual Growth Rate '05-'15	4.81%
Pop. Density 2005 (Per Sq. Km)	4,389
Pop. Density 2015 (Per Sq. Km)	8,220
Density Change '05-'15	87.27%
Land Consumption Index	0.30

Percentage Change in Area Composition (2005-2015)

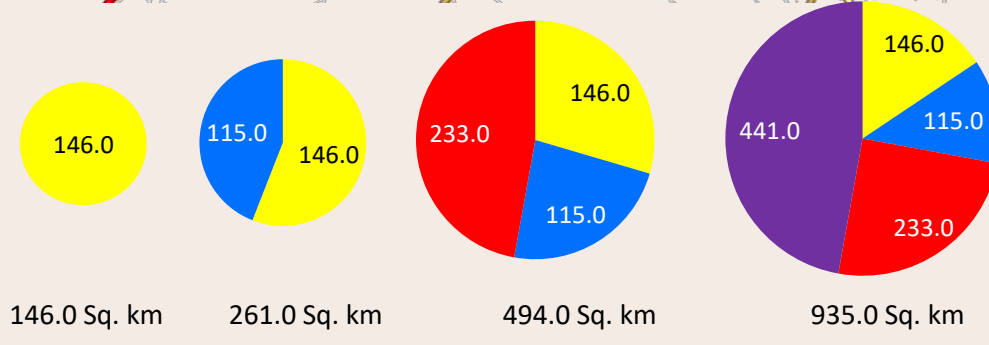
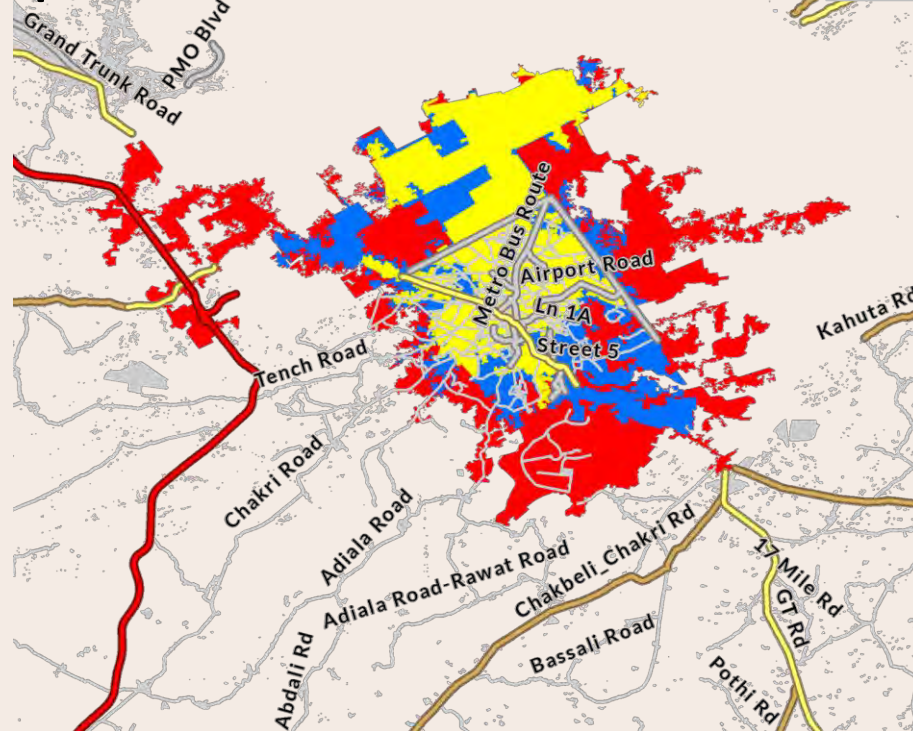
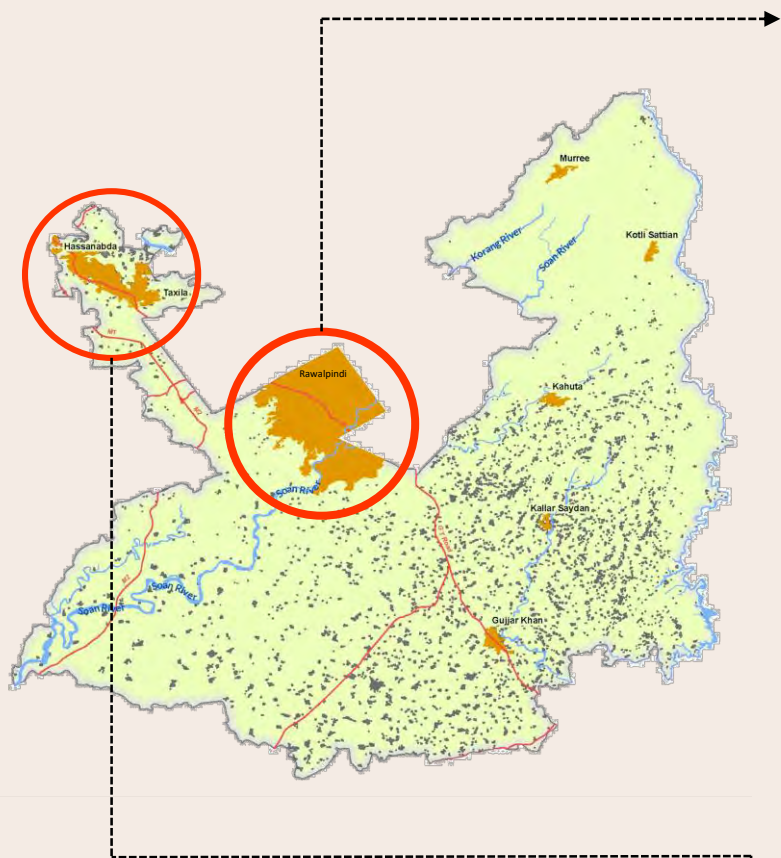
	Low Density Areas	Medium Density Areas	High Density Areas
Rajanpur	↓ -33%	↑ 507%	-

District: Rawalpindi

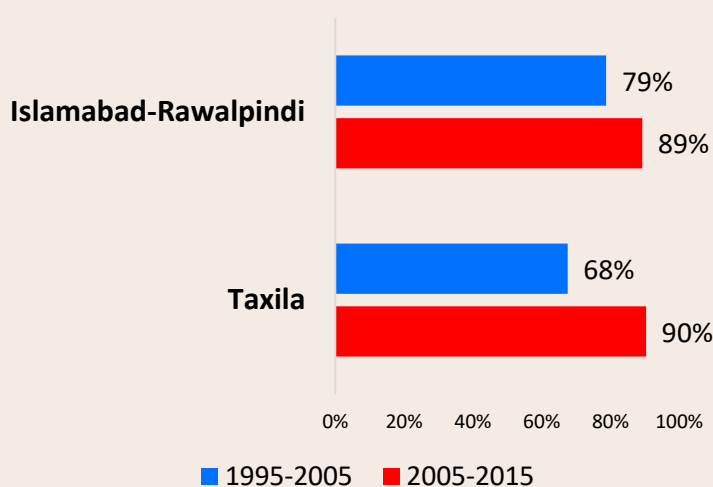
Urban Expansion

Rawalpindi-Islamabad

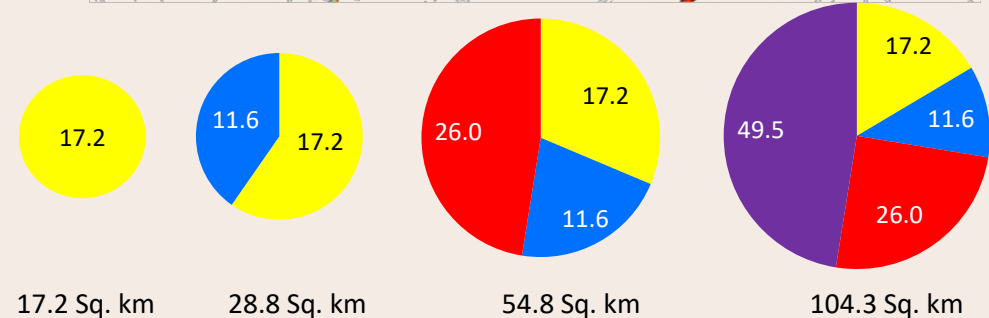
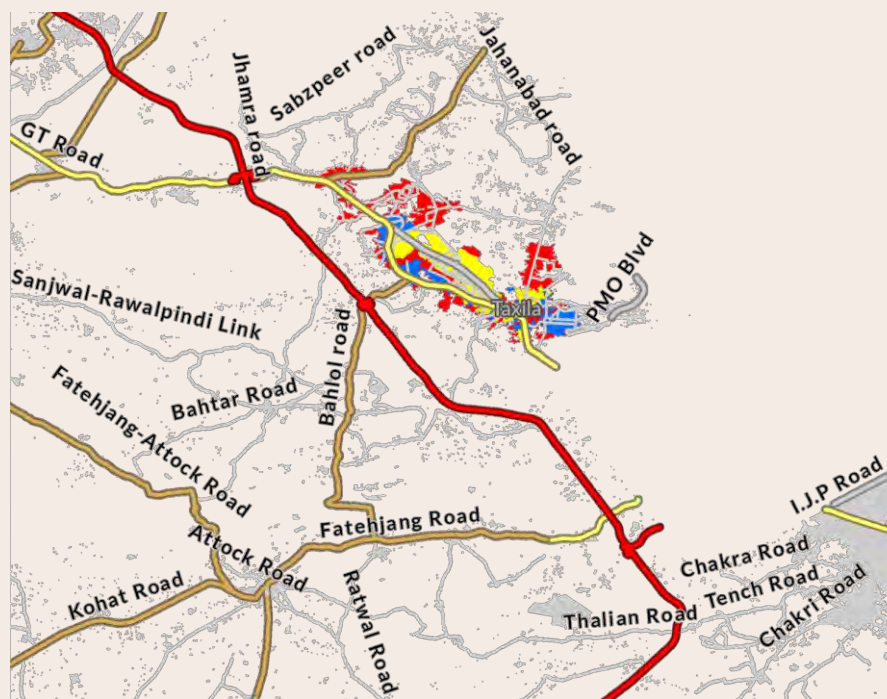
DHQ



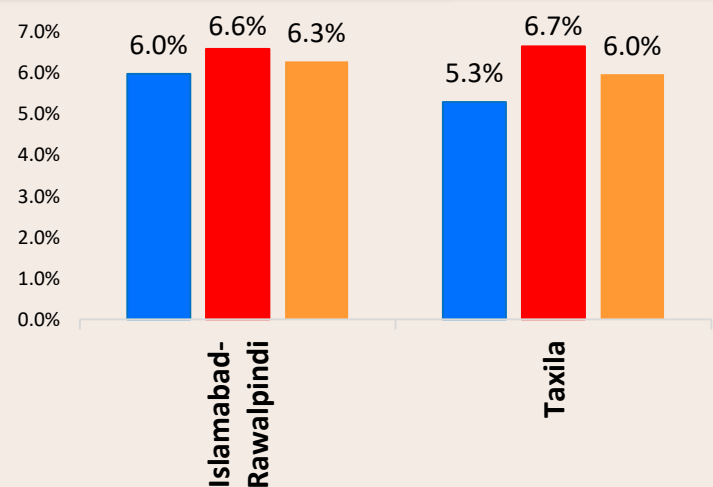
Contiguous Urban Development



Taxila



Annual Area Growth Rate



Scale: 1 Inch = 13 Km

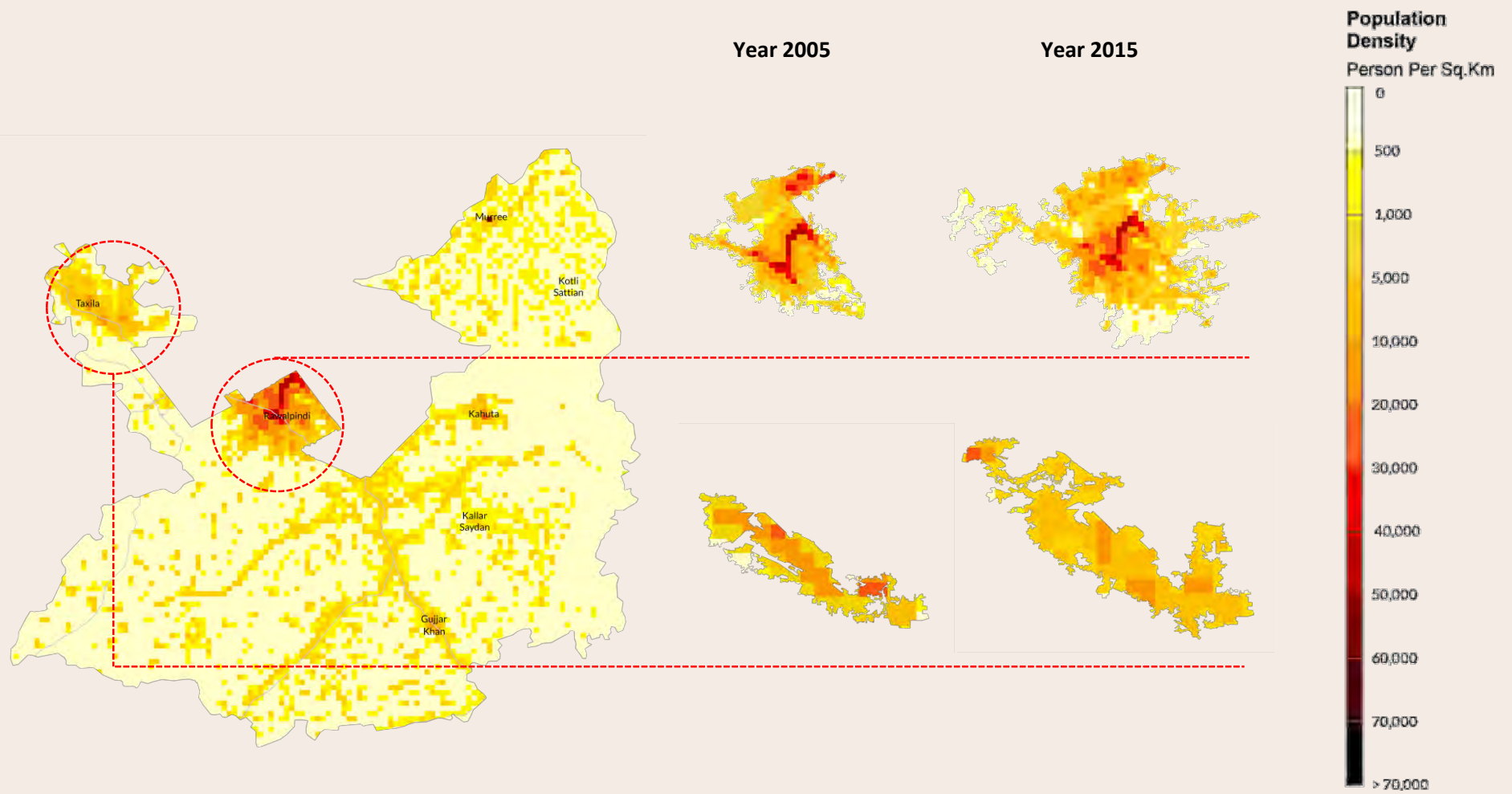
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

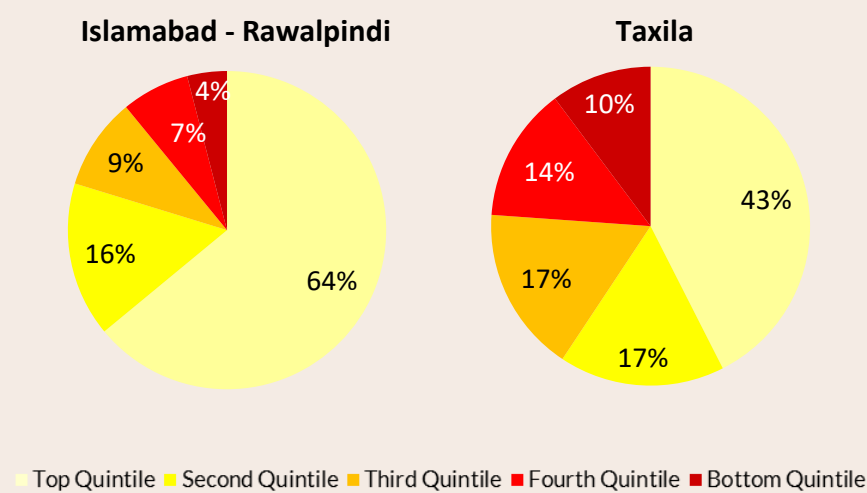


District: Rawalpindi

Population Density



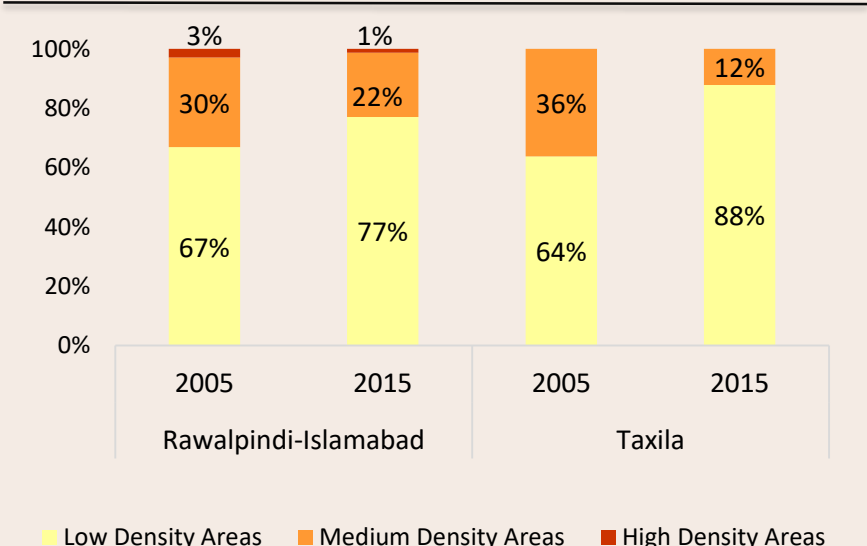
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Rawalpindi-Islamabad	Taxila
Population 2005	2,476,467	241,459
Population 2015	3,360,780	355,655
Pop. Change '05-'15	35.71%	47.29%
Pop. Annual Growth Rate '05-'15	3.10%	3.95%
Area 1995 (Sq. Km)	146.00	17.17
Area 2005 (Sq. Km)	261.00	28.78
Area 2015 (Sq. Km)	494.00	54.79
Area Change '95-'05	78.77%	67.58%
Area Change '05-'15	89.27%	90.39%
Area Annual Growth Rate '95-'05	5.98%	5.30%
Area Annual Growth Rate '05-'15	6.59%	6.65%
Pop. Density 2005 (Per Sq. Km)	9,488	8,390
Pop. Density 2015 (Per Sq. Km)	6,803	6,491
Density Change '05-'15	-28.30%	-22.64%
Land Consumption Index	2.50	1.91

Intra-city Area Composition

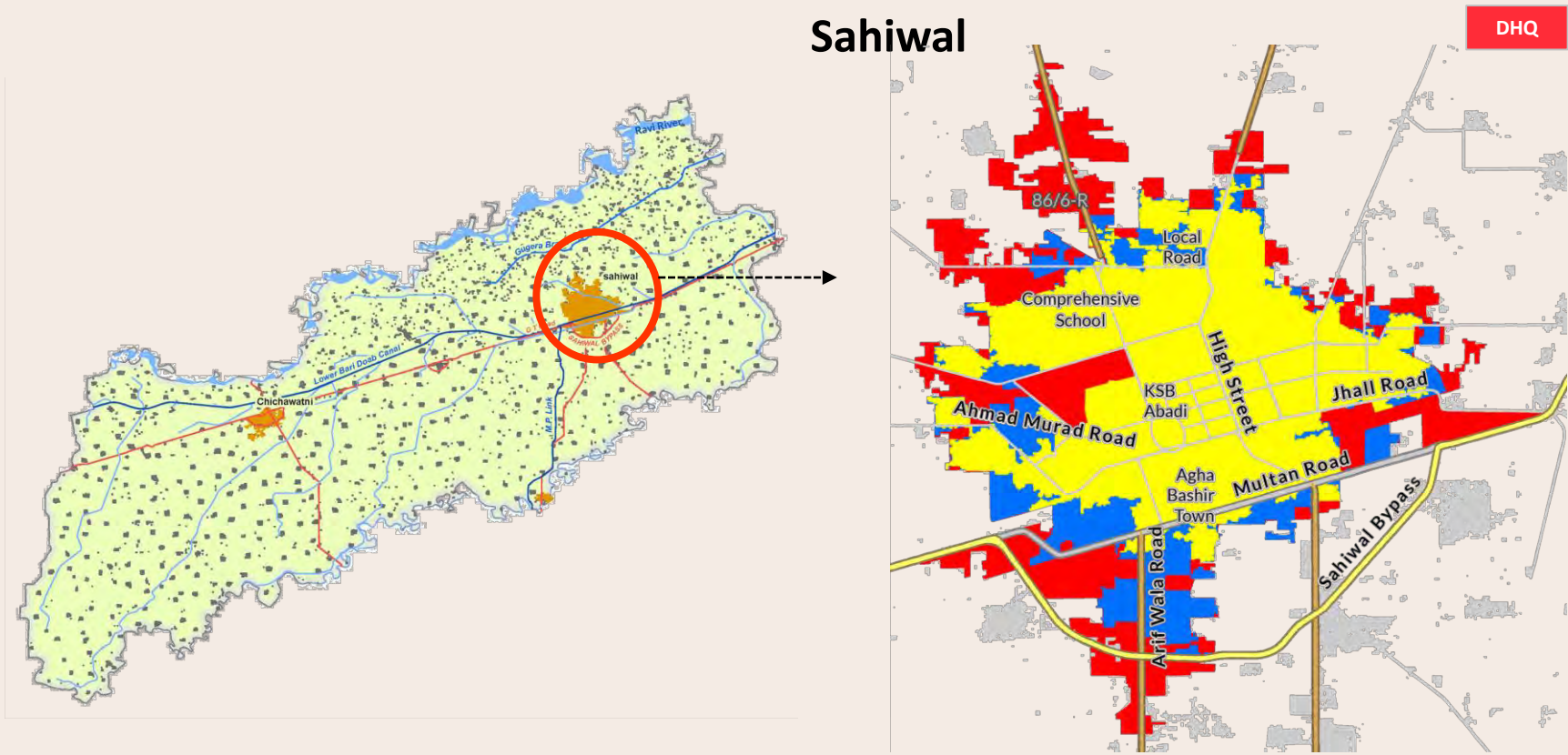


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Rawalpindi-Islamabad	↑ 15%	↓ -29%	↓ -56%
Taxila	↑ 38%	↓ -67%	-

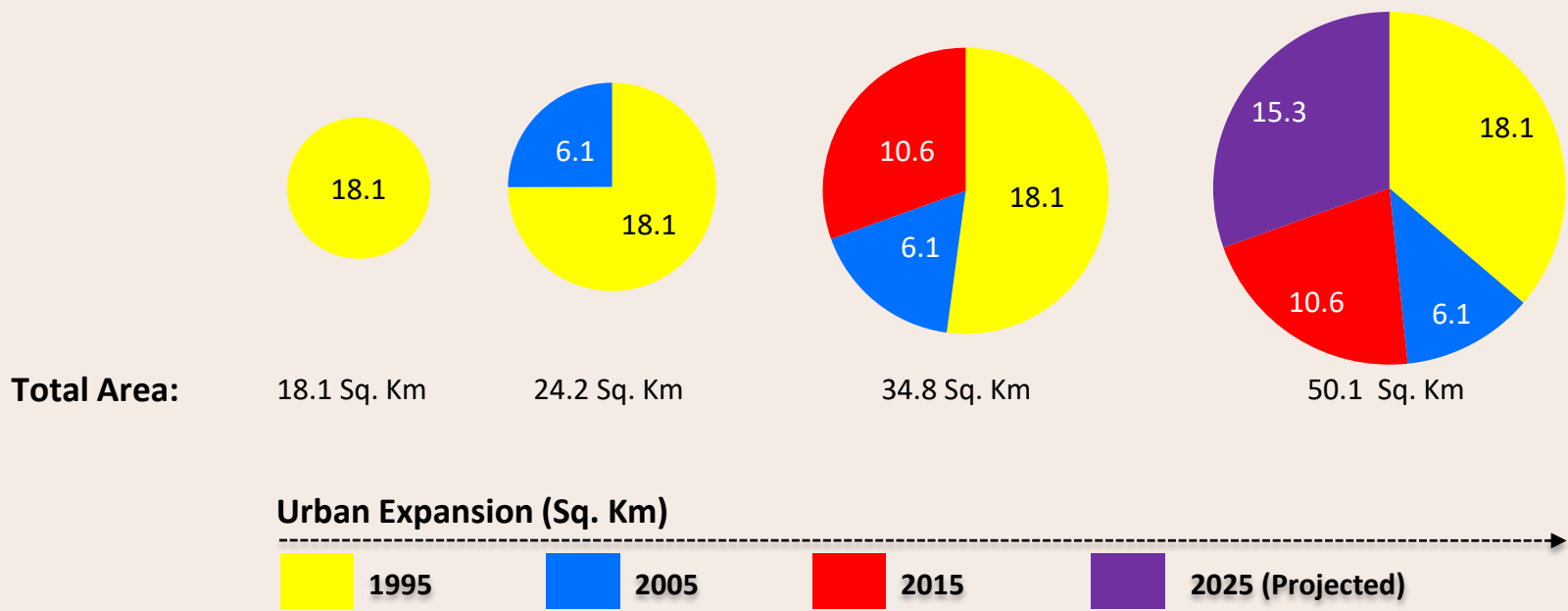
District: Sahiwal

Urban Expansion

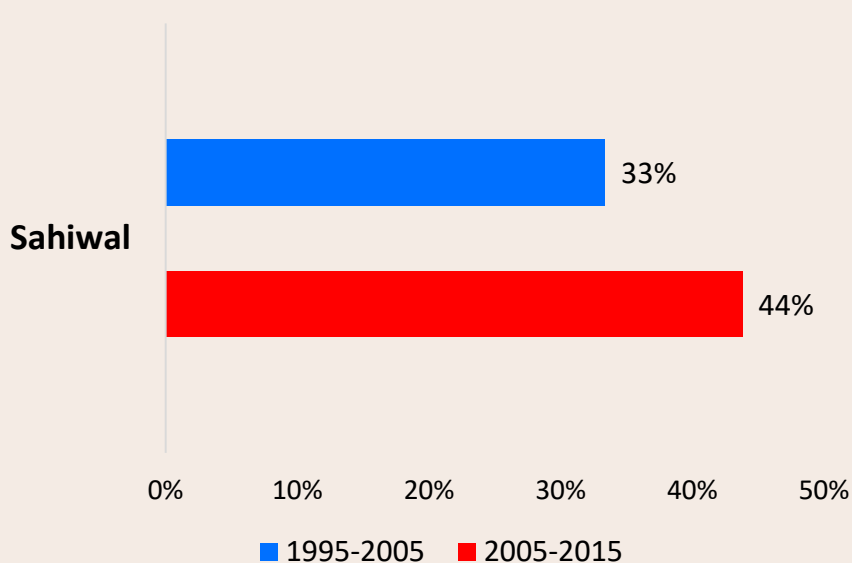


Scale: 1 Inch = 3 Km

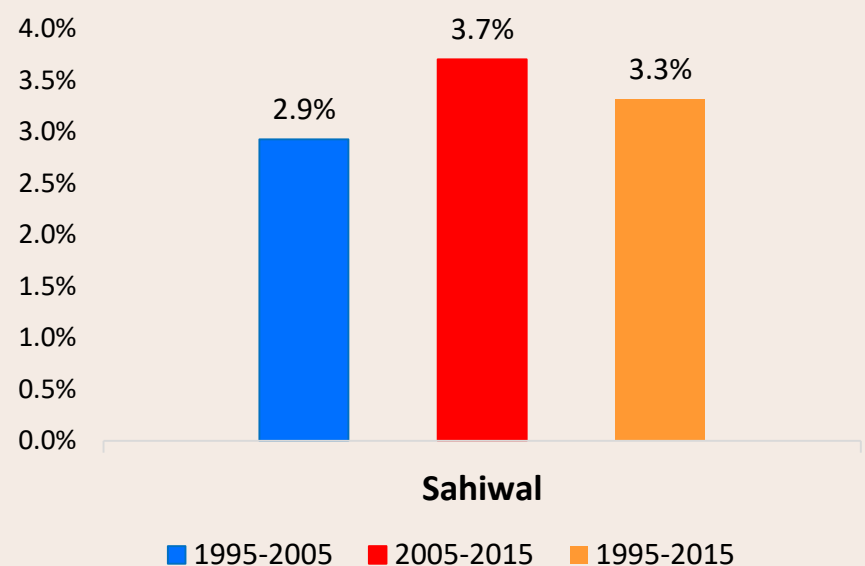
The base map in grey is adapted from Google Earth 2017.



Contiguous Urban Development

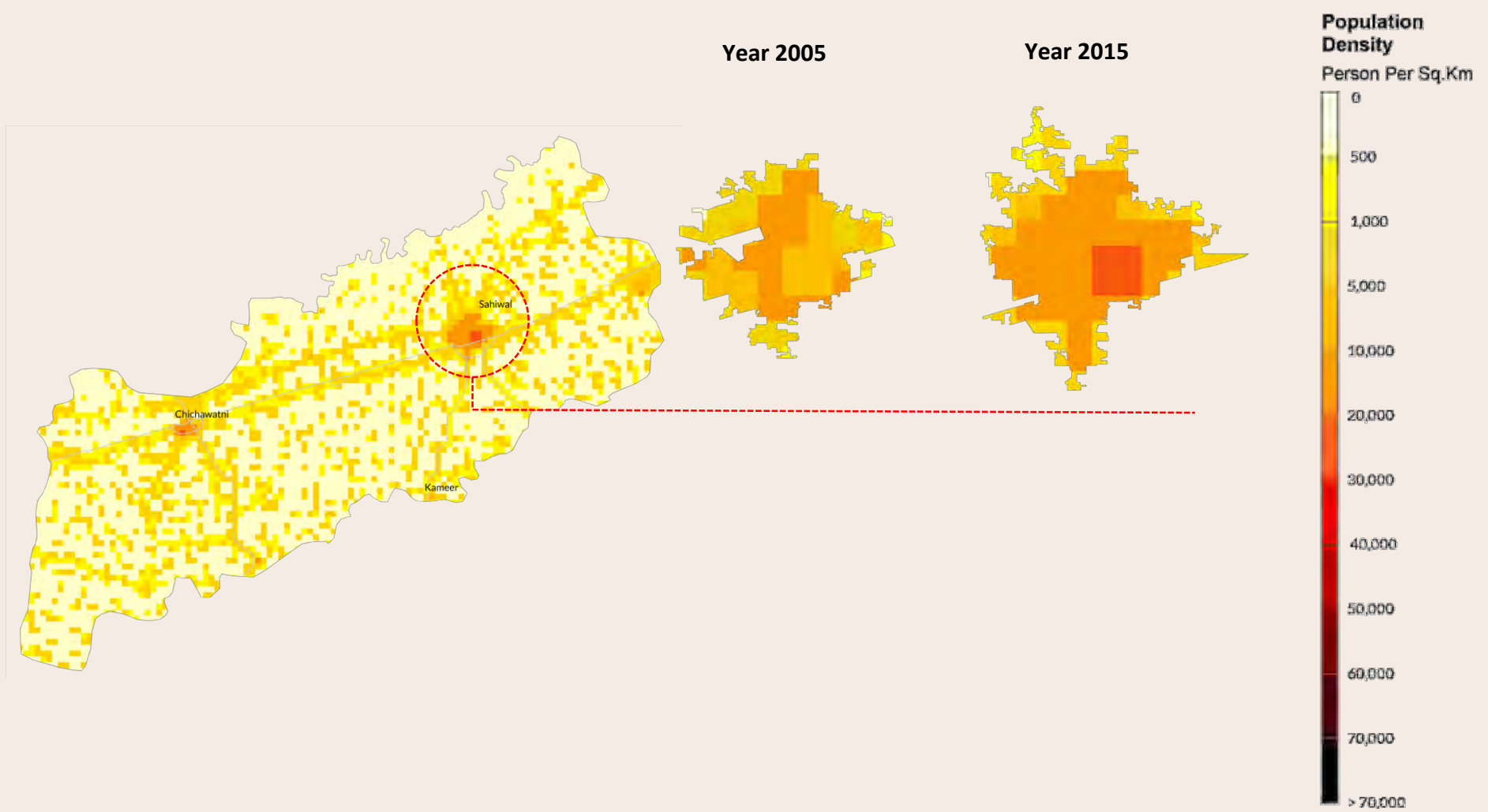


Annual Area Growth Rate

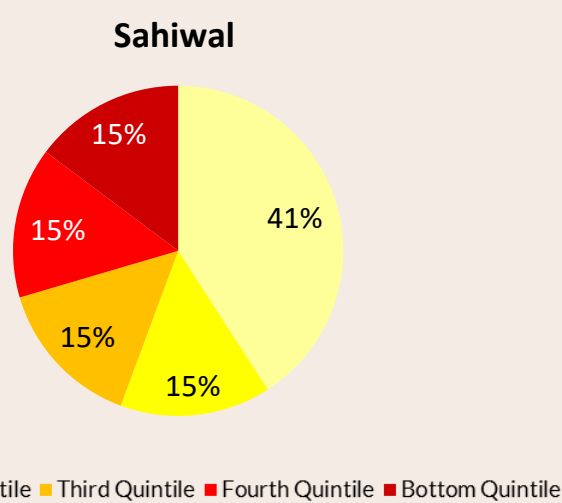


District: Sahiwal

Population Density



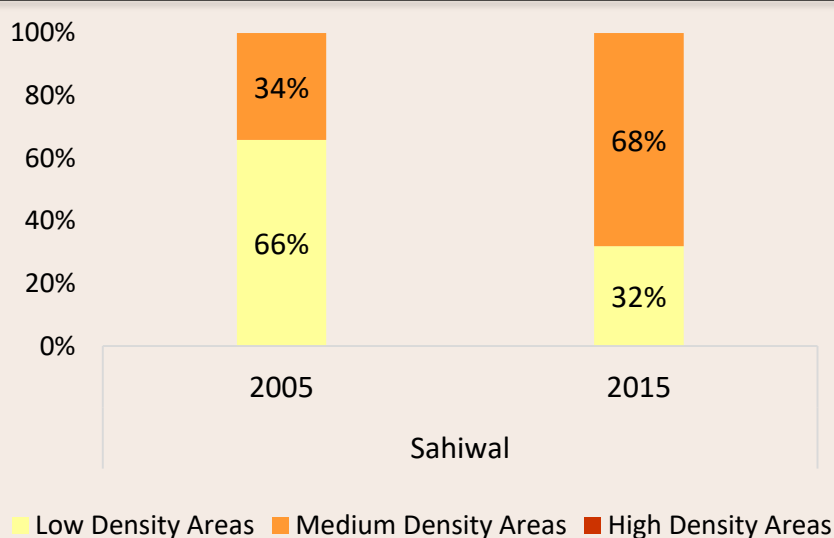
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

Sahiwal	
Population 2005	197,085
Population 2015	418,253
Pop. Change '05-'15	112.22%
Pop. Annual Growth Rate '05-'15	7.81%
Area 1995 (Sq. Km)	18.15
Area 2005 (Sq. Km)	24.21
Area 2015 (Sq. Km)	34.81
Area Change '95-'05	33.38%
Area Change '05-'15	43.81%
Area Annual Growth Rate '95-'05	2.92%
Area Annual Growth Rate '05-'15	3.70%
Pop. Density 2005 (Per Sq. Km)	8,141
Pop. Density 2015 (Per Sq. Km)	12,014
Density Change '05-'15	47.57%
Land Consumption Index	0.39

Intra-city Area Composition

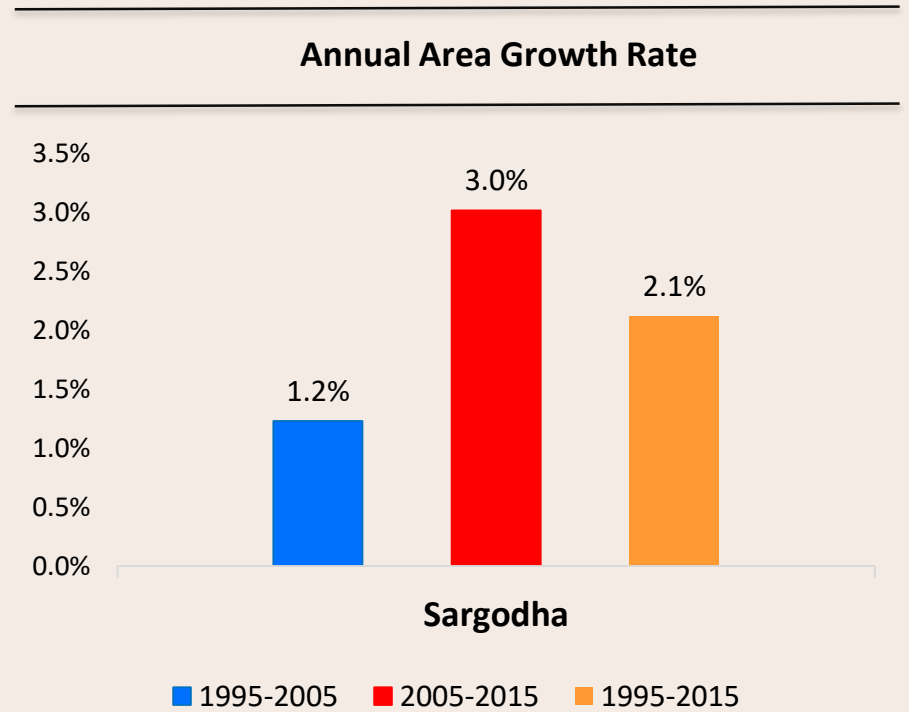
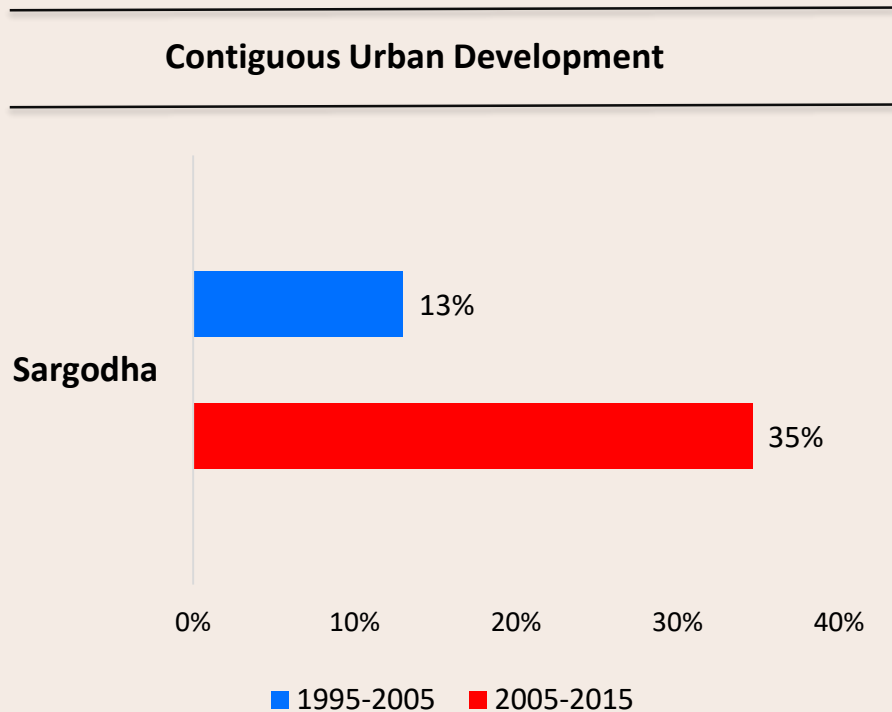
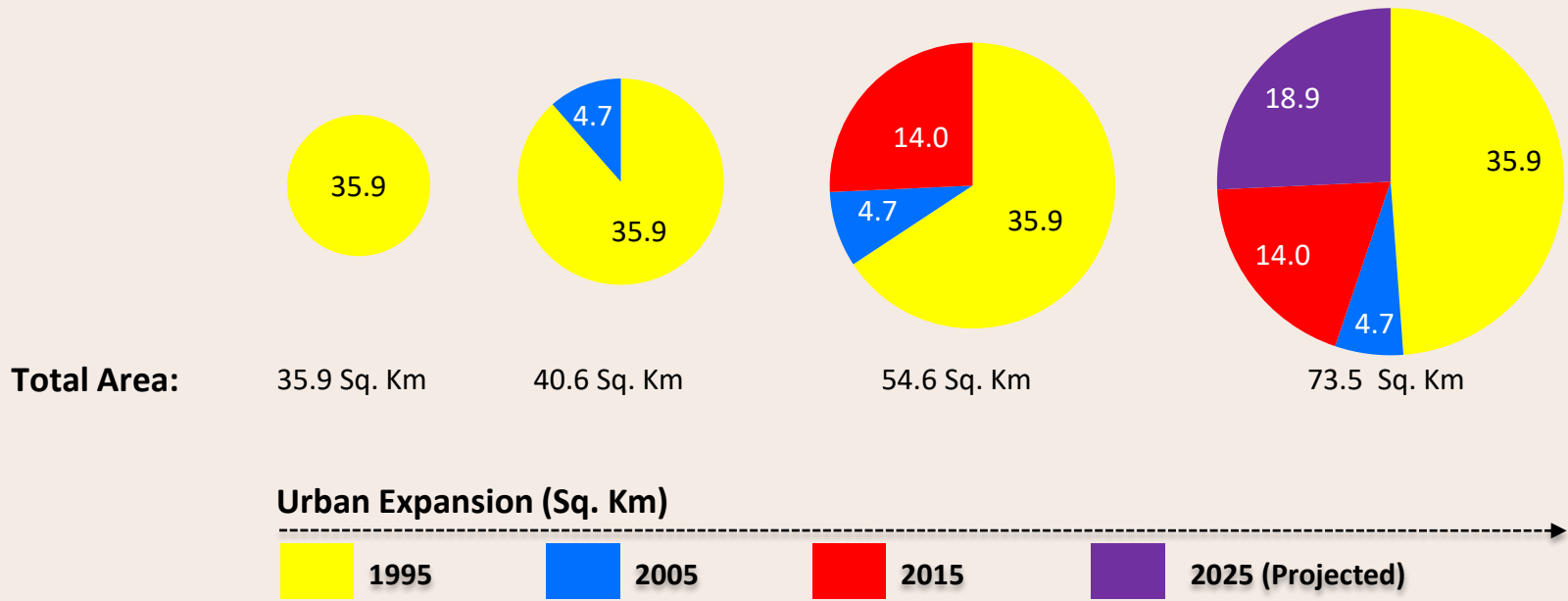
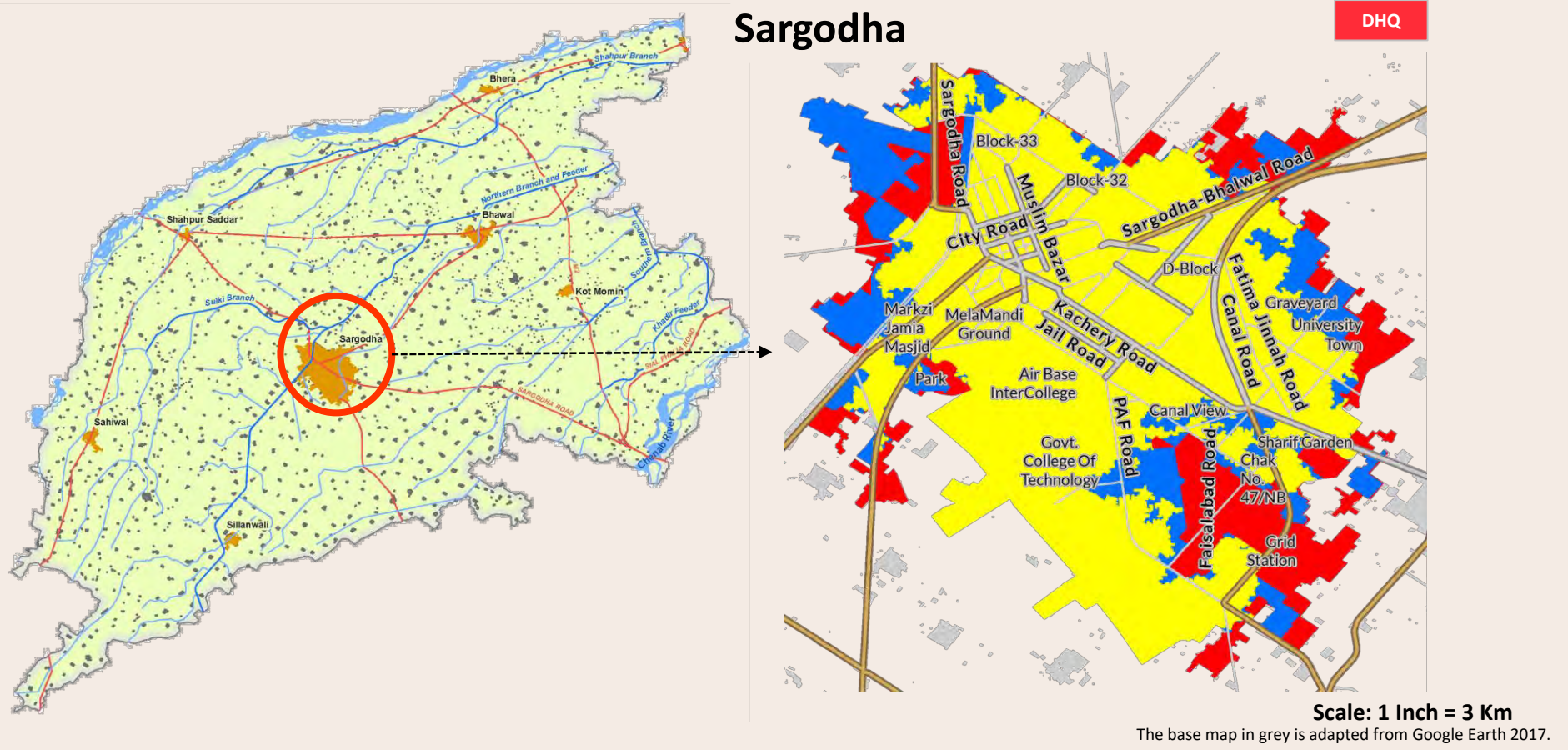


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Sahiwal	↓ -52%	↑ 99%	-

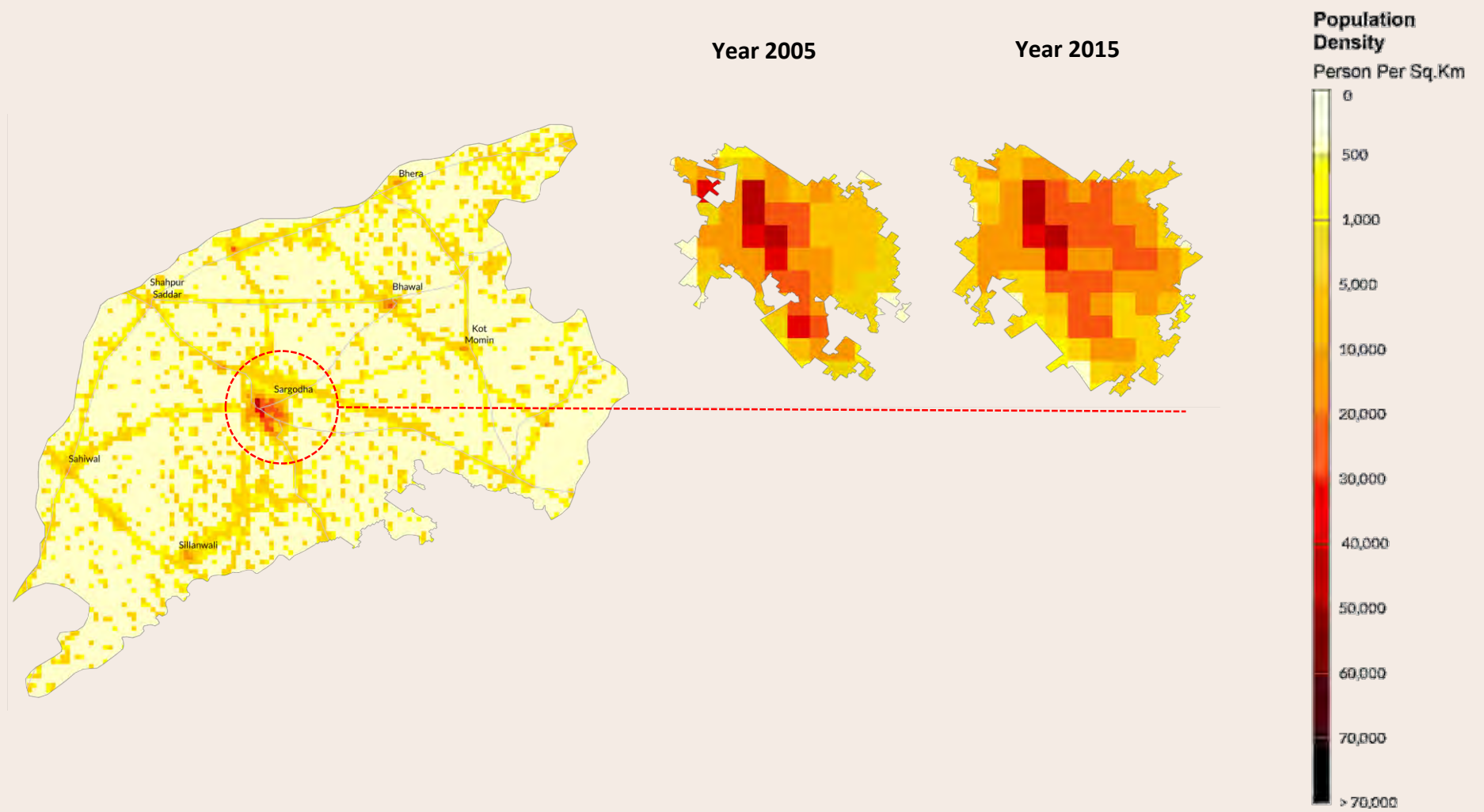
District: Sargodha

Urban Expansion

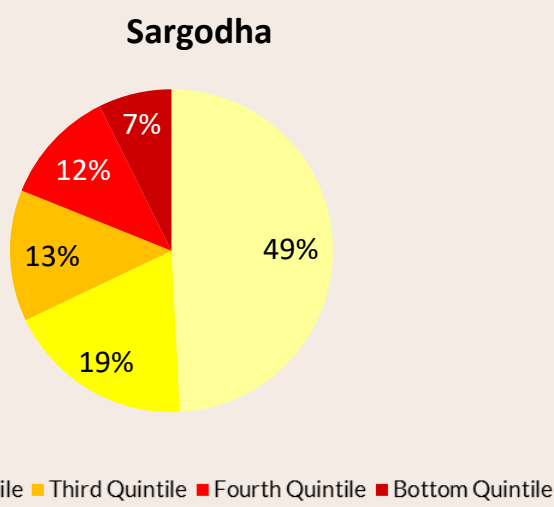


District: Sargodha

Population Density



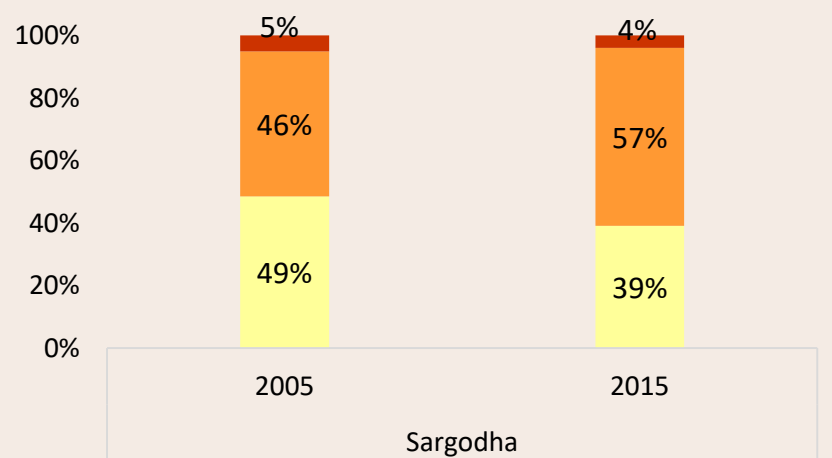
Percentage of Area Occupied by 20% of Population (2015)



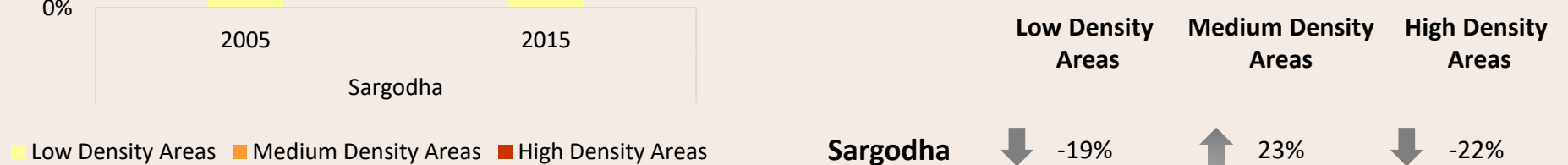
Population Area Statistics

Sargodha	
Population 2005	542,730
Population 2015	747,346
Pop. Change '05-'15	37.70%
Pop. Annual Growth Rate '05-'15	3.25%
Area 1995 (Sq. Km)	35.90
Area 2005 (Sq. Km)	40.57
Area 2015 (Sq. Km)	54.61
Area Change '95-'05	13.01%
Area Change '05-'15	34.62%
Area Annual Growth Rate '95-'05	1.23%
Area Annual Growth Rate '05-'15	3.02%
Pop. Density 2005 (Per Sq. Km)	13,378
Pop. Density 2015 (Per Sq. Km)	13,684
Density Change '05-'15	2.29%
Land Consumption Index	0.92

Intra-city Area Composition



Percentage Change in Area Composition (2005-2015)

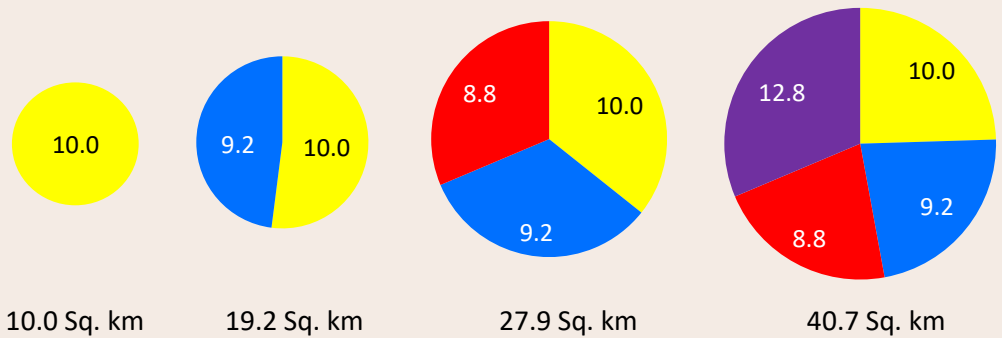
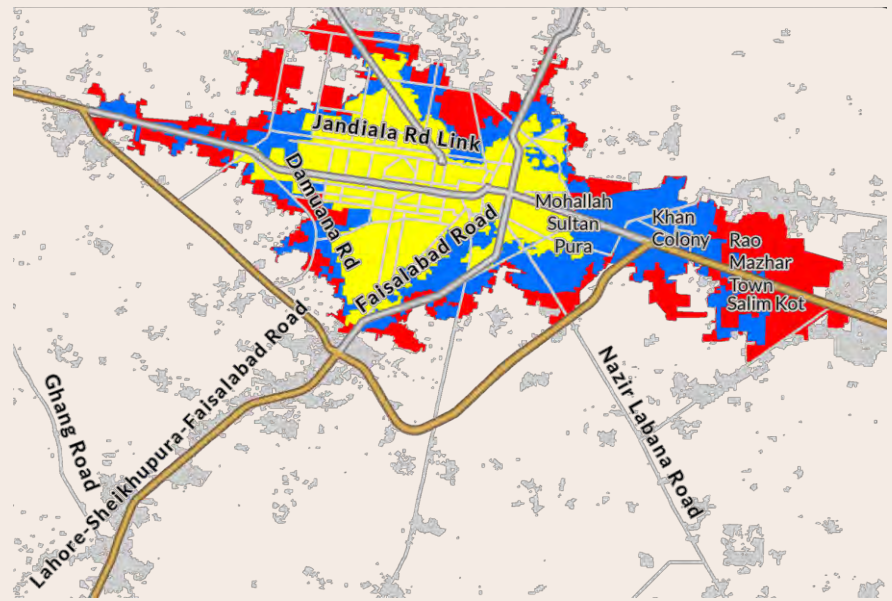
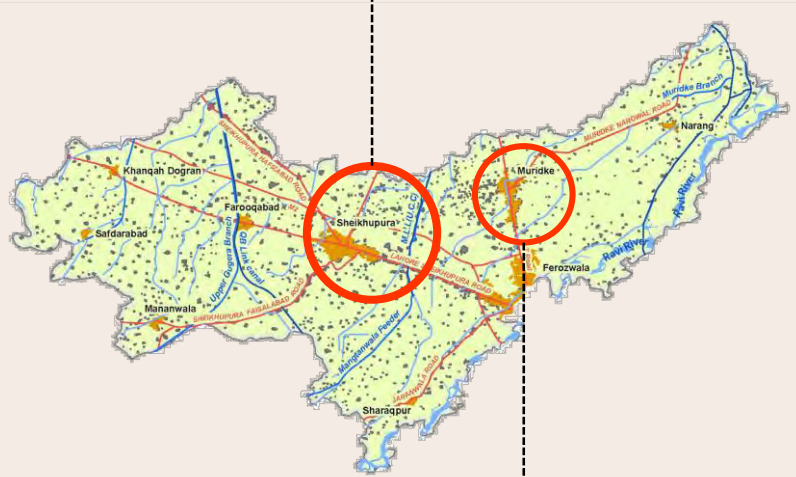


District: Sheikhupura

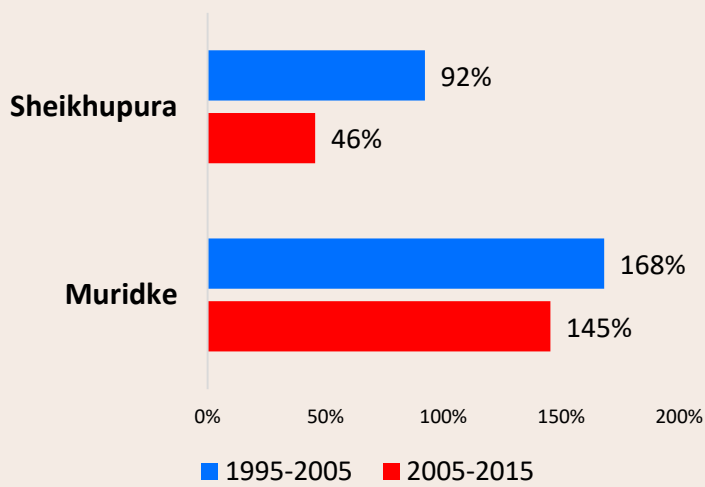
Urban Expansion

Sheikhupura

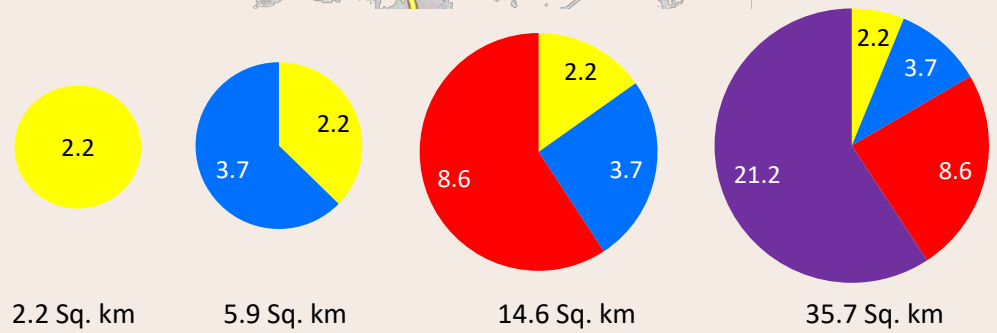
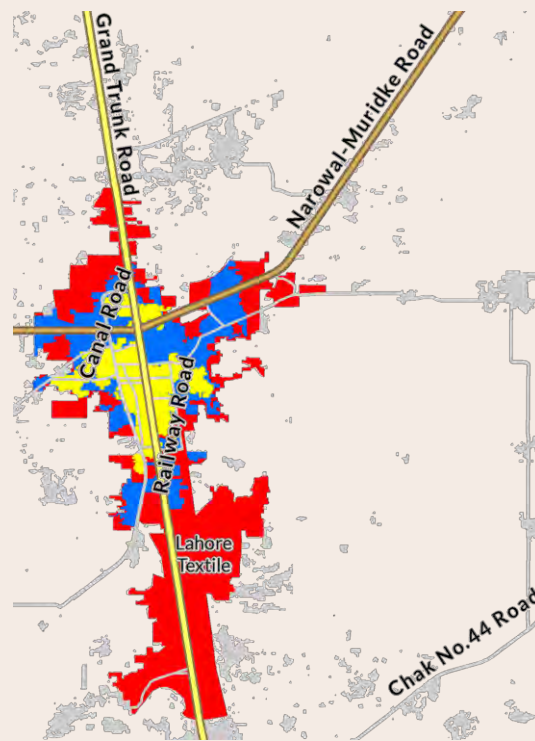
DHQ



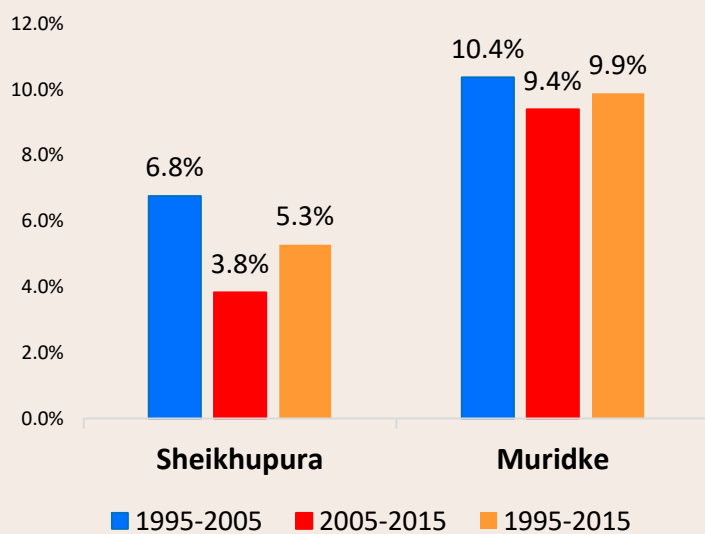
Contiguous Urban Development



Muridke



Annual Area Growth Rate



Scale: 1 Inch = 3 Km

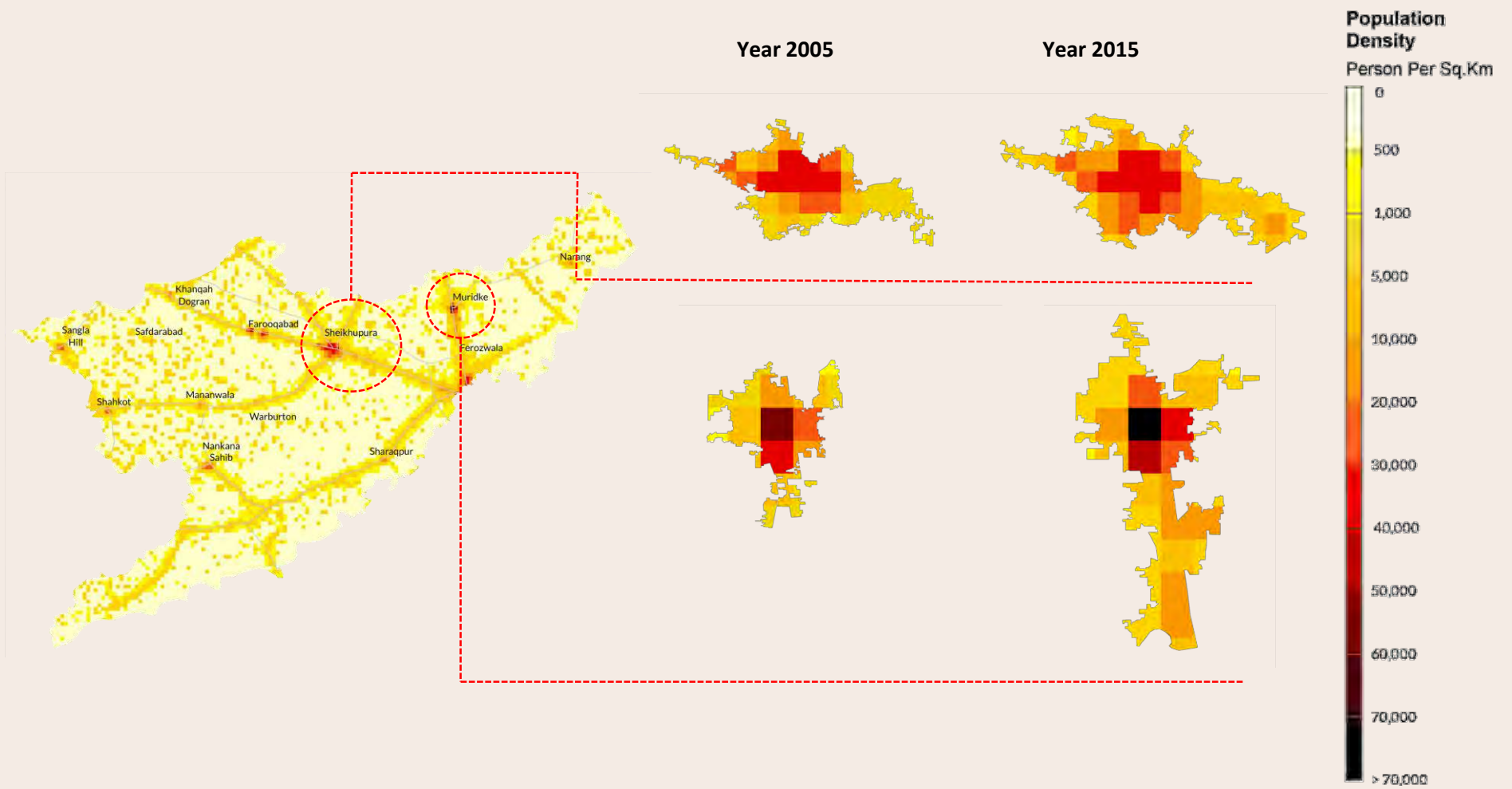
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

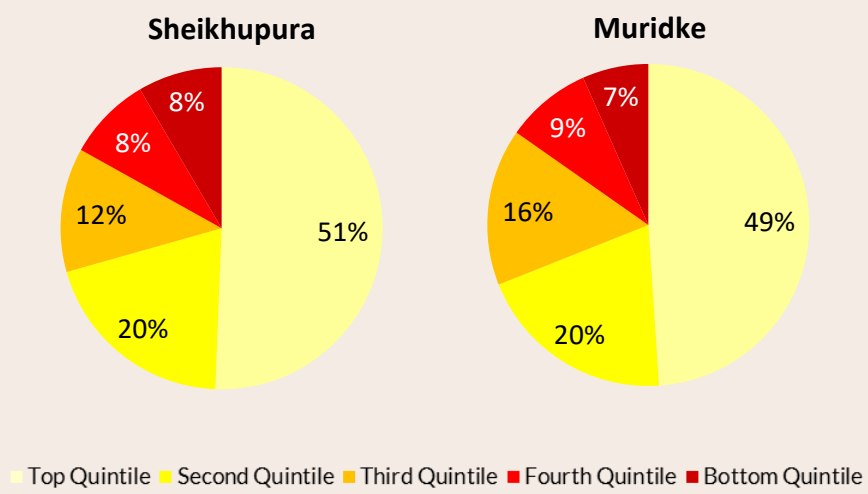


District: Sheikhpura

Population Density



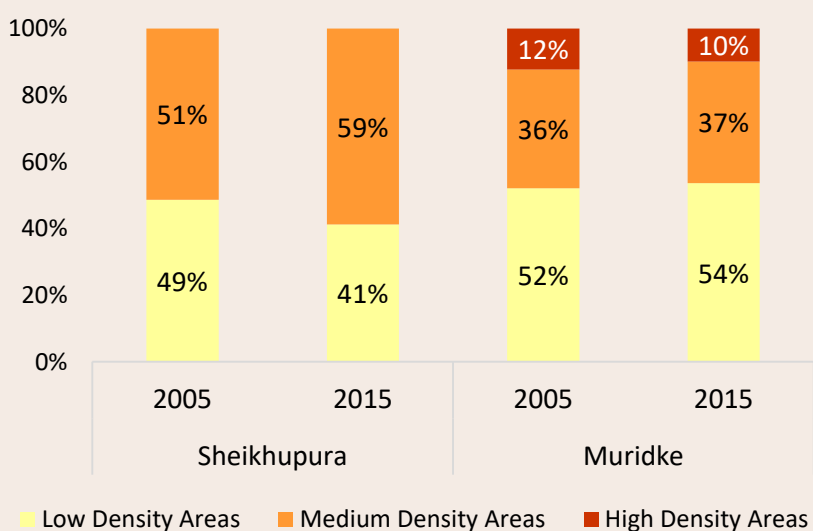
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Sheikhpura	Muridke
Population 2005	285,374	107,583
Population 2015	449,775	210,600
Pop. Change '05-'15	57.61%	95.76%
Pop. Annual Growth Rate '05-'15	4.65%	6.95%
Area 1995 (Sq. Km)	9.97	2.21
Area 2005 (Sq. Km)	19.17	5.93
Area 2015 (Sq. Km)	27.93	14.56
Area Change '95-'05	92.25%	168.19%
Area Change '05-'15	45.68%	145.41%
Area Annual Growth Rate '95-'05	6.75%	10.37%
Area Annual Growth Rate '05-'15	3.83%	9.39%
Pop. Density 2005 (Per Sq. Km)	14,884	18,137
Pop. Density 2015 (Per Sq. Km)	16,102	14,467
Density Change '05-'15	8.19%	-20.23%
Land Consumption Index	0.79	1.52

Intra-city Area Composition

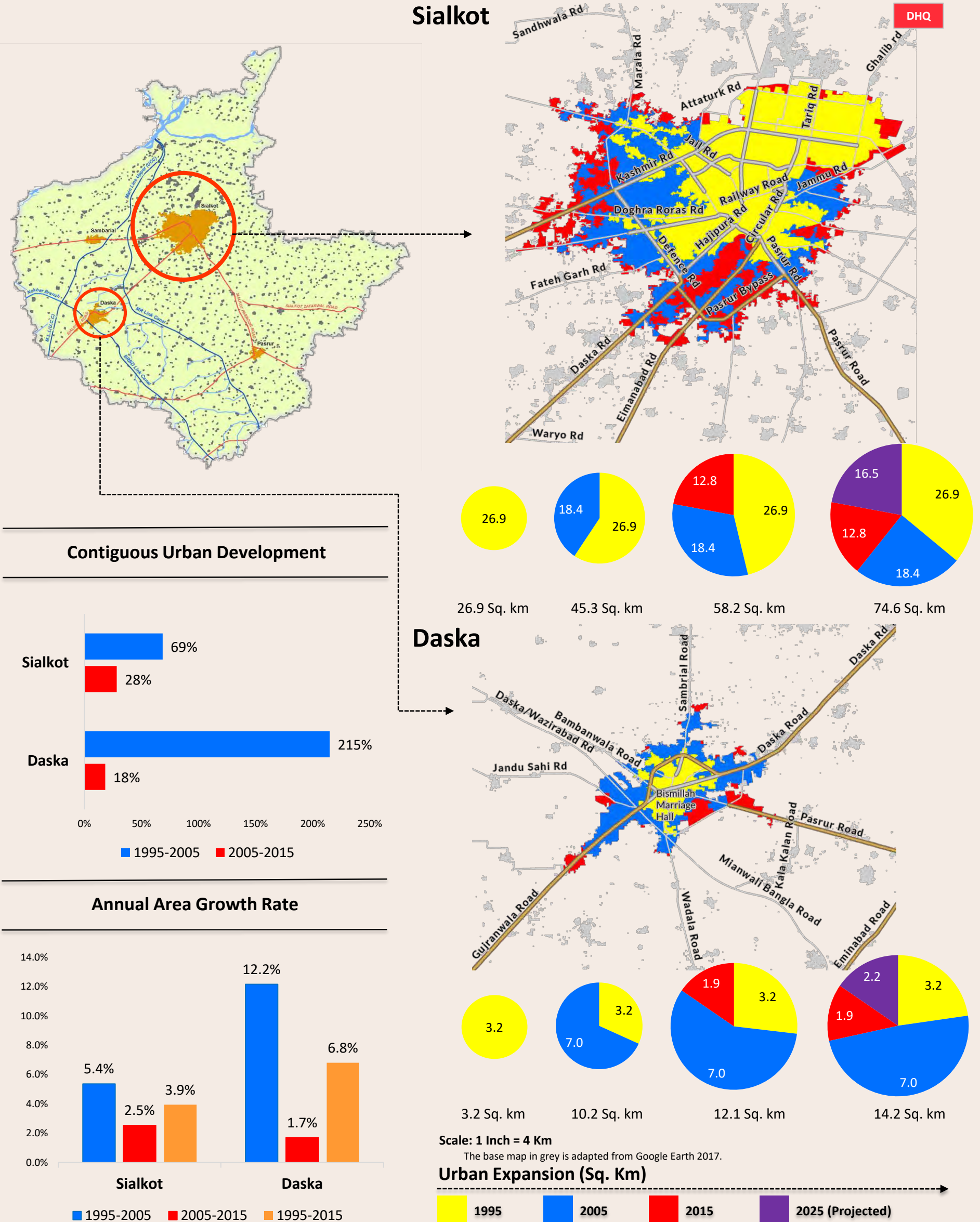


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Sheikhpura	↓ -15%	↑ 14%	-
Muridke	↑ 3%	↑ 3%	↓ -20%

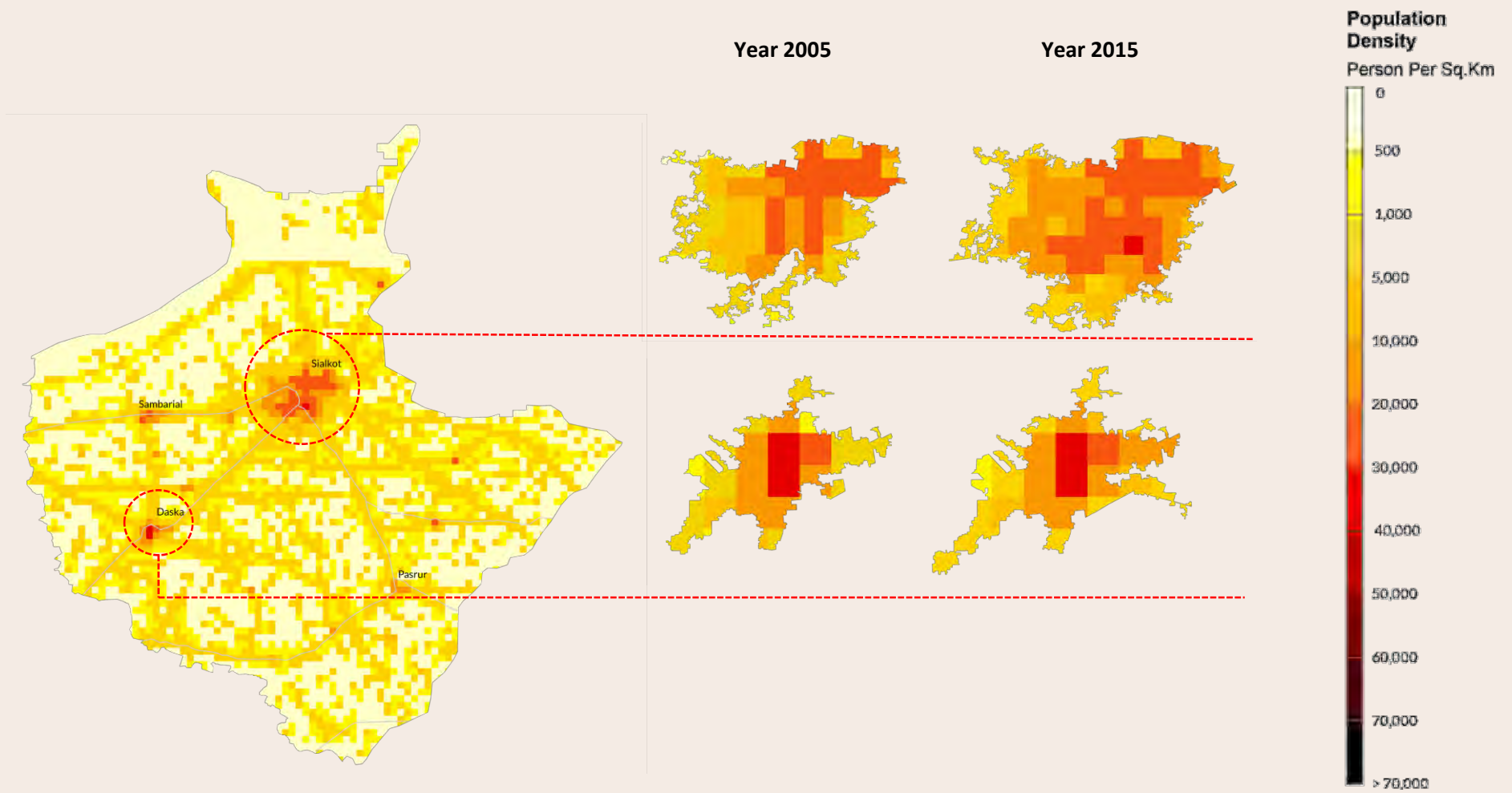
District: Sialkot

Urban Expansion

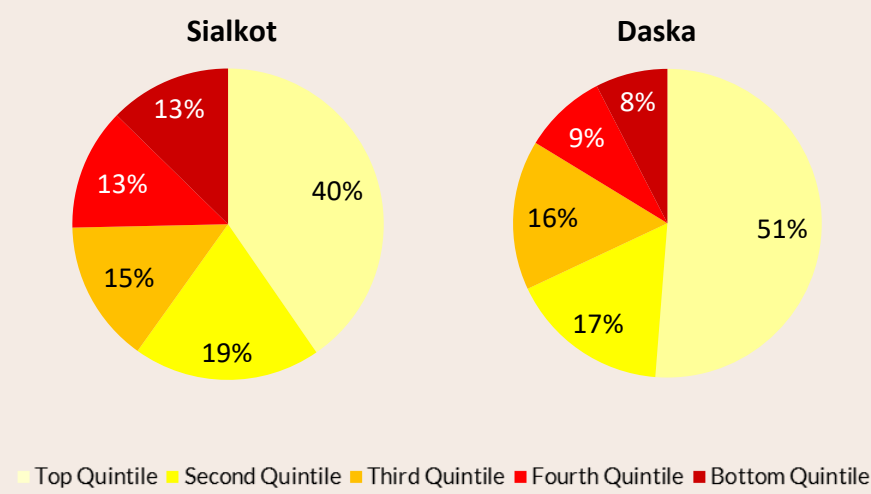


District: Sialkot

Population Density



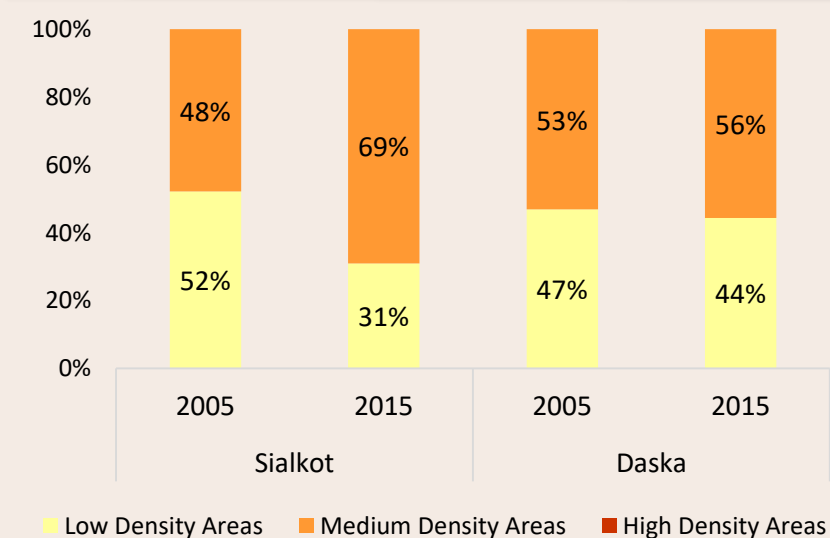
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Sialkot	Daska
Population 2005	541,410	132,318
Population 2015	901,842	168,609
Pop. Change '05-'15	66.57%	27.43%
Pop. Annual Growth Rate '05-'15	5.24%	2.45%
Area 1995 (Sq. Km)	26.88	3.24
Area 2005 (Sq. Km)	45.30	10.19
Area 2015 (Sq. Km)	58.15	12.05
Area Change '95-'05	68.53%	214.93%
Area Change '05-'15	28.36%	18.22%
Area Annual Growth Rate '95-'05	5.36%	12.16%
Area Annual Growth Rate '05-'15	2.53%	1.69%
Pop. Density 2005 (Per Sq. Km)	11,951	12,981
Pop. Density 2015 (Per Sq. Km)	15,509	13,992
Density Change '05-'15	29.77%	7.79%
Land Consumption Index	0.43	0.66

Intra-city Area Composition

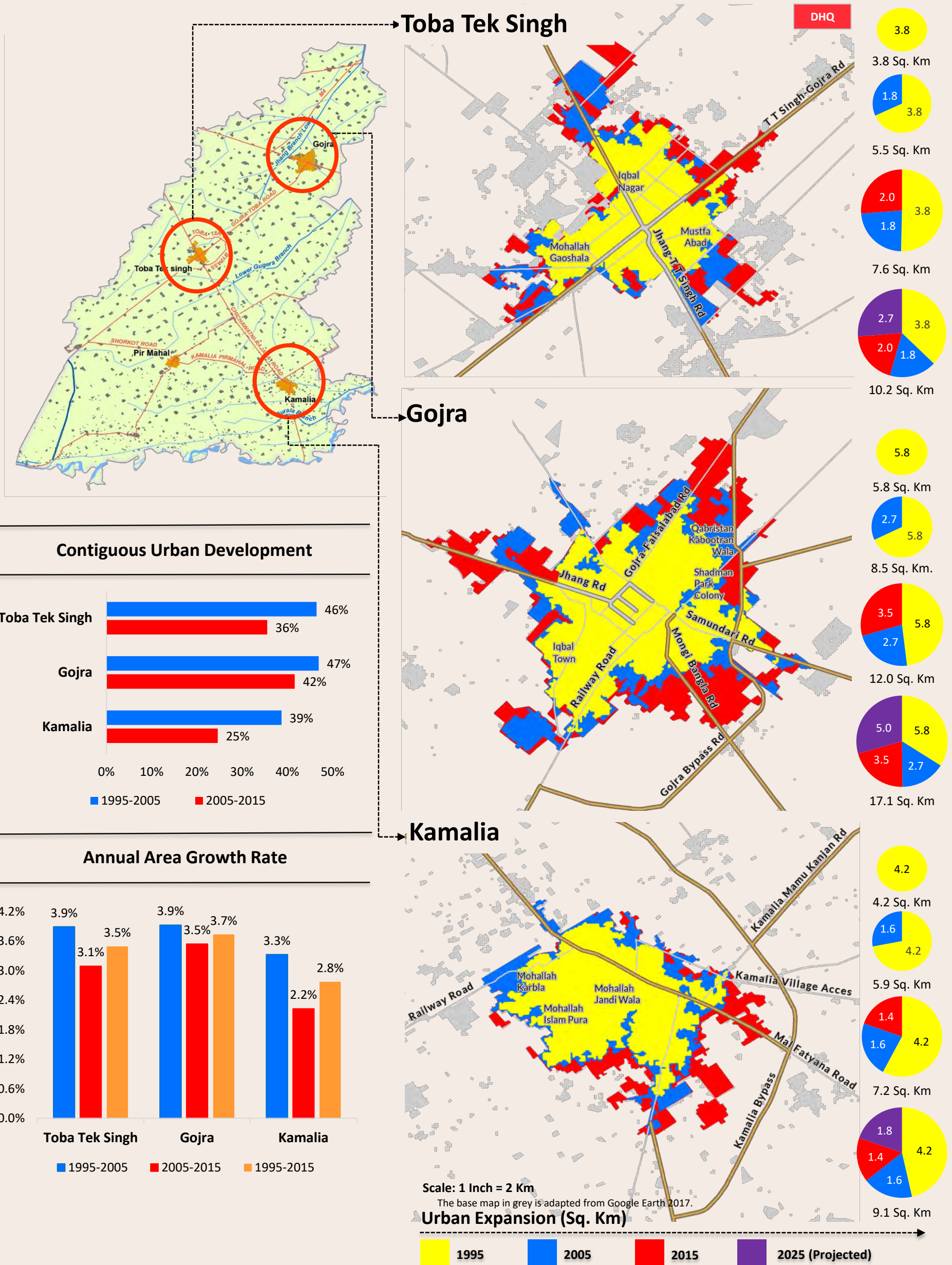


Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Sialkot	↓ -41%	↑ 44%	-
Daska	↓ -5%	↑ 5%	-

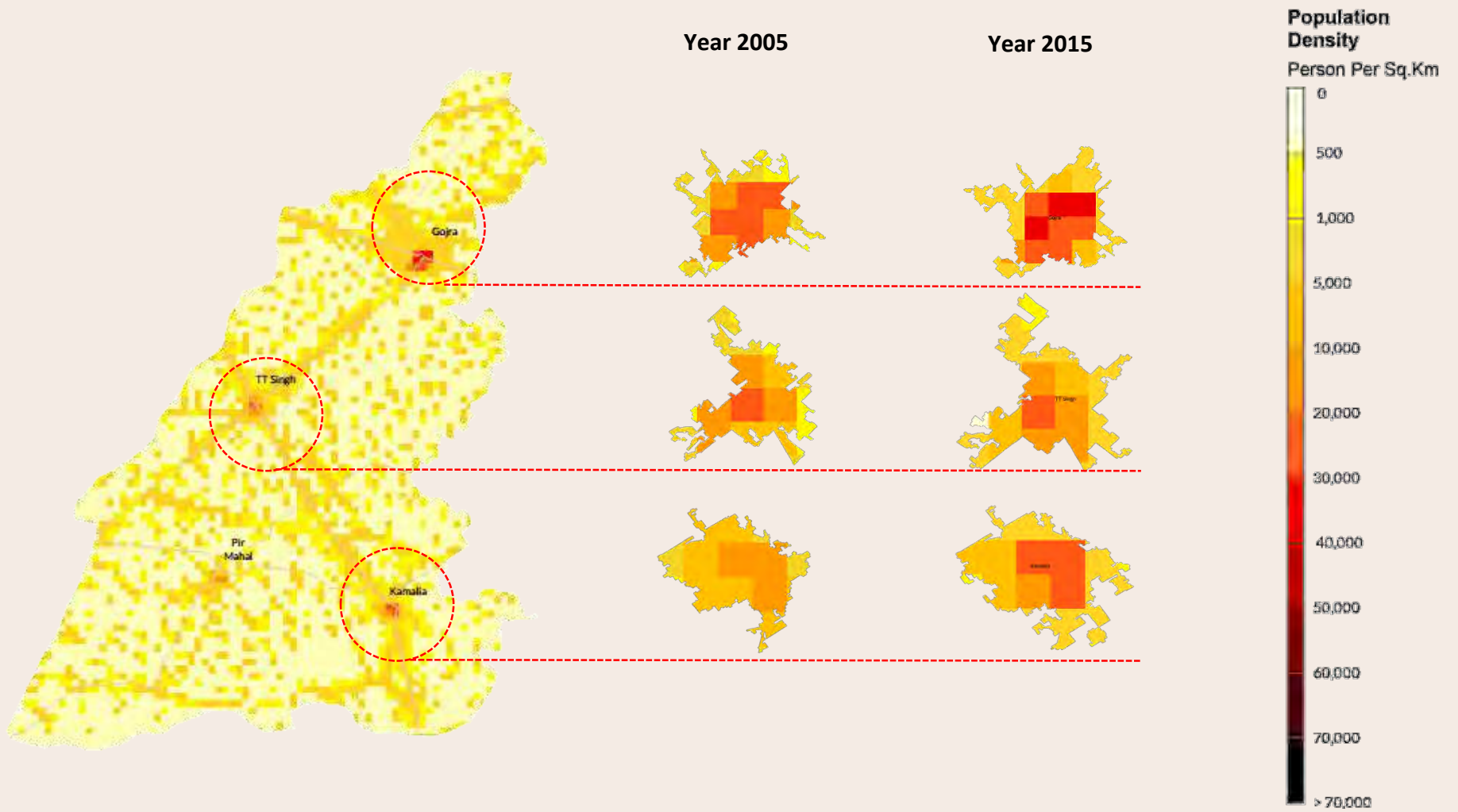
District: Toba Tek Singh

Urban Expansion

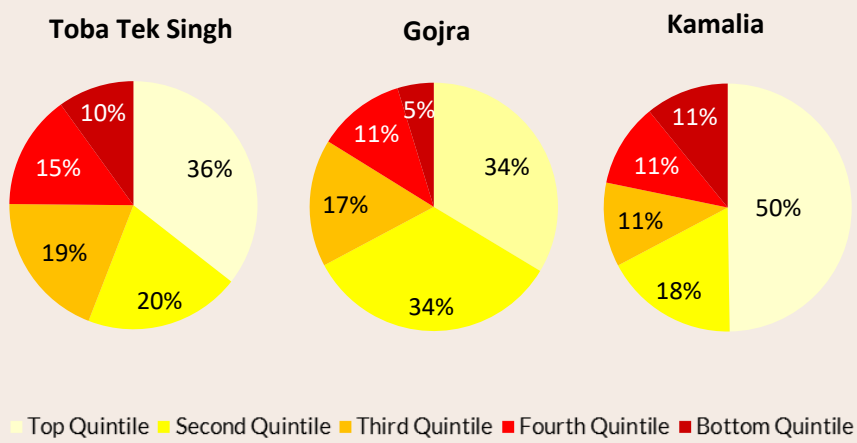


District: Toba Tek Singh

Population Density



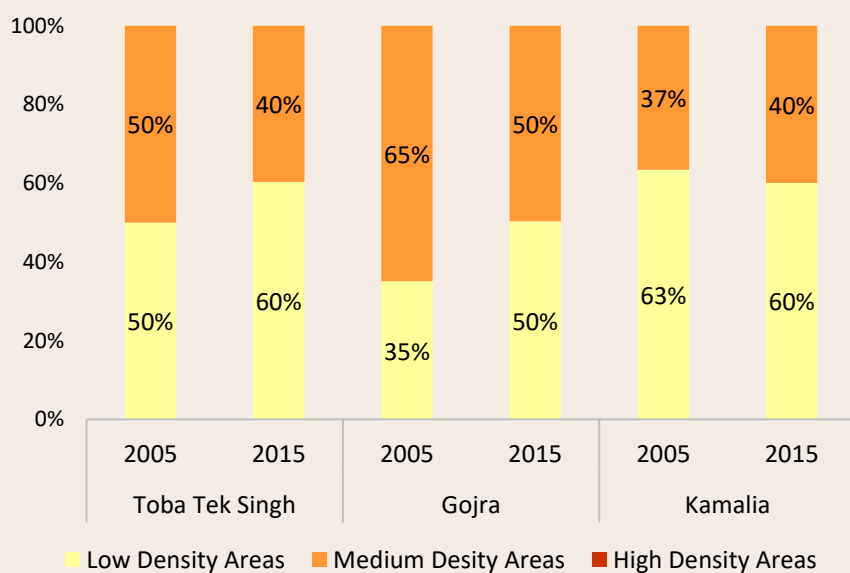
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Toba Tek Singh	Gojra	Kamalia
Population 2005 (thousands)	54,650	116,145	61,068
Population 2015 ('000)	60,824	196,560	81,102
Pop. Change '05-'15	11.30%	69.24%	32.81%
Pop. Annual Growth Rate '05-'15	1.08%	5.40%	2.88%
Area 1995 (Sq. Km)	3.78	5.80	4.23
Area 2005 (Sq. Km)	5.53	8.53	5.86
Area 2015 (Sq. Km)	7.50	12.08	7.30
Area Change '95-'05	46.46%	46.95%	38.70%
Area Change '05-'15	35.56%	41.63%	24.61%
Area Annual Growth Rate '95-'05	3.89%	3.92%	3.33%
Area Annual Growth Rate '05-'15	3.09%	3.54%	2.22%
Pop. Density 2005 (Per Sq. Km)	9,877	13,620	10,418
Pop. Density 2015 (Per Sq. Km)	8,109	16,275	11,103
Density Change '05-'15	-17.90%	19.49%	6.58%
Land Consumption Index	3.15	0.60	0.75

Intra-city Area Composition



Percentage Change in Area Composition (2005-2015)

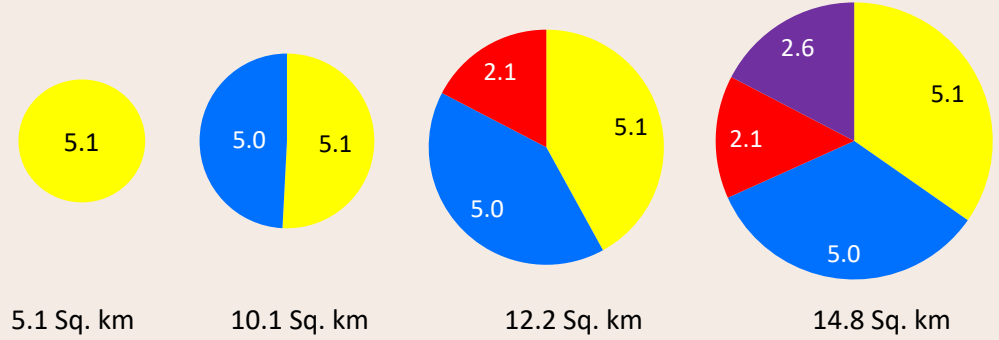
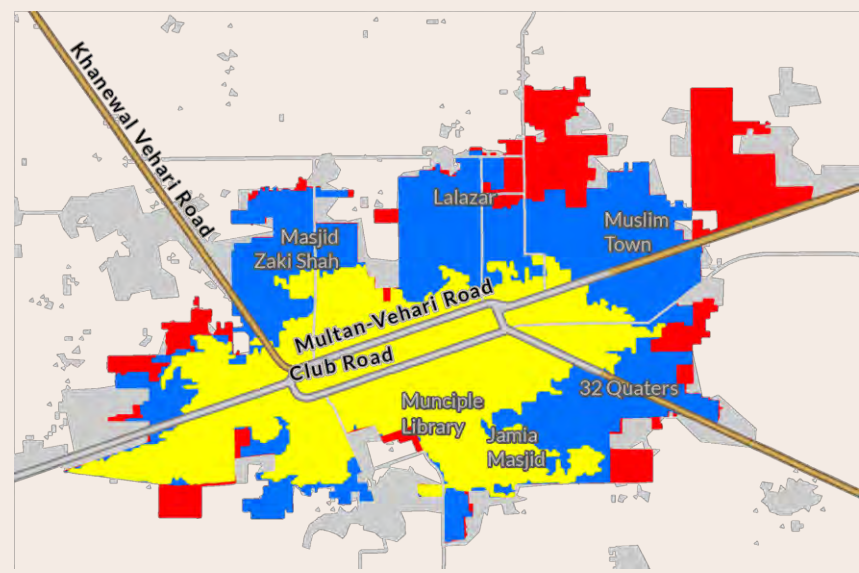
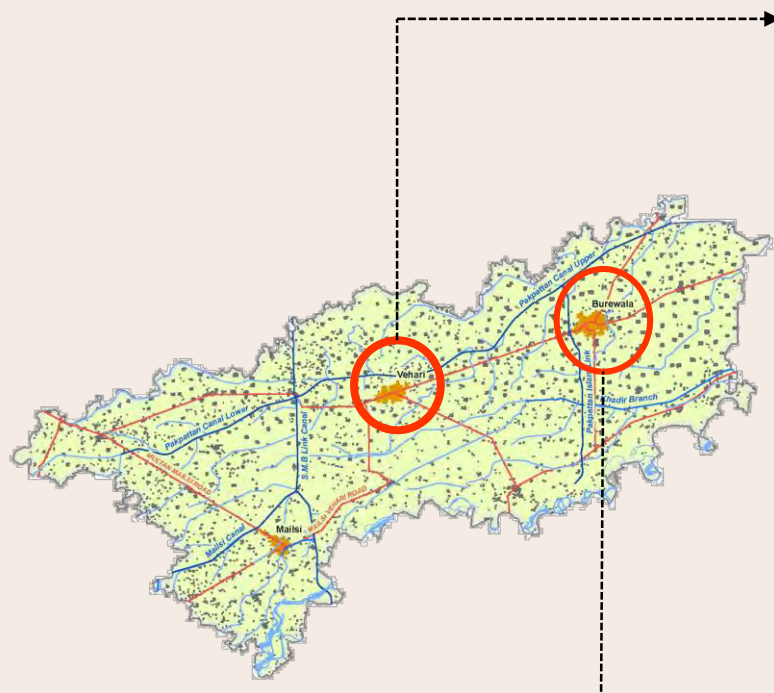
	Low Density Areas	Medium Density Areas	High Density Areas
Toba Tek Singh	↑ 21%	↓ -21%	-
Kamalia	↑ 44%	↓ -24%	-
Gojra	↓ -5%	↑ 9%	-

District: Vehari

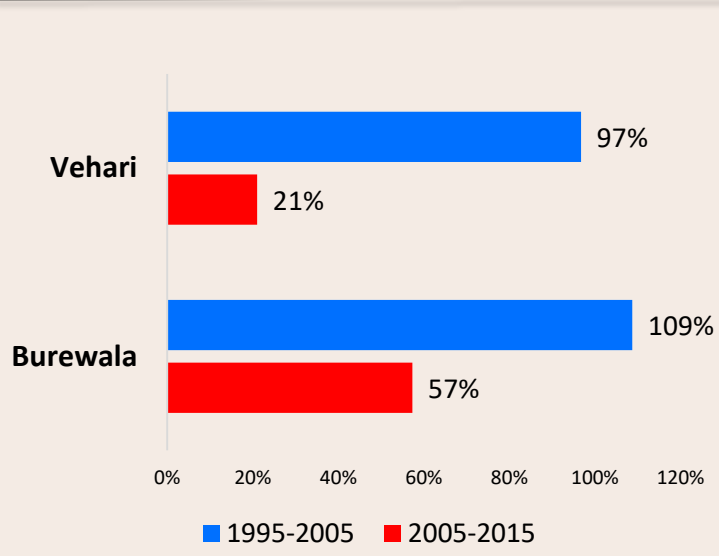
Urban Expansion

Vehari

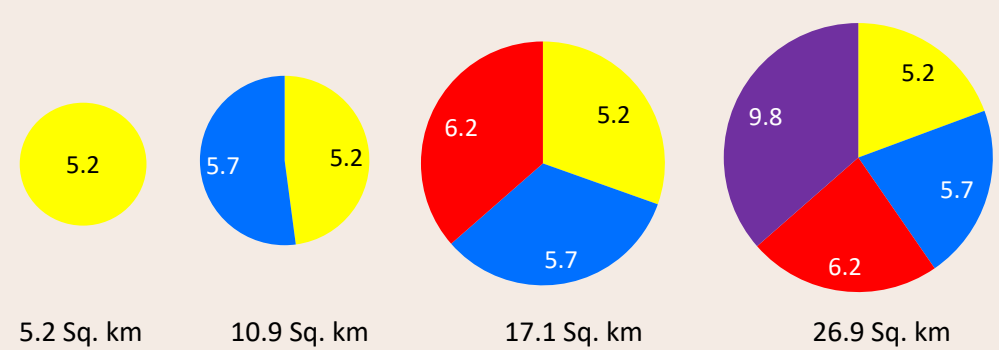
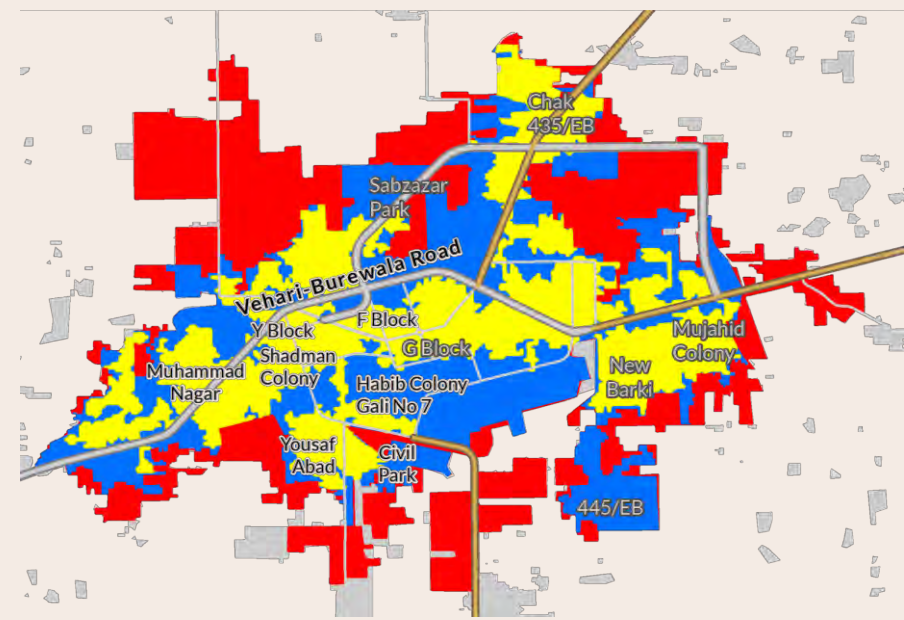
DHQ



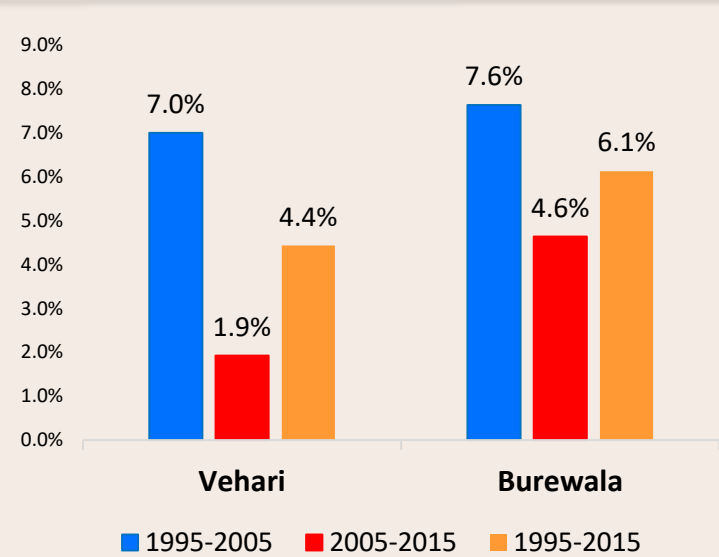
Contiguous Urban Development



Burewala



Annual Area Growth Rate



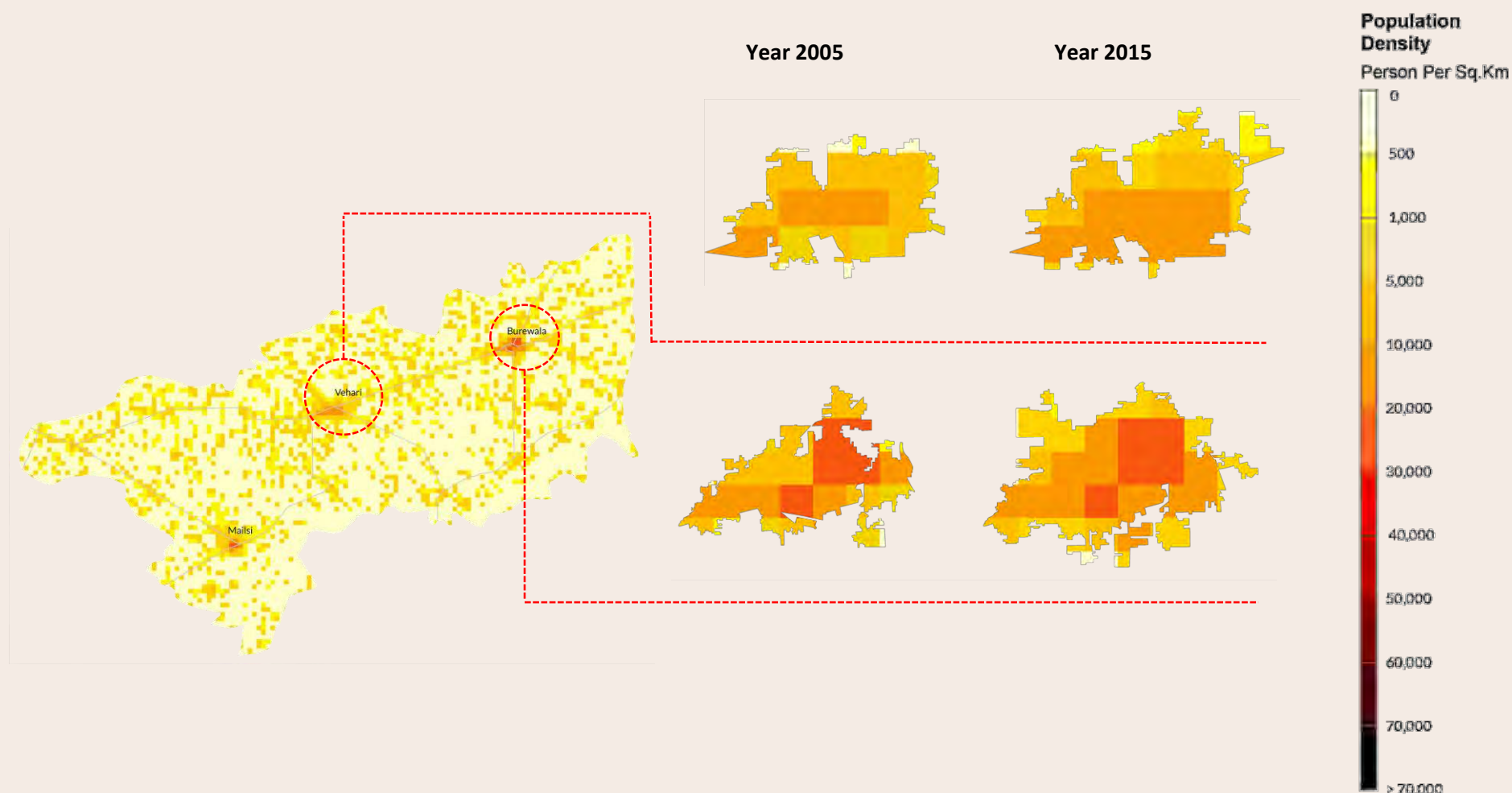
Scale: 1 Inch = 4 Km
The base map in grey is adapted from Google Earth 2017.

Urban Expansion (Sq. Km)

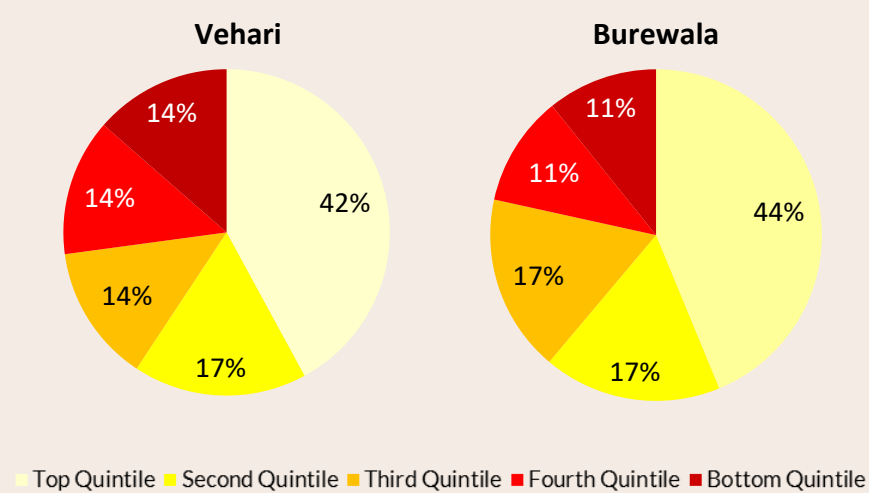


District: Vehari

Population Density



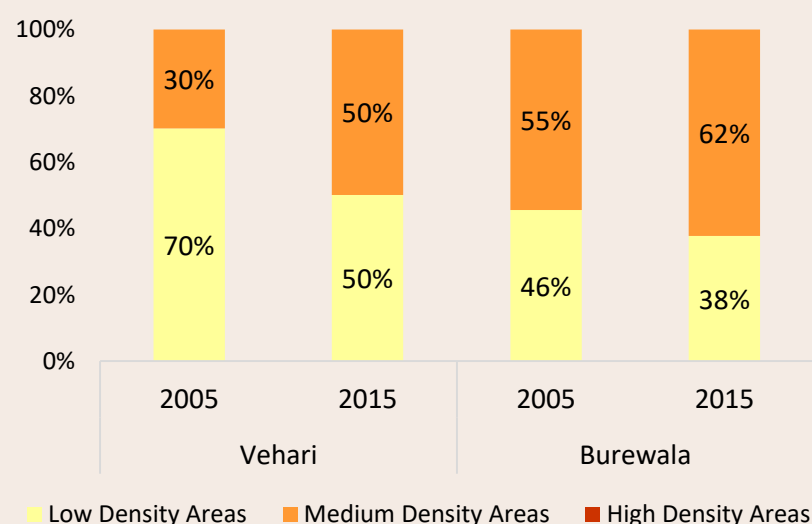
Percentage of Area Occupied by 20% of Population (2015)



Population Area Statistics

	Vehari	Burewala
Population 2005	84,593	139,522
Population 2015	116,361	206,311
Pop. Change '05-'15	37.55%	47.87%
Pop. Annual Growth Rate '05-'15	3.24%	3.99%
Area 1995 (Sq. Km)	5.14	5.20
Area 2005 (Sq. Km)	10.10	10.87
Area 2015 (Sq. Km)	12.23	17.10
Area Change '95-'05	96.77%	108.76%
Area Change '05-'15	21.02%	57.35%
Area Annual Growth Rate '95-'05	7.00%	7.64%
Area Annual Growth Rate '05-'15	1.93%	4.64%
Pop. Density 2005 (Per Sq. Km)	8,372	12,841
Pop. Density 2015 (Per Sq. Km)	9,516	12,067
Density Change '05-'15	13.66%	-6.03%
Land Consumption Index	0.56	1.20

Intra-city Area Composition



Percentage Change in Area Composition (2005-2015)

	Low Density Areas	Medium Density Areas	High Density Areas
Vehari	↓ -29%	↑ 67%	-
Burewala	↓ -17%	↑ 14%	-



THE URBAN UNIT
Urban Sector Planning & Management Services Unit (Pvt.) Ltd.
A Public Sector Company.

503 - Shaheen Complex, Edgerton Road, Lahore
Ph: 042 - 99205316 - 22 Fax: 042 - 99205323
E-mail: uspmu@punjab.gov.pk www.irispujnb.gov.pk



www.urbanunit.gov.pk