

# Sustainable Urban Mobility Plans

Khyber Pakhtunkhwa province

SUMPs of Peshawar, Mingora and Abbottabad

Day 1 - Tuesday November 7<sup>th</sup>



Harold HUREL

Urban mobility



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# Khyber Pakhtunkhwa SUMPs

*One Province, three cities*



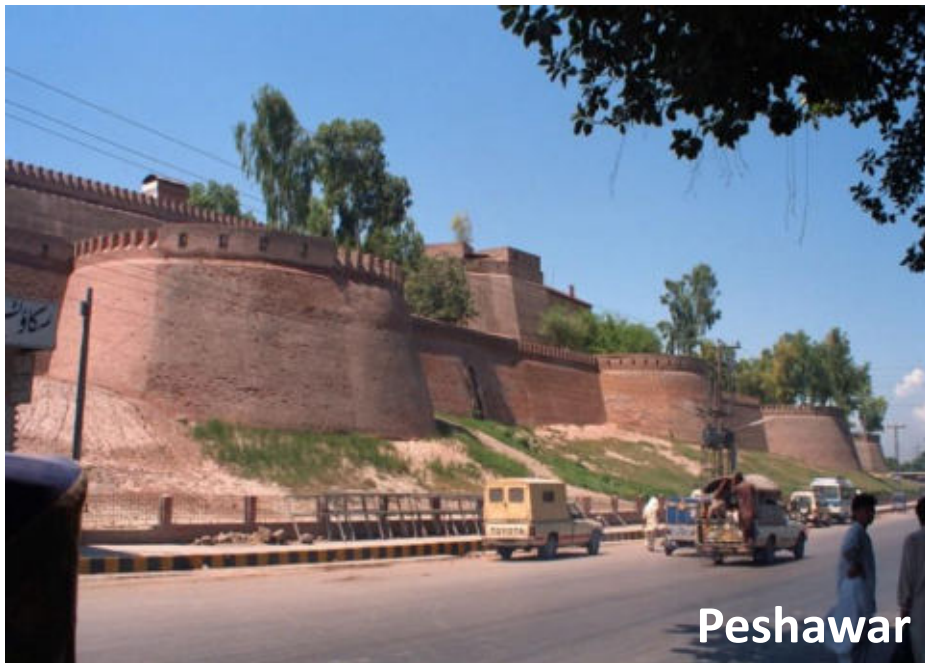
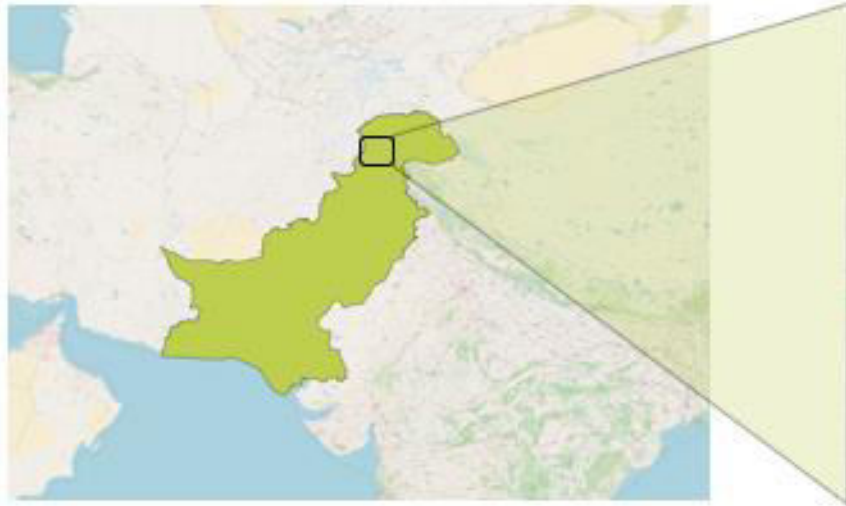
# One Province, three cities

## A specific way to carry out a SUMP

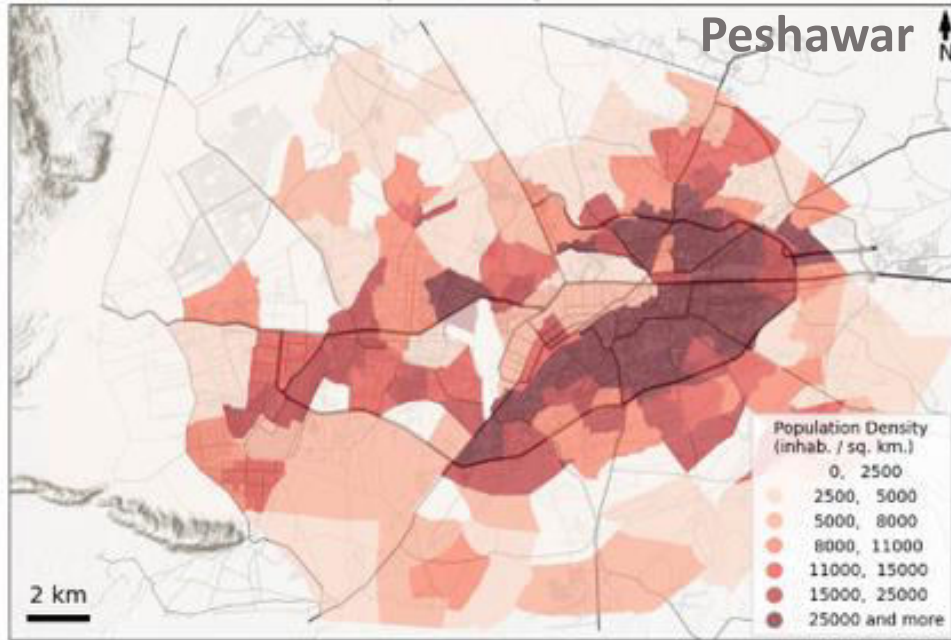
- One Province, Khyber Pakhtunkhwa
- Three cities: Peshawar, Mingora and Abbottabad
- A coherent mobility strategy at province level
- Specific mobility projects at city levels
- Overall coordination for SUMP implementation at Province level



# One Province, three cities



# One Province, three cities



## Peshawar SUMP area 2023

3 708 000 inhabitants

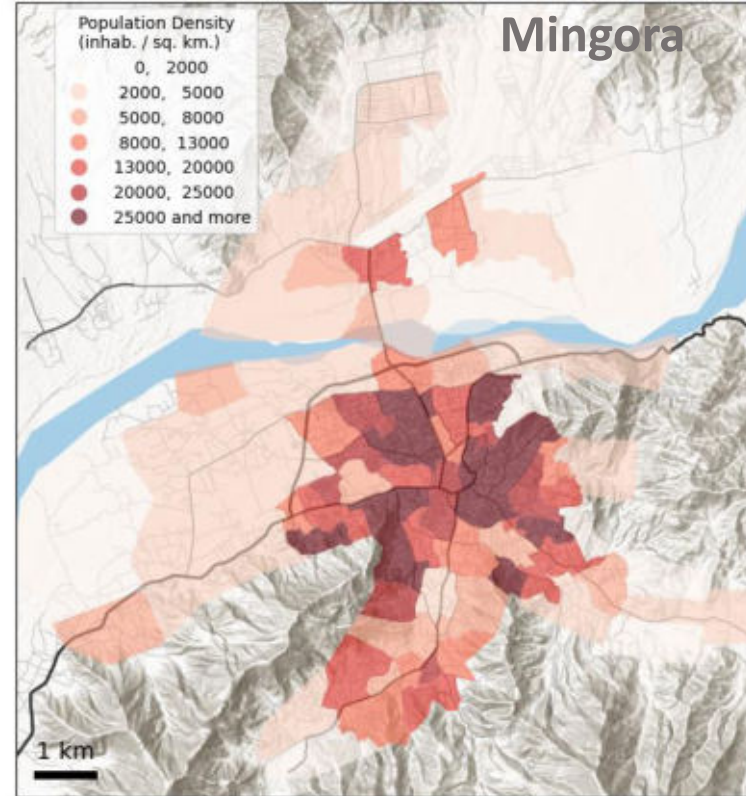
129 km<sup>2</sup> urban area

## Peshawar SUMP area 2040

6 090 000 inhabitants

238 km<sup>2</sup> urban area

+ 109 km<sup>2</sup>, 84% growth



## Mingora SUMP area 2023

494 000 inhabitants

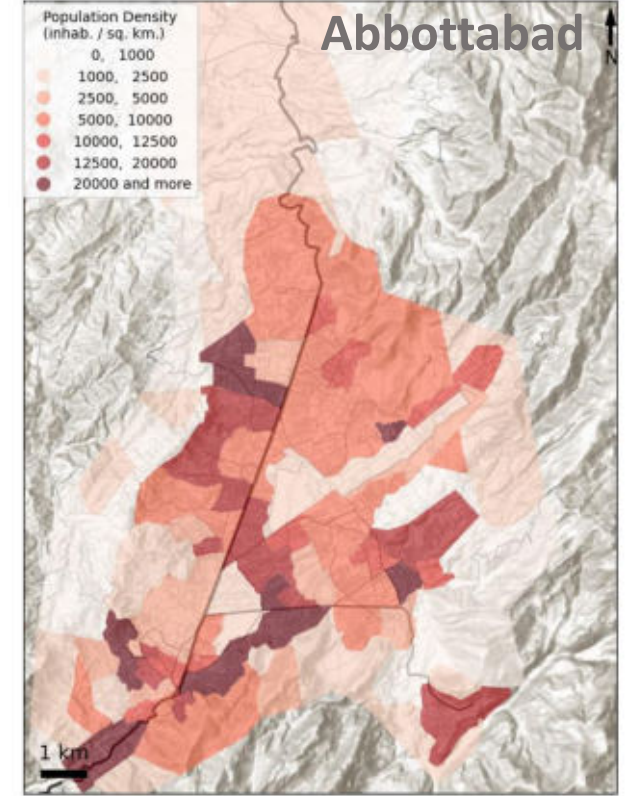
23 km<sup>2</sup> urban area

## Mingora SUMP area 2040

625 000 inhabitants

47 km<sup>2</sup> urban area

+ 24 km<sup>2</sup>, 104 % growth



## Abbottabad SUMP area 2023

645 000 inhabitants

54 km<sup>2</sup> urban area

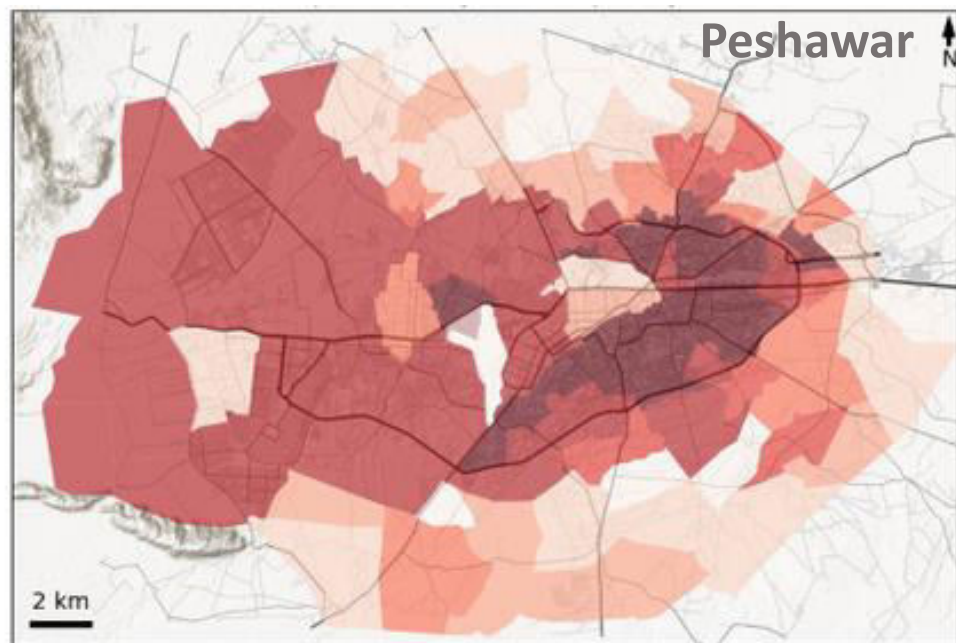
## Abbottabad SUMP area 2040

865 000 inhabitants

67 km<sup>2</sup> urban area

+ 13 km<sup>2</sup>, 24% growth

# One Province, three cities



## Peshawar SUMP area 2023

3 708 000 inhabitants

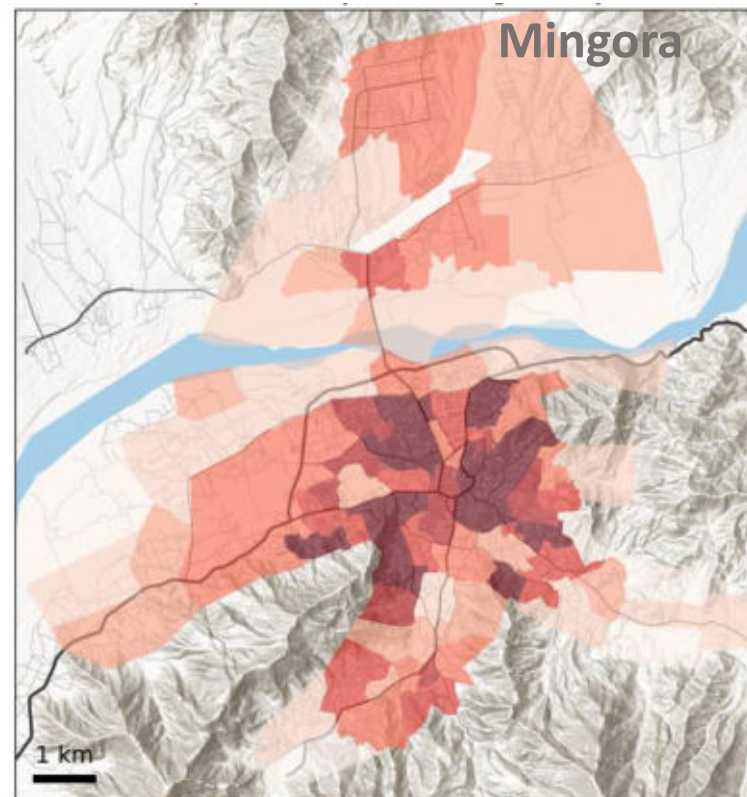
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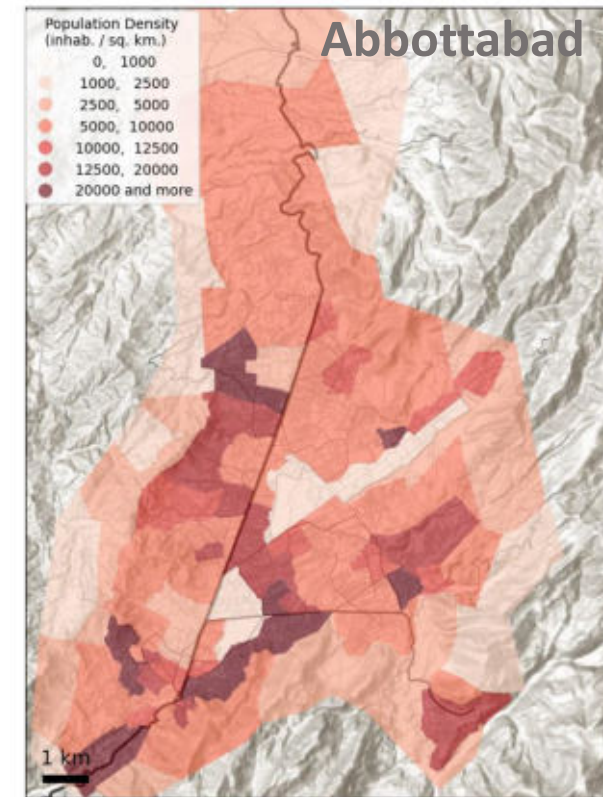
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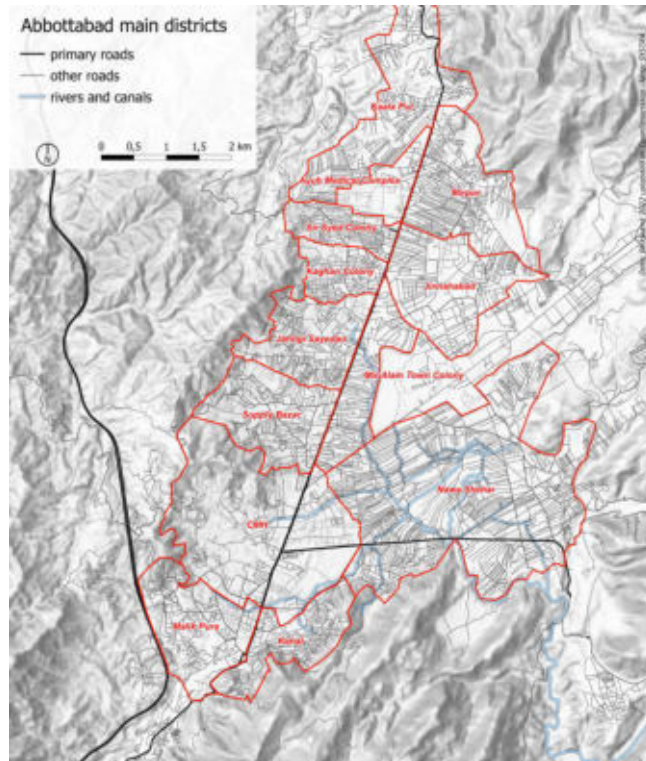
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# One Province, three cities



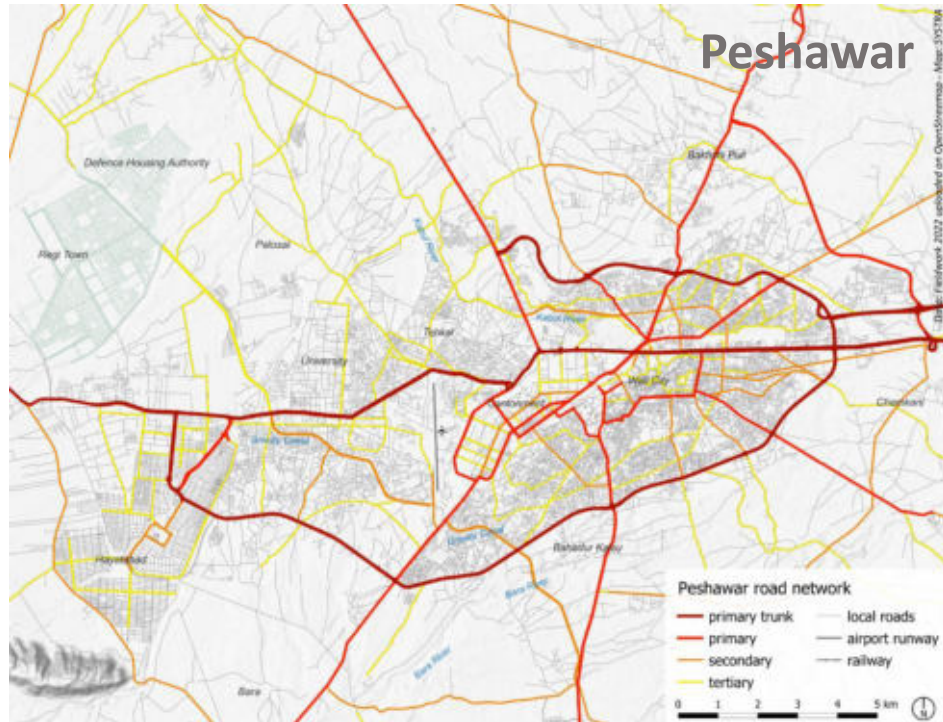


# Khyber Pakhtunkhwa SUMPs

*From vision to actions*

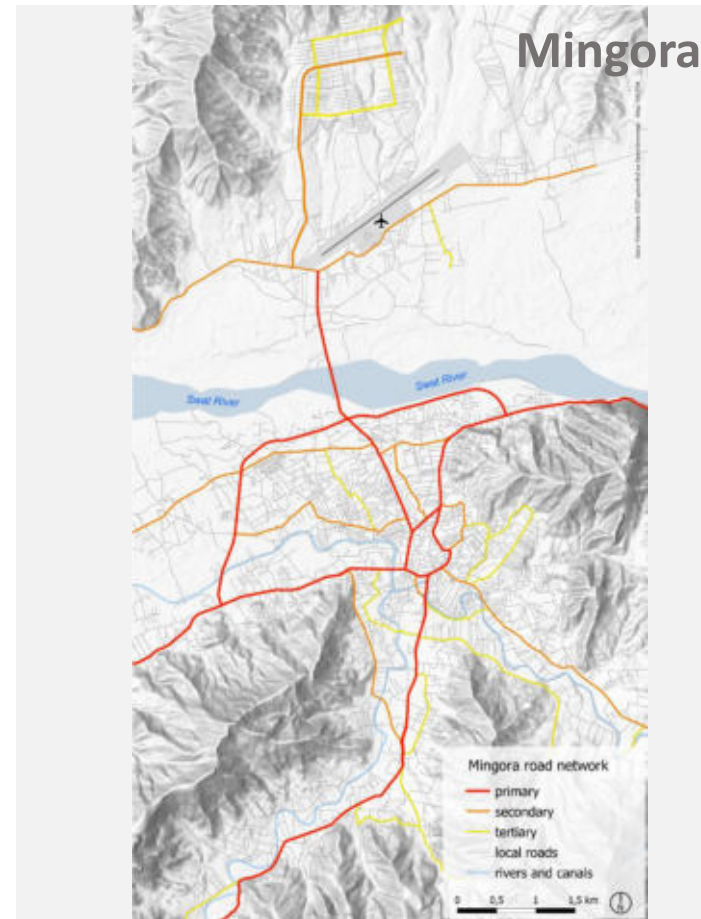


# From vision to actions



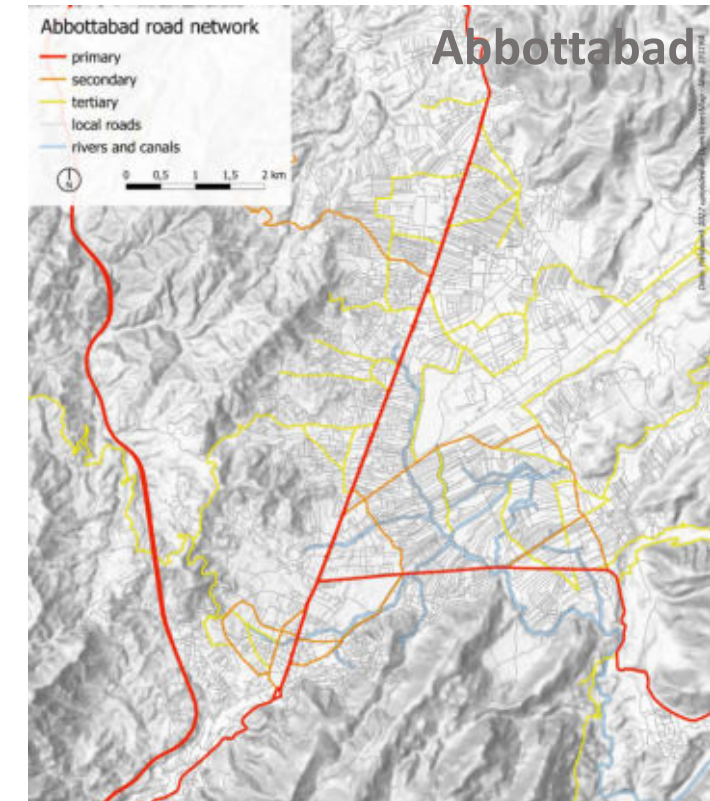
## Peshawar road network 2023

2 930 km  
 22% main roads (645 km)  
 78% local roads (2 285 km)



## Mingora road network 2023

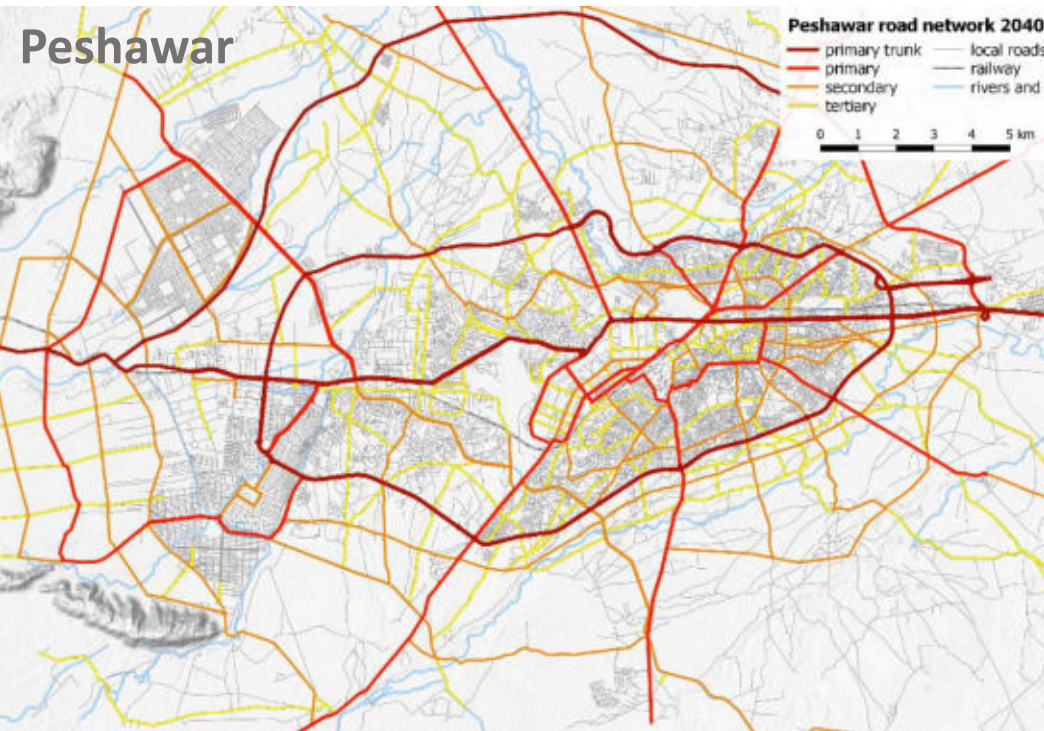
775 km  
 12% main roads (91 km)  
 88% local roads (684 km)



## Abbottabad road network 2023

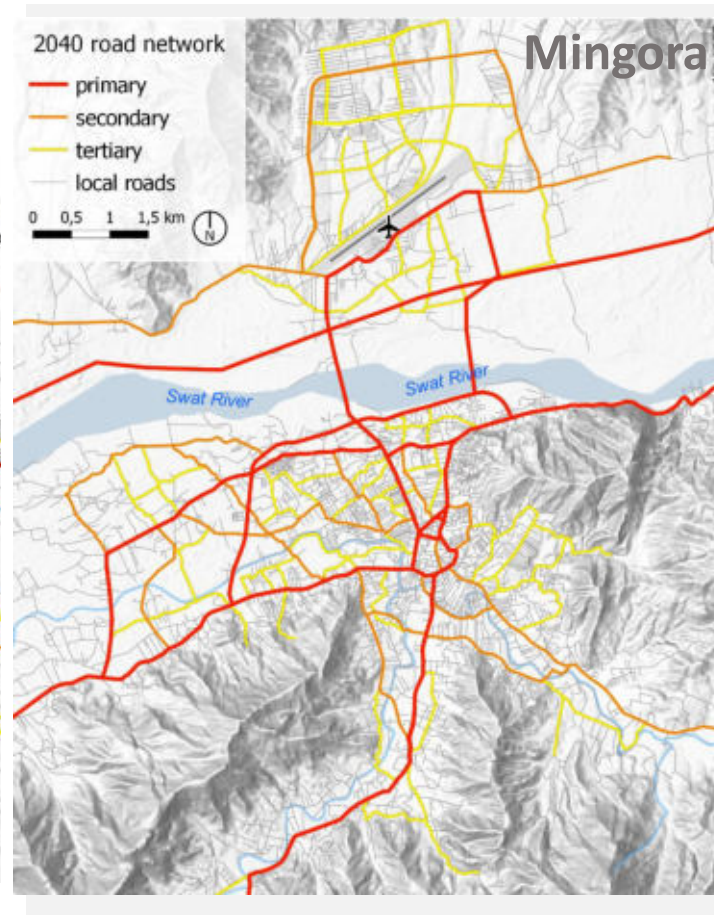
947km  
 13% main roads (122 km)  
 87% local roads (825 km)

# From vision to actions



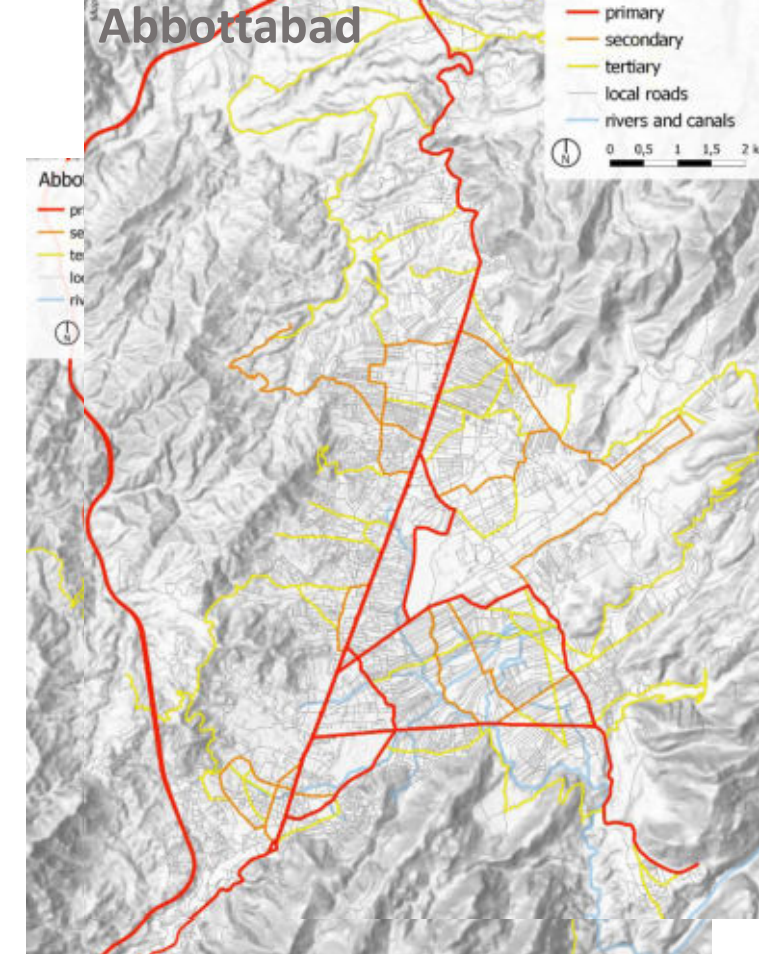
**Peshawar road network 2040**

3 238 km (+308 km, + 11%)  
 32% main roads (1 026 km)  
 68% local roads (2 212 km)



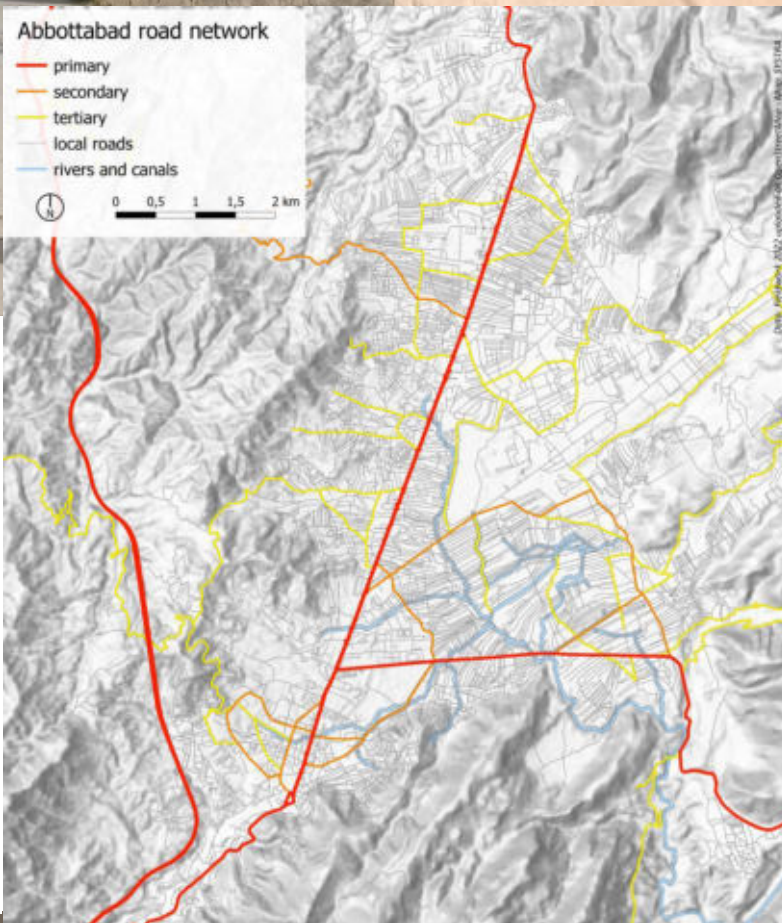
**Mingora road network 2040**

807 km (+ 31 km / + 4%)  
 22 % main roads (174 km)  
 78% local roads (632 km)

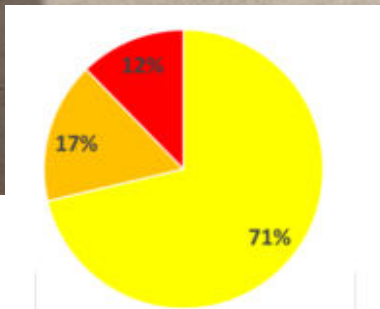
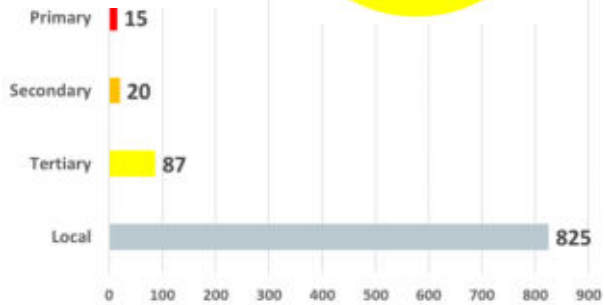


**Abbottabad road network 2040**

1 199km (+252 km/+ 27%)  
 14 % main roads (165 km)  
 86% local roads (1 034km)

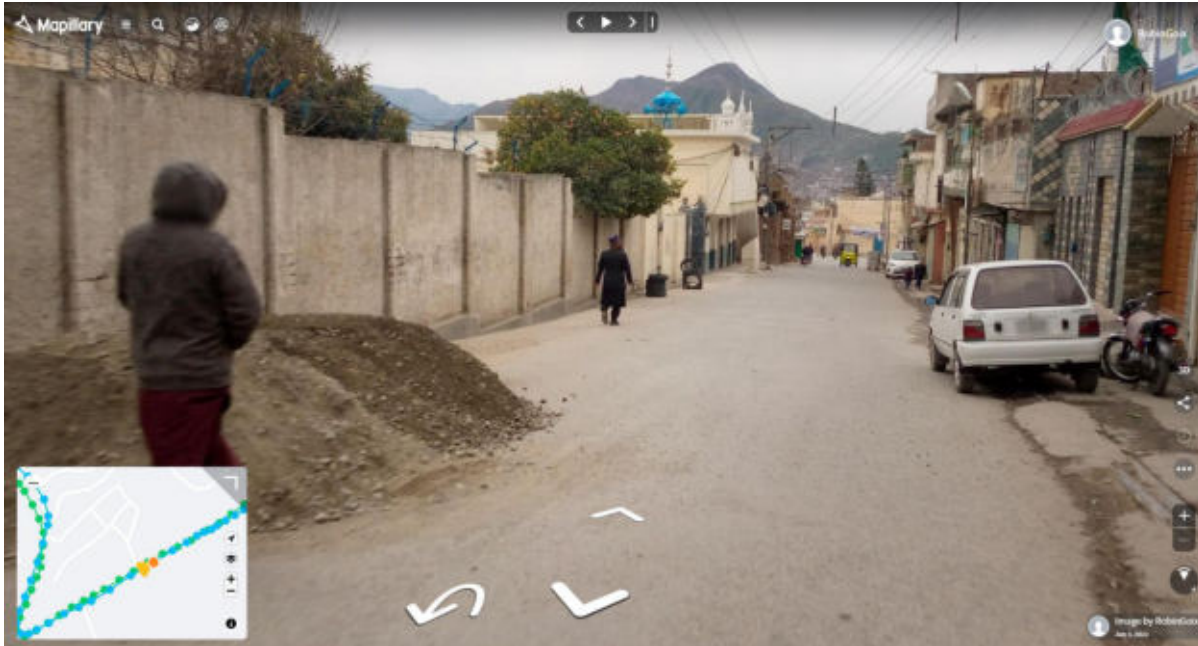
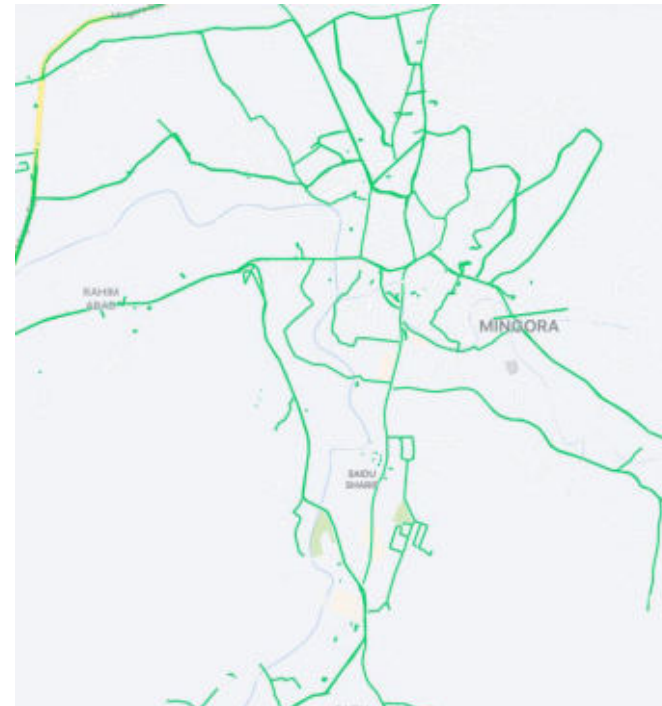
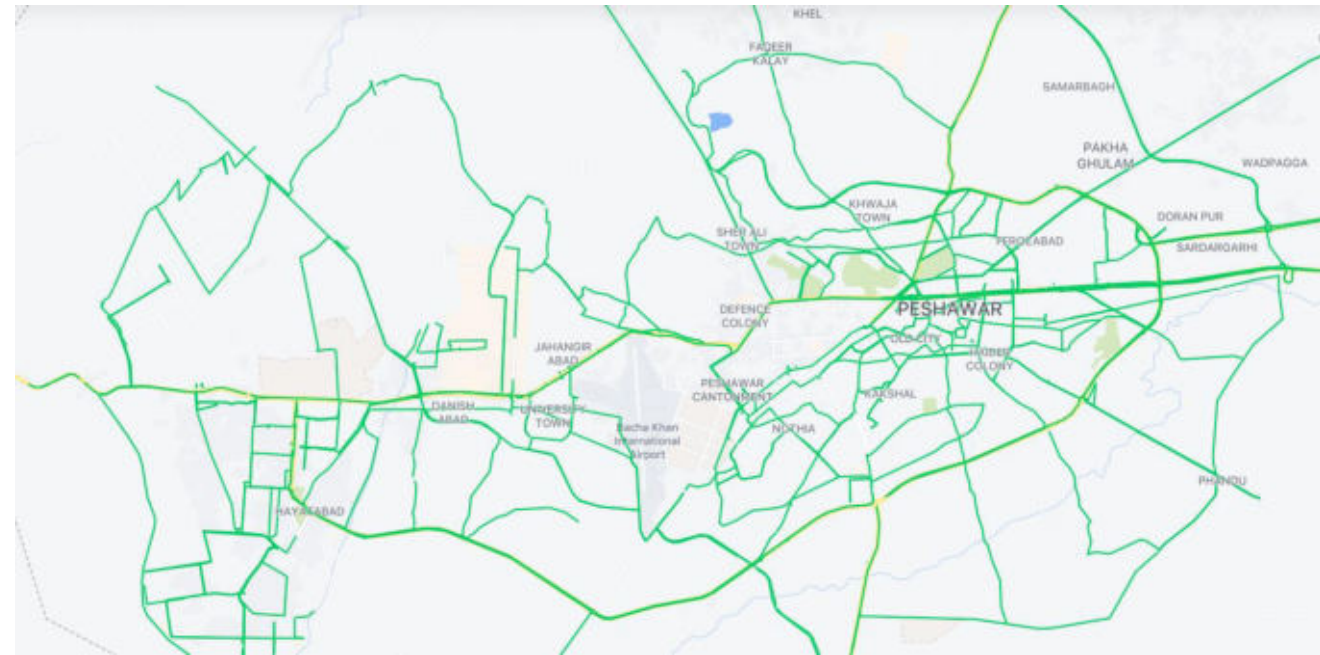


### ROAD NETWORK CONDITIONS



# From vision to actions

Kartaview and Mapillary now provide an immersive streetview in the three cities



# From vision to actions



**RICKSHAW**

- 3 seaters
- 45,000 rickshaws
- 22,400 permits (RTA)
- No dedicated route operation



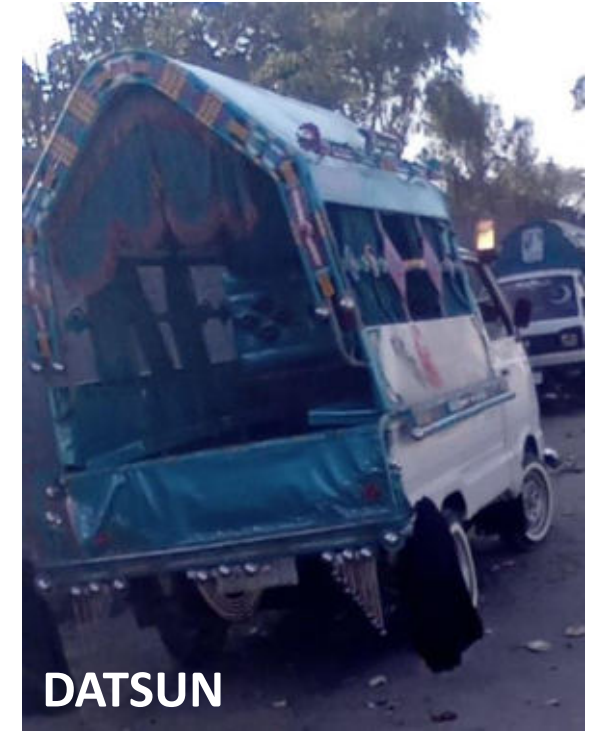
**QINGQI**

- 6 seaters
- No official estimate
- No dedicated route operation



**SUZUKI**

- 12 seaters
- 5,200 vehicles (RTA)
- 10 routes
- No urban areas operation



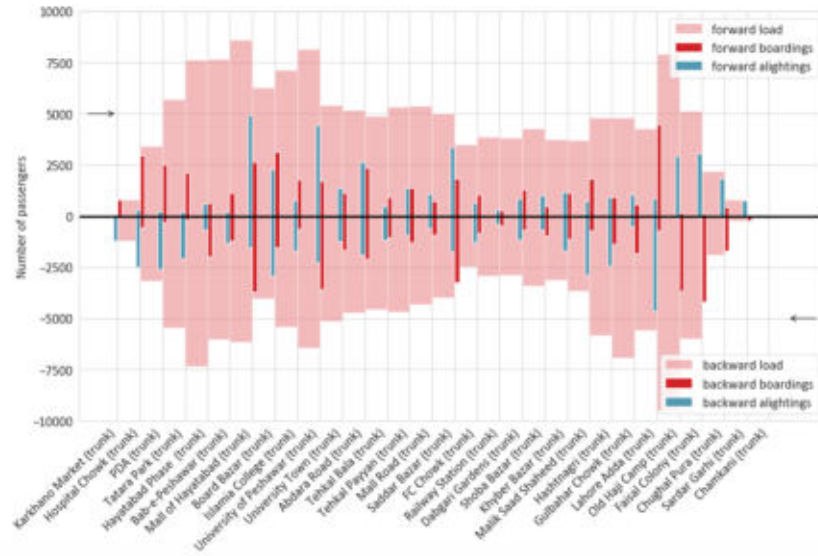
**DATSUN**

- 12 seaters
- No official estimate
- 10 routes
- No urban areas operation

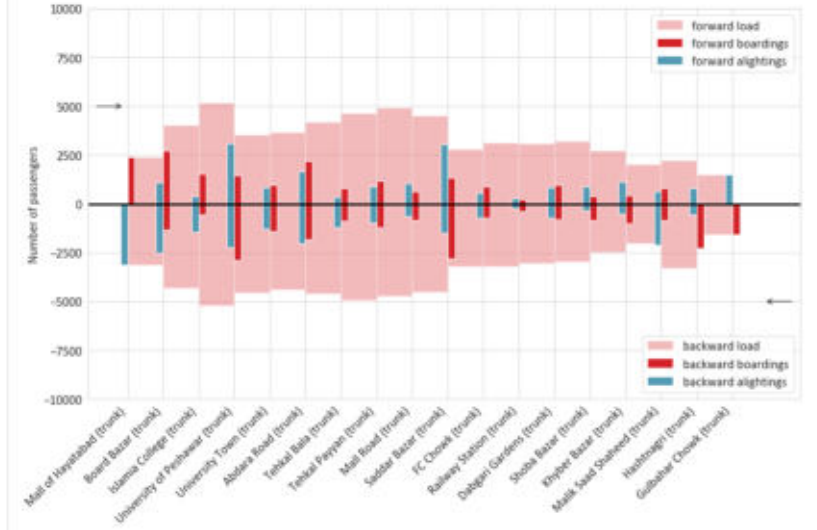
# From vision to actions



Peshawar BRT SR02

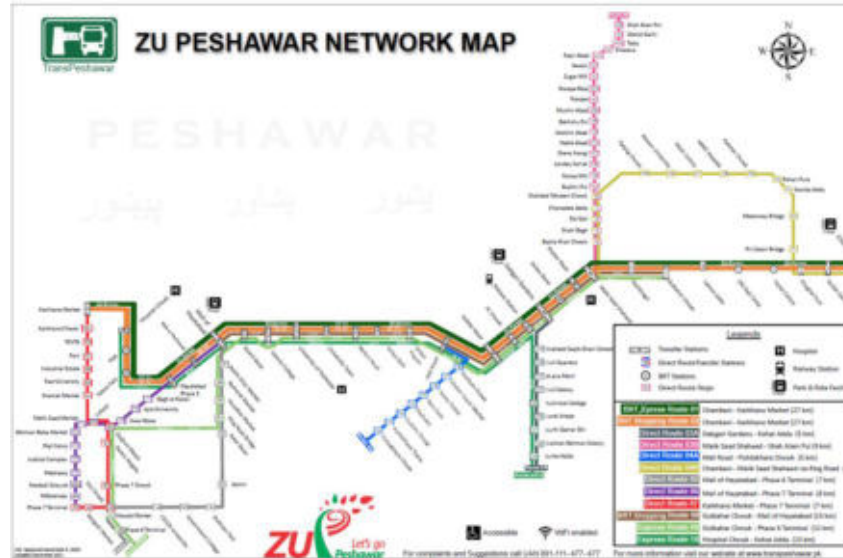
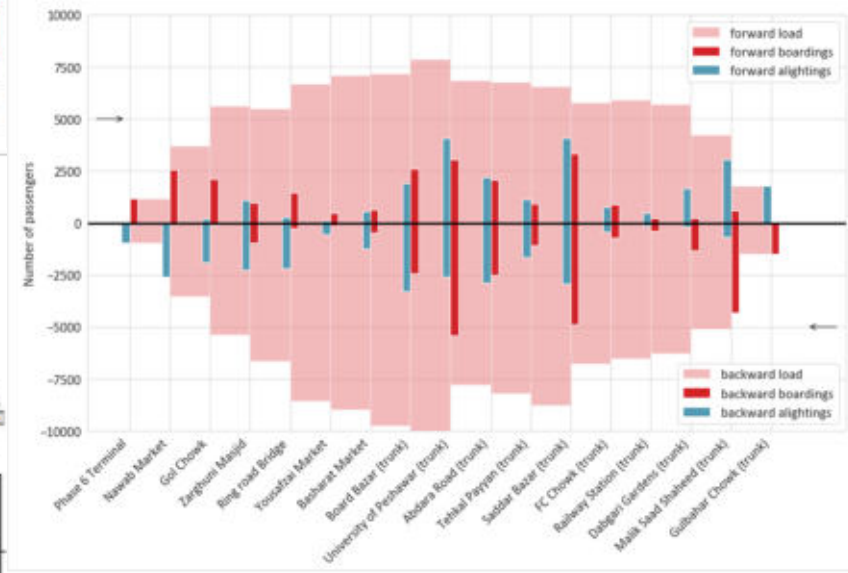


Peshawar BRT SR08

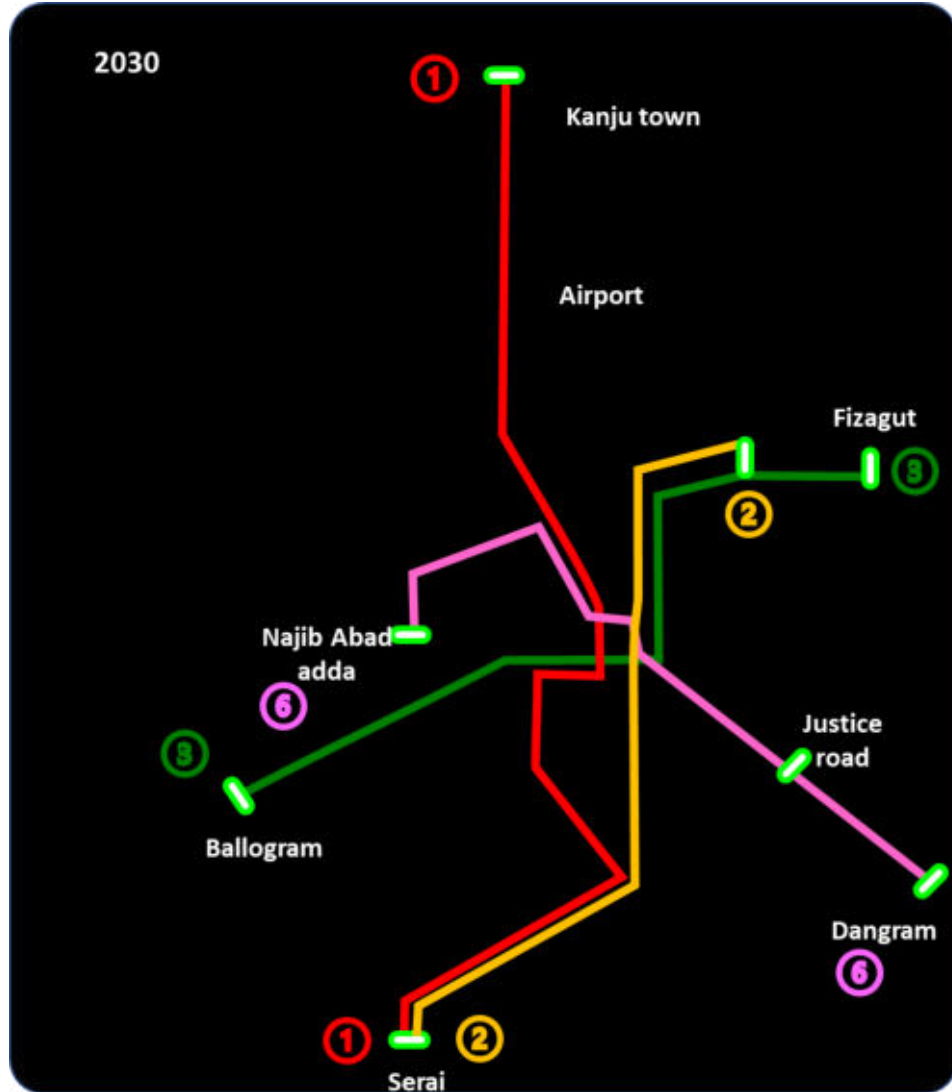


route	route type	Length (km)	N°Stops	Cool speed km/h	trav. time (mins)	headway (min)	daily boardings
SR02	Stopping Route	27	30	25	65	5-6	83 000
SR08	Stopping Route	15	18	26	35	6	41 000
ER09	Express Route	23	14	29	47	6-8	49 000

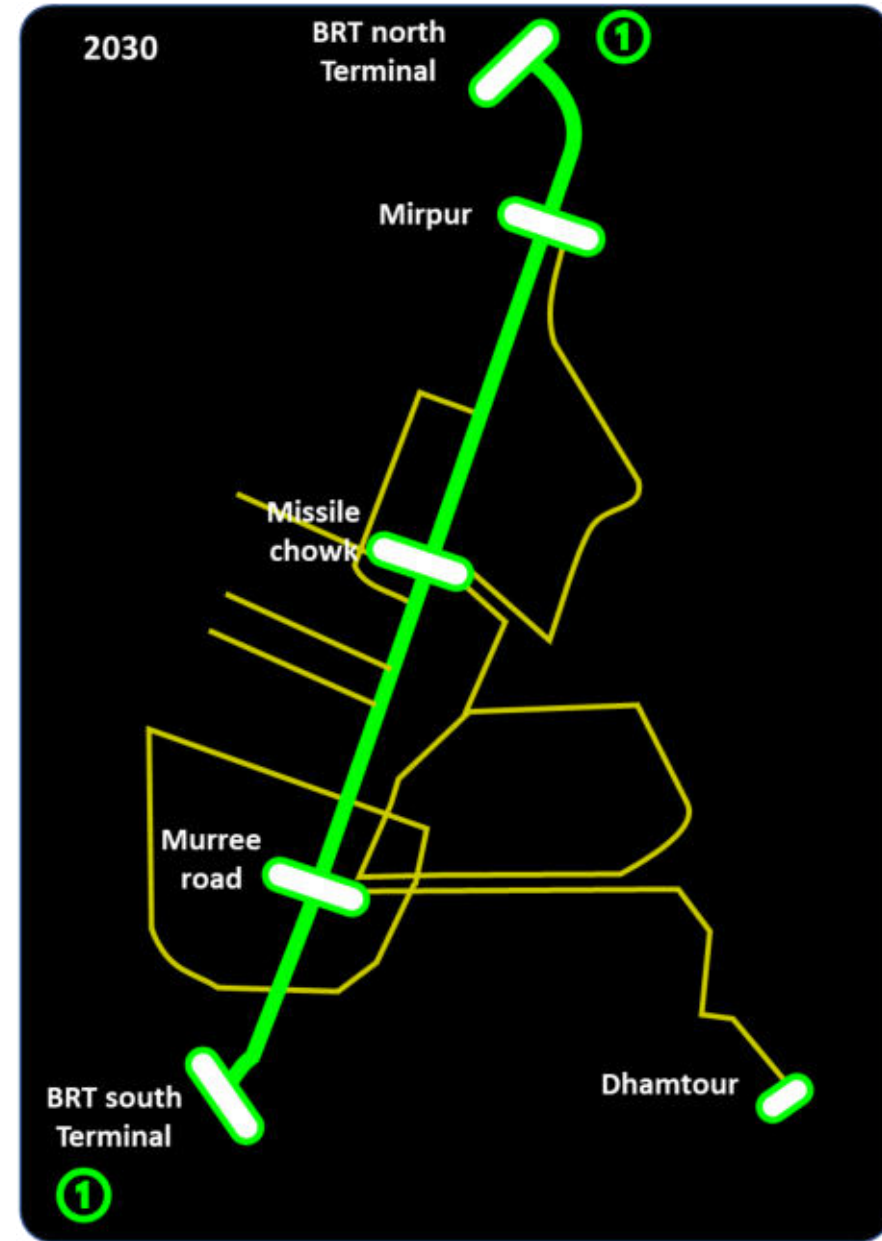
Peshawar BRT ER09



# From vision to actions



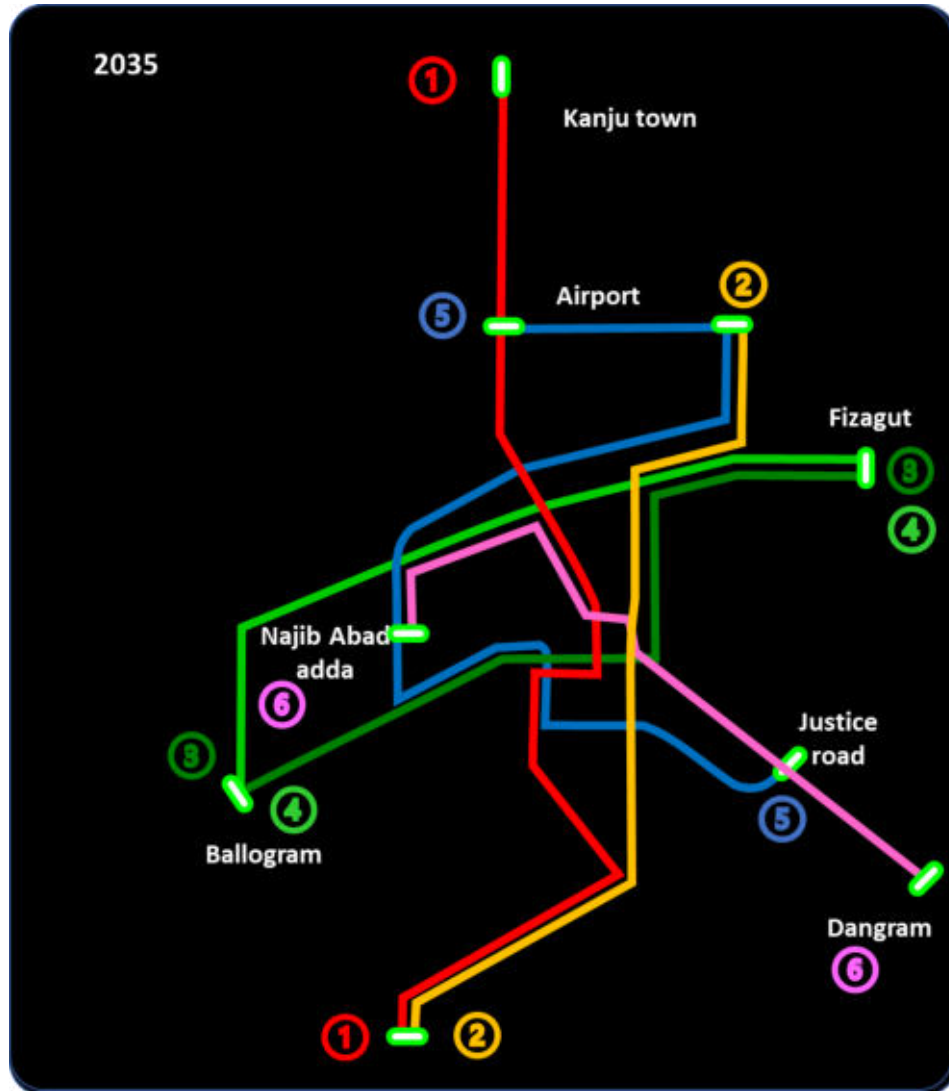
Mingora bus network 2030



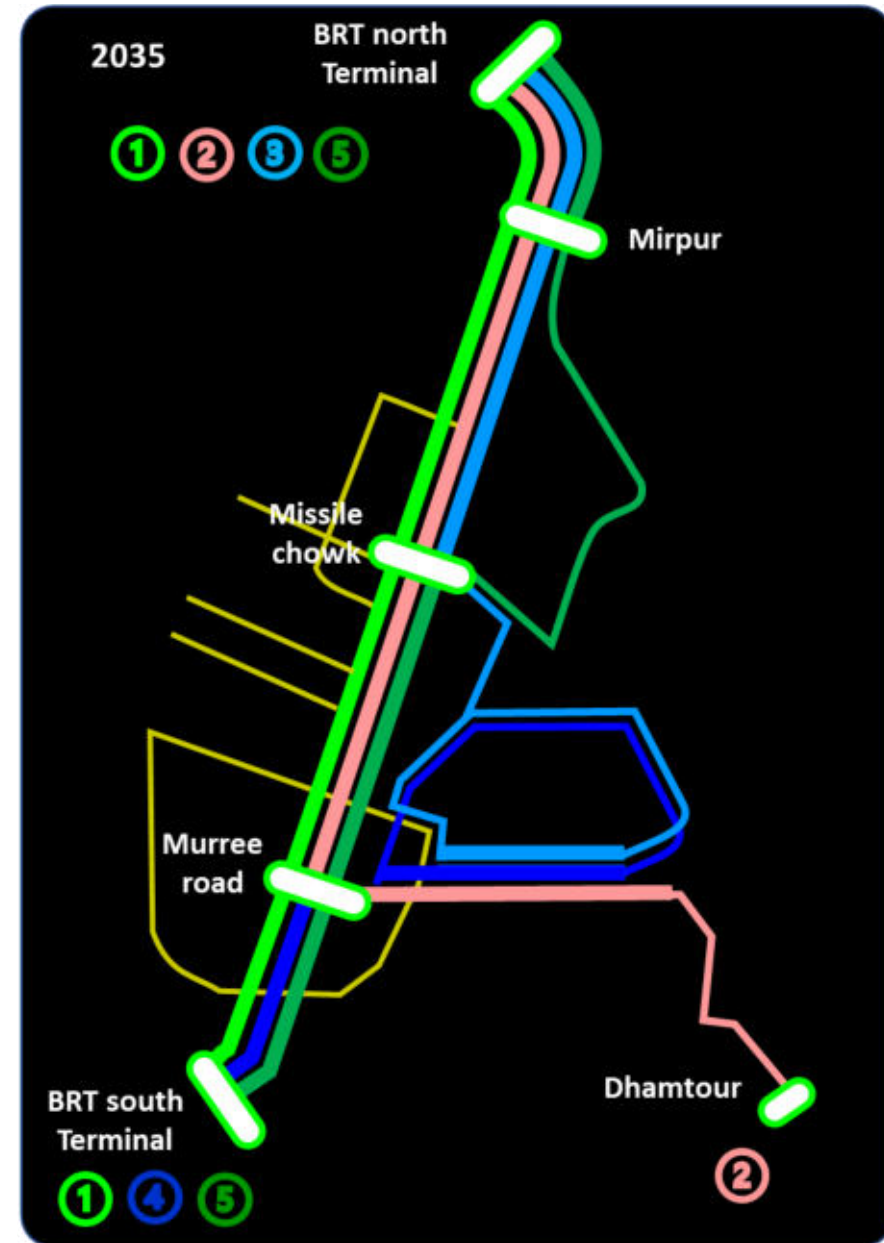
Abbottabad BRT network 2030



# From vision to actions

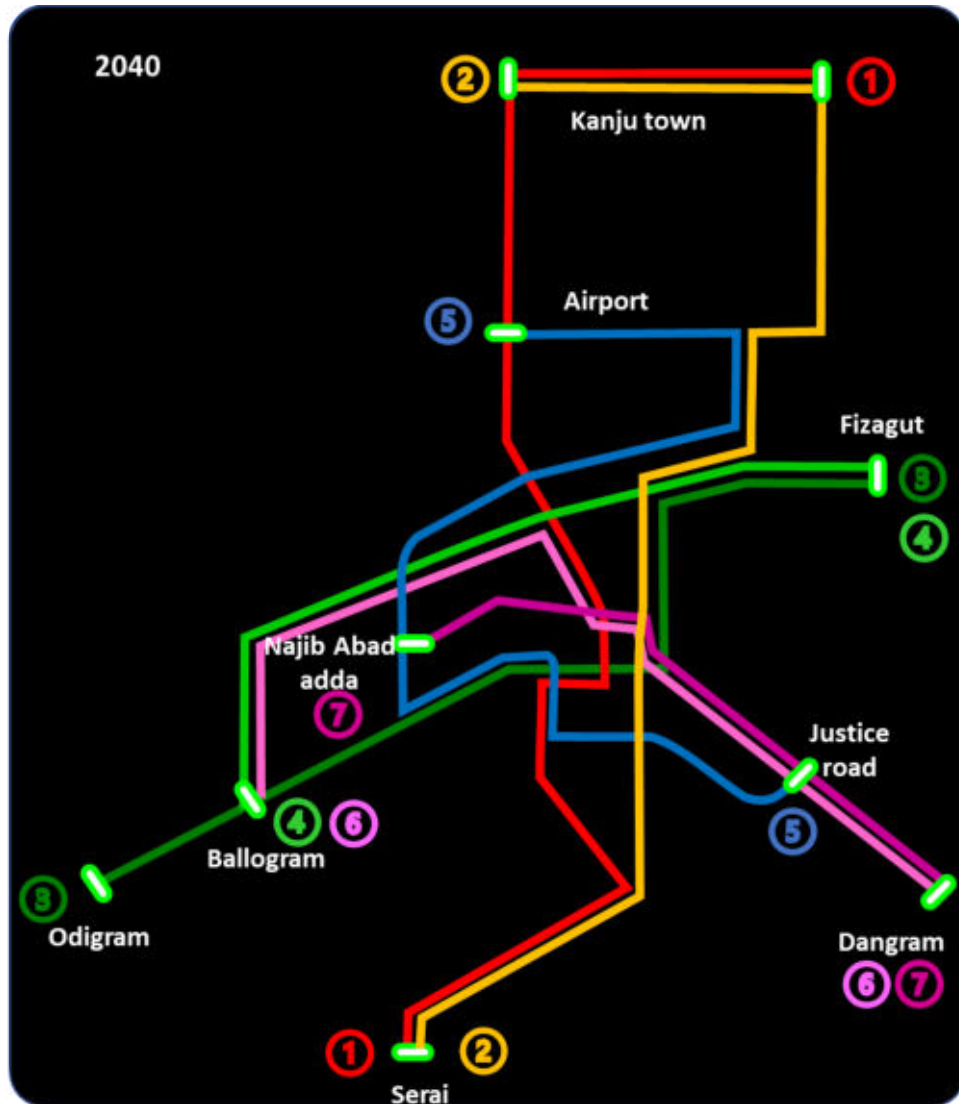


Mingora bus network 2035

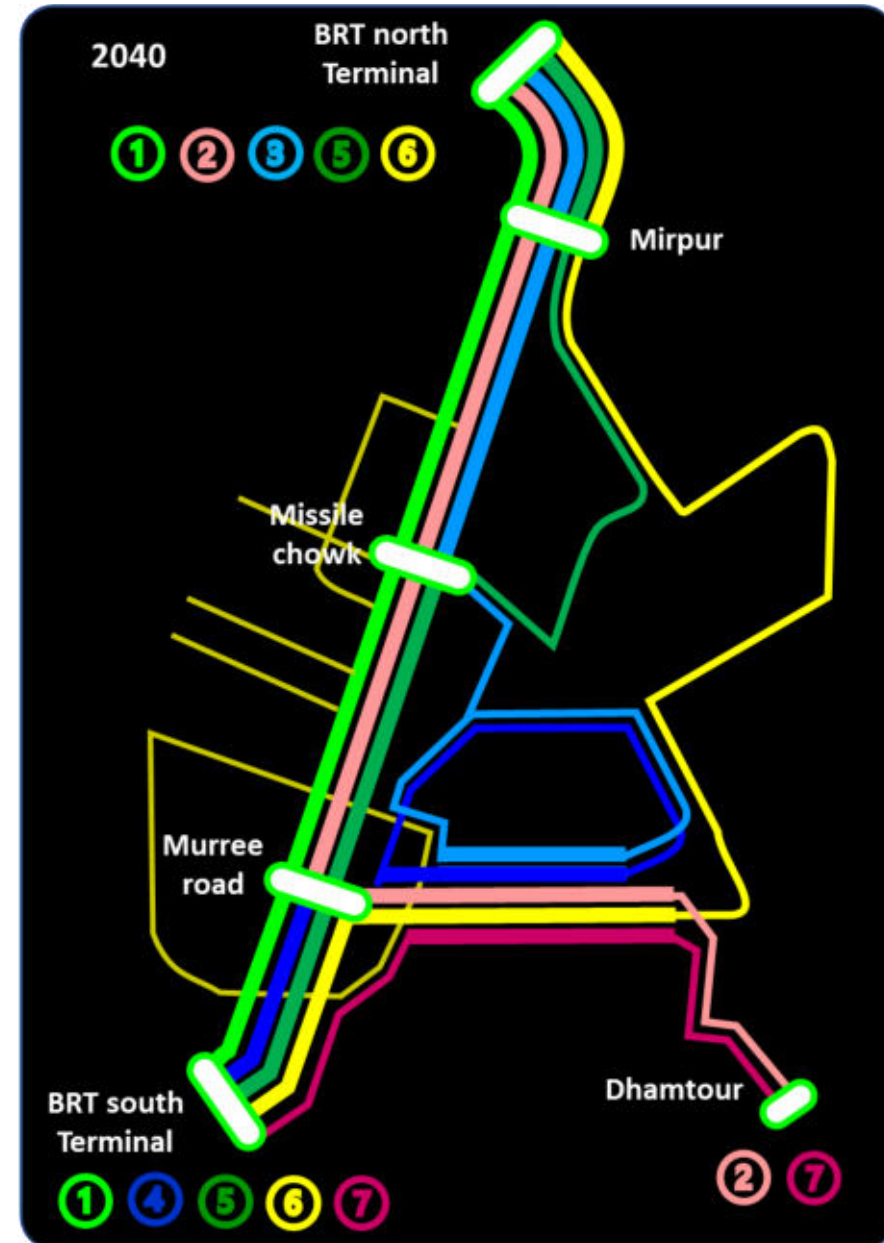


Abbottabad BRT network 2035

# From vision to actions

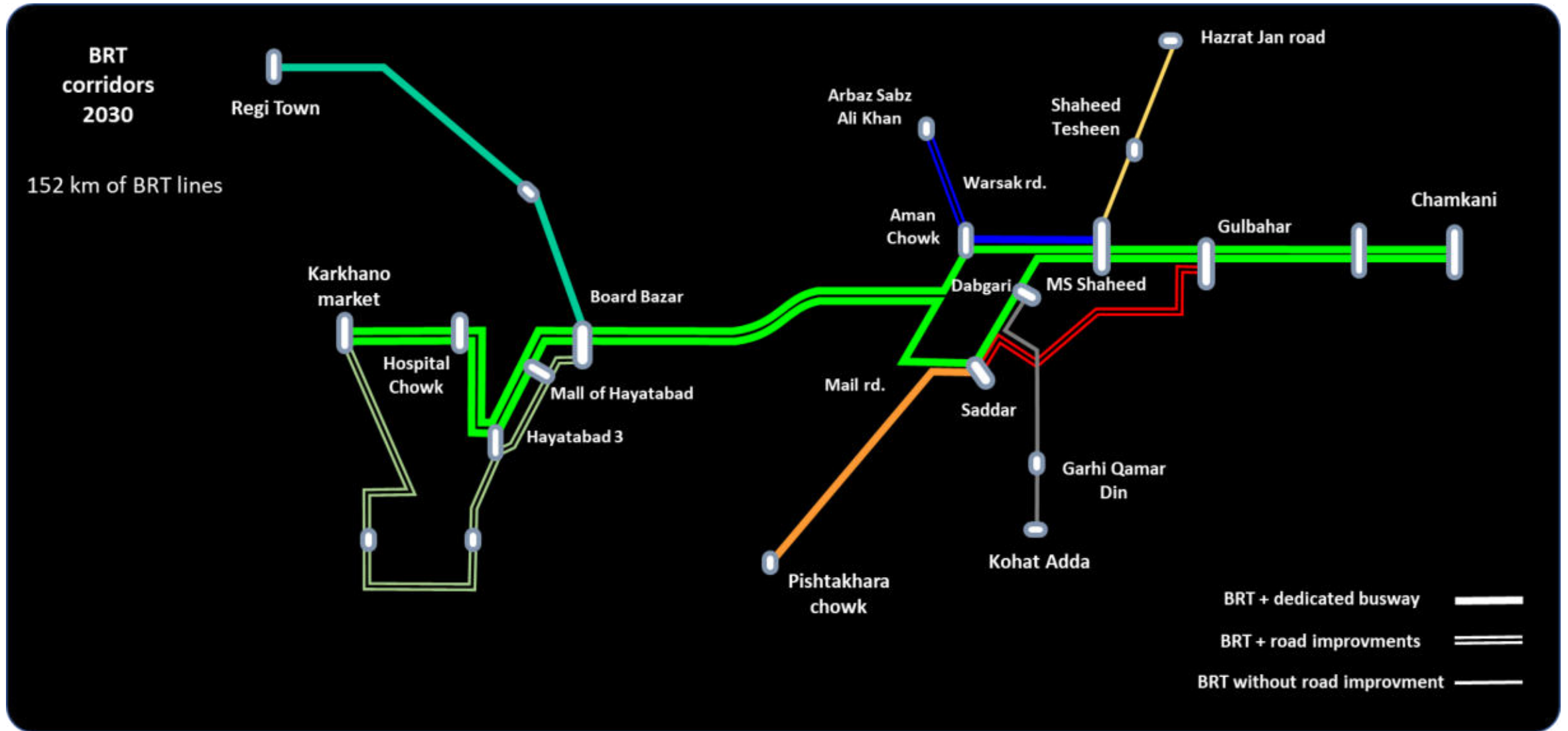


Mingora bus network 2040



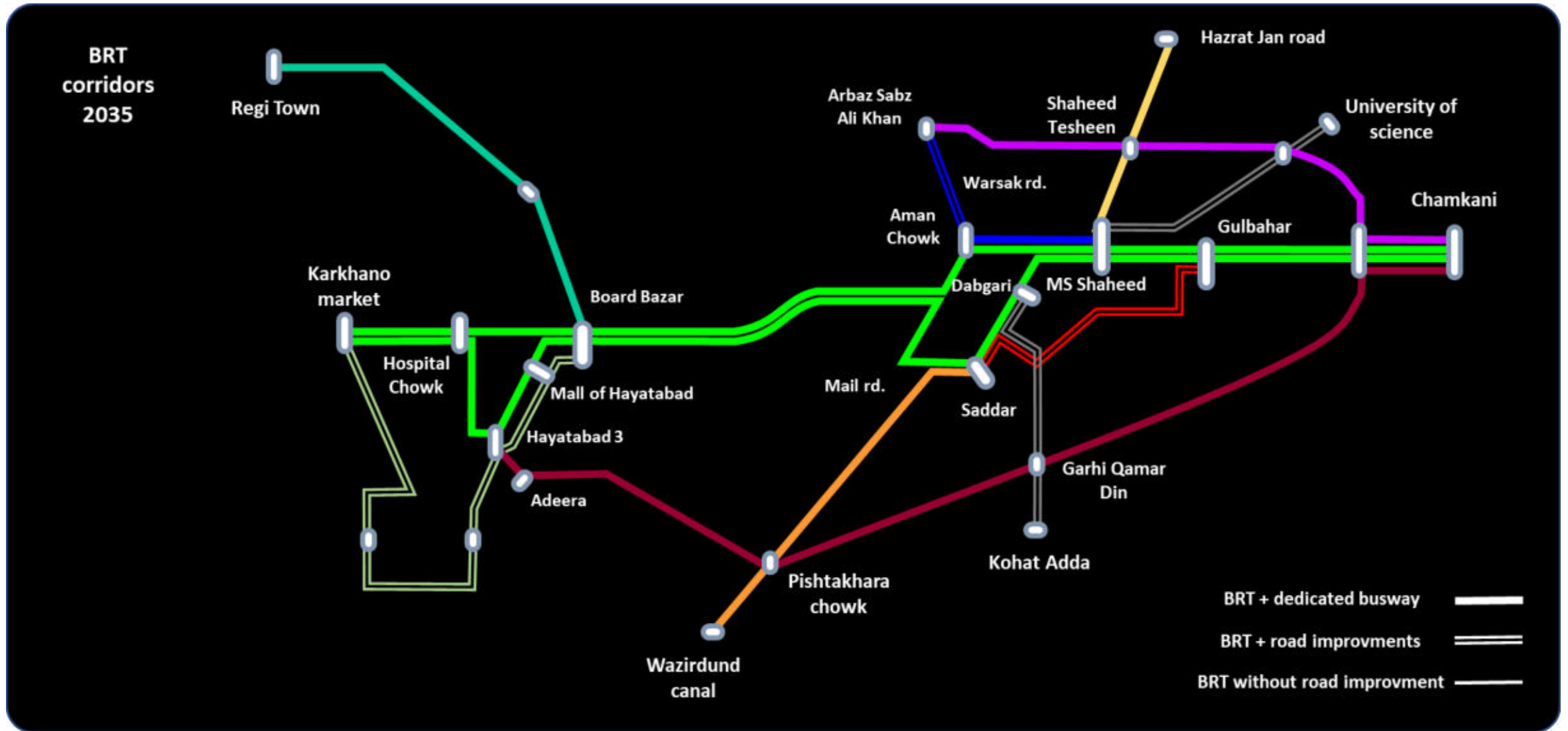
Abbottabad BRT network 2040

# From vision to actions



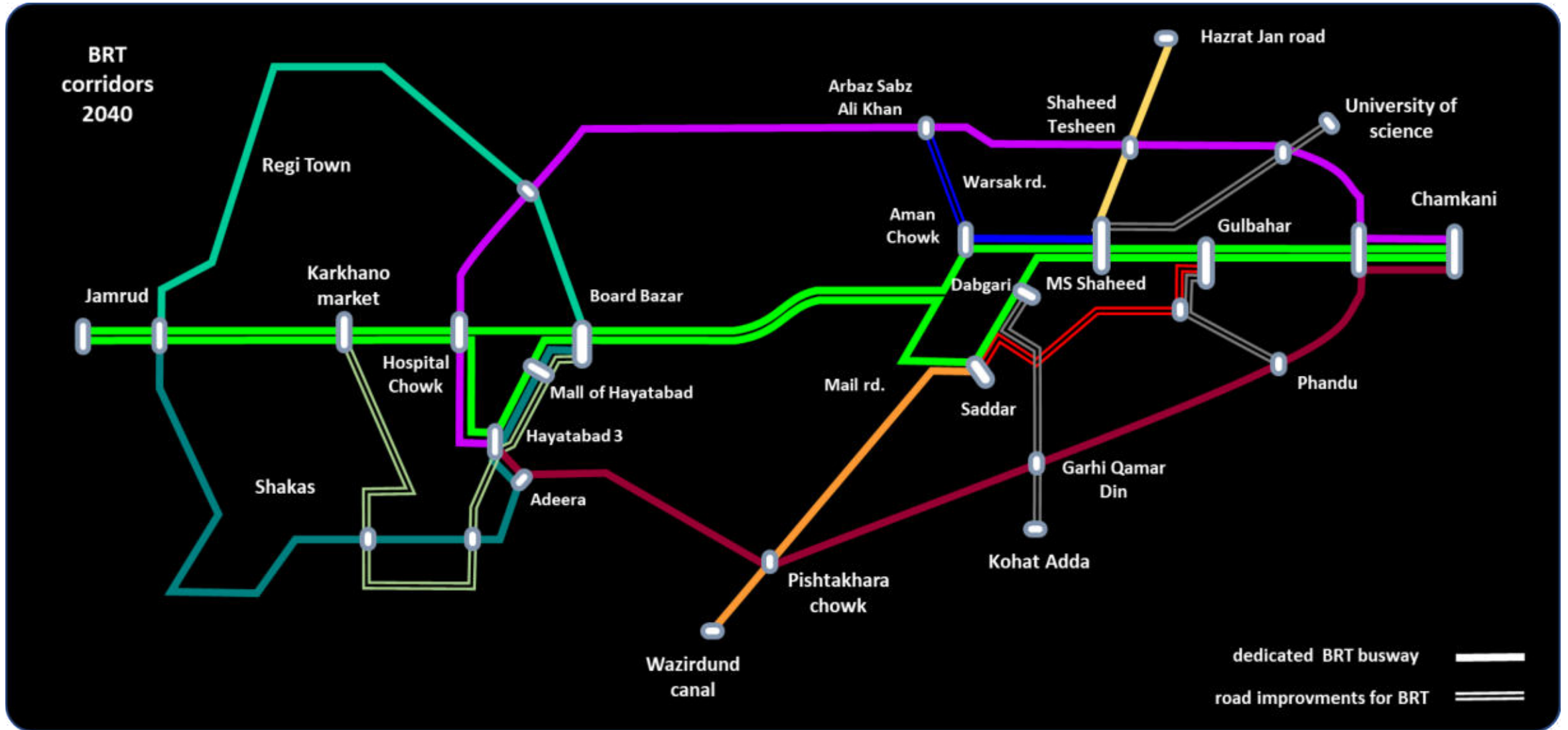
Peshawar BRT network 2030

# From vision to actions



Peshawar BRT network 2035

# From vision to actions



Peshawar BRT network 2040

# Khyber Pakhtunkhwa SUMPs

*Strategic framework of action*



# Strategic framework of action

## 1 City, 1 vision

« Make Peshawar a mobility-wise city »

« Make Mingora a sustainable, decongested and mobility-wise city »

« Make Abbottabad an integrated and mobility-wise city »

## 4 ambitions

**AMBITION 1**  
A mobility system articulated to urban growth

**AMBITION 2**  
A connected and integrated city for all citizens and districts

**AMBITION 3**  
Climate and carbon-wise mobility solutions

**AMBITION 4**  
A mobility system caring for economic attractiveness

## 6 objectives

**OBJECTIVE 1**  
ROAD NETWORK

**OBJECTIVE 2**  
MOBILITY SYSTEM

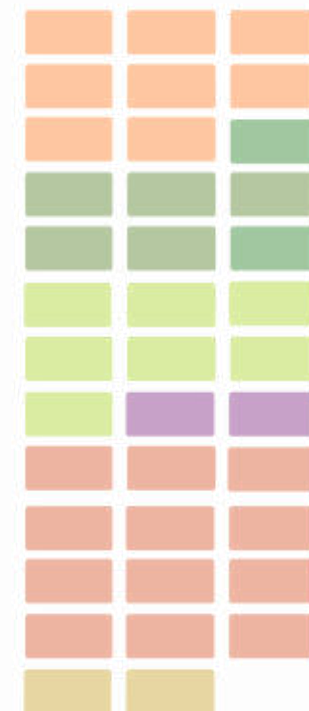
**OBJECTIVE 3**  
NMT

**OBJECTIVE 4**  
URBAN LOGISTICS

**OBJECTIVE 5**  
INTEGRATED MOBILITY

**OBJECTIVE 6**  
TRANSIT ORIENTED DEV.

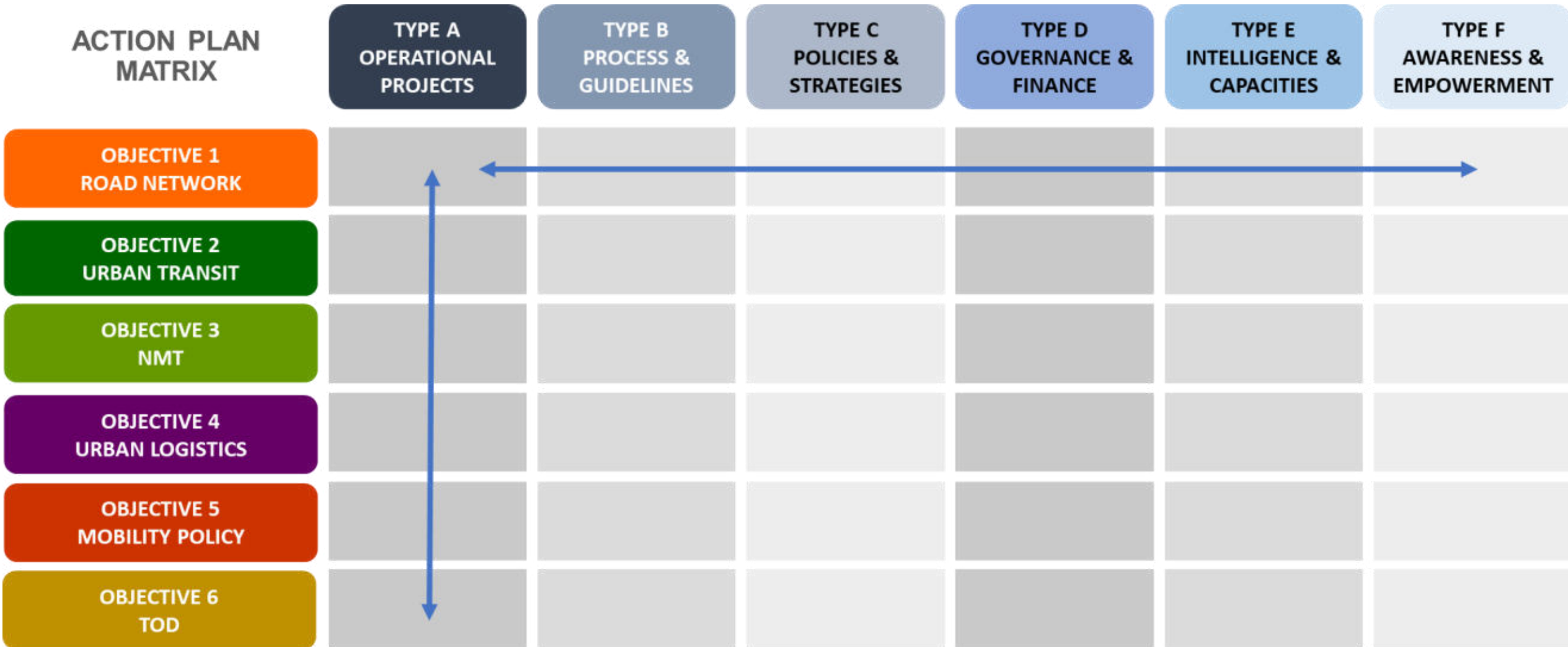
## 38 actions



<p><b>OBJECTIVE 1 ROAD NETWORK</b></p>	<p><i>Improve the road network to support mobility growth in an integrated city</i></p>	<ul style="list-style-type: none"> <li>▪ hierarchised, meshed and connected road network</li> <li>▪ mobility needs + urban needs (integration, densification growth) fully addressed</li> <li>▪ continuity, connectivity, safety + resilience to congestion</li> <li>▪ multi-purpose road design integrating all transport modes</li> <li>▪ integrated traffic management</li> <li>▪ lifelong and maintenance centred road asset management</li> </ul>
<p><b>OBJECTIVE 2 MOBILITY SYSTEM</b></p>	<p><i>Set a public transports system relying on a BRT/bus backbone and on upgraded paratransit</i></p>	<ul style="list-style-type: none"> <li>▪ Full bus / BRT development to address increasing mobility demand</li> <li>▪ Support to city integration and urban growth and overall attractiveness</li> <li>▪ paratransit as complement to mass transit</li> <li>▪ Bottom-up approach to support paratransit upgrade (vehicles and services)</li> </ul>
<p><b>OBJECTIVE 3 NMT</b></p>	<p><i>Promote qualitative non-motorized transports (NMT)</i></p>	<ul style="list-style-type: none"> <li>▪ street walkability</li> <li>▪ pedestrian centred approach</li> <li>▪ recreational walking and emblematic projects</li> <li>▪ Cycling approach</li> </ul>
<p><b>OBJECTIVE 4 URBAN LOGISTICS</b></p>	<p><i>Implement an efficient urban logistic system</i></p>	<ul style="list-style-type: none"> <li>▪ urban logistics and last mile delivery</li> <li>▪ freight exchange and transit flows management</li> </ul>
<p><b>OBJECTIVE 5 INTEGRATED MOBILITY</b></p>	<p><i>Set up integrated mobility strategies and actions</i></p>	<ul style="list-style-type: none"> <li>▪ Integrated mobility planning and actions</li> <li>▪ Integrated governance and financing</li> <li>▪ Parking management</li> <li>▪ Transport hubs organization</li> </ul>
<p><b>OBJECTIVE 6 TRANSIT ORIENTED DEV.</b></p>	<p><i>articulate mobility and urban development together</i></p>	<ul style="list-style-type: none"> <li>▪ roads and transports matching urban densification and urban growth</li> <li>▪ urban density and growth matching with roads and transports</li> <li>▪ cross check of urban and transport planning /projects to draw the best value of both</li> </ul>



# Strategic framework of action

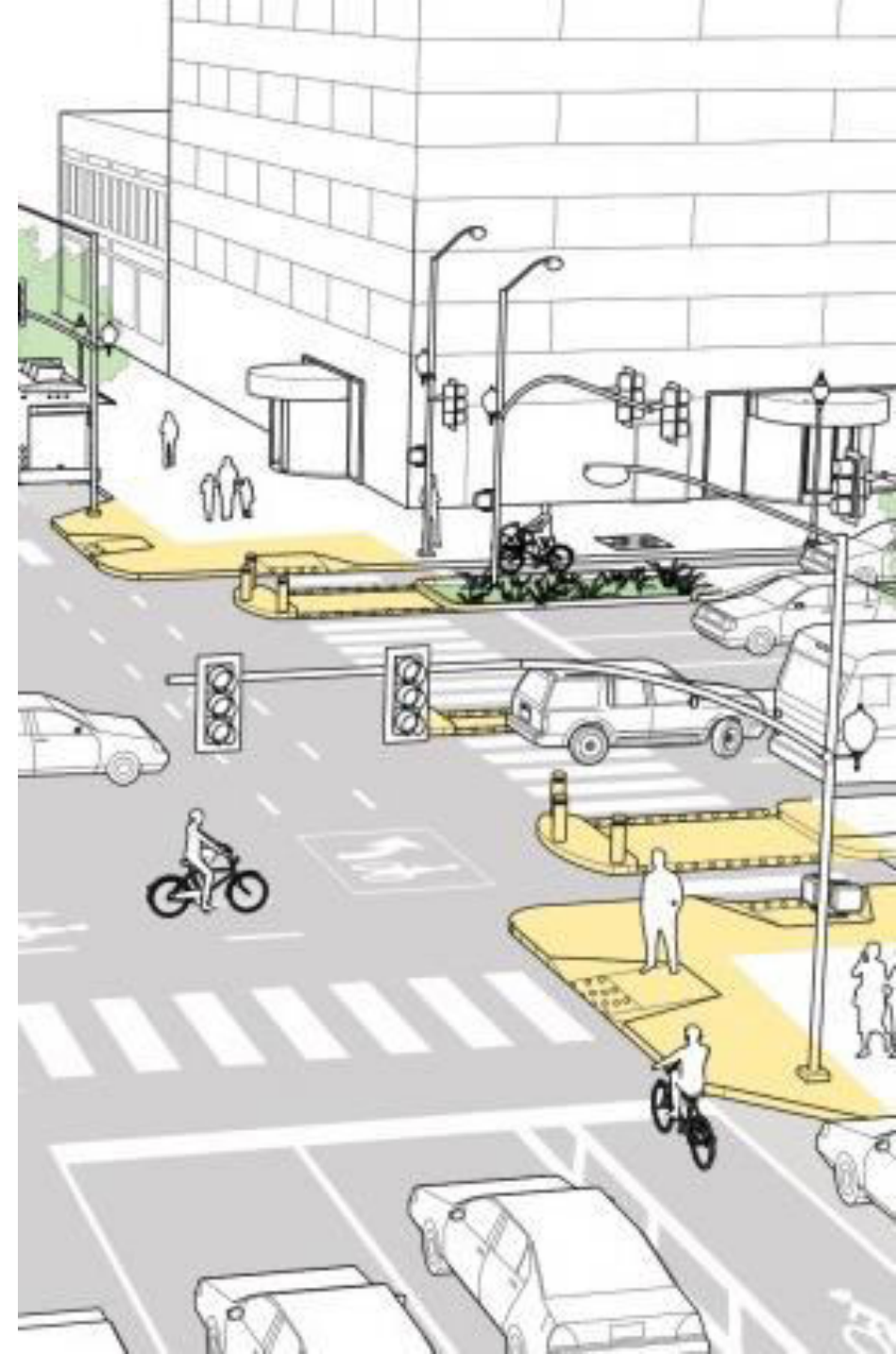


# Strategic framework of action

ACTION PLAN MATRIX	TYPE A OPERATIONAL PROJECTS	TYPE B PROCESS & GUIDELINES	TYPE C POLICIES & STRATEGIES	TYPE D GOVERNANCE & FINANCE	TYPE E INTELLIGENCE & CAPACITIES	TYPE F AWARENESS & EMPOWERMENT
OBJECTIVE 1 ROAD NETWORK	Main roads Local roads	Design guidelines Maintenance Plan Traffic management	Target road network Circulation Plan	Traffic Management Unit		
OBJECTIVE 2 URBAN TRANSIT	BRT development Paratransit upgrade	Paratransit Quality Targets	BRT dev. Roadmap Paratransit Roadmap		Paratransit drivers training	
OBJECTIVE 3 NMT	NMT projects NMT in projects Bikes for all	NMT guidelines	NMT roadmap		Pedestrian centered approach	Walking citizens
OBJECTIVE 4 URBAN LOGISTICS	Urban logistics projects		Urban logistics roadmap			
OBJECTIVE 5 MOBILITY POLICY		Mobility planning Data management SUMP evaluation	Multimodal strategy Energy wise mobility Demand mgt.	Transport Authority Mobility financing	Project management Inclusive mobility	Inclusive mobility
OBJECTIVE 6 TOD	TOD projects opportunities	TOD guidelines	TOD roadmap			

# Strategic framework of action

###	OBJECTIVE	NAME OF ACTION	
	Category of action		
ISSUES & OBJECTIVES	<i>Context and issues</i>		
	<i>Objectives</i>		
ACTIVITIES	<i>Activity 1 -</i>		
	<i>Activity 2 -</i>		
	<i>Activity 3 -</i>		
	<i>Activity 4 -</i>		
IMPLEMENTATION	<i>Project owner</i>		
	<i>Associated stakeholders</i>		
	<i>financers</i>		
	<i>schedule, phasing</i>		
COSTS & SCHEDULE	<i>Overall cost</i>	EUR	0 PKR
	<i>preparation 2024-2025</i>	EUR	0 PKR
	<i>Short term 2026-2030</i>	EUR	PKR
	<i>Medium term- 2031-2035</i>	EUR	PKR
	<i>Long term- 2036-2040</i>	EUR	PKR
MONITORING & EVALUATION	<i>1 mobility + urban integration</i>		
	<i>2 social + territorial inclusion</i>		
	<i>3 carbon wise solutions</i>		
	<i>4 economic perf. + attractivity</i>		
<i>key indicators</i>	<i>output</i>		
	<i>outcome</i>		
	<i>impact</i>		



# Strategic framework of action

#	OBJ. ID	OBJECTIVE short	ACTION TYPE	ACTION ID	ACTION NAME	preparation		Short term SUMP Program					Mid term SUMP Program					Long term SUMP Program				
						2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
1	1	road network	Operational projects	1.A.1	Main road projects																	
2	1	road network	Operational projects	1.A.2	Local street projects																	
3	1	road network	Process & guidelines	1.B.1	Road design guidelines																	
4	1	road network	Process & guidelines	1.B.2	Road maintenance plan																	
5	1	road network	Process & guidelines	1.B.3	Traffic and mobility management																	
6	1	road network	Policies & strategies	1.C.1	Target road and crossroad network																	
7	1	road network	Policies & strategies	1.C.2	Circulation plan																	
8	1	road network	Governance & finance	1.D.1	Traffic management unit																	
9	2	Urban transit	Operational projects	2.A.1	BRT development																	
10	2	Urban transit	Operational projects	2.A.2	Paratransit structuration																	
11	2	Urban transit	Operational projects	2.A.3	Transport hubs organization																	
12	2	Urban transit	Process & guidelines	2.B.1	Paratransit quality of service																	
13	2	Urban transit	Policies & strategies	2.C.1	BRT development roadmap																	
14	2	Urban transit	Policies & strategies	2.C.2	Paratransit transition roadmap																	
15	2	Urban transit	Intelligence & capacities	2.E.1	Paratransit drivers training																	
16	3	NMT	Operational project	3.A.1	NMT projects																	
17	3	NMT	Operational project	3.A.2	NMT in transport and urban projects																	
18	3	NMT	Operational project	3.A.3	Bikes for Abbottabad																	
19	3	NMT	Process & guidelines	3.B.1	NMT guidelines																	
20	3	NMT	Policies & strategies	3.C.1	NMT development roadmap																	
21	3	NMT	Intelligence & capacities	3.E.1	Pedestrian-centered approach																	
22	3	NMT	Awareness & empowerment	3.F.1	Walking in Abbottabad																	
23	4	urban logistics	Operational projects	4.A.1	Urban logistics projects																	
24	4	urban logistics	Policies & strategies	4.C.1	Urban logistics roadmap																	
25	5	integrated mobility policy	Process & guidelines	5.B.1	Sustainable mobility planning process																	
26	5	integrated mobility policy	Process & guidelines	5.B.2	Mobility data management																	
27	5	integrated mobility policy	Process & guidelines	5.B.3	SUMP evaluation																	
28	5	integrated mobility policy	Policies & strategies	5.C.1	Multimodal strategy																	
29	5	integrated mobility policy	Policies & strategies	5.C.2	Energy-wise mobility																	
30	5	integrated mobility policy	Policies & strategies	5.C.3	Demand management																	
31	5	integrated mobility policy	Governance & Finance	5.D.1	Transport Authority reinforcement																	
32	5	integrated mobility policy	Governance & Finance	5.D.2	Integrated mobility financing																	
33	5	integrated mobility policy	Intelligence & capacities	5.E.1	Sustainable mobility project management																	
34	5	integrated mobility policy	Intelligence & capacities	5.E.2	Inclusive, green and gender aware mobility																	
35	5	integrated mobility policy	Awareness & empowerment	5.F.1	Inclusive, green and gender aware mobility																	
36	6	Transit Oriented Dev.	Operational projects	6.A.1	TOD projects opportunities																	
37	6	Transit Oriented Dev.	Process & guidelines	6.B.1	TOD guidelines																	
38	6	Transit Oriented Dev.	Policies & strategies	6.C.1	TOD development roadmap																	

4

# Urban mobility governance

## *Concept Design studies*



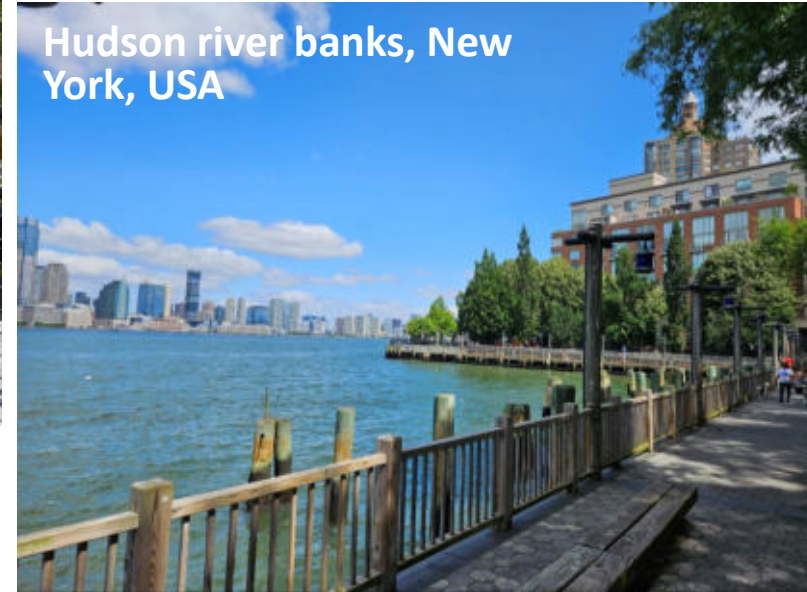
# Concept Design – Swat river walkway

- Connect the city to the Swat river and develop a well assumed and well managed interface between the city and the river
- Turn the riverbank into an iconic landscape as well as recreational area fit to accommodate all sorts of non motorized mobilities and leisure activities
- Different type of links can be created :
  - Pedestrian walkways
  - Cycling lanes
  - Playgrounds, leisure parks
  - Elevated walkway
  - Pavilions, social gathering areas, eating areas,
  - Etc.





**Arkin (Rino) promenade, Denver, Colorado, USA**



**Loire river banks, Nantes, France**

**Hudson river banks, New York, USA**

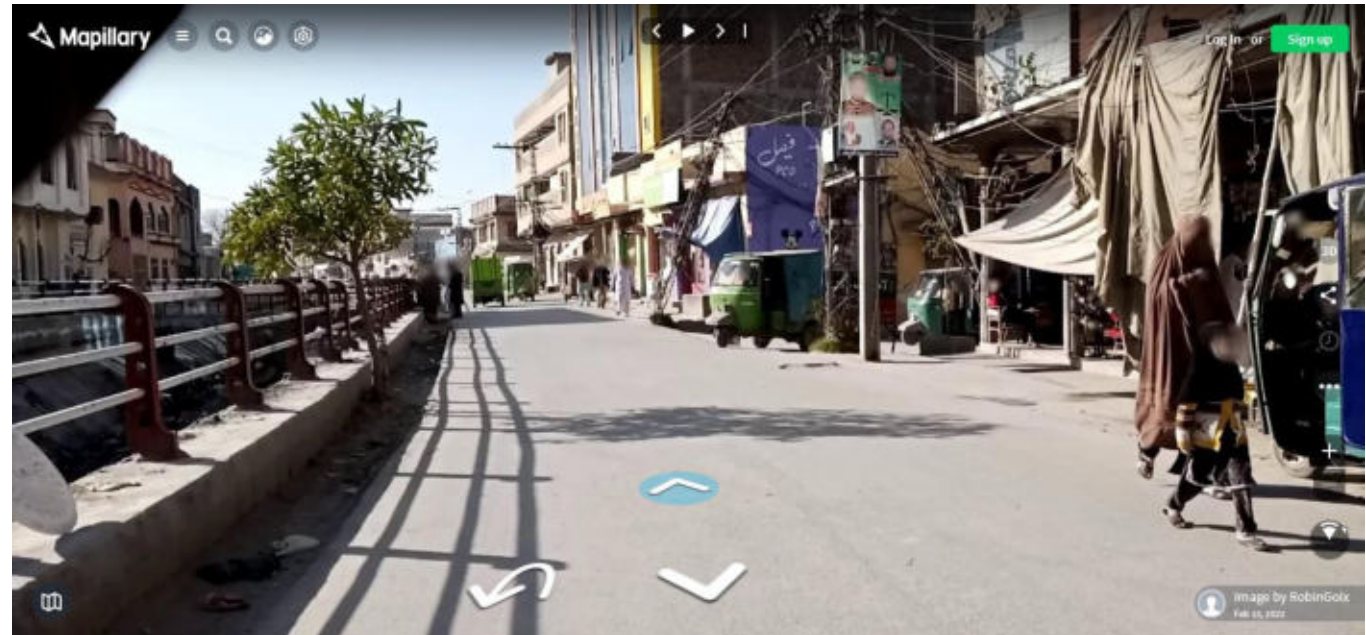
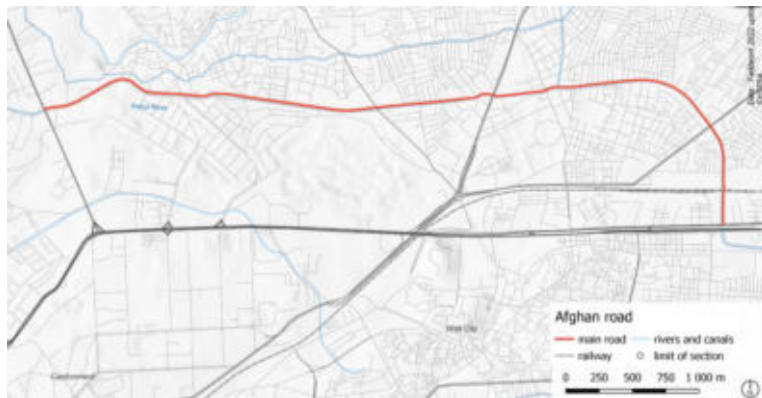
# Concept Design – Swat river walkway





# Concept Design – Kabul canal

- Overall objective is to provide continuous and smooth district level connectivity through Kabul Canal road
- Road upgrade to make it an axis supporting neighbourhood level flow
- Development of the green and blue corridor potential of the Kabul canal through tree plantations and NMT paths
- Public transport development alongside the road with small stops and parking areas to be identified
- Multiple benchmarking analysis demonstrate how to value canals in urban context (Paris Canal Saint Martin, Seoul Cheonggyecheon Stream, Rideau canal in Ottawa, etc. )





Seoul Cheonggyecheon Stream



Canal Rideau, Ottawa



Canal Saint Martin, Paris

# Concept Design – Kabul canal

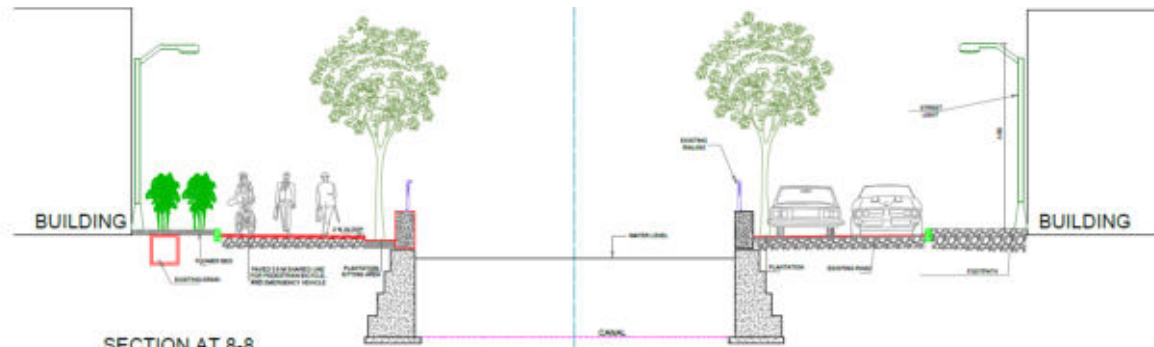
**LEGEND**

EACH SEGMENT LENGTH 1000 FEET

SYMBOL	DESCRIPTION
[Grey rectangle]	BUILDINGS
[Green rectangle]	PROPOSED LANDSCAPE AREA
[Orange rectangle]	FOOTPATH
[Blue rectangle]	PAVED AREA
[Light blue rectangle]	CANAL
[Dark blue rectangle]	ROAD
[Yellow rectangle]	STREET LIGHT
[Green tree icon]	PROPOSED TREES
[Green plant icon]	PROPOSED LOW PROFILE PLANTS
[Red zebra icon]	PROPOSED ZEBRA CROSSING
[Red bridge icon]	EXISTING VEHICLE BRIDGE
[Red bridge icon]	PROPOSED PEDESTRIAN BRIDGE
[Red bridge icon]	PROPOSED SETTING VIEW DECK
[Red bench icon]	PROPOSED SETTING BENCH
[Red pole icon]	EXISTING ELECTRICAL POLE
[Red pole icon]	PROPOSED BICYCLE STANDS
[Red bin icon]	PROPOSED GARBAGE BIN
[Red sculpture icon]	PROPOSED SCULPTURES



SEGMENT 2 PLAN



SECTION AT 8-8  
SEGMENT 3



# Khyber Pakhtunkhwa province

SUMPs of Peshawar, Mingora and Abbottabad

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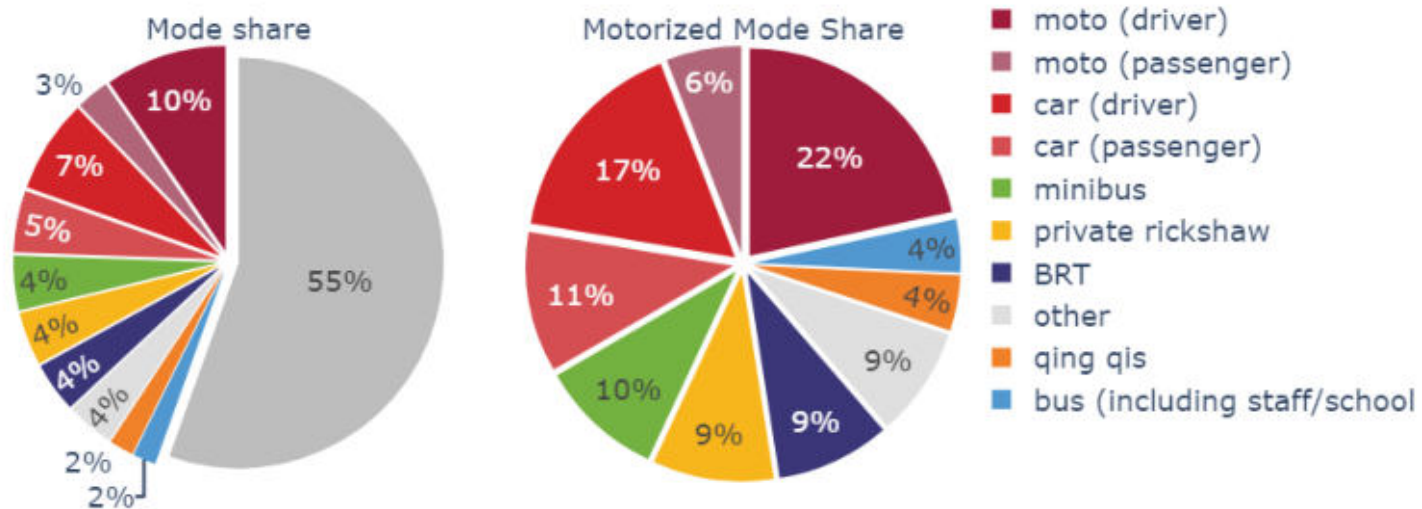
*Urban mobility*



# Peshawar, modal shares

2022

- mobility rate: 2.5 trips per person and per day (1,6 women, 3,3 men).
- **Daily trips: 5,700,000 trips** (42% short distance, 58% longer distance)
- **1,100,000 additional daily trips** by non-residents

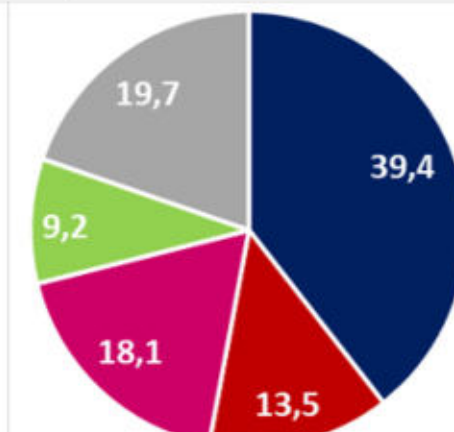
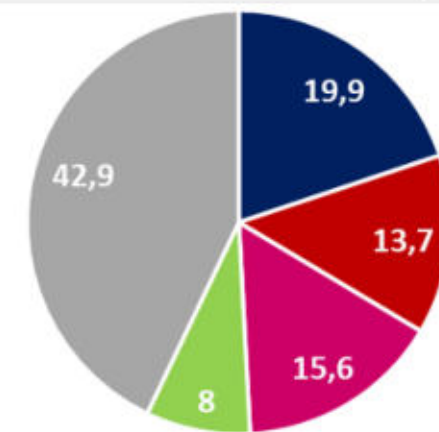


2040 (forecast)

15 212 600 daily trips  
 Mobility rate 2,5  
 +139% (2022-2040)

time (min) 129,4  
 distance (km) 15,8  
 expenses (PKR) 87,4  
 number of transfers 1,6

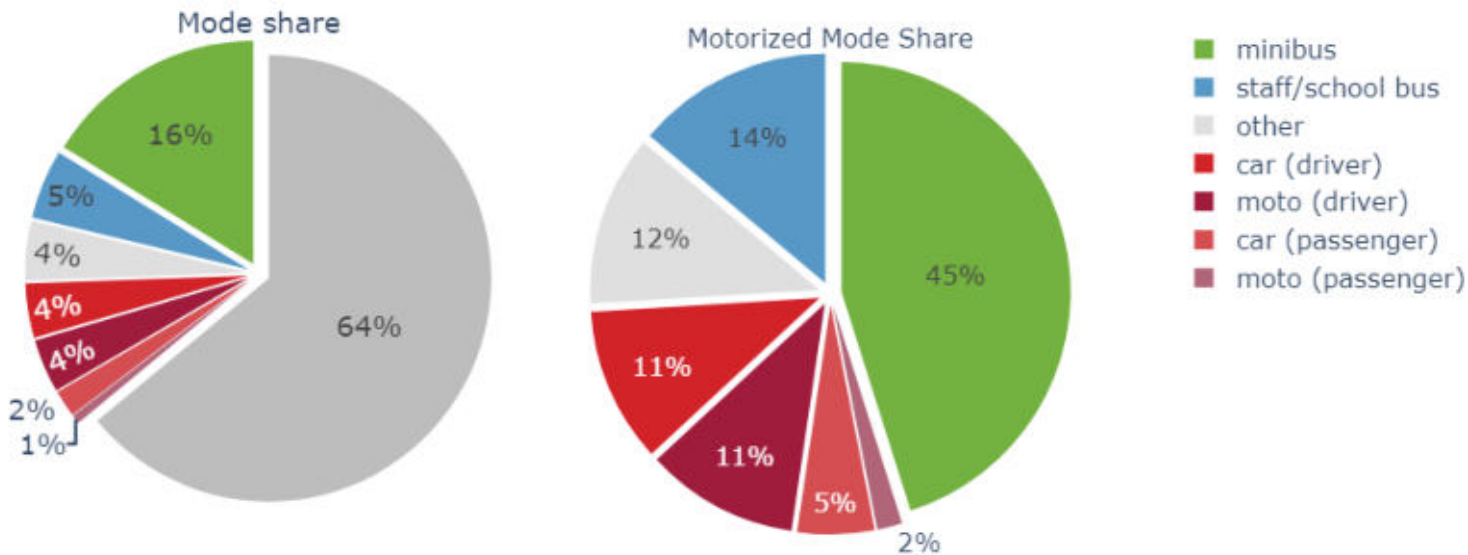
■ BRT ■ car ■ motorcycle ■ paratransit ■ walk



# Abbottabad, modal shares

2022

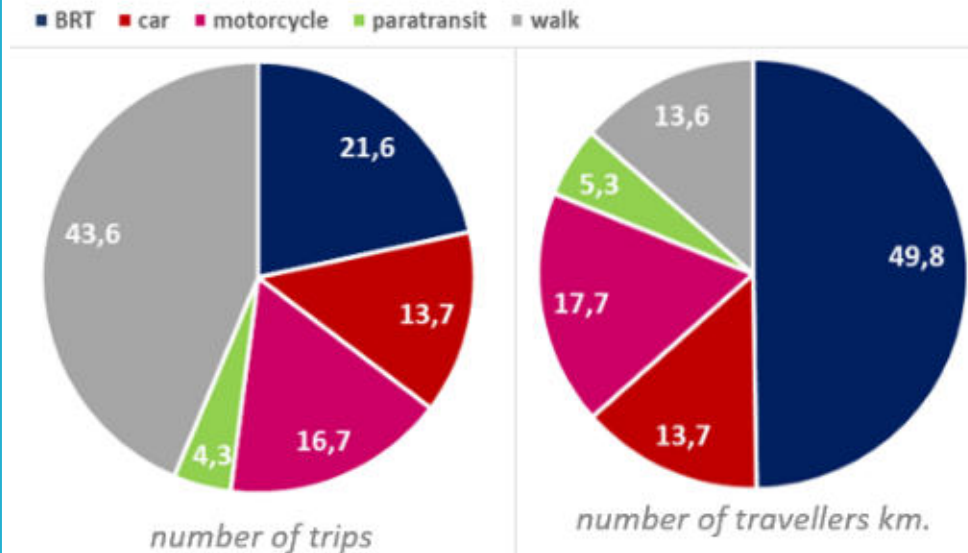
- mobility rate: 2.5 trips per person and per day (2 women, 3 men).
- Daily trips: 1,290,000 trips (48% short distance, 52% longer distance)
- 200,000 additional exchange daily trips



2040 (forecast)

2 717 000 daily trips  
 Mobility rate 3,1  
 +85% (2022-2040)

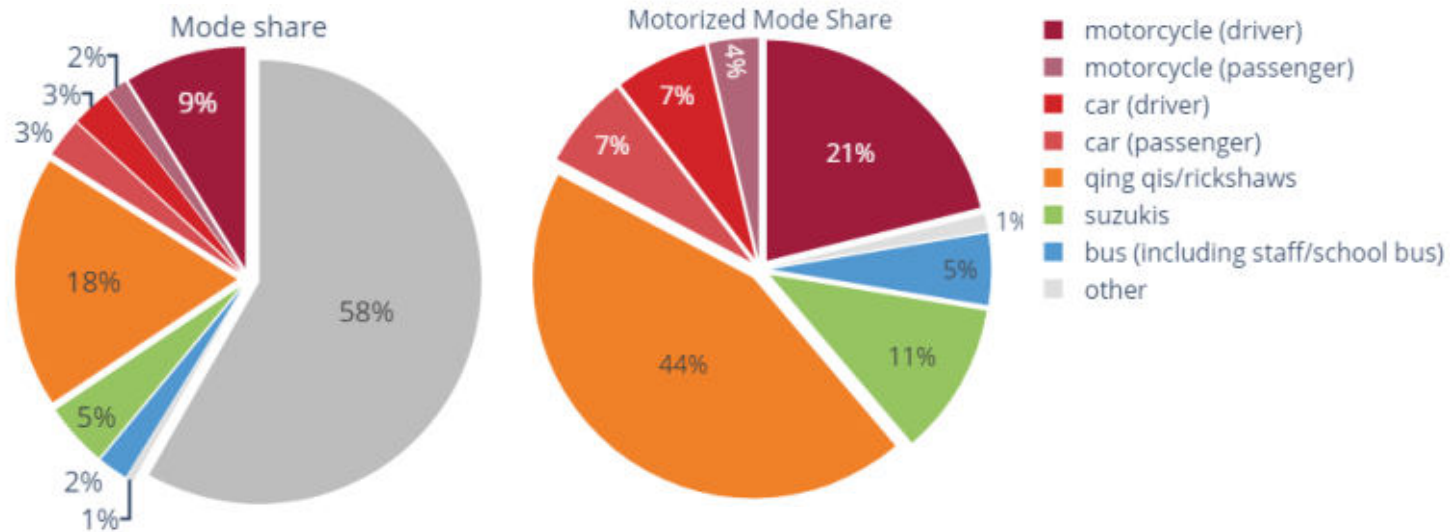
time (min) 75.0  
 distance (km) 8.7  
 expenses (PKR) 53.2  
 number of transfer 1.3



# Mingora, modal shares

2022

- mobility rate: **2.1 trips per person and per day** (1,4 women, 2,8 men).
- **Daily trips: 740,000 trips** (42% short distance, 58% longer distance)
- **100,000 additional daily trips** by non-residents

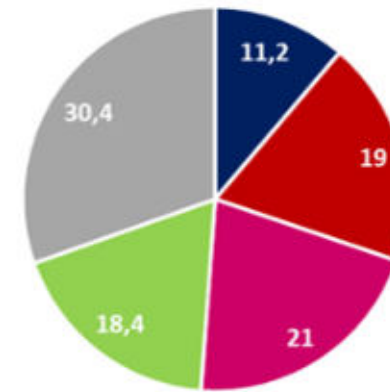


2040 (forecast)

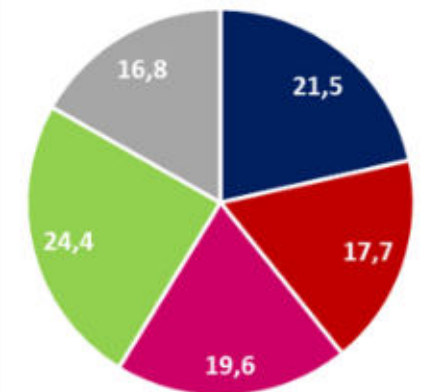
**1 394 000 daily trips**  
**Mobility rate 2,2**  
**+52% (2022-2040)**

**time (min) 64,8**  
**distance (km) 7,1**  
**expenses (PKR) 53**  
**number of transfers 1,3**

■ Bus ■ car ■ motorcycle ■ paratransit ■ walk



number of trips



number of travellers km.