PROJECT ON IMPROVEMENT OF TRAFFIC MANAGEMENT CAPACITY IN LAHORE CENTRAL AREA

Mr. Muhammad Waqar Aslam
Team Leader, TEPA

Mobility Management Campaign, Mobility Management Campaign and Lessons Learned from the Pilot Project

5 September 2018

Traffic Engineering & Transport Planning Agency (TEPA)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Presentation Outline

1. Mobility Management
2. Traffic Safety Campaign
3. Lessons learned from the Pilot Project
4. Way Forward to the Next Seminar

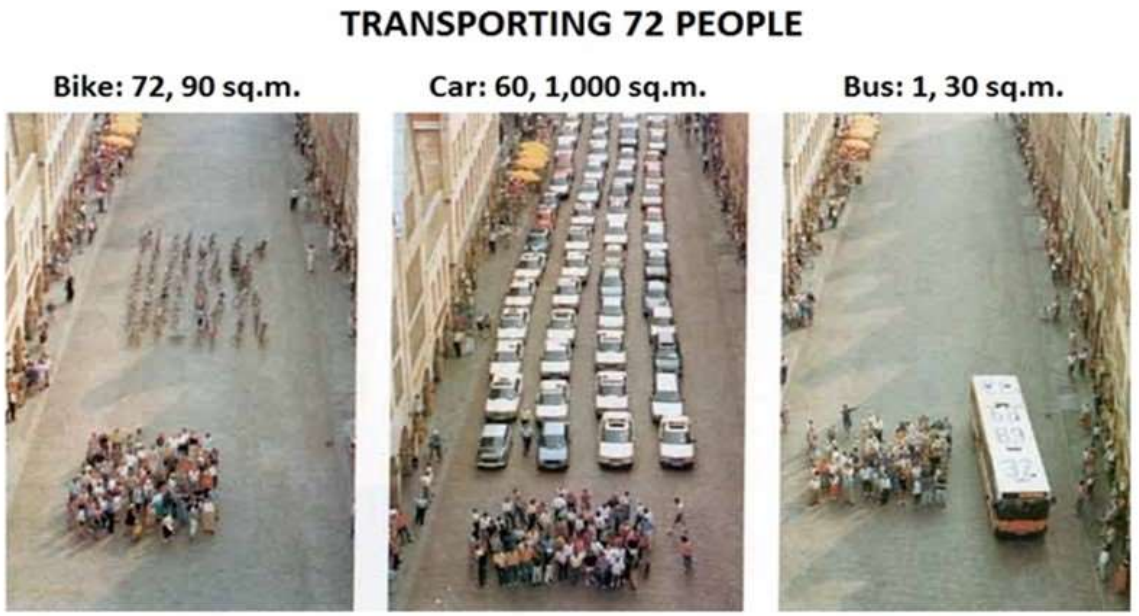
1. Current Status of Mobility Management (1)

1. Mobility Management Campaign / Survey

1. Current Status of Mobility Management (2)

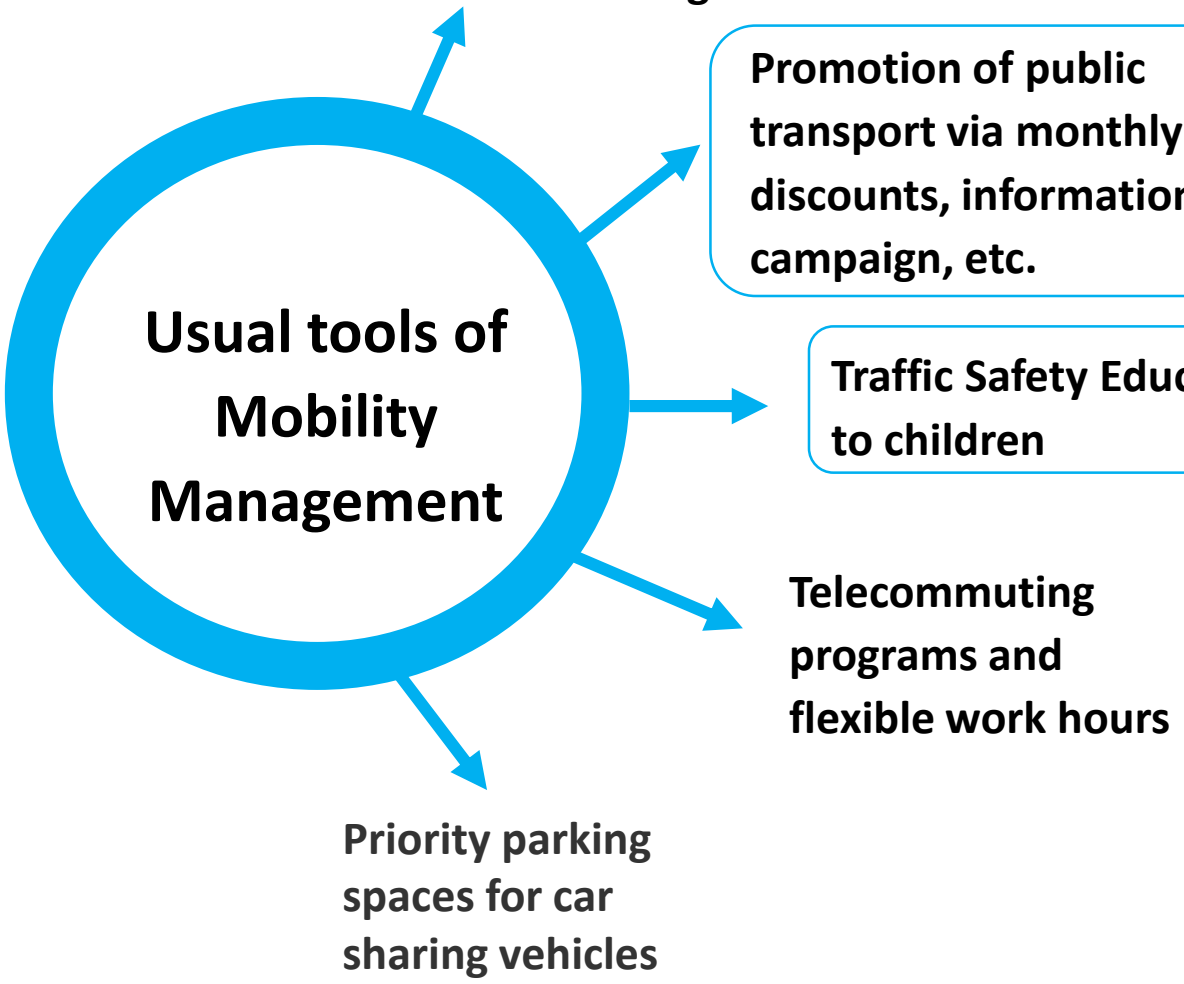
What is Mobility Management?

"Mobility Management (MM) is a concept which promotes the use of sustainable transport (like walking for short trips, use of public transport) by changing travelers' attitudes and behavior. The ultimate goal is to create a new mobility culture."



But to realize the above, we have to give them the right environment (unobstructed pedestrian space, safe environment, etc.). The Pilot Project (Queen's Road) is planned to be such a place.

1. Current Status of Mobility Management (3)



For the Mobility Management Campaign under this TEPA/JICA Project, we are covering the following:

1. Classroom campaign on the importance of using public transportation, obeying traffic rules and students contribution to improve the transport system of Lahore (e.g. walking for short distances, proper parking, etc.)
2. Class room seminar for the students (with traffic police)
3. Traffic Safety Tour Campaign

1. Current Status of Mobility Management (4)

Public manners including respect to traffic rules is shaped at early age. Here, school children in Japan and Pakistan during their traffic safety training

1. Current Status of Mobility Management (5)

Traffic Police Officer, Mr. Moozam Ali, explaining to the students the meaning of green painted pedestrian lane and other markings useful for their safety

What we taught the students?

- Explain to them the meaning of road markings and traffic signs
- Identify safe route while walking (e.g. by observing the pedestrian lane and designated zebra crossing with push button)
- Tech them how to behave in the public space (e.g. raise your hand when crossing to increase your visibility to the driver or walking and crossing as a group will increase their visibility)
- Tell them to influence their family members who drive to follow traffic rules

Road Safety Tour at Queens Road | Government Jinnah Degree College

Officer Ali is explaining the meaning of basic traffic signs

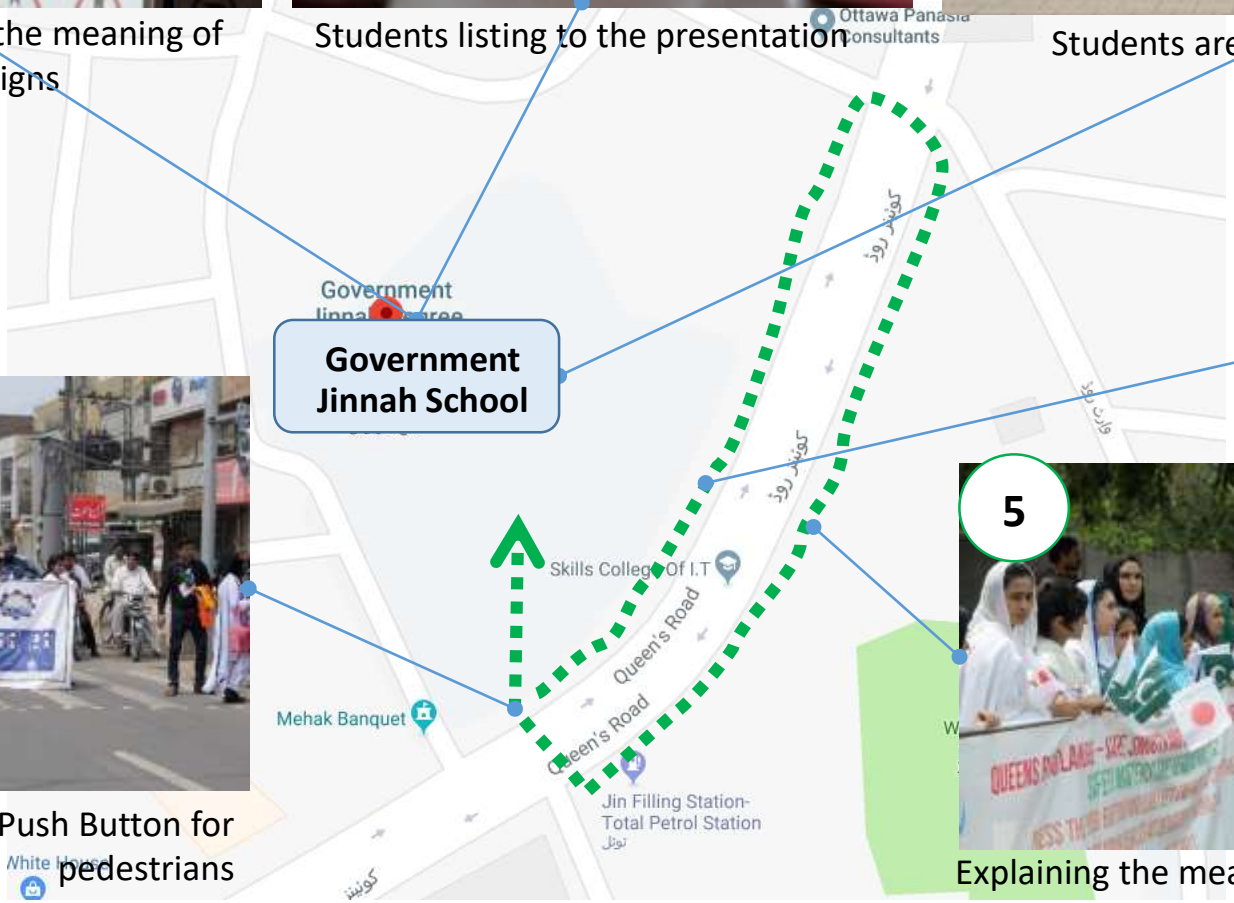
Students listing to the presentation

Students are grouped into four groups

Students were then guided at Queens Road

Explaining the meaning of traffic signs

Testing the installed Push Button for pedestrians



Road Safety Tour at Queens Road | Adabistan-e-Soophia

Students listening to the traffic safety presentations

TEPA explaining the objective of the seminar

TEPA and Traffic Police organizing the students at Queens Road

Traffic Police explaining the meaning of road markings and traffic signs

Students testing their newly-learned skills by raising their hand when crossing

Media covered the activity which enhances the program's reach

Selected Feedbacks from the Students

How's the Traffic Safety and Road Safety Tour, are they useful to you? Should these be continued?

Note: 2 students said not useful. Other 82 students said "useful"

Yeah, it is a very useful campaign and this should be continued to make Pakistan more safer.

Yes, but not all people are aware of this so it should be continued further to all area of Lahore

Yes, this seminar and safety campaign is very useful. This seminar gave us a lot of information about traffic laws. Please continue seminars like this, all over Pakistan.

Yes, this seminar is very useful and about safety for our children and families and this safety is most important for the students. Students were given information for this. Thank you so much for this information.

Selected Feedbacks from the Students

How about the improvement of Queens Road, are they useful to you? Should these be continued?

Note: 2 students said not useful. Other 82 students said "useful"

Yes, they are very useful to specially the people who cross the road without any vehicle and it could also save so many lives

Yes, but it is not visible in day time - be more prominent and visible

The improvements that are made of Queen's road are very useful specially for college students so that they can cross the road easily and safely.

Yes, the zebra crossing really helps people but I wan to say please make aware people using vehicles to stop for the person crossing the road.

Selected Feedbacks from the Students

1. Please make zebra crossing in front all school gate, its my humble request thank you.
2. On bus stop where passenger sit there must be fan or something like
3. There should be at least one traffic police on each signal.
4. There is garbage on Queens road you must work on it

1. Thank you so much for this and we pledge that will act upon and inform others as well.
2. We will follow all the rules and regulations regarding traffic law.

Do you have anything to share, comments or suggestions? Feel free to write it.

Selected Feedbacks from the Teachers

This seminar is very useful since what children learned at early age will stay with them forever

Its a very good effort and it should be continued. Our students learn inside class room especially about traffic signs and safety but this activity brings them on road and show them practically so they learn how to follow these things in their daily life. Kids are happy to participate and they learned a lot.

This should become part of our regular school activities in Pakistan.

Parents should be also involved since they make decision for their kids.

Please extend this program to all-boys schools since they are the motorbike users and major source of accidents

This seminar/program should be part of our educational system.

Media coverage of the Mobility Management Activity

Presence of the Seminar in Social Media

Adabistan-e-Soophia

Lahore City Traffic Police

2. Traffic Safety Campaign

Aside from the physical improvement of Queens Road, Traffic Safety Campaign was conducted.

Safety Campaign

a. TV Spot Campaign
b. Radio Campaign
c. Newspaper Campaign
d. SNS/ Website Campaign
e. Streamer along Queens Road
f. Campaign Poster
g. T-shirt and Cap Free delivery
h. Traffic safety seminar by traffic Police at Degree College Pedestrian Signal
i. Traffic Enforcement by Traffic Police
j. Traffic safety guidance by Traffic Police

2. Traffic Safety Campaign

Implementation status and issues (1)

The campaign in the field succeeded.
Using mass media for pinpoint traffic safety measures is a challenge.

・TV Spot & Radio.
30 seconds Commercial
TV: 432 times (14days)
Radio: 812 times (14days)

・Newspaper.
4 days, Every Fryday
Down (English)

Nawa-e-Waqt (Urdu)

・T-Shirt & Cap Distribution
Number of T-Shirt and Cap: 170
Distribution destination:
Roadside Residents and Shopkeepers

Souce: JICA TEAM.

2. Traffic Safety Campaign

Implementation status and issues (2)

・Streamers along Queens Road.
Size:5*2 Number of Streamers:80

・Awareness camps along Queens road each intersection

・Semminar at Fatimah Jinnah Medical College with City Traffic Police

Souce: JICA TEAM.

2. Traffic Safety Campaign

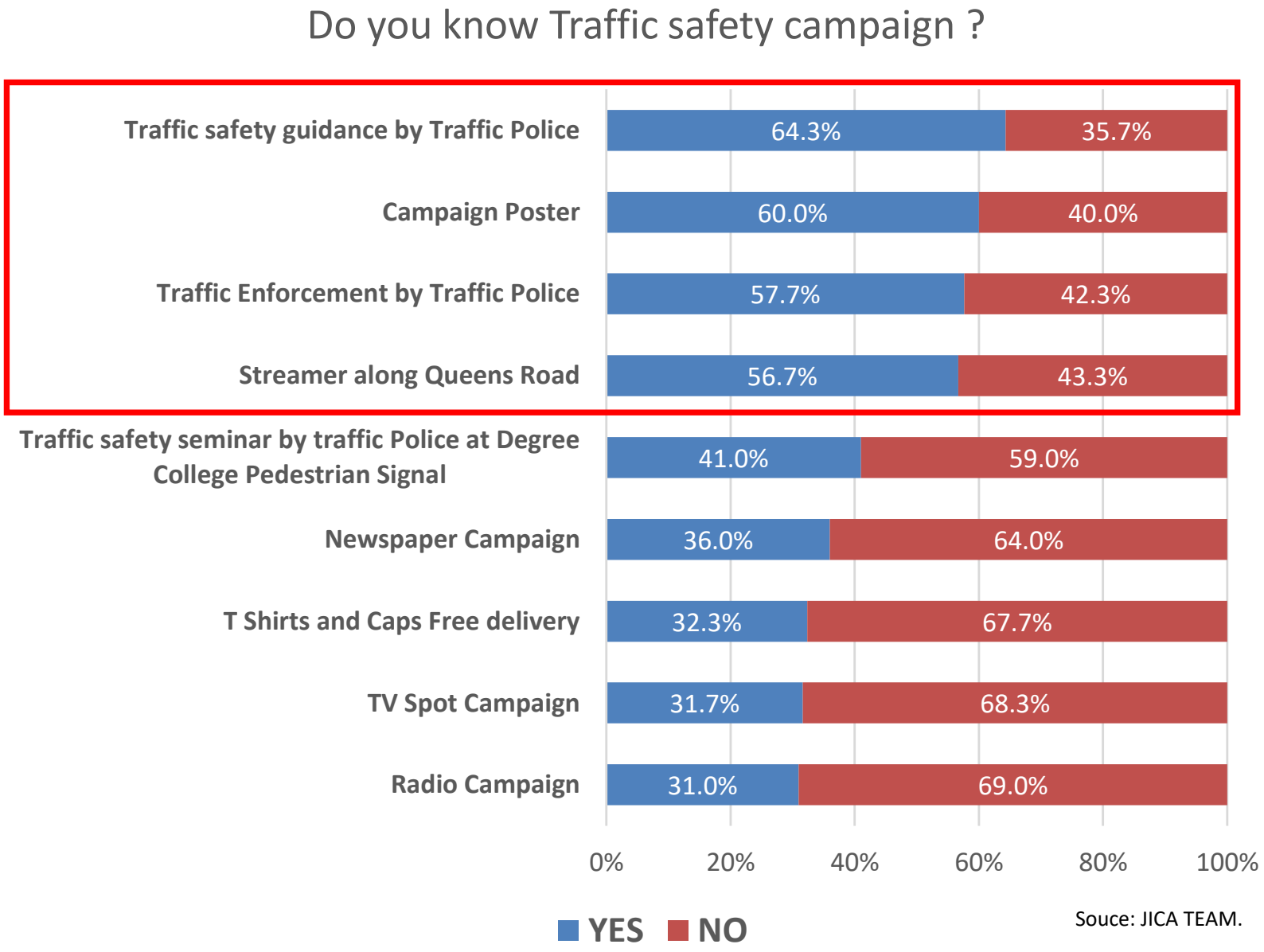
Post-User Interview Survey

-Pedestrian 50
-Resident 50
-Car Driver 50
-Bike Driver 50
-BRT Passenger 50
-Bus Passenger 50

Total: 300 Samples

Do you know?

Traffic safety guidance, Poster, Traffic Enforcement and Streamer were recognized to a majority. They were effective.

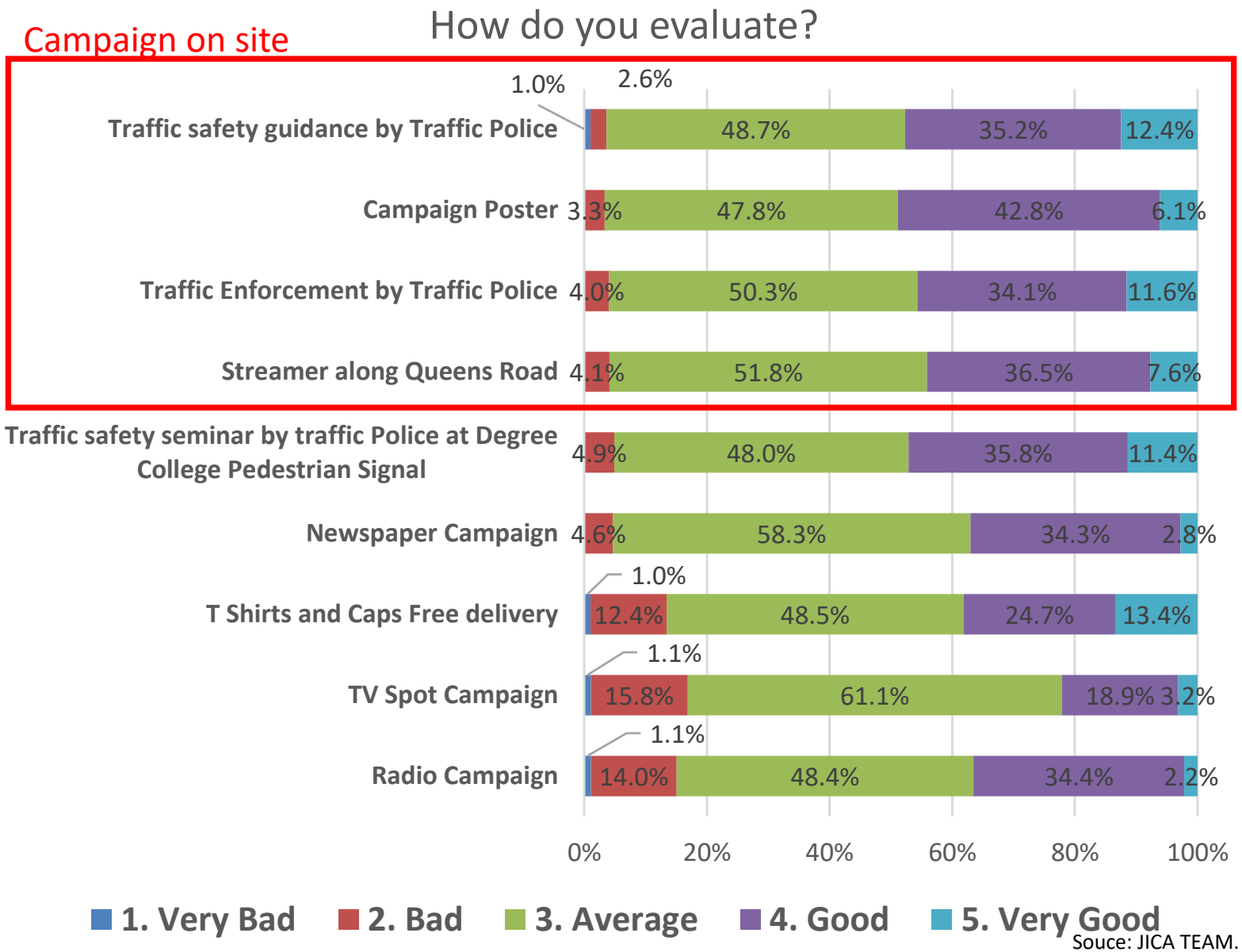


Souce: JICA TEAM.

2. Traffic Safety Campaign

How do you evaluate?

Campaign on site with high recognize is highly evaluate.



Souce: JICA TEAM.

3. Lessons Learned from the Pilot Project (1)

To improve the traffic situation in Lahore Central Area, TEPA counterparts and the JICA Project Team conducted Corridor Management along Queens Road together with the Mobility Management and Traffic Safety Campaign as the Pilot Project.

This is the first experiment of the Comprehensive Traffic Management scheme's implementation in Lahore.

Before, during and after the Pilot Project, TEPA counterparts and the JICA Project Team conducted traffic surveys and received various comments from stakeholders.

The following are results of the pilot project and draft additional improvement plan for each work item. Draft additional improvement plan was made based on various comments from stakeholders.

3. Lessons Learned from the Pilot Project (2)

Improvement Works		Observed Outcome
Corridor Management	Widening of the road lane	• Deviation from lane of large vehicles decreased due to widening of the road lane
	Installation of on-street parking space for cars	• The number of parked cars on the street decreased during traffic safety campaign because of the following reasons: (i) Demarcation of on-street parking space, (ii) Parking control by traffic police
	On-street parking space for motorbikes	• Due to low recognition, this has not been utilized properly
	Mount- up Type sidewalk	• Increased number of pedestrians walking on the sidewalks is observed
	Visual separation sidewalk	• Visual separation sidewalks are not very effective due to: (i) Dust affects the visibility of the colored pavement surface, (ii) Lack of information signs
	Installation of Crosswalk, planters and small trees	• Rate of walking inside the cross walk has increased at most locations (Except for Ganga Ram Intersection).
	Intersection Improvement	• Queue length at Gamga ram became short due to signal coordination by PSCA. • Right turn lanes in Gamga ram intersection has not worked well due to low recognition. • Changing the signal phase in Gamga ram from one-direction control to both direction control has not worked well.
Mobility Management		• Awareness of the students on general transport problem of Lahore and traffic safety is greatly enhanced • Capacity of TEPA to organize such campaign is enhanced as well
Traffic Safety Campaign		• The following tools found to be effective: (i) Traffic safety guidance by the Traffic Police, (ii) Campaign Poster, (iii) Traffic Enforcement, (iv) Streamer along Queens Road

3. Lessons Learned from the Pilot Project (3)

Garbage is not properly disposed

PTCL installed cable and did not put back to its original form

Sidewalk is illegally occupied by parked motorbikes

Some planters are already damaged

3. Lessons Learned from the Pilot Project (4)

Push Button Pelican Signal

3. Current Issues & Proposed Action Plan (1)

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Installation of on-street parking space for cars	• Number of parked cars on the street increased after the end of the traffic safety campaign at Queens Road due to the end of parking control by the traffic police. • Parked cars were parked at not designated parking spaces.	1) Transfer parking management to Lahore Parking Company 2) Continued control to illegal parking by traffic police and MCL 3) Sign board indicating the parking space 4) Marking showing parking space	1) Lahore Parking Company 2) City Traffic Police/MCL 3) TEPA/JICA Project Team 4) TEPA/JICA Project Team
Installation of on-street parking space for bikes	• Designated motorbike parking lots are not well utilized due to low visibility.	1) Sign board indicating the parking space 2) Installation of marking showing parking space	1) TEPA/JICA Project Team 2) TEPA/JICA Project Team

3. Current Issues & Proposed Action Plan (2)

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Installation of Mount- up Type sidewalk	• The number of pedestrians walking on the sidewalks increased from pre to post survey in the section where the Mount- up Type sidewalks were installed. • On the other hand, the number of pedestrians walking on the sidewalk didn't change from pre to post survey in the section (Location E, UK Visa) where many illegal parked vehicles were parked on the sidewalks.	1) Continued control by Traffic Police to illegal parking 2) Sign board indicating the parking prohibited area 3) Installation of marking	1) City Traffic Police 2) TEPA/JICA Project Team 3) TEPA/JICA Project Team

3. Current Issues & Proposed Action Plan (3)

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Installation of Visual separation sidewalk	• Visual separation sidewalks are not well recognized due to: a. Dust affecting visibility of pavement surface marking b. Lack of information signs	1) Periodic cleaning of the road surface 2) Marking showing sidewalk area	1) Lahore Waste Company 2) TEPA/JICA Project Team
Installation of Crosswalk, planters and small trees	• Push Bottom Pelican Signal for pedestrians is not very effective due to low recognition of road users (drivers and pedestrians) and vehicles are not stopping even traffic signal is "red".	1) Assigning Traffic Police to enforce traffic rules 2) Sign board indicating that crosswalk is ahead 3) Marking that the signal is ahead	1) City Traffic Police 2) TEPA/JICA Project Team 3) TEPA/JICA Project Team
Installation of bus stop	• Buses do not stop at the designated stop indicated by a painted box.	1) Relocation of bus stop sign of Waris Intersection Bus Stop (North direction) 2) Education for bus drivers	1) TEPA/JICA Project Team 2) Lahore Transport Company

3. Current Issues & Proposed Action Plan (4)

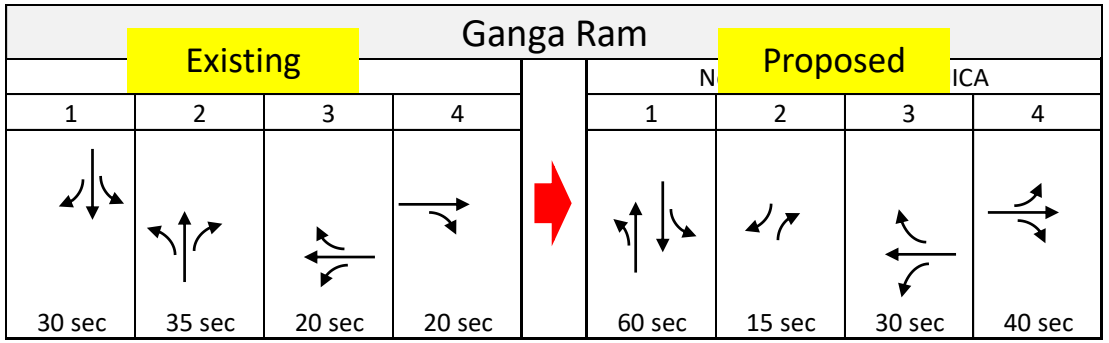
Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Intersection Improvement	• The right turn lanes in Gamga ram intersection were not worked well due to low recognition. • Changing the signal phase in Gamga ram intersection from one-direction control to both direction control were not worked well.(See Simulation in the next slide)	1) Addition of Notice arrow marking  Source: Google map 2) Need to conduct more field trial on signal phase	1) TEPA/JICA Project Team 2) Punjab Safe City Authority
Mobility Management Campaign	• During the campaign, there's a call by teachers to (i) expand the scope of the Mobility Management Campaign (MMC) to all schools in Lahore and (ii) to become MMC as regular part of school curriculum.	1) Need to enlarge the scope to cover all primary schools (from 5 to 12 yrs old kids) 2) Need to regularize the campaign as part of educational system of the country	1) TEPA/City Traffic Police/Educational Deportment 2) TEPA/City Traffic Police/Educational Deportment

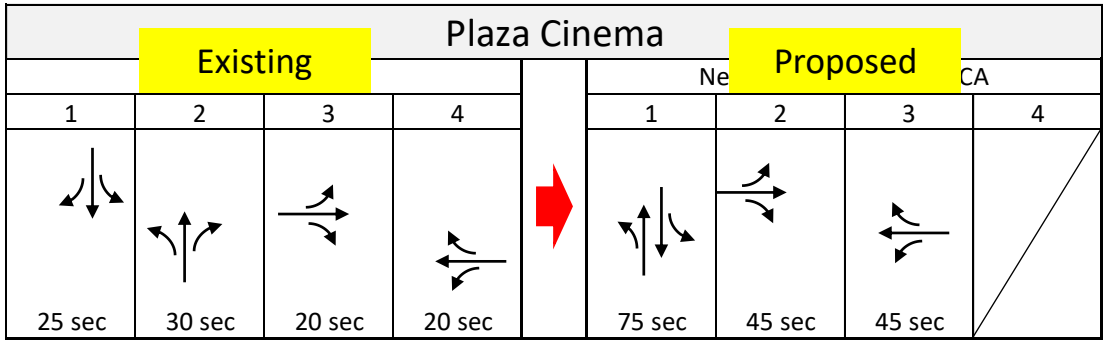
Traffic Simulation

(1) Simulation Case and Evaluation

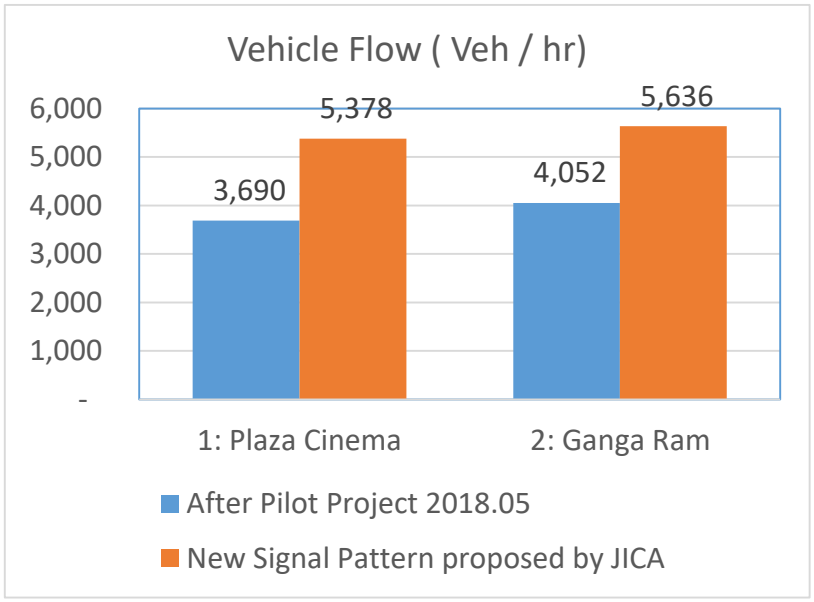
- In this simulation case, TEPA/JICA Study Team tried to modify the signal pattern of Ganga Ram and Plaza Cinema.
- Impact of the proposed New Traffic Signal Pattern is evaluated using VISSIM Simulation
- Vehicle Flows of the two intersections (Capacity of Intersection) increase by about 142 % in average and Average queue length per leg is short to 20 – 33 m (55 %) from 50 m.

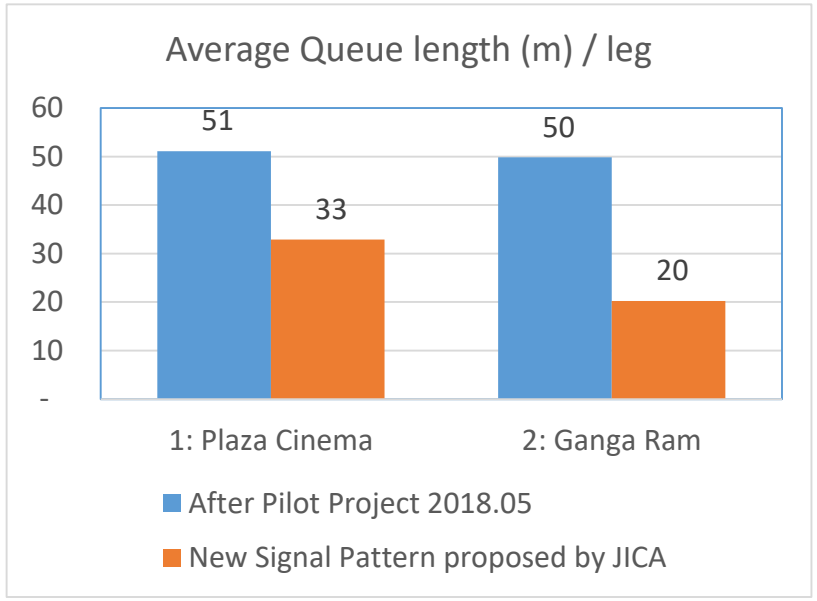
Improvement Signal Pattern proposed by JICA





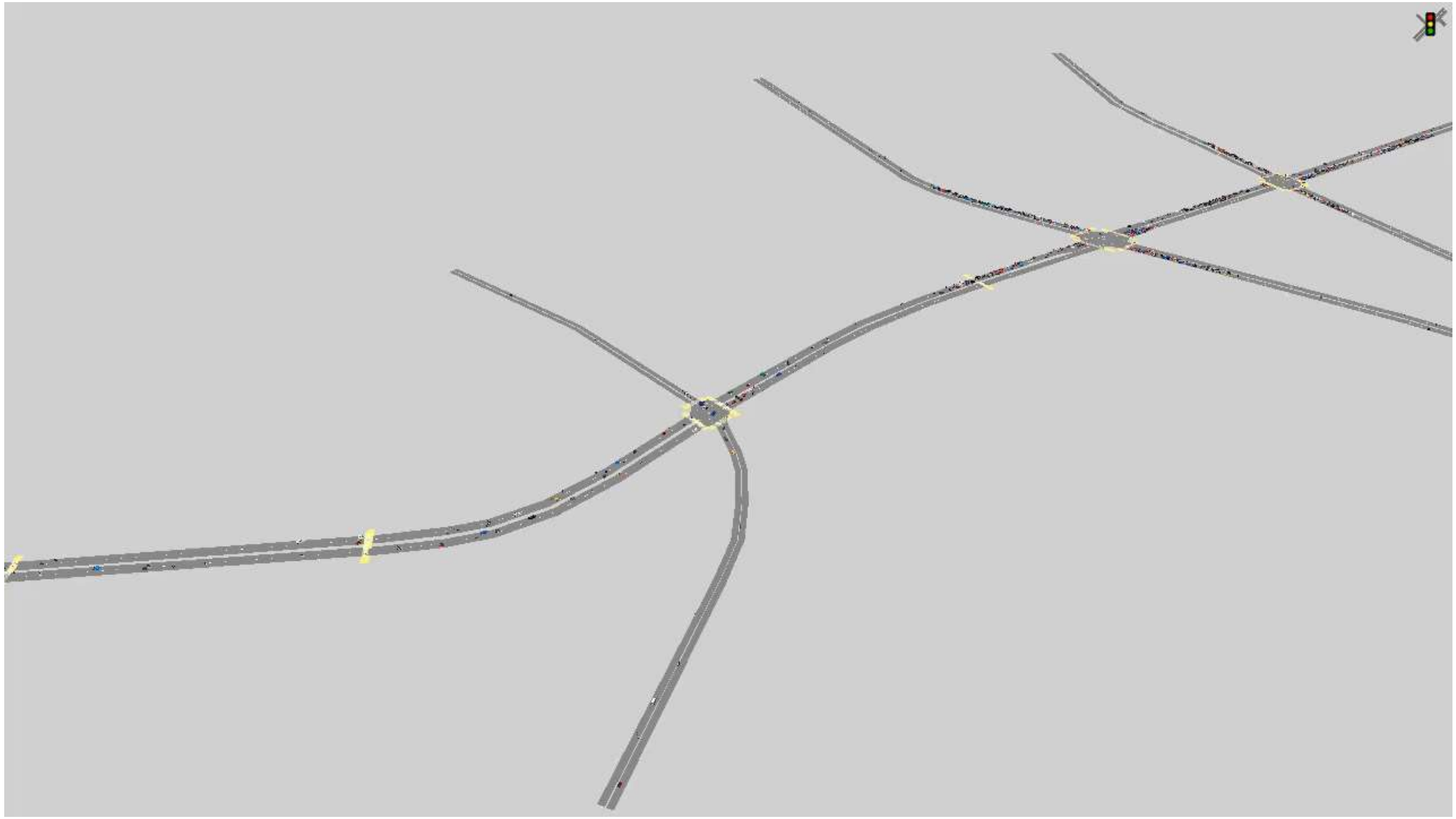
Prohibit right turn from QueensRD.





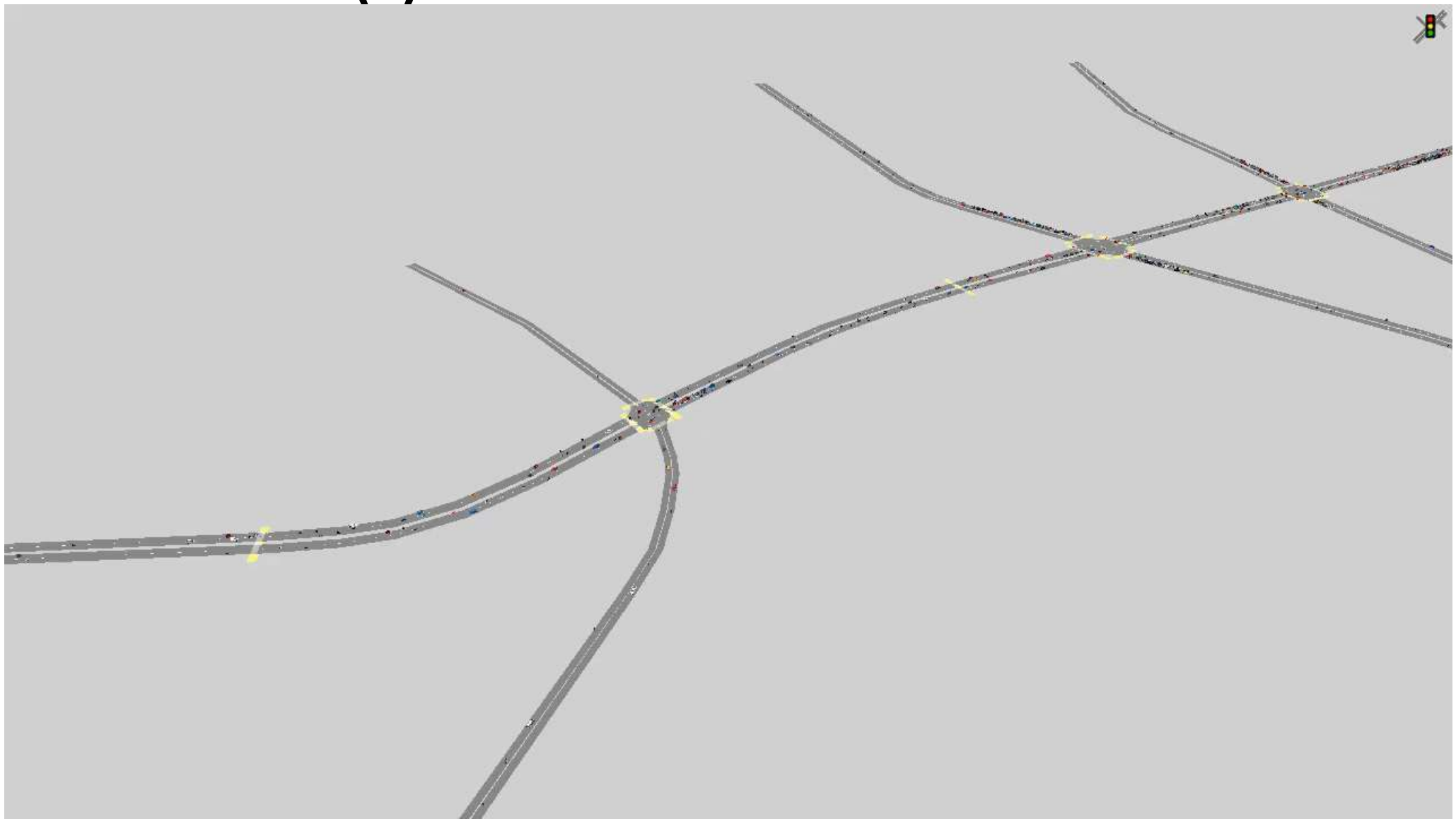
Queue defines as the vehicle speed is below 5 km/h.

Traffic Simulation (2)



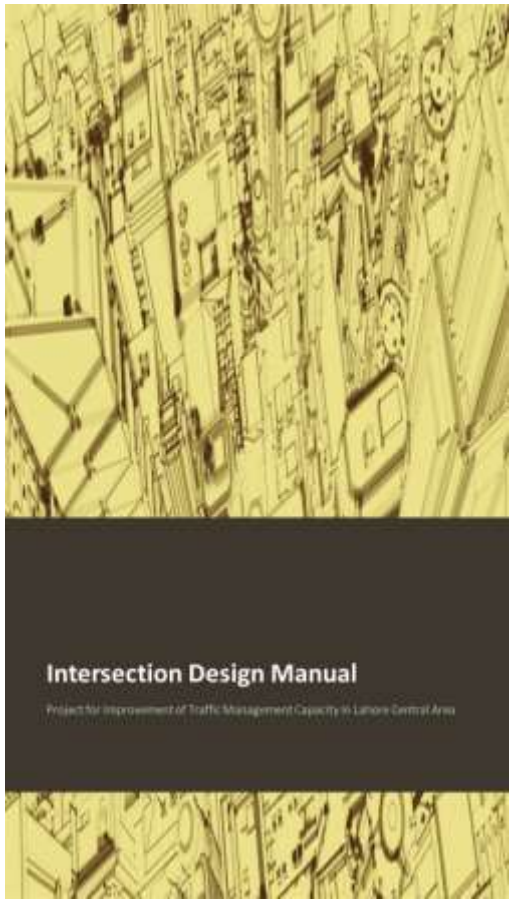
(Present situation as of 2018.05)

Traffic Simulation (3)

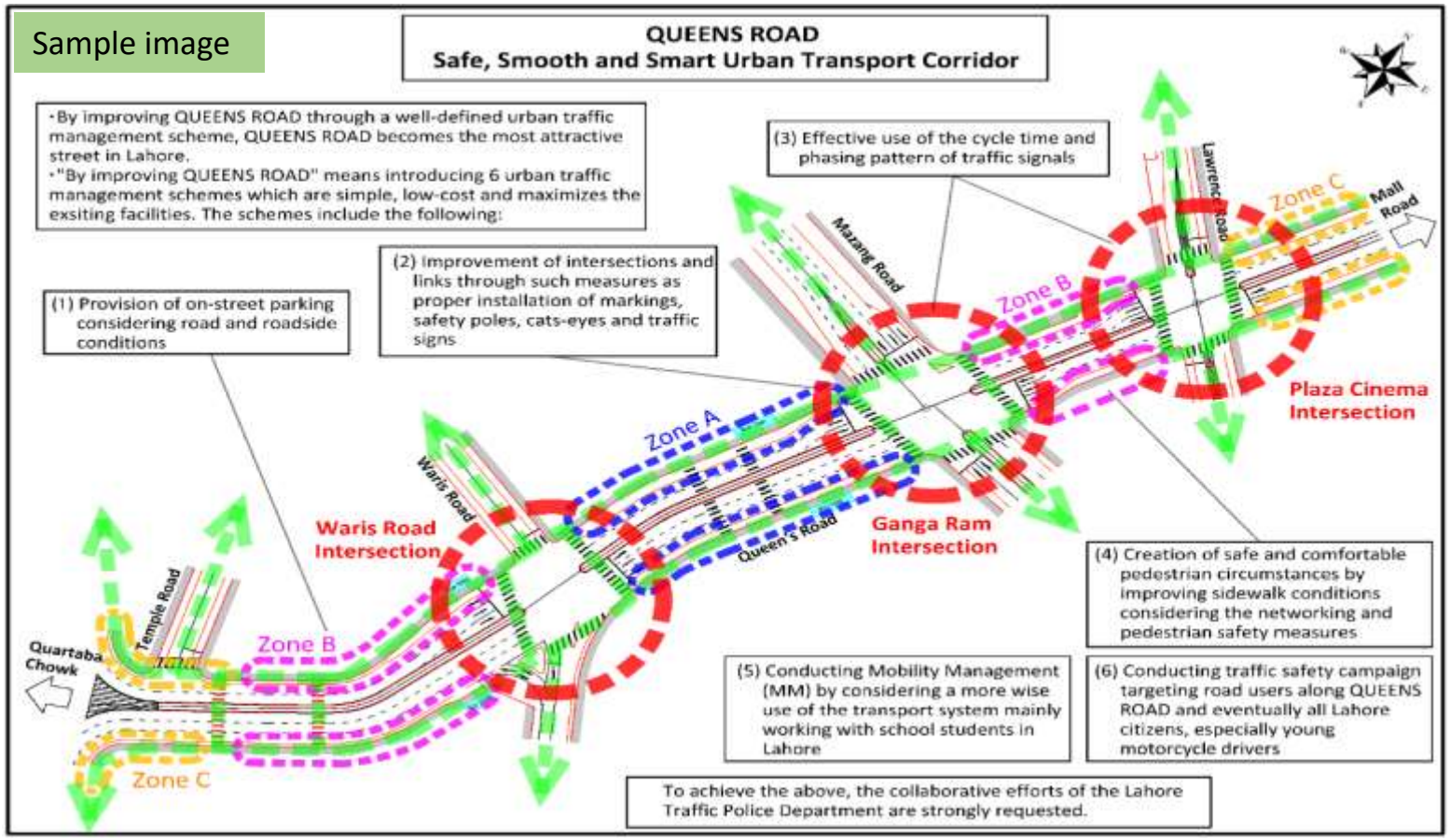


(Proposed Signal Phasing)

4. Way Forward to the next Seminar



a. Development of Handbook and Manuals



b. Preparation of Traffic Management Plan

c. Next seminar is expected to be on the middle of November 2018

Thank you for your attention

Traffic Engineering & Transport Planning Agency Government of Punjab

Project for Improvement of Traffic Management Capacity in Lahore

METS Research & Planning, INC.
CTI Engineering International Co. Ltd.
Tokyo, Japan

3rd One Day Seminar on

Improvement of Traffic Management Capacity in Lahore

Venue: Summit Hall, Royal Palm Golf & Country Club, Lahore

Date: 5th September, 2018 **Time: 10:00am to 13:30 pm**

Attendance List

No.	Name	Organization	Designation	Email/Tel	Signature
1.	M.Arshad	NESPAK	Deputy Executive		
2.	Jamshaid Mehmood	NESPAK	Sr. Transport Planner/Modeler		
3.	Hassin bin Tahir	NESPAK	Highway engineer		
4.	M. Salman	LePark	Assistant Manager		
5.	Faizan ul Haq	LePark	AM Operation		
6.	M.Khalid	Rescue1122	SC		
7.	M.Kamran	GTC	administrator		
8.	Fazal safi	ECSP	Engineer		
9.	Kazim Khan	ECSP	Sr.Enginner		
10.	M.Munawar	ECSP	Sr.Enginner		
11.	Usman Malik	LTC	Manager Planning		
12.	M.AMMAR	C&W	Section officer		
13.	Dr. Kamran	NUST	Assistant Professor		
14.	Dr. Jawaed	NUST	Head of transportation engineering		
15.	Naila Almas	JICA Islamabad	Sr. Program officer		

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No.	Name	Organization	Designation	Email/Tel	Signature
16.	Saira	PSCA	AM (Transport)		
17.	Majidah Tasneem	NHA	Engineer		
18.	Mudassir Ahmed	AlBayrak	Transport Planner		
19.	Moazam Ali	Traffic Police	Traffic Warden		
20.	M.Anwar	Traffic Police	Traffic Warden		
21.	M.Khalid	Traffic Police	Traffic Warden		
22.	Humaira rafaqet	Traffic Police			
23.	Miss Nizia	Traffic Police	inspector		
24.	Miss shabila	Traffic Police	Warden		
25.	Abdul Qyum	Traffic Police			
26.	Nasir pervaiz	UET	assistant		
27.	Mubashir hussain	UET	Research assistant		

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No.	Name	Organization	Designation	Email/Tel	Signature
28.	Dr.Ammad	UET	Chairman		
29.	Dr.Awais	University of central Punjab	Assistant professor		
30.	Masaki Umeda	University of Tokyo	student		
31.	Taichi Sano	University of Tokyo	student		
32.	Ansa Ahmed	University of Tokyo	student		
33.	Dr. Zia ur rehman	UET	Assistant professor		
34.	Mehrunisa	AlHuda			
35.	M. Khurram	AlHuda			
36.	Ali Amin	Osmani and Co.	Highway manager		
37.	M.Furqan	TEPA	DD(admin)		
38.	M.Zeeshan	TEPA	SE(TS)		
39.	Khurram saeed	TEPA	R.A (Civil)		

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No.	Name	Organization	Designation	Email/Tel	Signature
40.	Sajida iftikhar	TEPA	R.A Transport		Sajida iftikhar
41.	Nauman Haider	TEPA	AD (S&E)		Nauman Haider
42.	Khalid Rafique	TEPA	AD(TS)		Khalid Rafique
43.	Hammad Hassan Butt	TEPA	Research Associate		Hammad Hassan Butt
44.	Zain Rana	TEPA	Research Officer		Zain Rana
45.	Touseef ahmed	TEPA	Director(S&E)		Touseef ahmed
46.	Sohail Rashid	TEPA	Director (HQ)		Sohail Rashid
47.	Farhan Anwar	TEPA	Deputy Director		Farhan Anwar
48.	Mubeen Asgher	TEPA	Director (E&M)		Mubeen Asgher
49.	M.Waqar	TEPA	Traffic Engineer		M.Waqar
50.	Zahid Abbas	TEPA	Engineer		Zahid Abbas
51.	Usman Ahmed	TEPA	RA (T)		Usman Ahmed

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Attendance List

No.	Name	Organization	Designation	Email/Tel	Signature
52.	M.Salman	media	Mt department		
53.	M.Afzal	media			
54.	SH.zain	Lahore news	reporter		
55.	M.amjad	Dunea news	Daily reporter		
56.	Fayaz noor	Dunea news	Camera man		
57.	Kashif Iqbal	contractor			
58.	Ryuichi Ueno	JICA Project team	Deputy Chief consultant		
59.	ONO Masazumi	JICA Project team	Engineer		
60.	Nashreen Sinarimbo	JICA Project team	Capacity development		
61.	Takahiro Miyazaki	JICA Project team	Engineer		
62.	Zaib un nisa	JICA Project team	coordinator		
63.	M. Naveed	Police	security		

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No.	Name	Organization	Designation	Email/Tel	Signature
64.	M.Farooq	Police	security		
65.	Kamran Khan	Metro associate	coordinator		
66.					
67.					
68.					
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73.					
74.					
75.					

Total Attendance = 65 (Questionnaire respondent = 43)

1. **Overall how would you rate the seminar?**

Excellent	19	44%
Good	21	49%
Fair	3	7%
Poor	0	0%
Total	**43**	**100%**

Overall how would you rate the seminar?

2. **Were the presentations informative and helpful for you?**

Extremely helpful	10	23%
Very helpful	26	61%
Somewhat helpful	7	16%
Slightly helpful	0	0%
Not at all helpful	0	0%
Total	**43**	**100%**

Were the presentations informative and helpful for you?

3. **Please rate the following aspects of the seminar presentations?**

	Excellent	Good	Fair	Poor	Don't Know

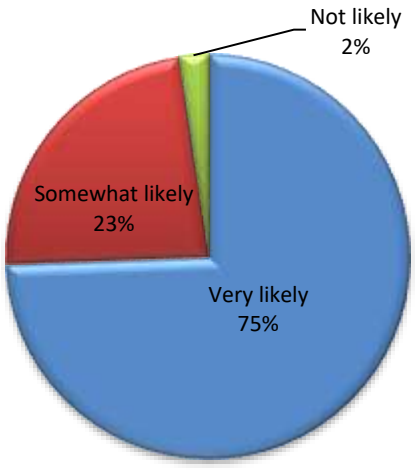
Relevance of Seminar Topics to current transport issues of Lahore	○	○	○	○	○
Usefulness of Information Presented to you	○	○	○	○	○
Quality of the Presentations	○	○	○	○	○

	Excellent	Good	Fair	Poor	Don't Know	Total
Relevance of Seminar Topics to current transport issues of Lahore	16 (37%)	23 (54%)	2 (5%)	1 (2%)	1 (2%)	43 (100%)
Usefulness of Information Presented to you	10 (23%)	26 (61%)	5 (12%)	1 (2%)	1 (2%)	43 (100%)
Quality of the Presentations	14 (33%)	24 (55%)	5 (12%)	0 (0%)	0 (0%)	43 (100%)

4. Based on your experience at this seminar, how likely are you to attend second seminar?

○ Very likely ○ Somewhat likely ○ Not likely

Very likely	32	75%
Somewhat likely	10	23%
Not likely	1	2%
Total	43	100%



how likely are you to attend second seminar

5. Any other suggestions or comments to help us improve future seminars?

1) You are doing useful work. Next seminar also mentioned all over Lahore problems and install latest technology in Lahore. (Government Official)
2) I think plan should be made to install zebra crossing in front of all school gates and traffic rules should be part of our educational system. (Government Official)

3) I think future recommendations were missing in the presentation and it should give permanent solution for traffic management. Not rely only on enforcement. (Private Company)
4) It is a good step you have taken but at very small scale.as Lahore is big city with large population. (Government Official)
5) It is a good step you have taken but need to expand. (Government Official)
6) JICA should not limit it in Lahore. Should be in other cities of Pakistan. (Private Company)
7) It should be more research oriented and focus should be on factors which significantly impact capacity. Should suggest solution for whole city. (Government Official)
8) Kindly explain more results of traffic output. (Government Official)
9) Try to adopt more practical approach.in one question you mentioned that you did only one day survey and want to predict it for seven day that is not possible (Academia)
10) Data collection representation through software were not that comprehensive and in depth discussed.(Private Company)
11) Questions answer suggestions need improvement as answer given by team leader were not relevant/related to/according to questions. (Government Official)
12) Need more awareness to teach people how to use road effectively (Private Company)
13) Expand the project influence to more stakeholders i.e business community, govt. officials and students (Government Official)
14) Awareness campaign should be on massive scale by taking on board traffic police. (Government Official)
15) Involve all stake holders (Private Company)
16) Use of social media is very important.it can provide insight quality awareness
17) Seminars should be conducted more. (Private Company)
18) The center median of the road so high.so that light been cannot disturb the other side driver (Government Official)
19) JICA effort is excellent we look for more areas these improvements. (Private Company)
20) Presentations should be more interactive (Private Company)
21) Install all facilities in other areas of Lahore. (Government Official)
22) More efforts should be made for educate people about parking, clear walk ways for pedestrians. (Private Company)
23) Improve the current phasing of installed signals. (Private Company)
24) It is a good initiative to launch such projects for the betterment of traffic issues and safety but it should be implemented with utmost concern and should not be only for few roads.
25) Such kind of projects should be initiated for whole system
26) It was informative seminar. With coordination of all stakeholders maintenance of such improvement is needed. One of the major reasons that these improvements is not done and maintain is that all the related agencies did not do their job so we need proper formulated strategy to puss all agencies to do their job to make a project successful.

AGENDA

4th One Day Seminar on
Improvement of Traffic Management Capacity in Lahore

Venue: Summit Hall, Royal Palm Golf & Country Club, Lahore

Date: 12th February, 2019 **Time: 10:00am to 13:30 pm**

10:00 – 10:30	**Registration**

10:30 – 11:00	**Opening Keynotes**

Mr. Mazhar Hussain Khan, Chief Engineer, TEPA (Welcome note)
Mr. Masato Koto, Chief Consultant, JICA LITMC Project Team (Brief introduction of the Project)

11:00 – 12:00	**Presentation of the Pilot Project**

Mr. Nauman Haider, Assistant Director, (S&E) TEPA

- Corridor Management

Mr. Usman Khalid, Research Associate, TEPA/ Sajida Iftikhar, Research Associate, TEPA

- Mobility Management
- Traffic Safety Campaign

Mr. Muhammad Waqar Aslam, Team Leader, TEPA

- Lesson Learned from Pilot Project and Current Issues & Proposed Action Plan
- Traffic Simulation using VISSM

Mr. Masato Koto, Chief Consultant, JICA LITMC Project Team

- Pilot Project Handbook, Intersection Design Manual and Traffic Management Plan
- Way Forward

12:00 – 12:30	**Q&A Session**

12-30 – 12:40	**Certificate Distribution**

12:40 – 12:50	**Closing Remarks**

Mr. Mazhar Hussain Khan, Chief Engineer, TEPA

12:50 – 13:30	**Lunch**

Program Agenda

10:00 – 10:30 Registration

10:30 – 11:00 Opening Keynotes

Mr. Mazhar Hussain Khan, Chief Engineer, TEPA
Welcome note
Mr. Masato Koto, Chief Consultant,
JICA LITMC Project Team
Brief introduction of the Project

11:00 – 12:00 Presentation of the Pilot

Mr. Usman Khalid, Research Associate, TEPA
Mobility Management
Mr. Nauman Haider, Assistant Director, (S&E) TEPA
Pilot Project Handbook
Intersection Design Manual & Traffic Management Plan
Mr. Muhammad Waqar Aslam, Team Leader, TEPA
Traffic Simulation using VISSM
Mr. Masato Koto, Chief Consultant JICA Project Team
Way Forward

12:00 – 12:30 Q&A Session

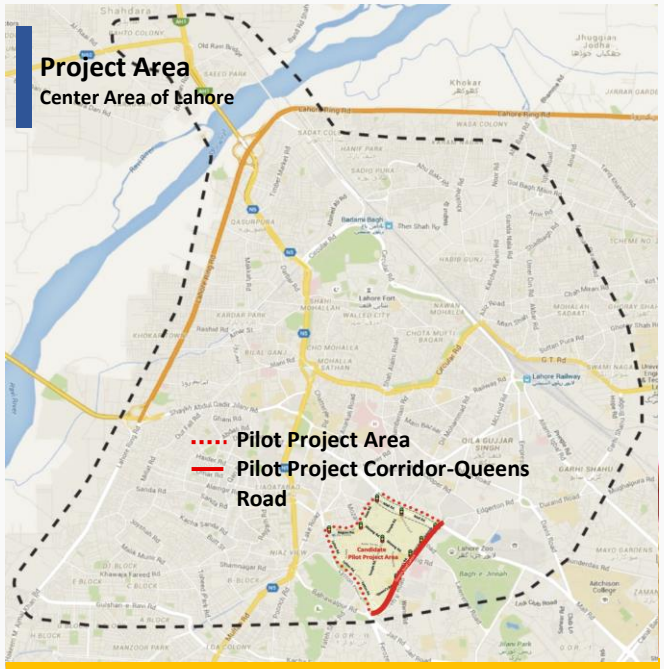
12:30 – 12:45 Closing Remarks

Mr. Mazhar Hussain Khan, Chief Engineer, TEPA

12:45 – 13:30 Lunch

Project for Improvement of Traffic Management Capacity in Lahore Central Area (LITMC)

- Lahore, the capital of Punjab Province, is the 2nd largest city in Pakistan with a population of about 10 million. The city's rapid population growth coupled with extremely high motorization has resulted in chronic traffic congestion.
- Considering these circumstances, the Government of Pakistan requested the Government of Japan to support "The Project on Improvement of Traffic Management Capacity in Lahore Central Area (LITMC)"
- The main ***objective of this Project*** is to extend technical cooperation to the Lahore City in its efforts in alleviating chronic urban traffic congestion problems.



Contact Persons

Ms. Zaib-un-Nisa
JICA-Project team
03137965244

M.Waqar Aslam
TEPA,LDA
03344421680

4th One Day Seminar

Improvement of Traffic Management Capacity in Lahore

12th February, 2019
Summit Hall Royal Palm
Golf & Country Club, Lahore
Time: 10:00 to 13:30

Jointly Organized by

Progress in the Project for Improvement of Traffic Management Capacity in Lahore Central Area (LITMC)

Since the commencement of the project, it's progressing at its desired pace and following key targets have been achieved:

4th Joint Coordinating Committee (JCC) Meeting

Joint Coordinating Committee was established to facilitate inter-organizational coordination for this project and 4th JCC was held on 25th January, 2018 in which detail implementation plan for the improvement of Pilot Project Corridor was finalized.

Traffic Surveys conducted in Pilot Project Corridor – Queens Road

In order to access the current transport status along Queens Road below surveys were conducted:

- Manual Classified Counts Survey
- Parking Situation Survey
- Queue Length Survey
- TDM Intention Survey
- Pedestrian Traffic survey

6th Working Group (WG) Meeting

A Working Group (WG) was established to implement the LITMC Project plan and activities. 6th Working Group Meeting was held on 7th February, 2019 in which Pilot Project Handbook, Intersection Design Manual and Traffic Management Plan were shared.

3rd One Day Seminar on Improvement of Traffic Management Capacity in Lahore

In order to share the progress of LITMC Project among its stakeholders 3rd One Day Seminar was organized on 5th September, 2018 at Summit Hall, Royal Palm Golf & Country Club, Lahore

Project Outcomes

- ✓ Capacity Development for traffic management of TEPA and related organizations through training.
- ✓ Institutional and personal capacity for traffic management of TEPA is to be enhanced through implementation of Pilot Project(s).
- ✓ Pilot Project(s) are summarized into "handbook" to be shared among TEPA and related organizations as a reference for other areas' improvement.
- ✓ Development of Traffic management improvement plan for Lahore Central area.

www. www.lahoretrafficsafetycampaign.com

https://web.facebook.com/lahoretrafficsafetyawareness

PROJECT ON IMPROVEMENT OF TRAFFIC MANAGEMENT CAPACITY IN LAHORE CENTRAL AREA

THE GOVERNMENT OF PUNJAB
ISLAMIC REPUBLIC OF PAKISTAN

4th One Day Seminar

All About the Project

12th February 2019

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

METS RESEARCH & PLANNING, INC.
CTI ENGINEERING INTERNATIONAL CO., LTD.

Presentation Outline

1. Outline of the Project
2. Overall Project Schedule
3. Corridor Management
4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)
5. Mobility Management
6. Traffic Safety Campaign
7. Lesson Learned from Pilot Project and Current Issues & Proposed Action Plan
8. Traffic Simulation
9. Manual, Handbook and Traffic Management Plan
10. Way Forward

1. Outline of the project

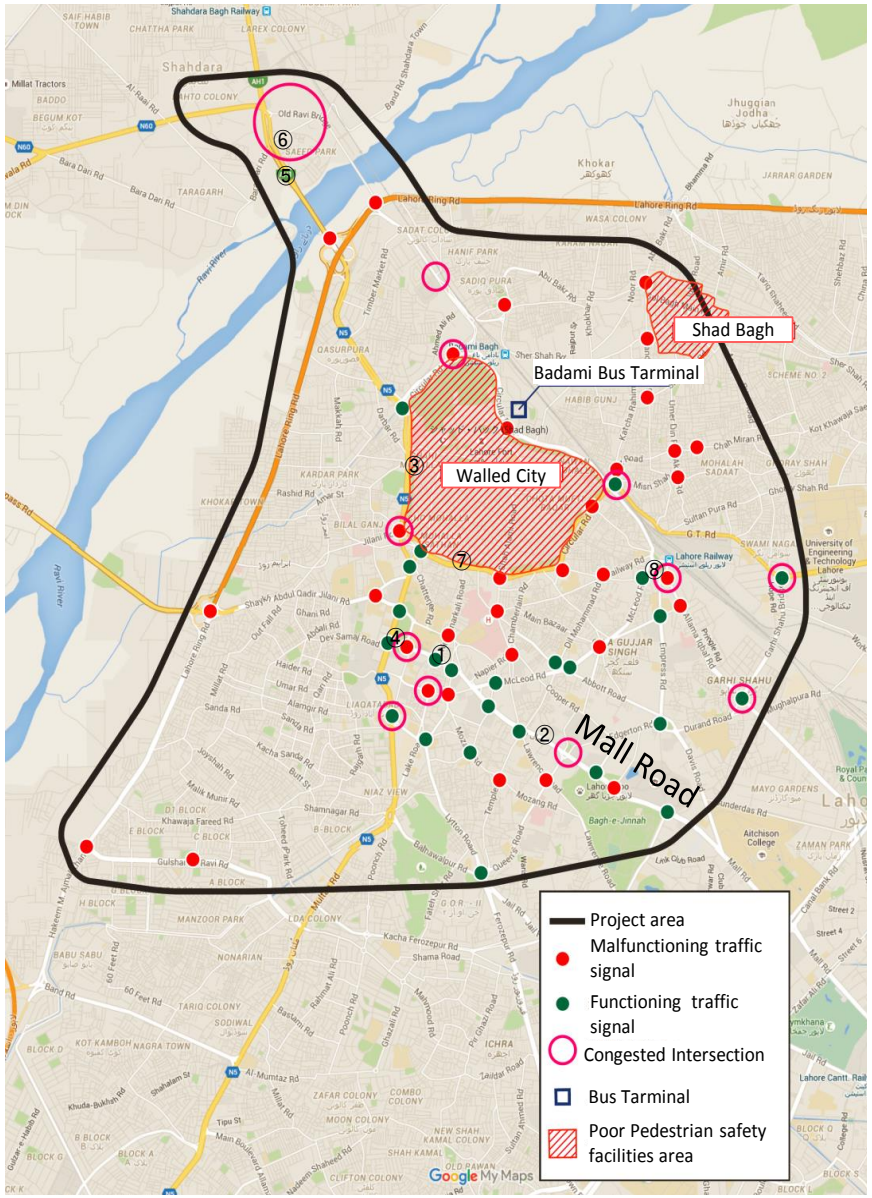
[Project outputs]

(1) Capacity Development for traffic management of TEPA and related organizations is conducted through training.

(2) Institutional and personal capacity for traffic management of TEPA is enhanced mainly through implementation of Pilot Project.

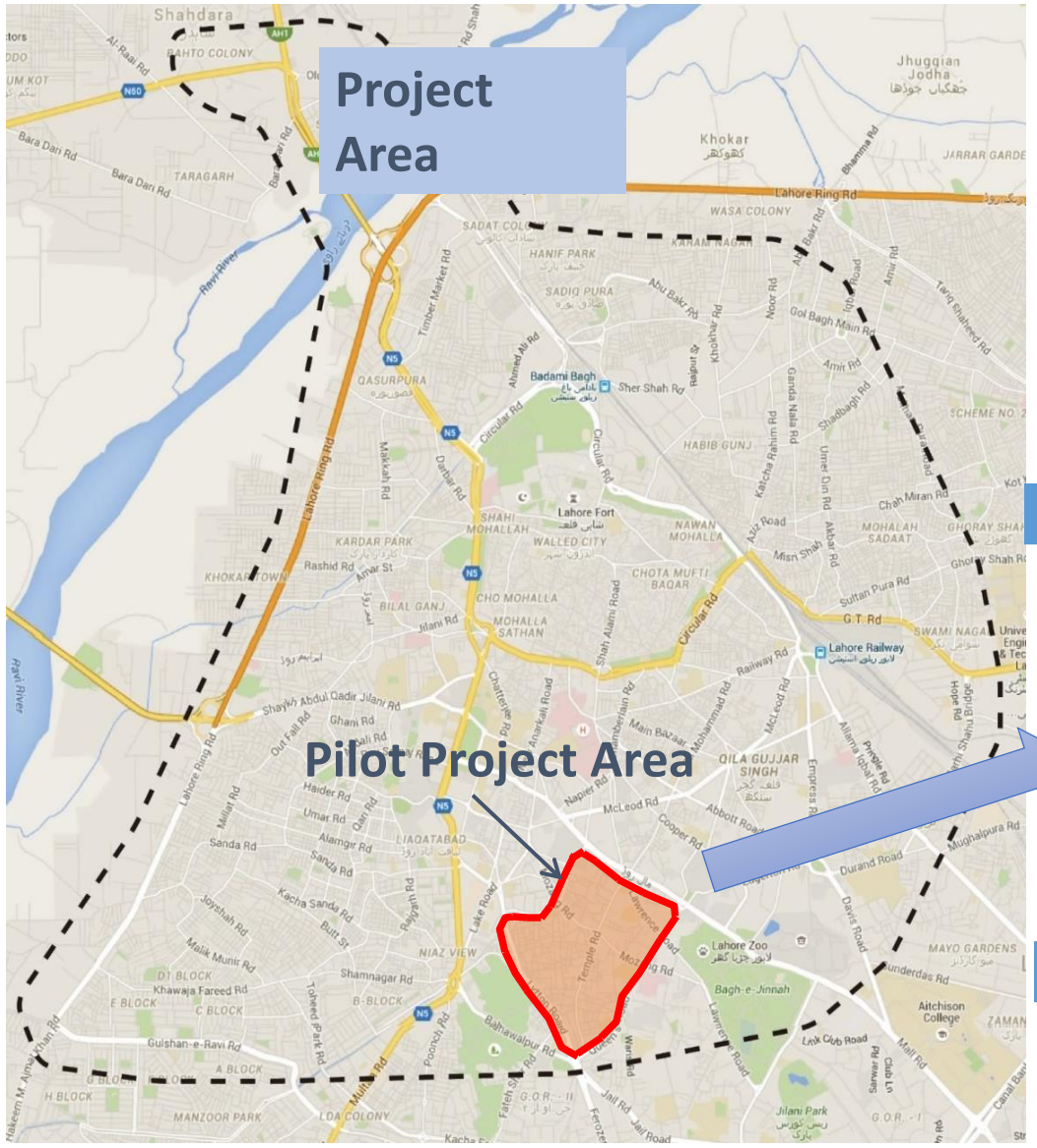
(3) Pilot Project are summarized into “handbook” to be shared among TEPA and related organizations as a reference for other areas’ improvement.

(4) Traffic management improvement plan in Lahore is developed.

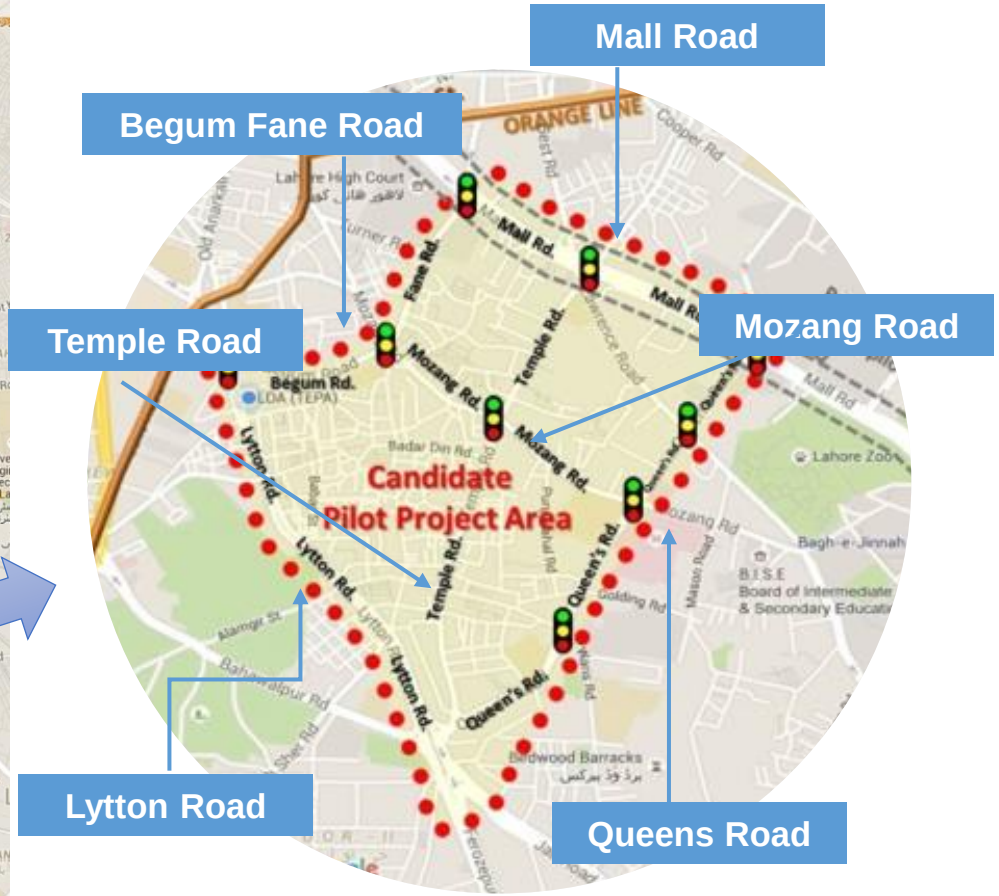


Project Area

Outline of Pilot Project



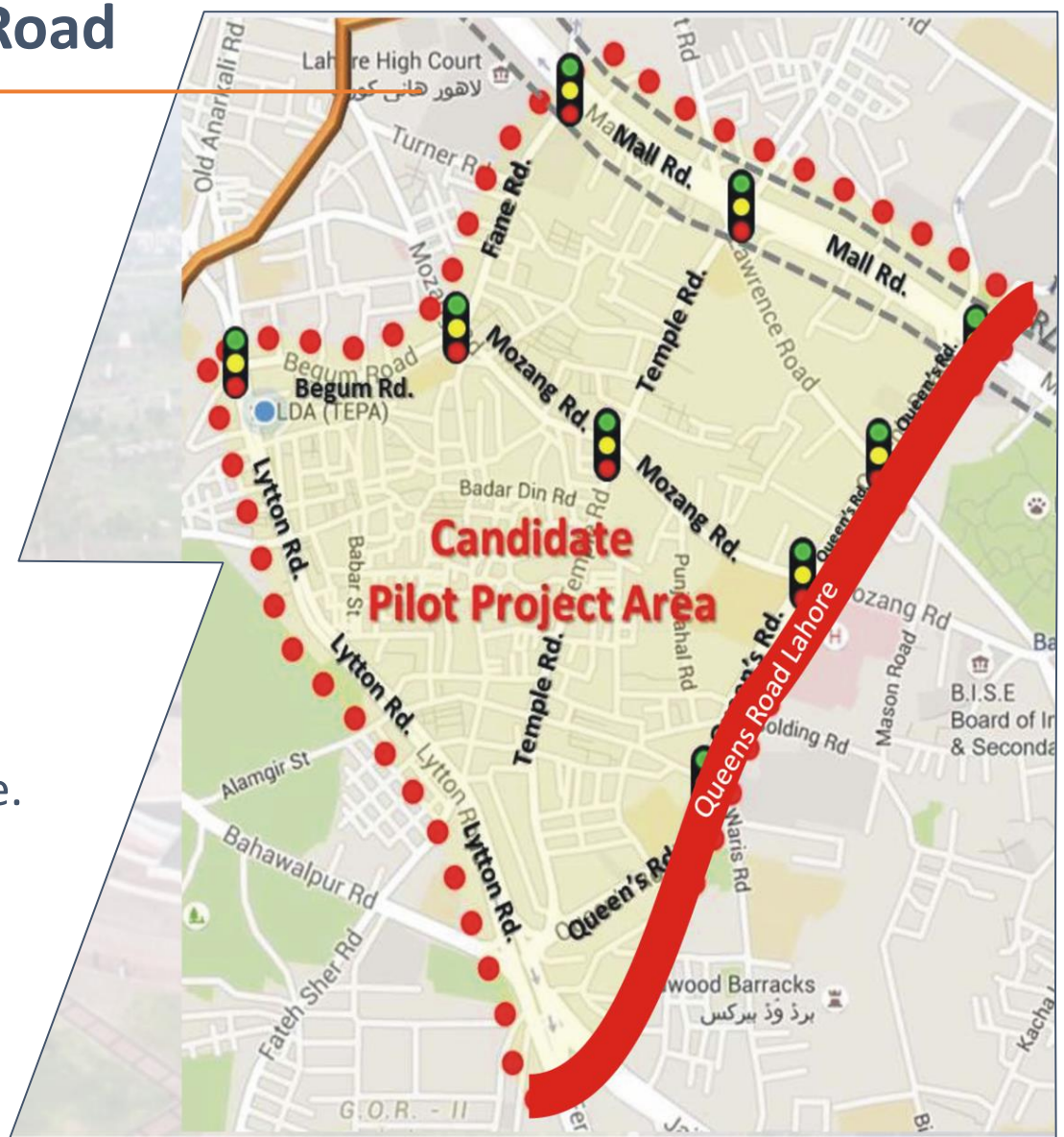
Pilot Project Area



Outline of Pilot Project

Pilot Project Corridor – Queens Road

- Queens Road is located between two of Lahore's main radial roads – The Mall Road, Ferozepur/Lytton Road.
- It has attracted considerable investor interest in the past decade and has consequently developed as a hub of business as a hub of automobile and electronics industries.
- Hospital, educational institutes and Army Aviation center are located there.

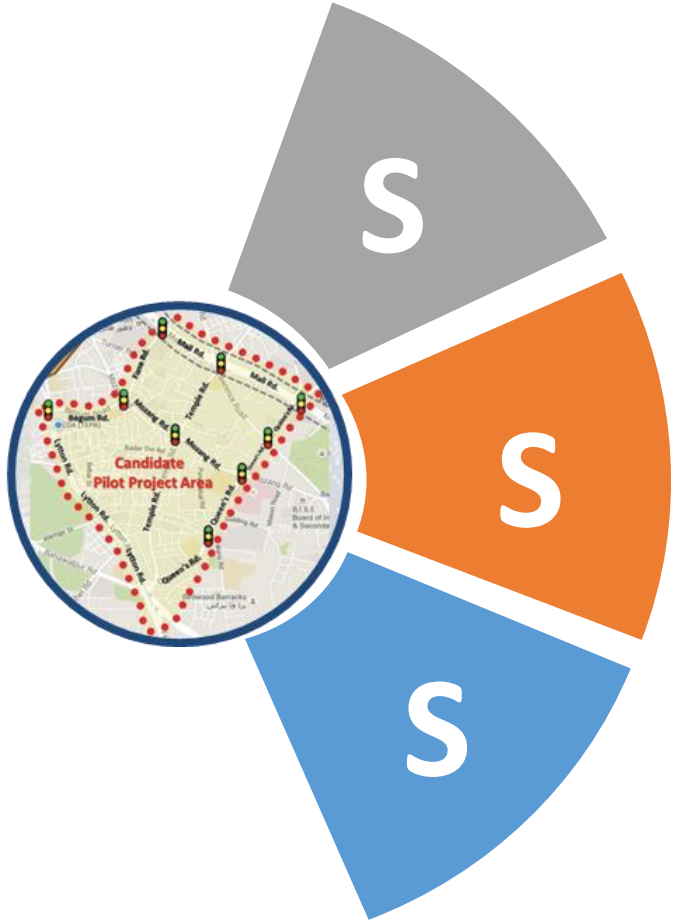


2. Project Schedule

Year	2016				2017				2018				2019
Month	Feb – Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar
WORK PLAN	**Current Situation Analysis** ● (1-1) Needs Assessment of the CP members ● (1-2) Development of Training plan ● (2-1) Traffic condition survey ● (2-2) Identify of traffic management issues ● (2-7) Organizational frameworks of TEPA ● (3-1) Review the Existing handbook and manual				**Institutional / Personal Development** ● (1-3,4) Conduct training courses ● (1-6) Conduct work shops/Seminar ● (2-8) Preparation of institutional improvement Plan				**Institutional Development** ● (2-9) Monitoring of the institutional improvement Plan				
					Planning for Pilot Project ● (2-3) Planning of the Pilot project (Selection of pilot project area and implementation items, Design, Integration, Coordination with Relevant organization)				**Implementation of Pilot project** ● (2-4) Implementation (Construction, M/M, Traffic safety Campaign) ● (2-5) Traffic Survey				**Analysis of Pilot Project** ● (2-6) Traffic simulation
									Development of Handbook and Manuals ● (3-2,3) Pilot project handbook and Intersection Design manual				
									Preparation of Traffic Management Plan ● (2-10, 4-1) Traffic Management Plan				
WG			●		●		●		●		●		●
JCC	●		●		●				●				●●
Seminar	●		●								●		●

3. Corridor Management along Queens Road

"Safe, Smooth and Smart Urban Transport Corridor – Queens Road"



SAFE

Safe means ensuring the safety of all road users.

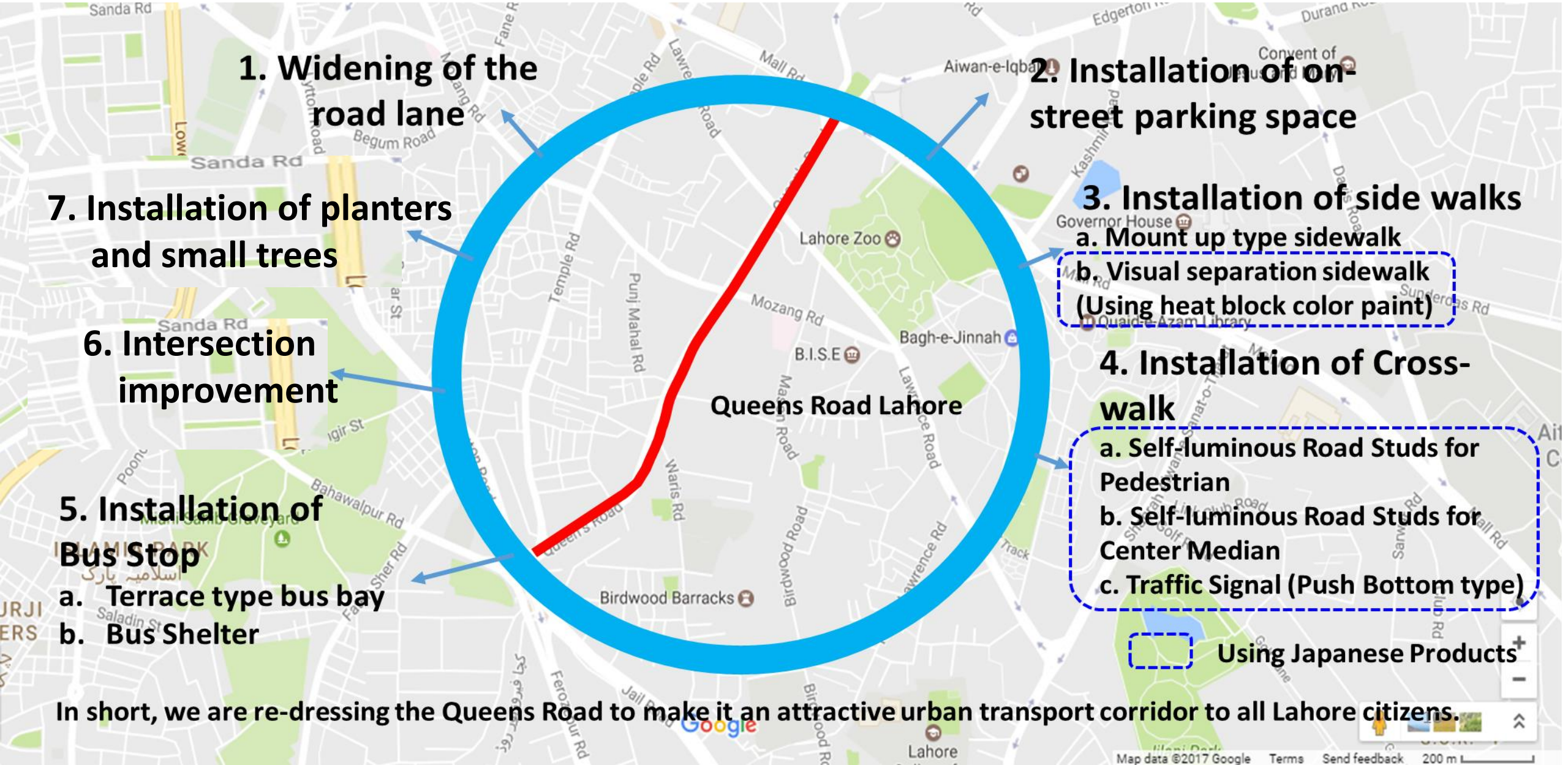
SMOOTH

Smooth means smooth mobility not only for cars (but keeping speed limit) but also for pedestrians walking on continuous sidewalk space.

SMART

Smart means effective use of road space by car drivers, roadside shop owners/business persons and pedestrians.

3. Corridor Management along Queens Road



3. Corridor Management along Queens Road

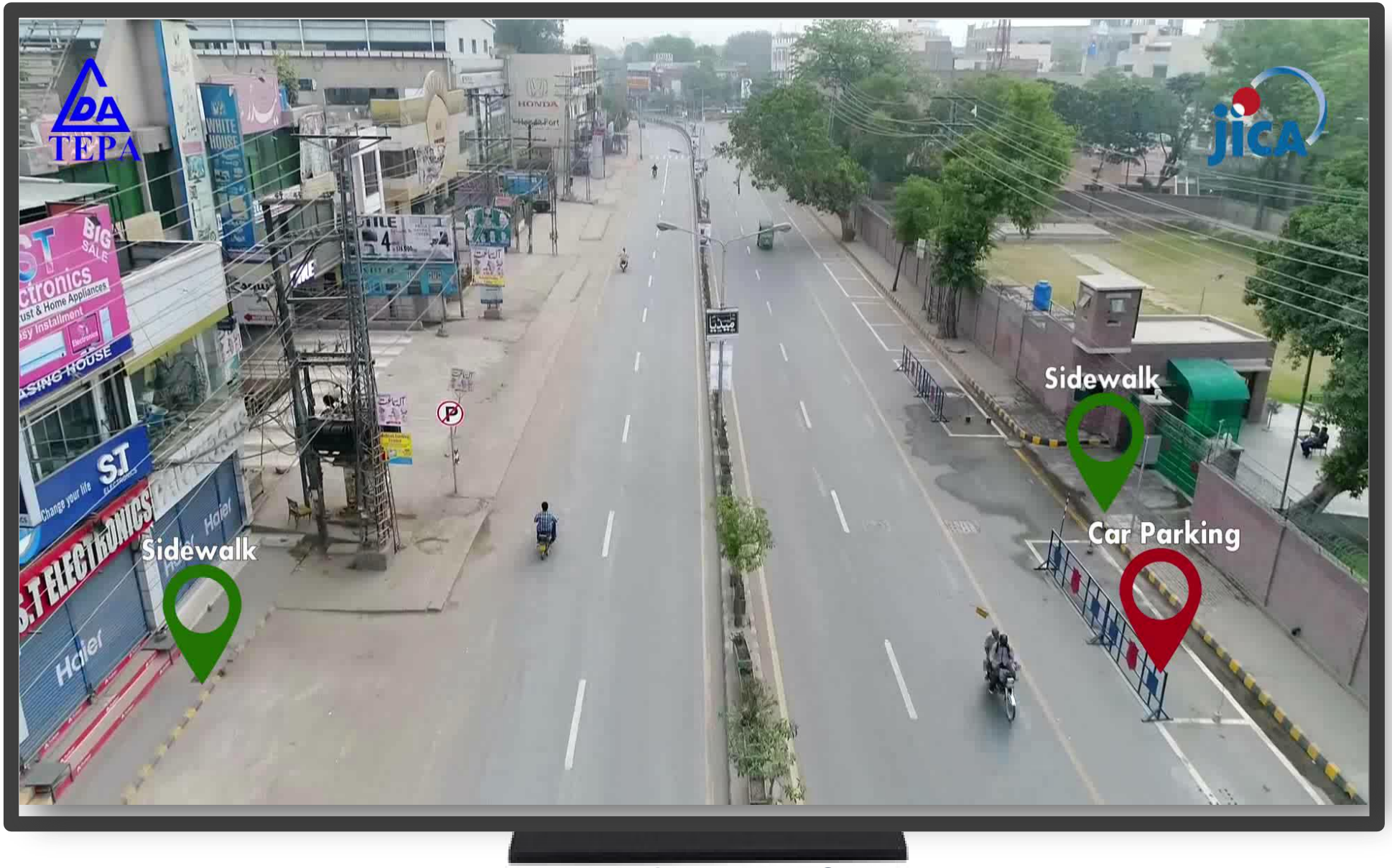
Parking Measures

Sidewalk Improvement

Bus Stop Improvement

Pedestrian Crossing with Pelican Signal

3. Corridor Management along Queens Road

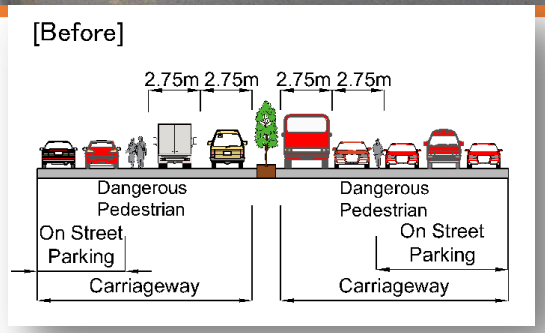


Queens Road view from Drone

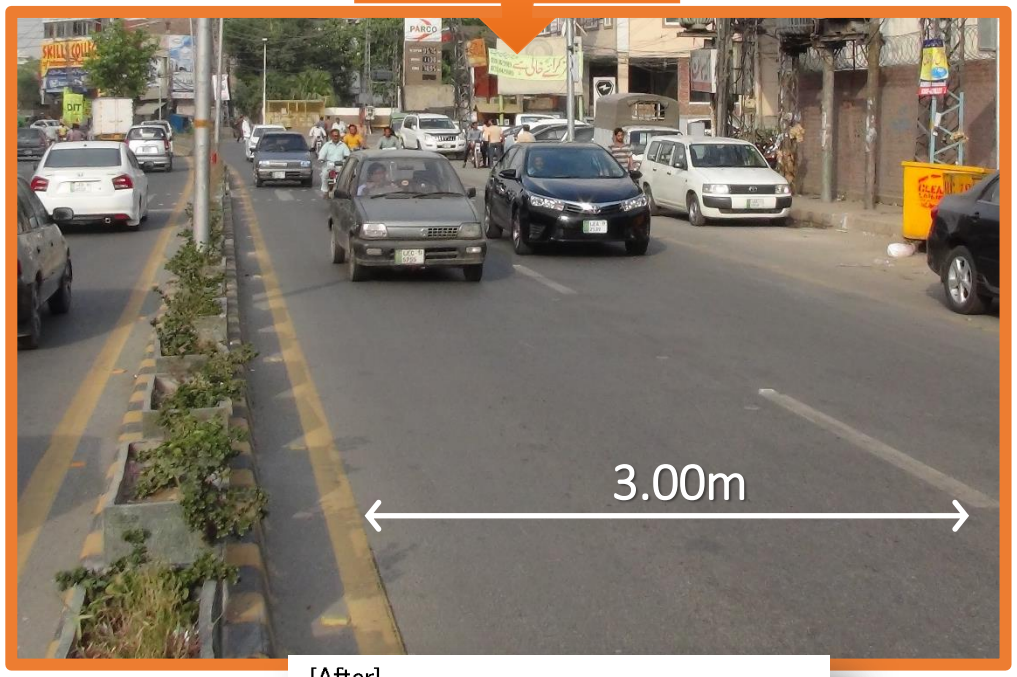
3. Corridor Management along Queens Road

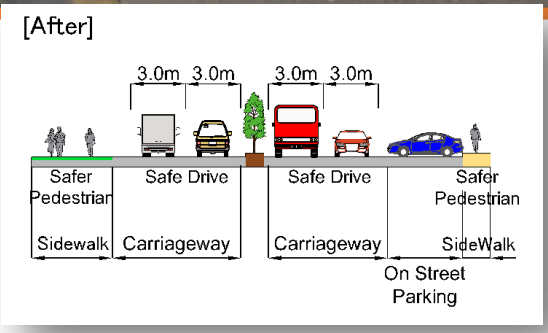
- To ensure safe and smooth traffic for large vehicles such as bus and large truck, the lane width was changed from 2.75m to 3.0m

Before



After

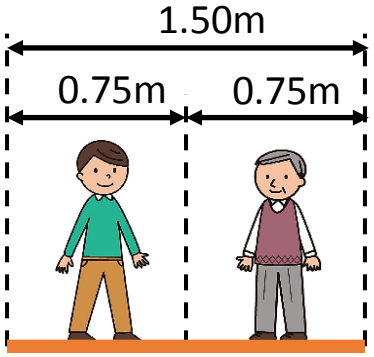




3. Corridor Management along Queens Road

BEFORE

- The width of sidewalk was ensured that pedestrians can pass each other (more than 1.5m) .



- In the section where the vehicle enters the private property on the roadside continuously, the height gap between the Carriageway and the sidewalk was set as 5cm.

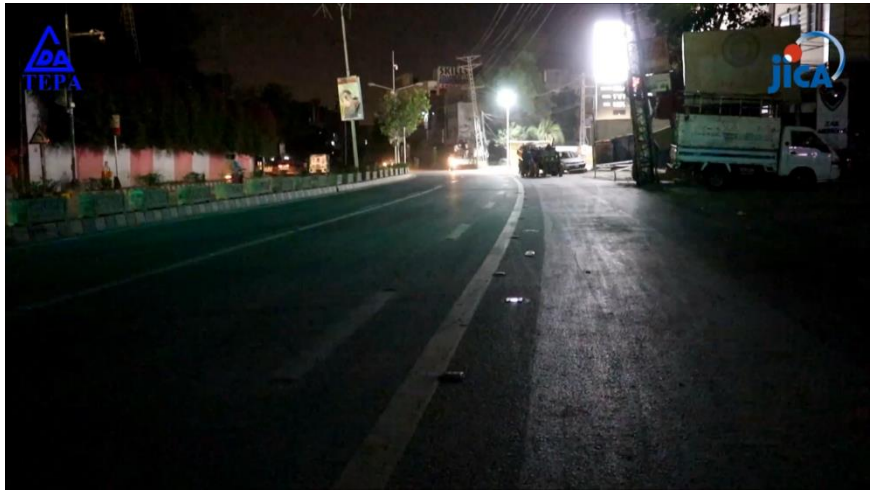
AFTER

3. Corridor Management along Queens Road

- The visual separation sidewalk was installed in the section where the Mount-up Type sidewalk cannot be installed due to safety reasons such as the UK Visa center and gas stations.
- To improve pedestrian safety at night, Self-luminous Road Studs was installed at the boundary of the carriageway and the sidewalk.

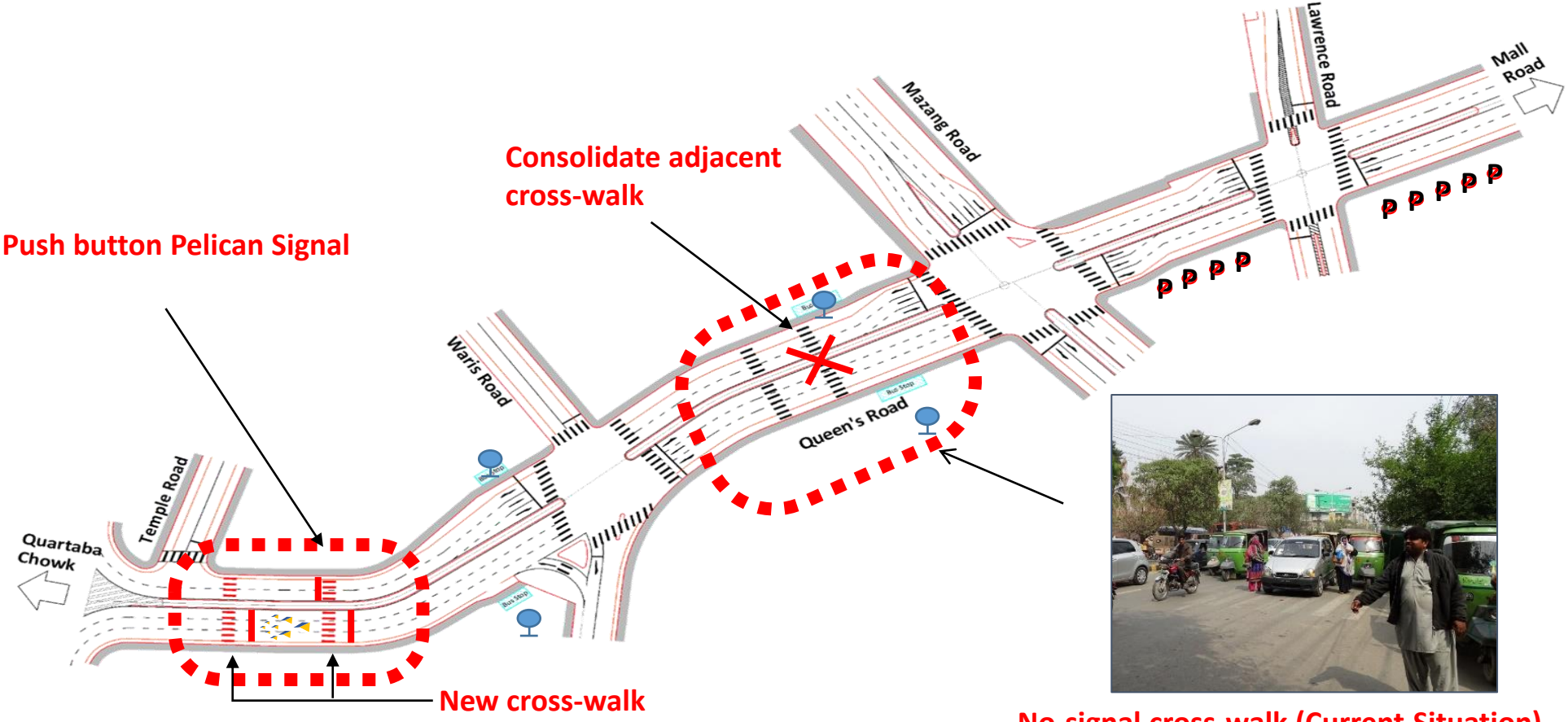
AFTER (Day Time)

AFTER (night Time)



3. Corridor Management along Queens Road

To make an environment where pedestrians can cross the roads safely, Crosswalk facilities were installed at regular intervals (Every 200 m).



No-signal cross-walk (Current Situation)

3. Corridor Management along Queens Road

- To make conditions where pedestrians can cross the roads safely, Push Button Pelican Signal was installed in front of Jinnah Degree collage for Women.
- To allow pedestrians to cross the road safely and comfortably, Center median (part of the pedestrian crossing) was removed.
- To reduce the vehicle speed at the signal section, road studs were set in front of the cross-walk marking.

3. Corridor Management along Queens Road

Push Button Pelican Signal

3. Corridor Management along Queens Road

Non Signalized Crosswalk

3. Corridor Management along Queens Road

- To stop the bus near the sidewalk, marking was installed to clearly show the stop position.
- To improve comfort of bus users, the bus shelter was rehabilitated.

BEFORE **AFTER**

Gangaram Bus stop

Waris Chowk Bus stop

Bus Stop Position

3. Corridor Management along Queens Road

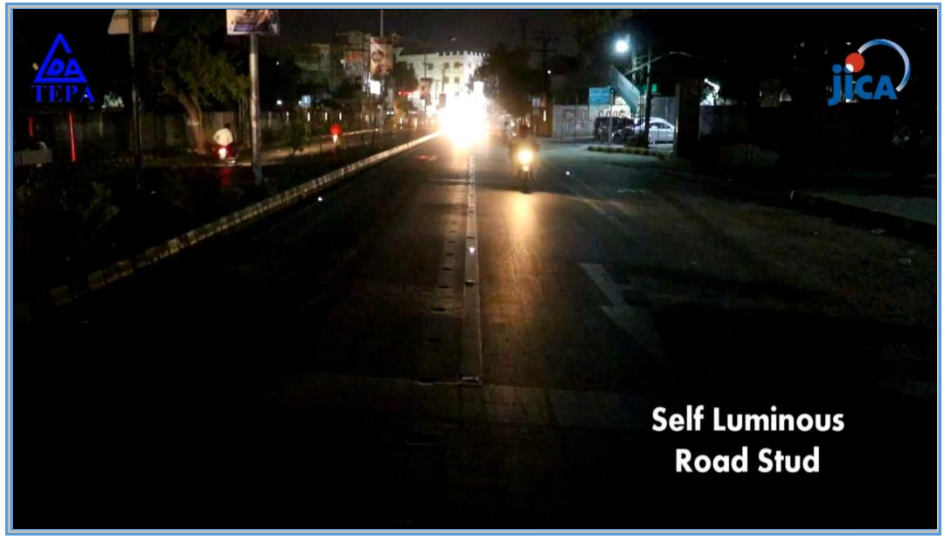
Plaza Cinema intersection

To prevent reverse lane running of the vehicle at the intersection, extension of the center median and installation of the sign board were conducted.

3. Corridor Management along Queens Road

To prevent vehicle collision to the center median at night time, Self-luminous Road Studs were installed on the edge of the center median at the Gangaram Intersection.

To prompt speed reduction of vehicles that enter the non-signalized intersection (Waris Chowk intersection) Self-luminous Road Studs were installed at the boundary of each lane.



3. Corridor Management along Queens Road

BEFORE

To prevent pedestrian jaywalking, planters and trees were installed in the Center Median.

AFTER

3. Corridor Management along Queens Road

Queens Road

Car Parking, Sidewalk, 3.0m Carriageway

UK Visa center

AFTER

The visual separation sidewalk

Other Road in the Lahore Central Area

Data Darbar Road
Pedestrian space is not clearly separated

G.T. Road
Sidewalk used for Motorbike shop

Begum Road
Parked vehicles blocked traffic

Lytton Road
Sidewalk used for Maintenance of rickshaw

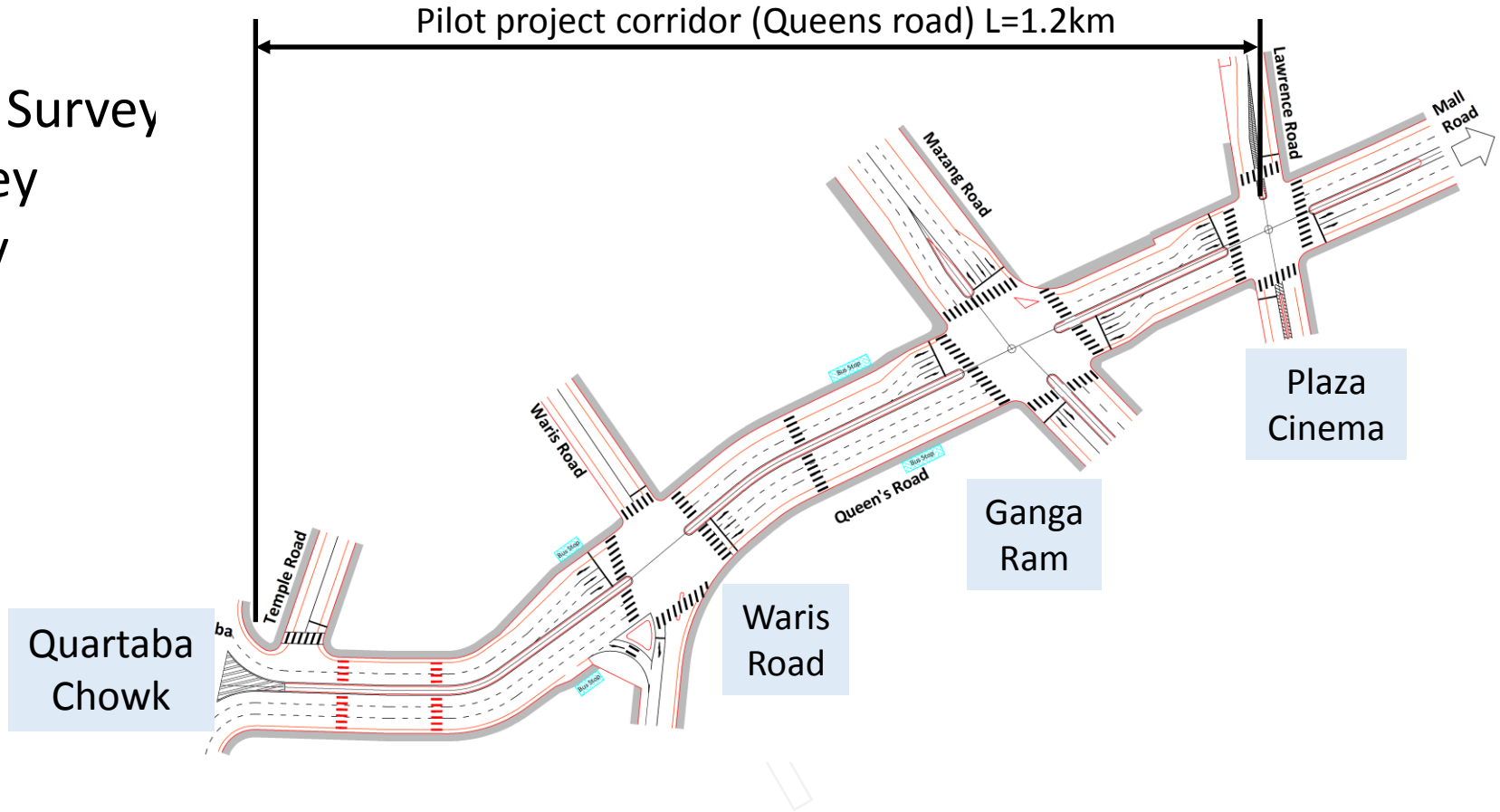
4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)

[Type of Traffic Survey]

(1) Intersection Traffic Flow Survey
(2) Congestion Length Survey
(3) Pedestrian Traffic Survey
(4) Parking Survey
(5) Interview Survey

[Survey Day]

- Pre Survey: Oct 2017
- Post Survey: May 2018



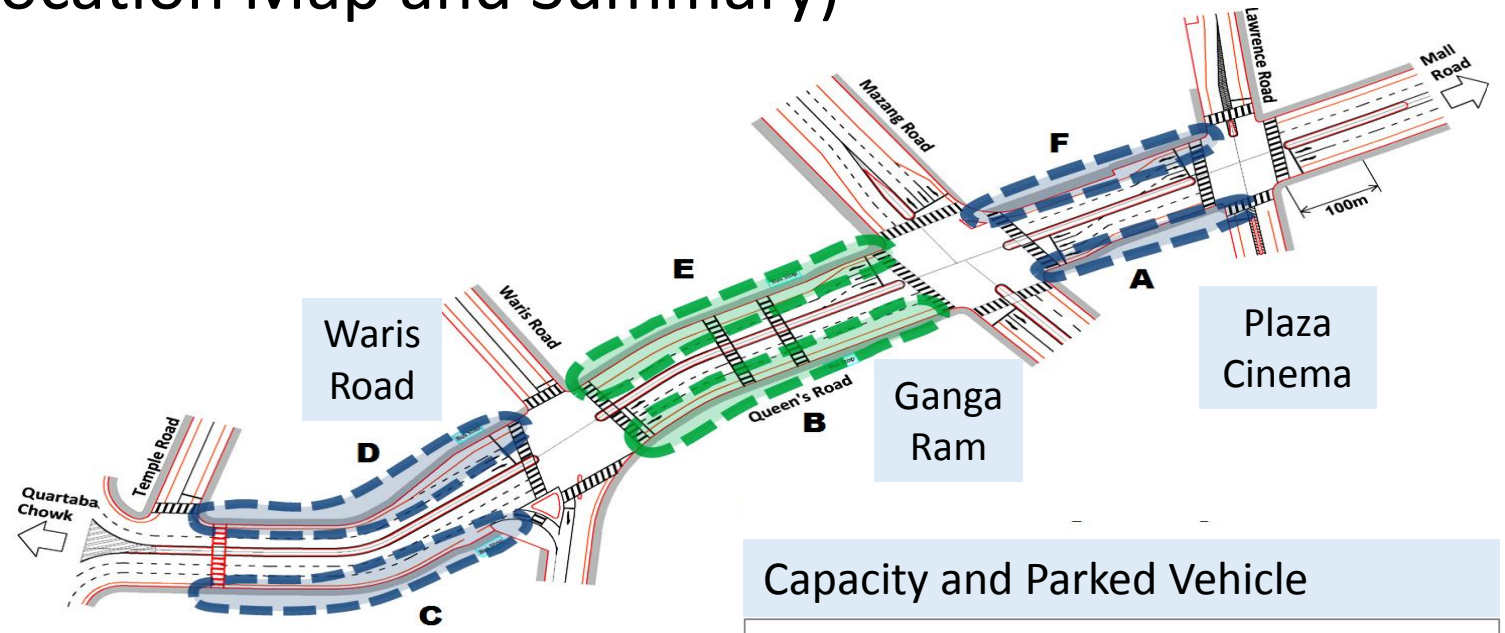
[Traffic condition]

- Traffic volume along Queens Road is about 6,200 veh./hour
- Vehicular type composition is Motorcycle (60%), Car (25%) and Ricksaw/Qingi (15%).

4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)

(1) On-street Parking Survey (Location Map and Summary)

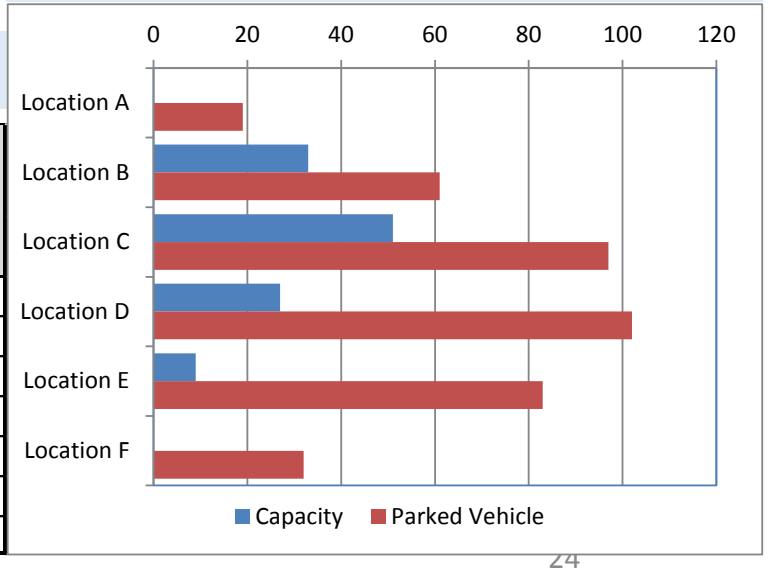
- 120 Parking lot were prepared in Pilot Project, but Maximum 394 vehicle were parked, Ratio of Parked Vehicle / Capacity is only 30 %, still lack of paring space
- Many double lane, illegal parking were found in front of school
- Parking time is long at location B, C ,D where is commercial area.



Parking Survey Result (Post Survey)

Location	Road side Parking Capacity			Max of Vehicles parked	Capacity / Parked Vehicle	Total of vehicles parked	Vehicle Share			parking turnover rate	Total Parking Time (min)	Average parking Time (min)
	Car	Bike	Total				Rickshaw	Car	Bike			
Location A	0	0	0	19		66	8%	36%	56%	3.47	7,950	120.5
Location B	17	16	33	61	54%	290	18%	43%	39%	4.75	26,790	92.4
Location C	20	31	51	97	53%	176	10%	15%	74%	1.81	24,990	142.0
Location D	7	20	27	102	26%	225	1%	55%	44%	2.21	36,960	164.3
Location E	9	0	9	83	11%	127	8%	45%	47%	1.53	35,220	277.3
Location F	0	0	0	32	0%	166	6%	35%	59%	5.19	15,360	92.5
Total	53	67	120	394	30%	1050						

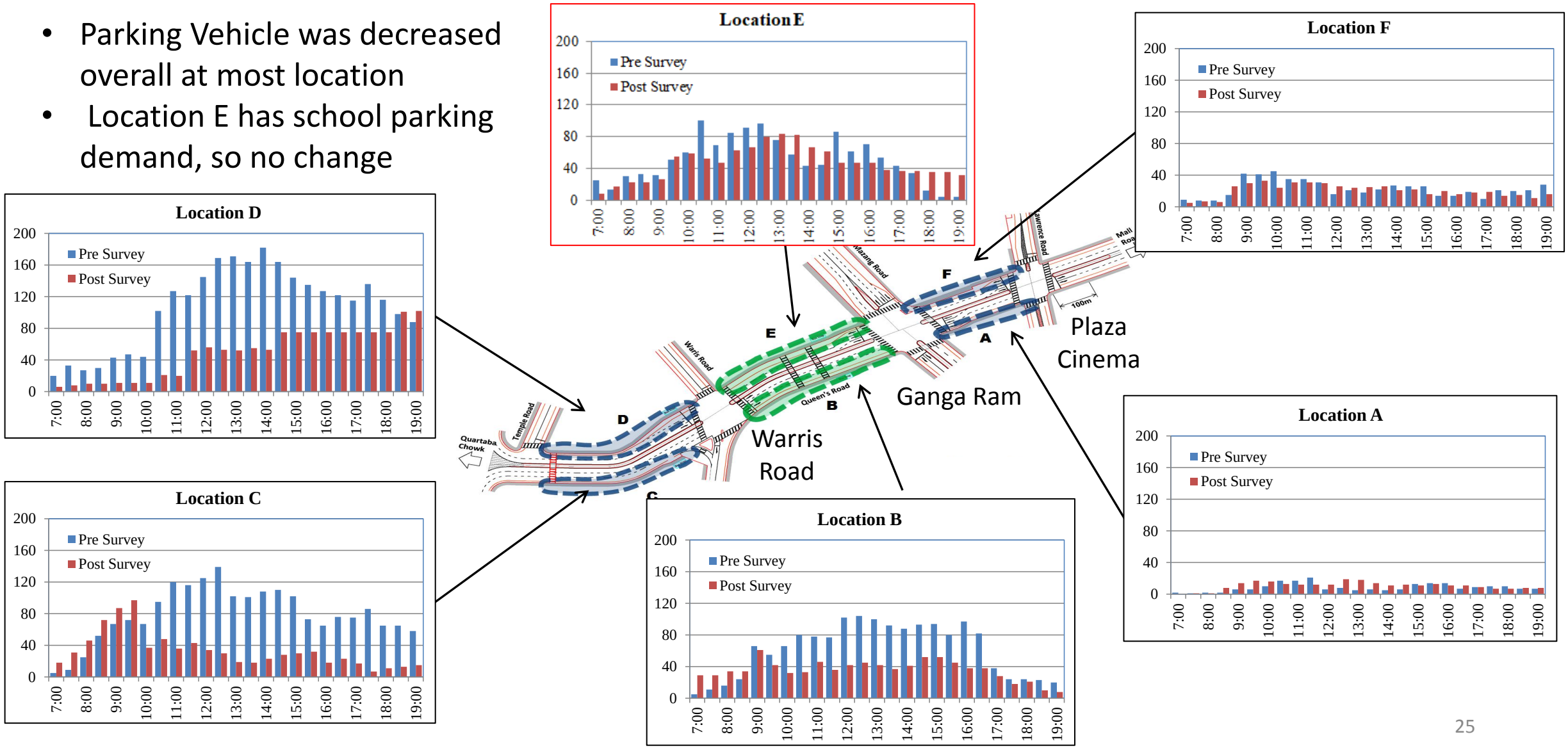
Capacity and Parked Vehicle



4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)

(2) On-street Parking (Time Distribution by Location)

- Parking Vehicle was decreased overall at most location
- Location E has school parking demand, so no change



4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)

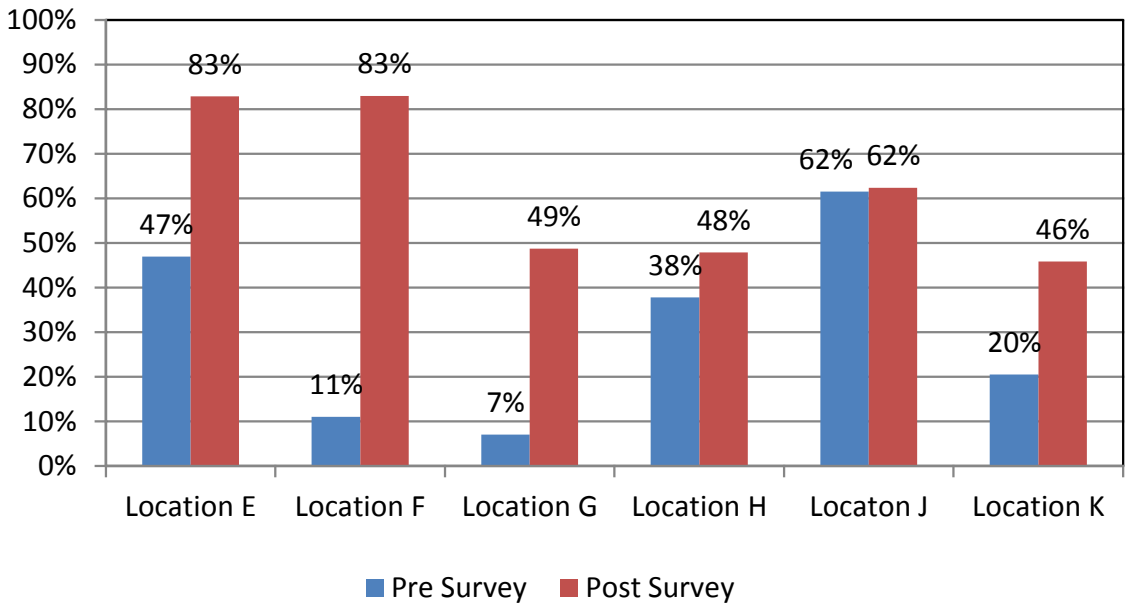
(3) Pedestrian Traffic on Sidewalk

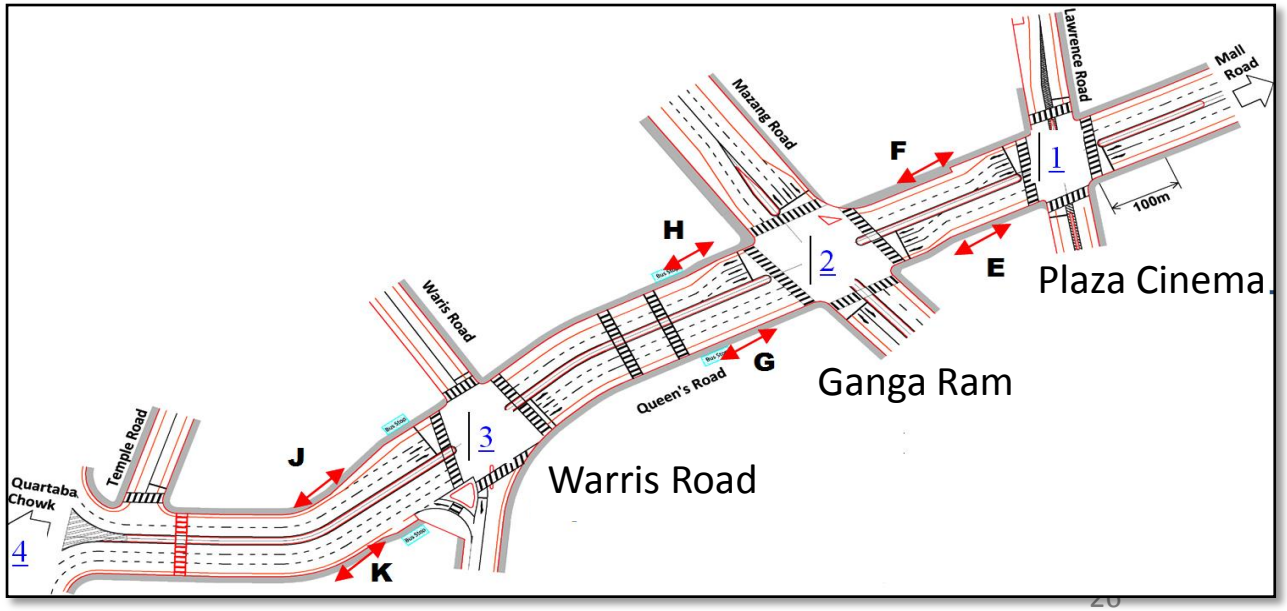
- Rate of within sidewalk increase at Location E, F, G,K, good impact of improvement work for sidewalk.

Maintenance rate of sidewalk

Sidewalk	West side	East side	Total
Existing sidewalk	562m	797m	**1,359m (56%)**
New mount-up sidewalk	498m	309m	**807m (34%)**
New visual separation sidewalk	140m	94m	**234m (10%)**
Total	**1200m**	**1,200m**	**2,400m**

Rate of walking on the sidewalk



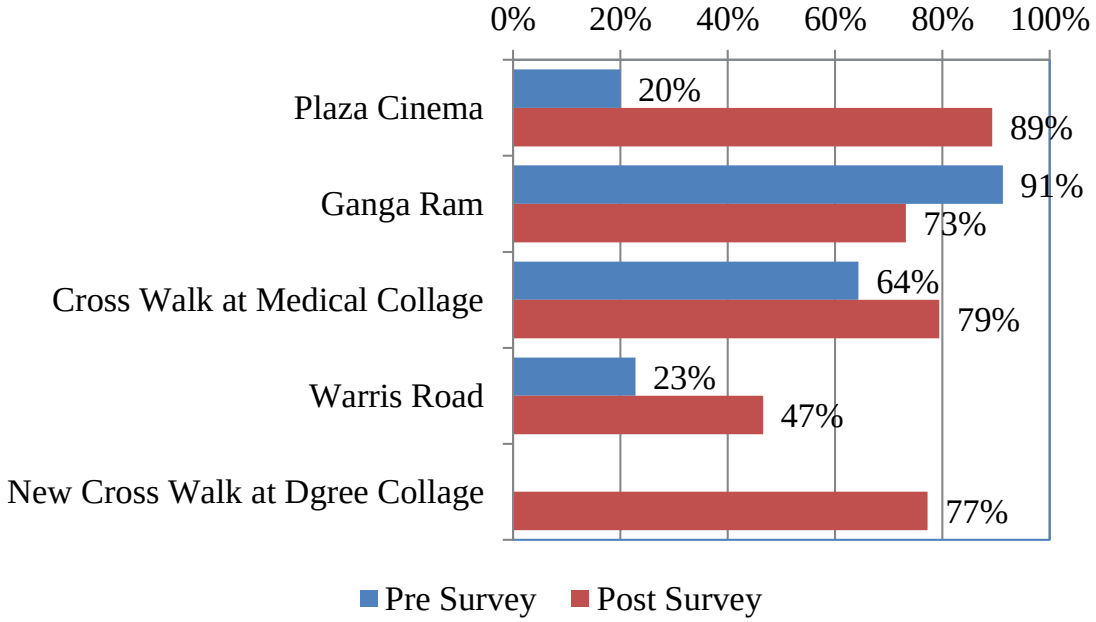


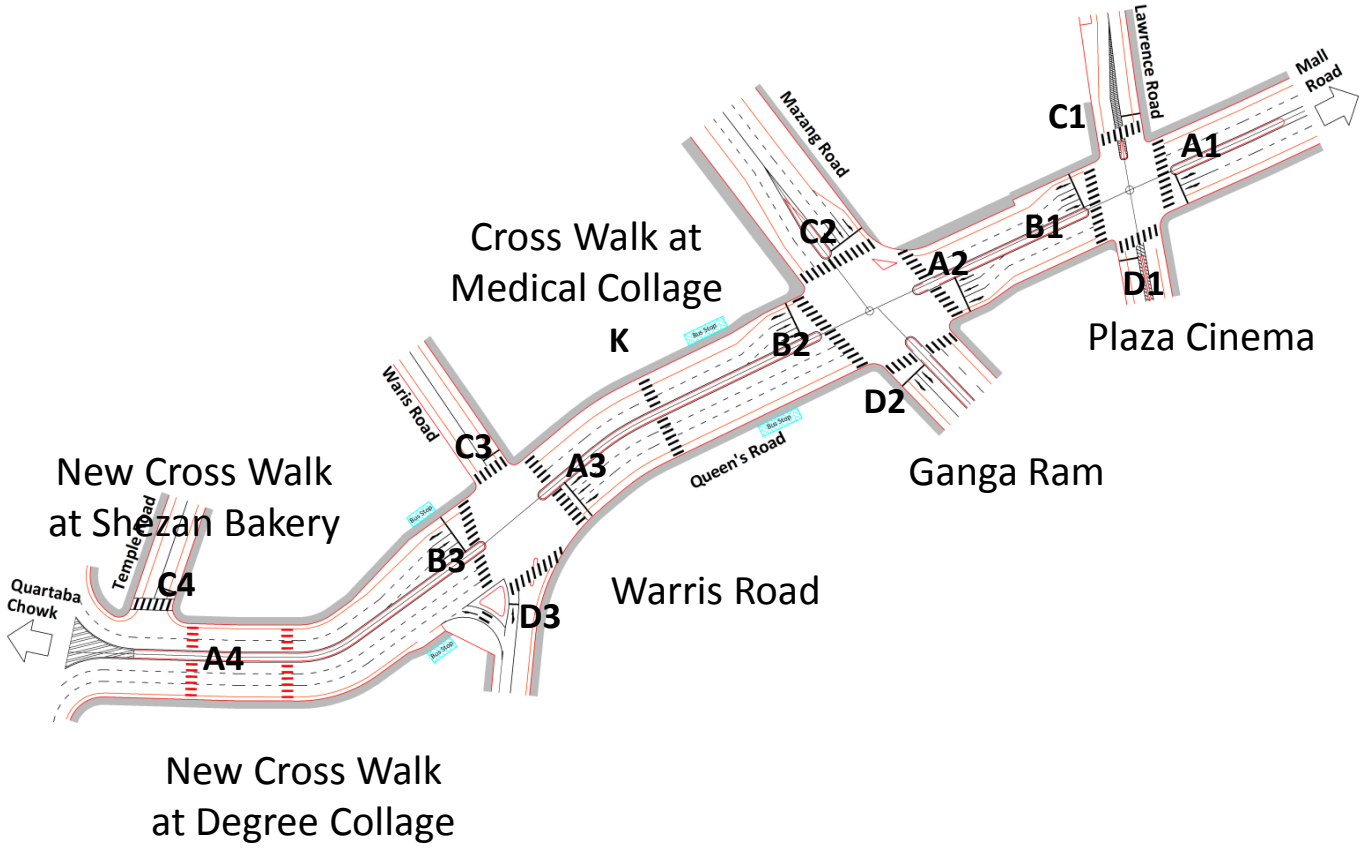
4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)

(4) Pedestrian Traffic at Crossing Walk

- The rate of walking inside side walk are increased at most locations, Ganga Ram is decreased but keep high rate with 75 %
- This is the results of impact of pilot project and traffic safety campaign

Rate of walking on the crosswalk marking



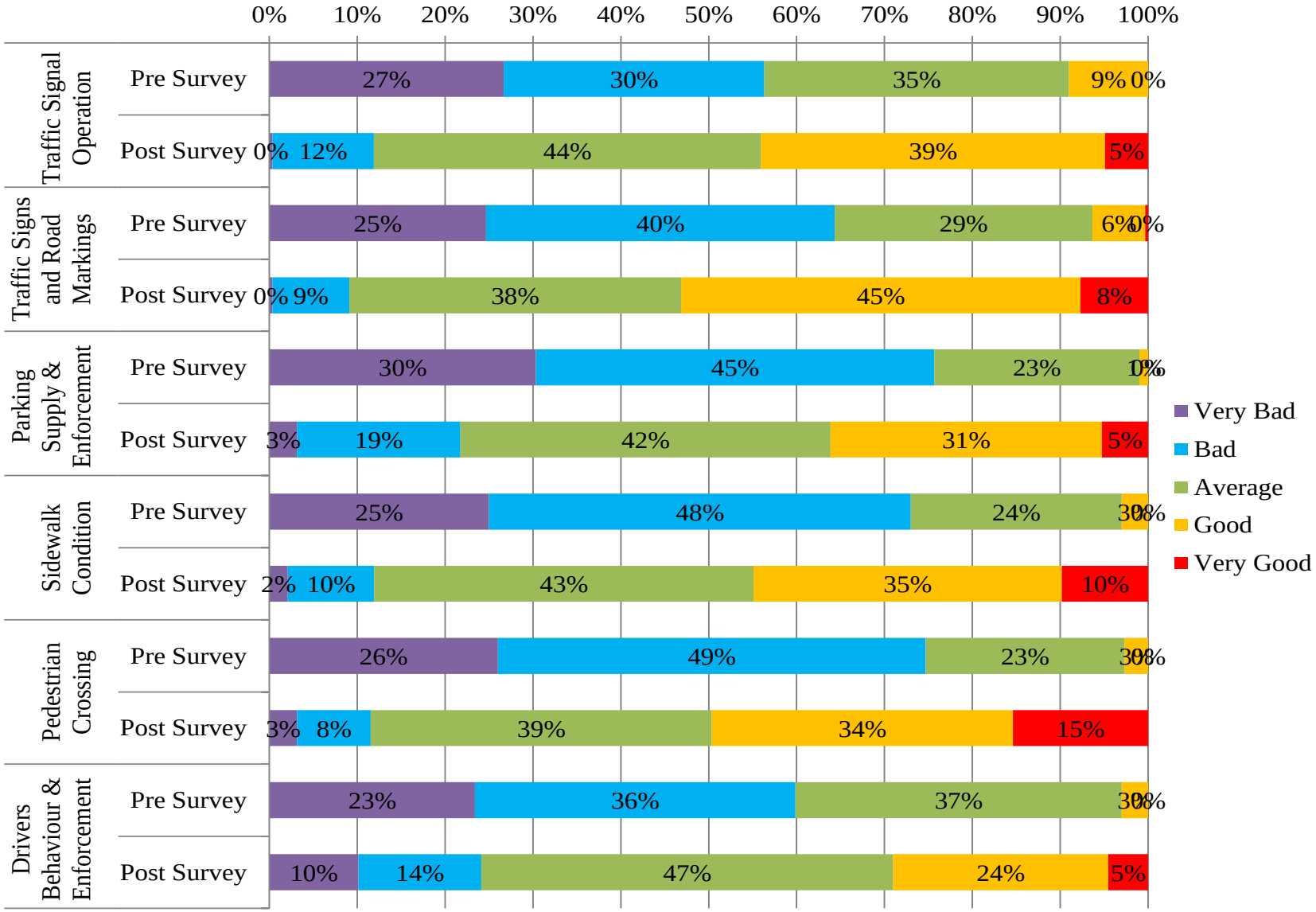


4. Evaluation of Pilot Project (Pre and Post Traffic Survey Result)

(5) Interview Survey: Overall Assessments for Traffic Situation)

- All items are improved
- High evaluation are Traffic signal/ Road marking with 47points increase, Pedestrian crossing with 45 points and sidewalk with 42 points

- Points = percentage of good and very good



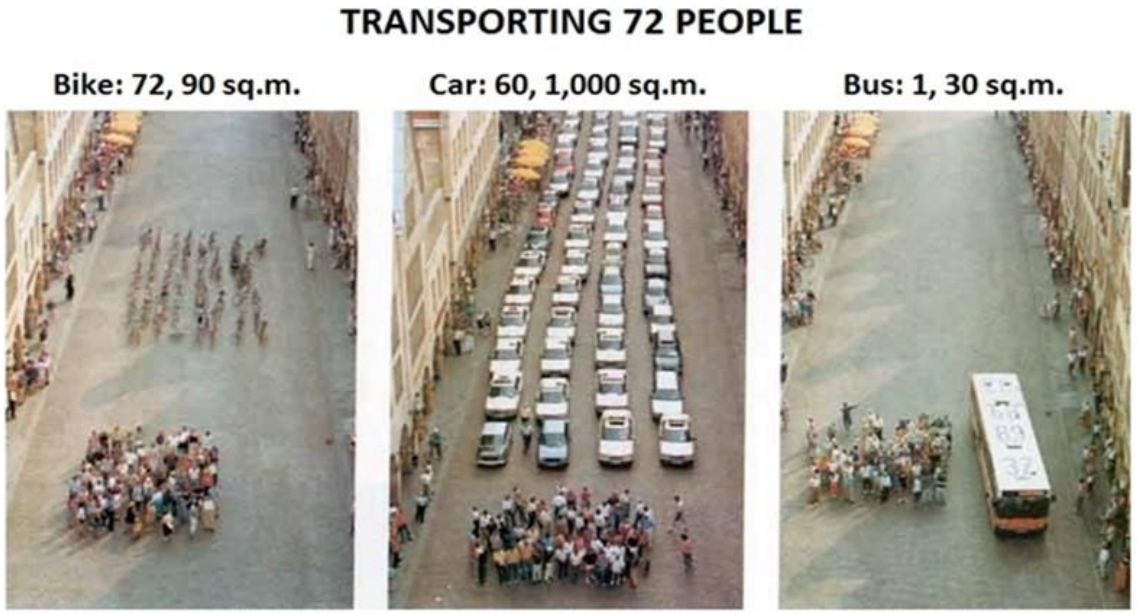
5. Mobility Management

1. Mobility Management Campaign / Survey

5. Mobility Management Campaign

5.1 What is Mobility Management?

"Mobility Management (MM) is a concept which promotes the use of sustainable transport (like walking for short trips, use of public transport) by changing travelers' attitudes and behavior. The ultimate goal is to create a new mobility culture."



But to realize the above, we have to give them the right environment (unobstructed pedestrian space, safe environment, etc.). The Pilot Project (Queen's Road) is planned to be such a place.

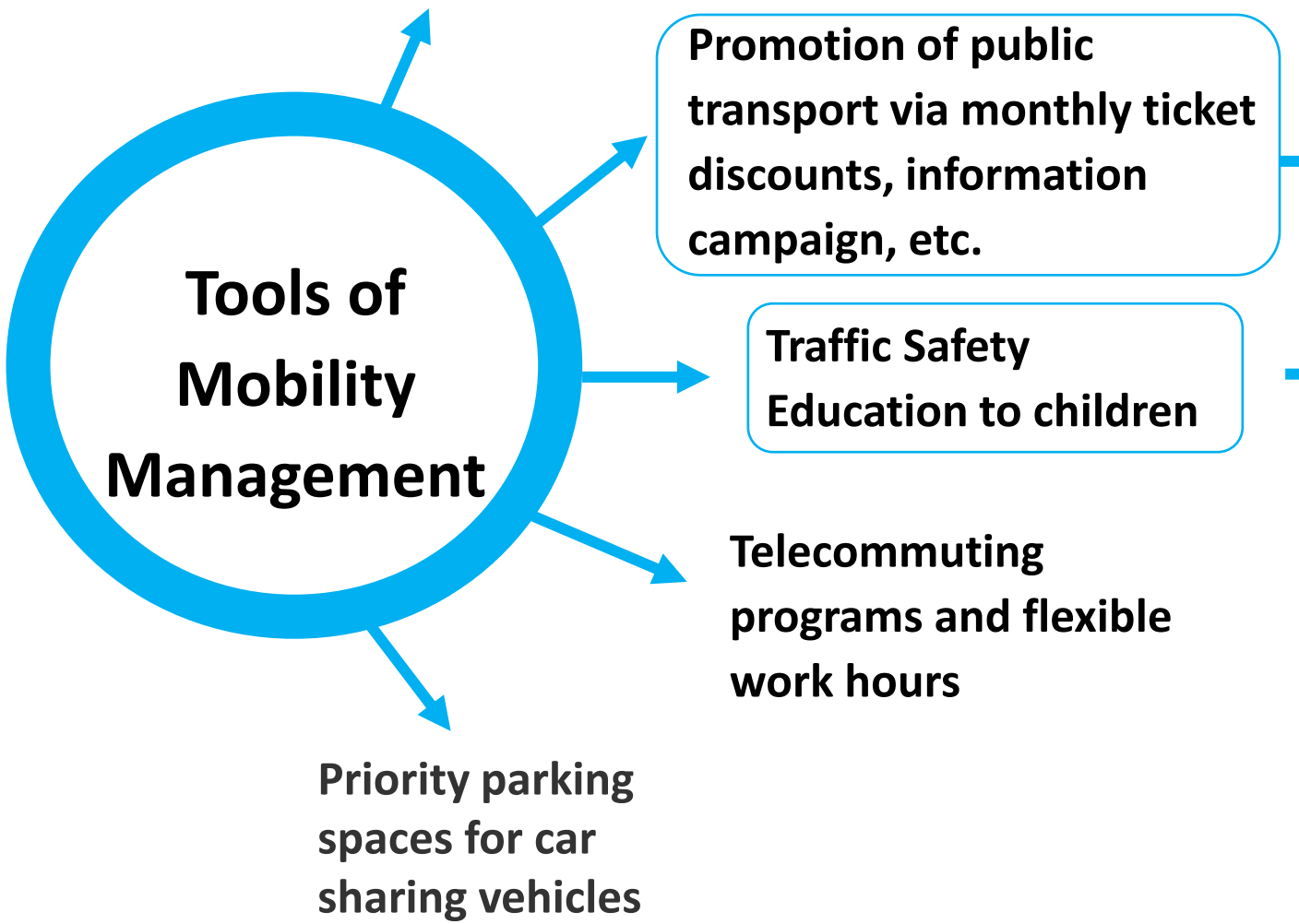
5. Mobility Management Campaign

5.2 What is Mobility Management?

Public manners including respect to traffic rules is shaped at early age.
Here, school children in Japan and Pakistan during their traffic safety training

5. Mobility Management Campaign

5.3 Tools of Mobility Management



For the Mobility Management Campaign under this TEPA/JICA Project, we are covering the following:

1. Classroom campaign on the importance of using public transportation, obeying traffic rules and students contribution to improve the transport system of Lahore (e.g. walking for short distances, proper parking, etc.)
2. Class room seminar for the students (with traffic police)
3. Traffic Safety Tour Campaign

5. Mobility Management Campaign

5.4 What we taught the students?

Traffic Police Officer, Mr. Moozam Ali, explaining to the students the meaning of green painted pedestrian lane and other markings useful for their safety

What we taught the students?

- Explain to them the meaning of road markings and traffic signs
- Identify safe route while walking (e.g. by observing the pedestrian lane and designated zebra crossing with push button)
- Tech them how to behave in the public space (e.g. raise your hand when crossing to increase your visibility to the driver or walking and crossing as a group will increase their visibility)
- Tell them to influence their family members who drive to follow traffic rules

Road Safety Tour at Queens Road | Adabistan-e-Soophia

1

Students listening to the traffic safety presentations

2

TEPA explaining the objective of the seminar

3

TEPA and Traffic Police organizing the students at Queens Road

4

Traffic Police explaining the meaning of road markings and traffic signs

5

Media covered the activity which enhances the program's reach

6

Students testing their newly-learned skills by raising their hand when crossing

Adabistan

Selected Feedbacks from the Students

How's the Traffic Safety and Road Safety Tour, are they useful to you? Should these be continued?

Note: 2 students said not useful. Other 82 students said "useful"

Yeah, it is a very useful campaign and this should be continued to make Pakistan more safer.

Yes, but not all people are aware of this so it should be continued further to all area of Lahore

Yes, this seminar and safety campaign is very useful. This seminar gave us a lot of information about traffic laws. Please continue seminars like this, all over Pakistan.

Yes, this seminar is very useful and about safety for our children and families and this safety is most important for the students. Students were given information for this. Thank you so much for this information.

Selected Feedbacks from the Teachers

This seminar is very useful since what children learned at early age will stay with them forever

Its a very good effort and it should be continued. Our students learn inside class room especially about traffic signs and safety but this activity brings them on road and show them practically so they learn how to follow these things in their daily life. Kids are happy to participate and they learned a lot.

This should become part of our regular school activities in Pakistan.

Parents should be also involved since they make decision for their kids.

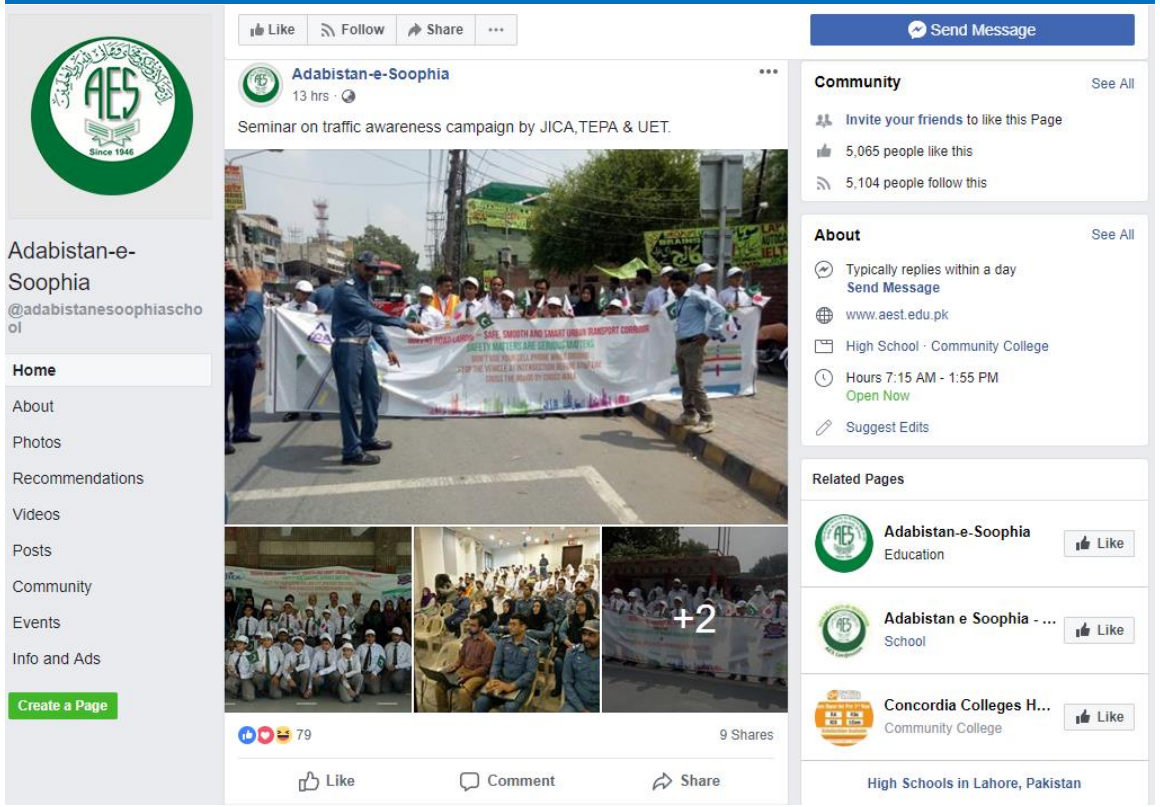
Please extend this program to all-boys schools since they are the motorbike users and major source of accidents

This seminar/program should be part of our educational system.

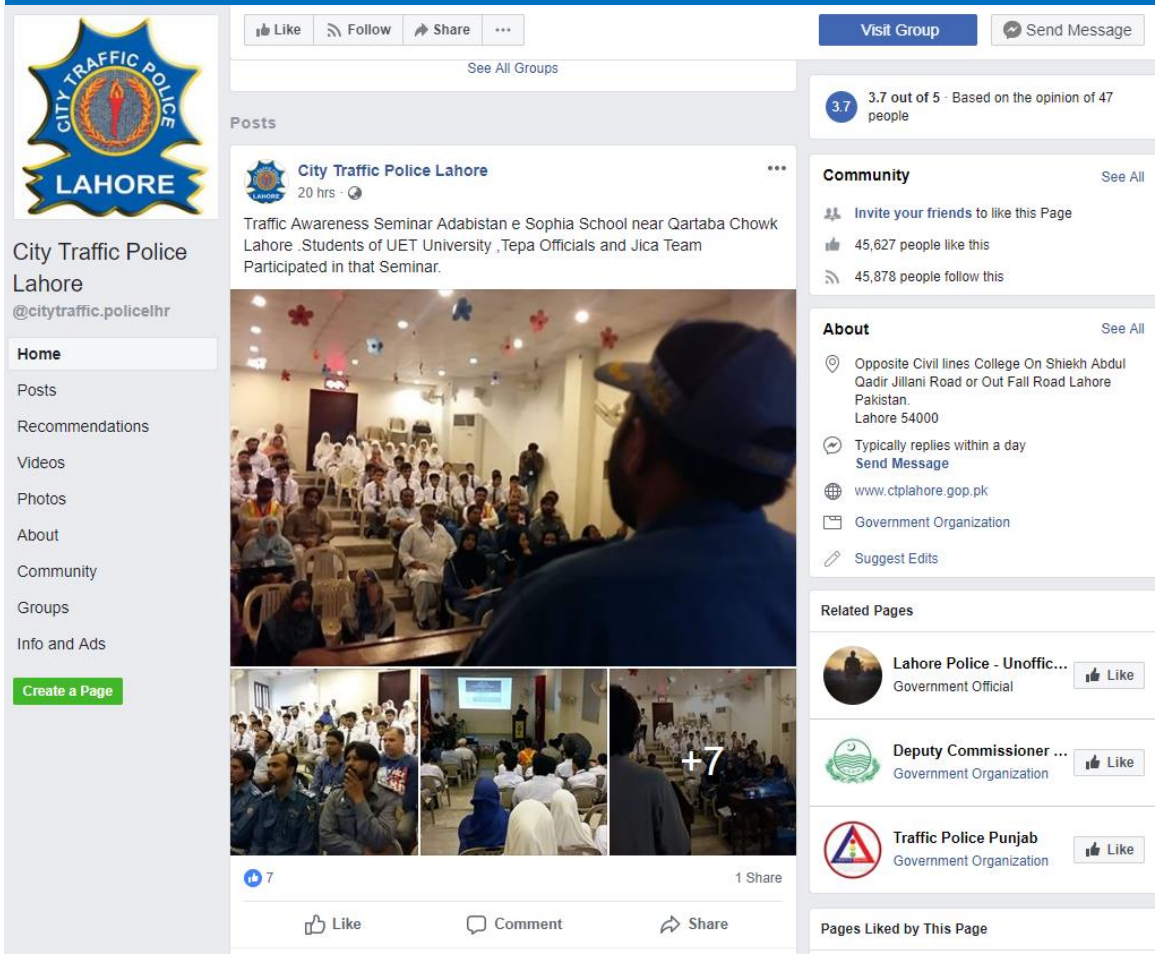
Media coverage of the Mobility Management Activity

Presence of the Seminar in Social Media

Adabistan-e-Soophia

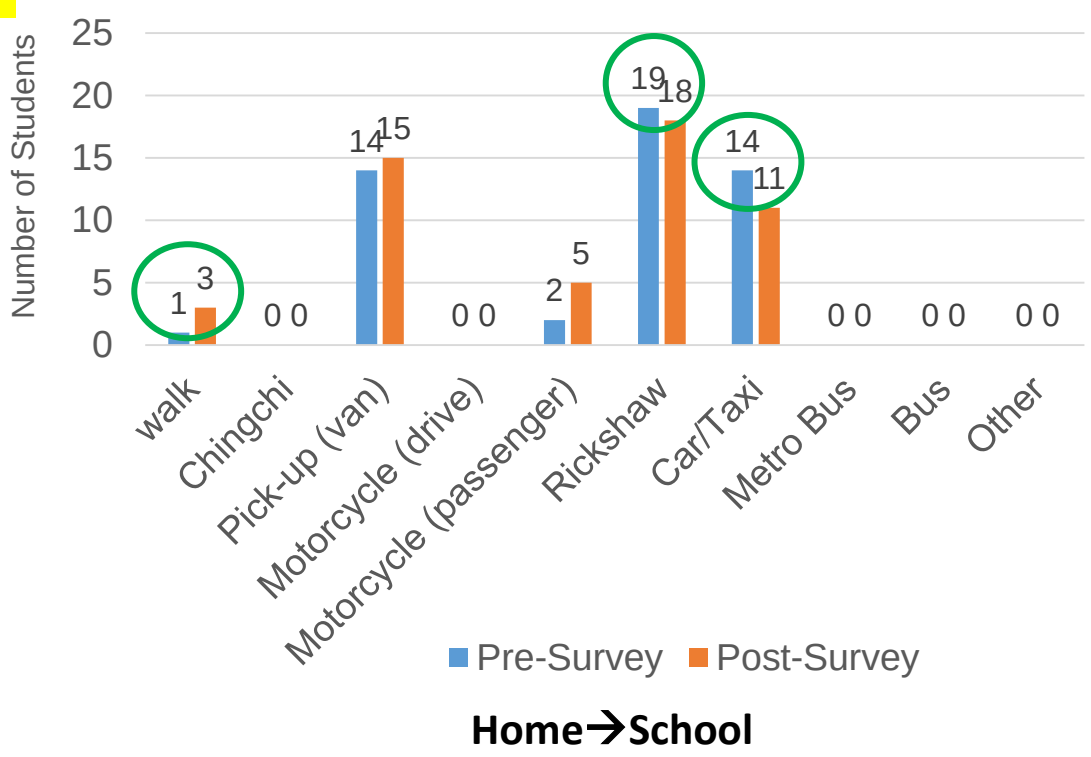


Lahore City Traffic Police

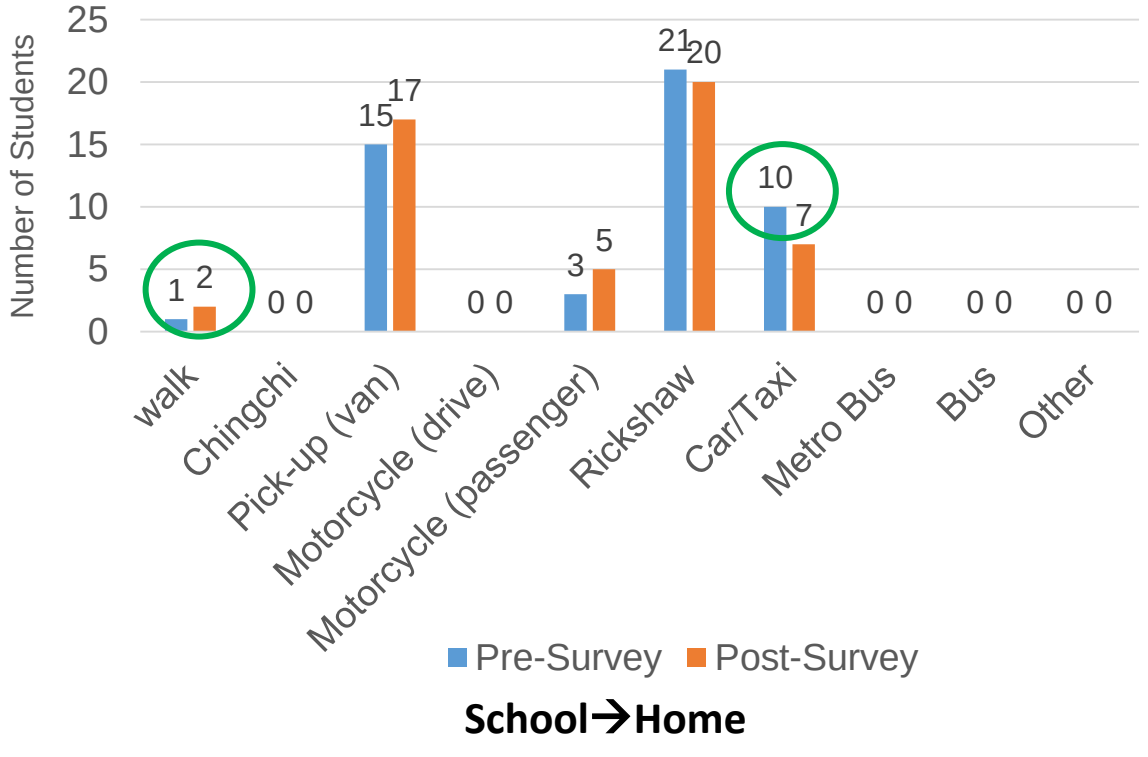


5. Mobility Management Campaign

5.5 Comparison of Pre-survey and Post-survey data (Adabistan)



Home→School



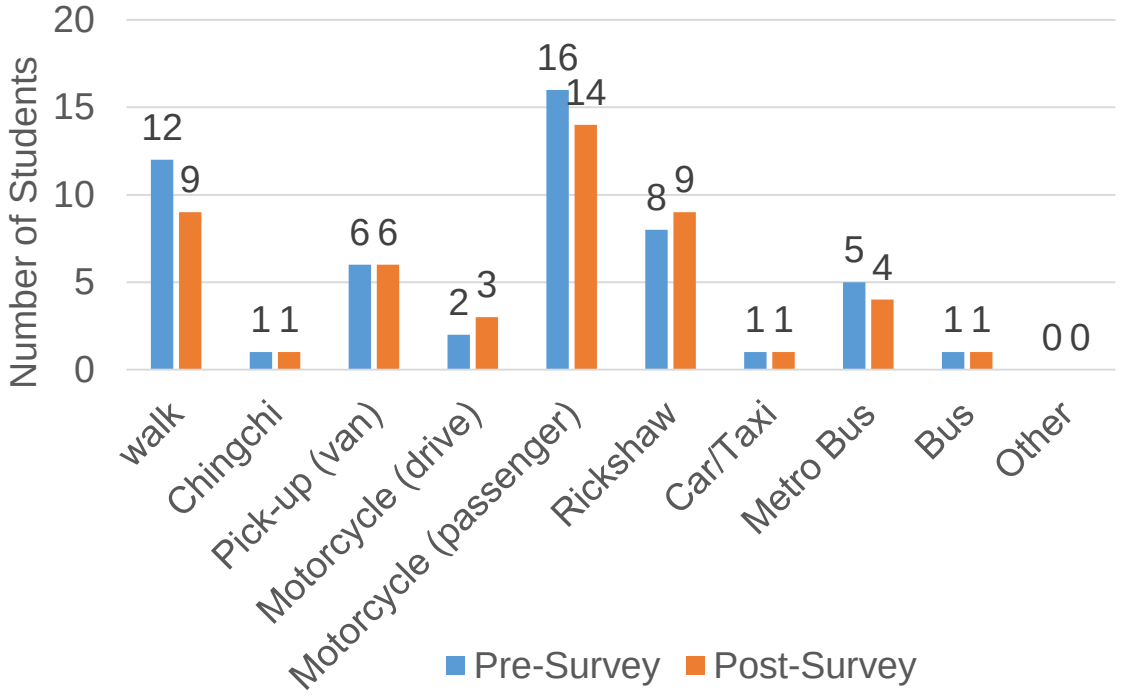
School→Home

Observation:

- Mixed results, i.e. walk increases, use of car/taxi decreases which are both positive
- However, use of motorcycle among the students also increases

5. Mobility Management Campaign

5.5 Comparison of Pre-survey and Post-survey data (Government Jinnah)



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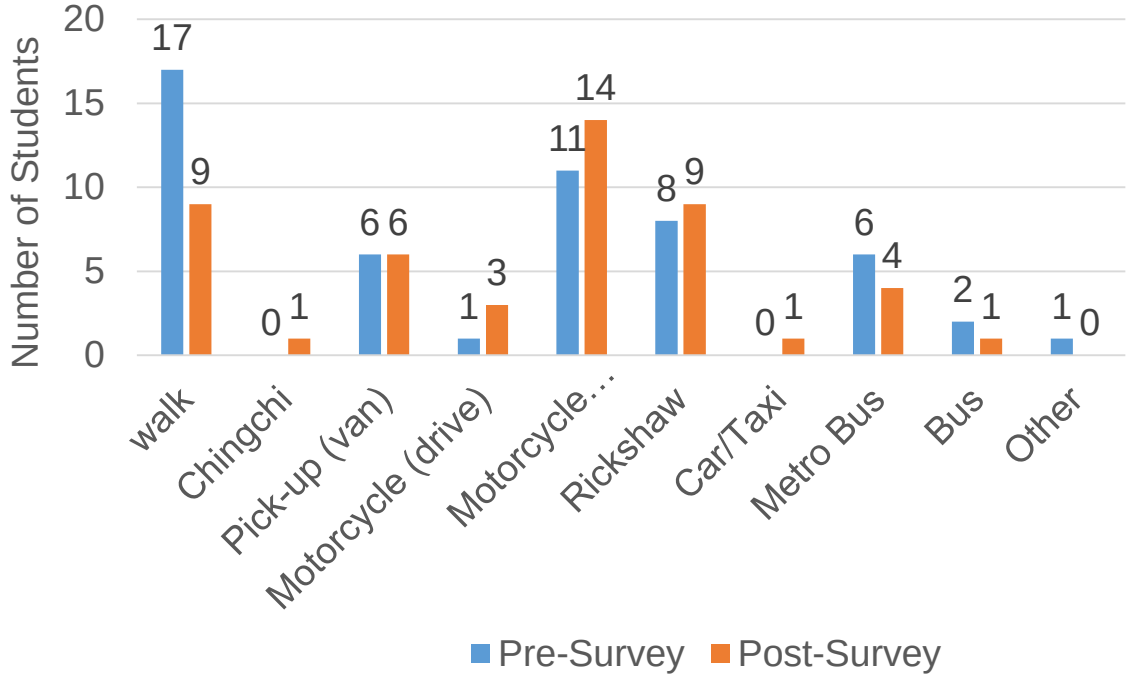


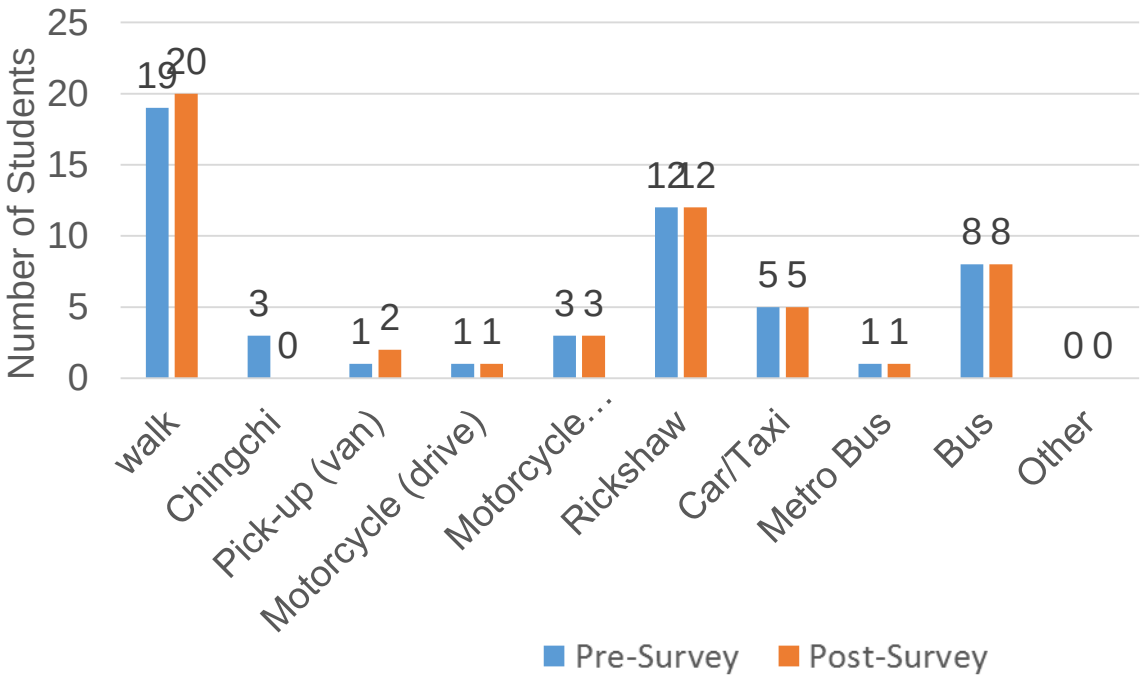
School→Home

Observation:

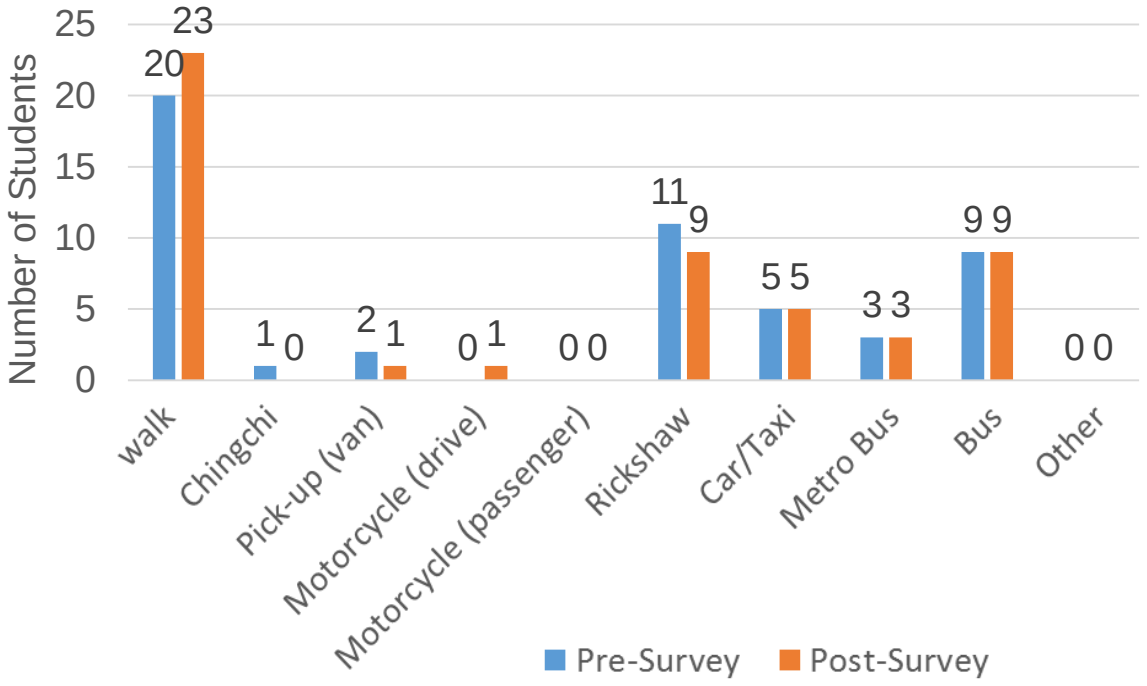
- No significant changes on their travel behavior. There was even observed reduction of number of students who walked to school and to home.

5. Mobility Management Campaign

5.5 Comparison of Pre-survey and Post-survey data (Fatima Jinnah)



Home→School



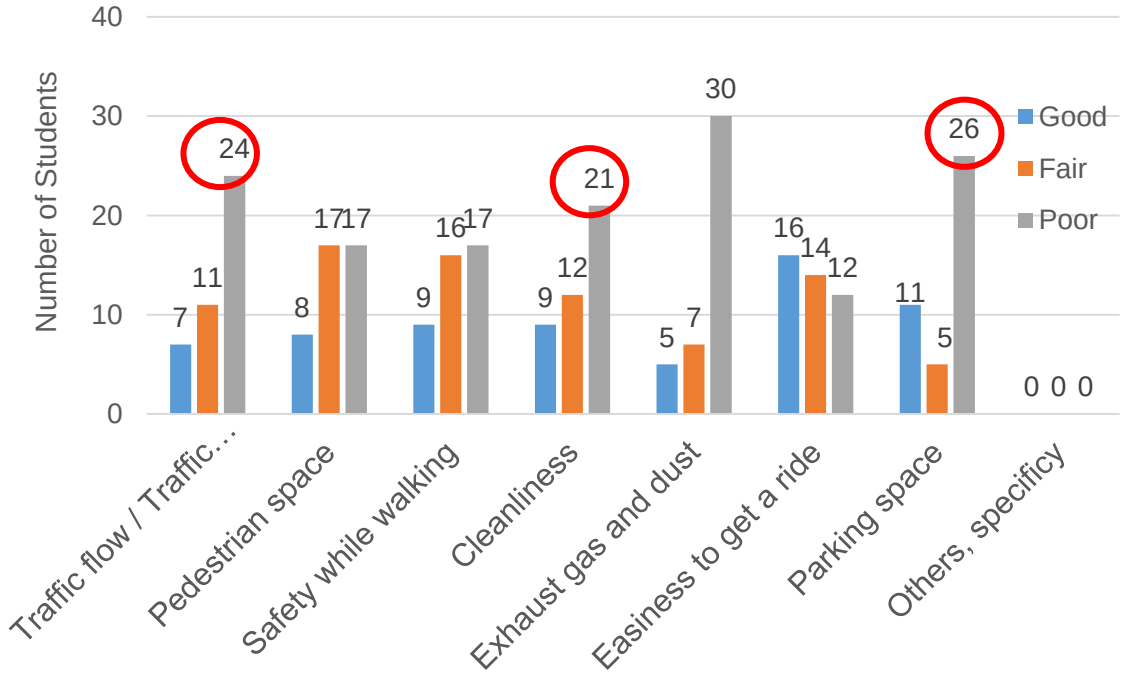
School→Home

Observation:

- Students walking to school increases by 1. Students walking from school to home increases by 3.
- Usage of rickshaw also increases (at least 1 or 2 students shift from rickshaw to walk)

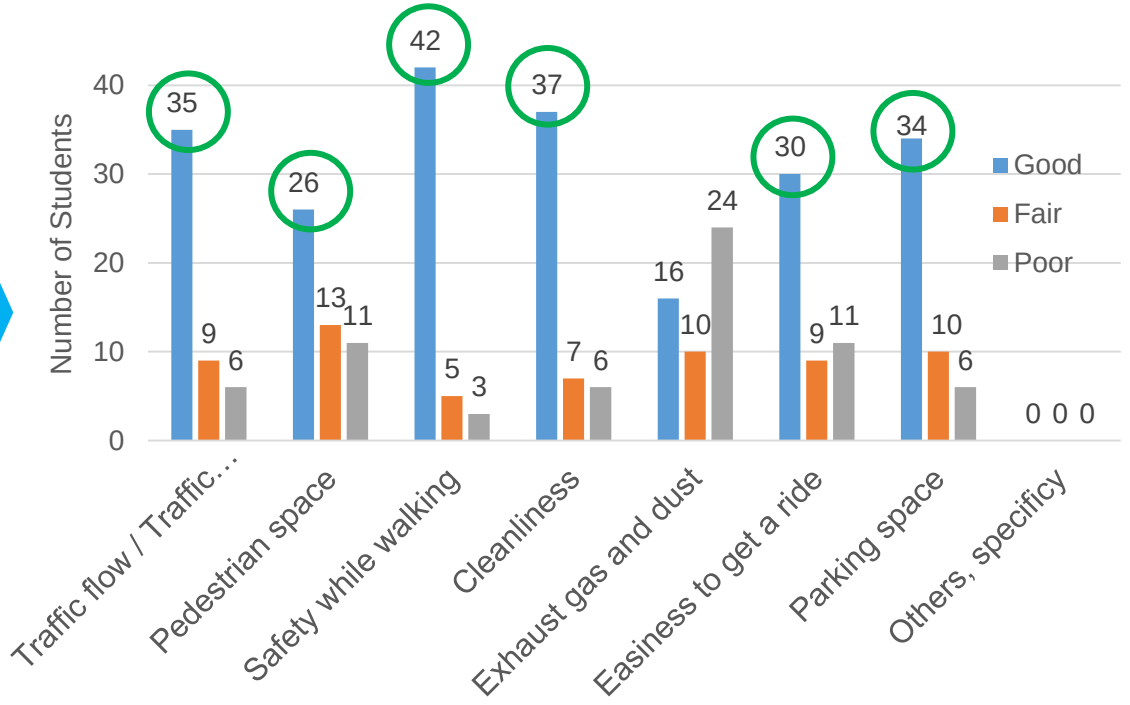
5. Mobility Management Campaign

5.6 Impact of Queens Road Improvement from the eyes of the students (Adabistan)



Queens Road Rate (Before Improvement)

In general, the students perception of the Queen's Road is negative or mostly "poor"

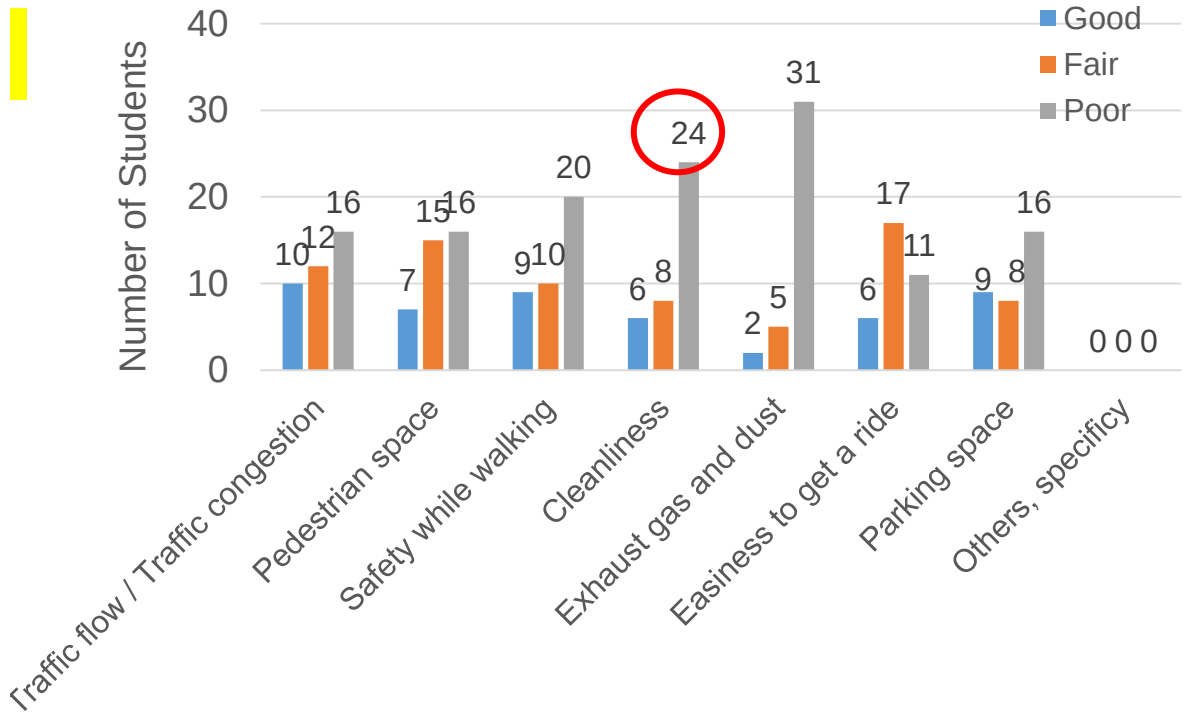


Queens Road Rate (After Improvement)

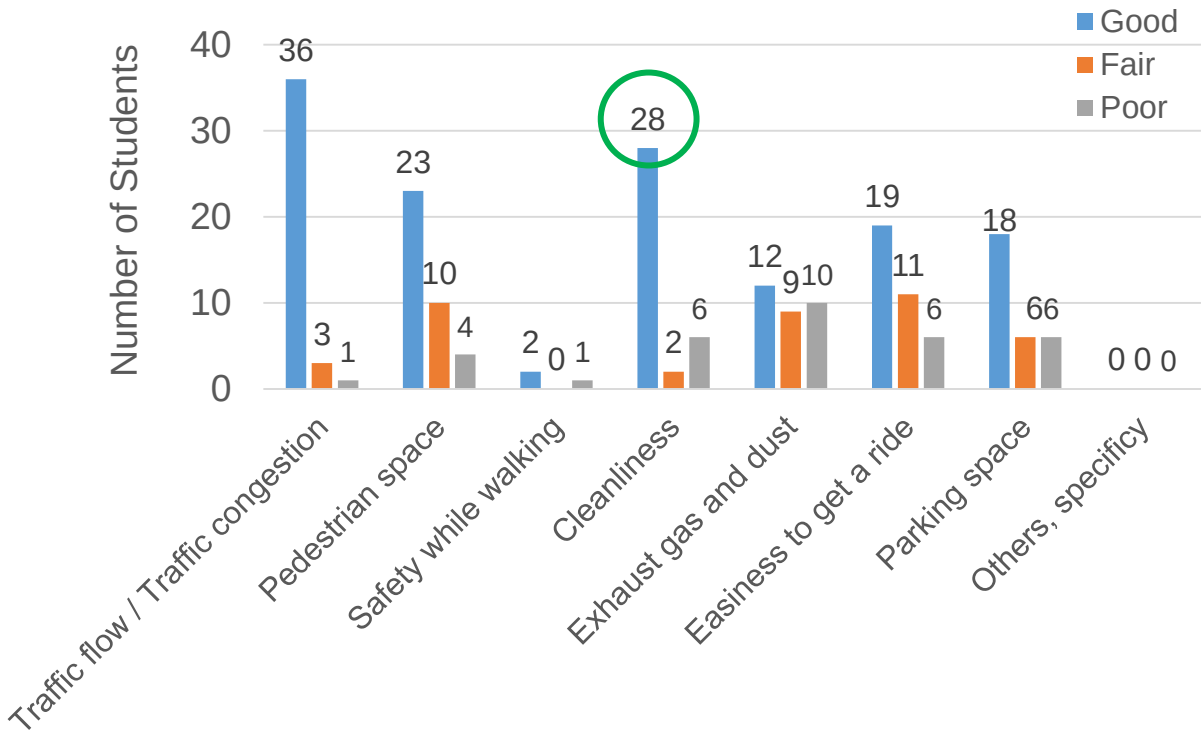
After the improvement of Queen's Road, opinion of the students on the Queens Road became positive. For instance, 42 students said that they feel safe now while walking at Queens Road. Before the improvement, only 6 students said so and most of them (17 students) have negative opinion.

5. Mobility Management Campaign

5.6 Impact of Queens Road Improvement from the eyes of the students (Government Jinnah)



Queens Road Rate (Before Improvement)

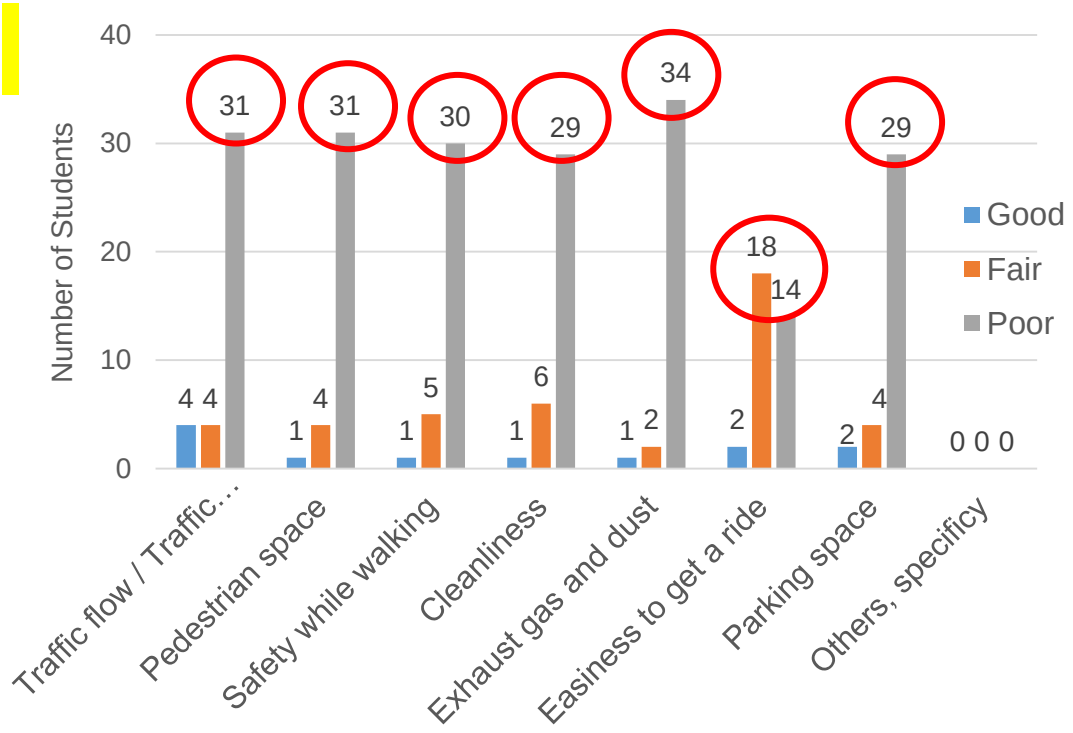


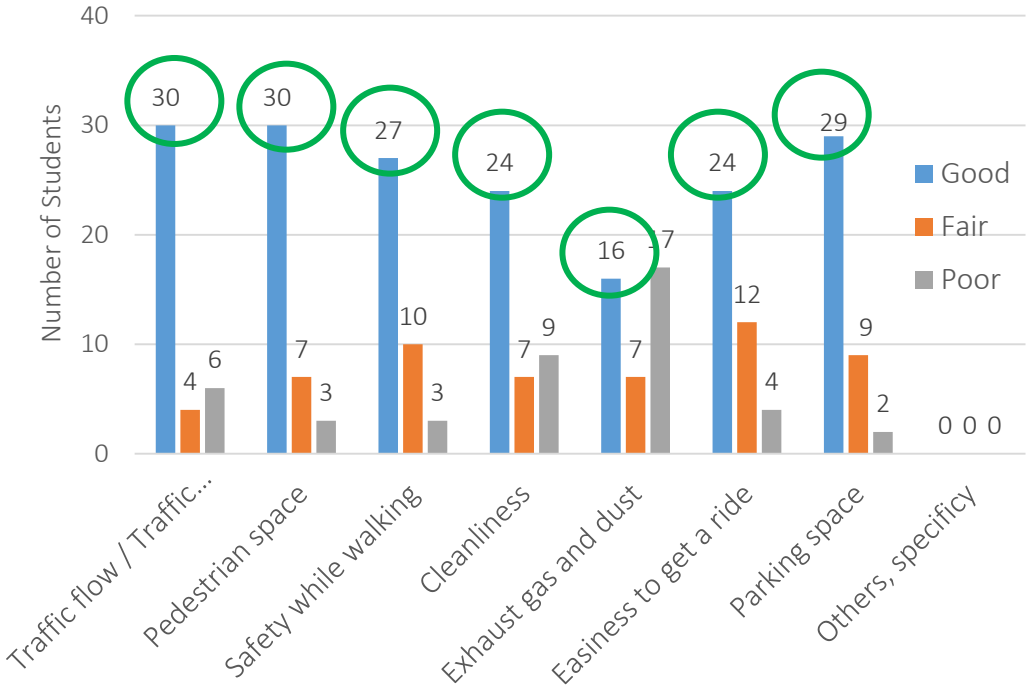
Queens Road Rate (After Improvement)

Before the improvement of Queens Road, students opinion on the road were negative. After the improvement of the Queens Road, most of the students had a positive opinion. For instance, in terms of cleanliness, 28 students rate “Good” compared to 10 before the improvement.

5. Mobility Management Campaign

5.6 Impact of Queens Road Improvement from the eyes of the students (Fatima Jinnah)





Queens Road Rate (Before Improvement)

Negative opinions before the improvement of Queens Road

Queens Road Rate (After Improvement)

Becomes positive after the improvement of Queens Road

6. Traffic Safety Campaign

Aside from the physical improvement of Queens Road, Traffic Safety Campaign was conducted.

Safety Campaign

a. TV Spot Campaign
b. Radio Campaign
c. Newspaper Campaign
d. SNS/ Website Campaign
e. Streamer along Queens Road
f. Campaign Poster
g. T-shirt and Cap Free delivery
h. Traffic safety seminar by traffic Police at Degree College Pedestrian Signal
i. Traffic Enforcement by Traffic Police
j. Traffic safety guidance by Traffic Police

6. Traffic Safety Campaign

Implementation status and issues (1)

The campaign in the field succeeded.
Using mass media for pinpoint traffic safety measures is a challenge.

・TV Spot & Radio.
30 seconds Commercial
TV: 432 times (14days)
Radio: 812 times (14days)

・Newspaper.
4 days, Every Fryday
Down (English)

Nawa-e-Waqt (Urdu)

・T-Shirt & Cap Distribution
Number of T-Shirt and Cap: 170
Distribution destination:
Roadside Residents and Shopkeepers

Souce: JICA TEAM.

6. Traffic Safety Campaign

Implementation status and issues (2)

・Streamers along Queens Road.
Size:5*2 Number of Streamers:80

・Awareness camps along Queens road each intersection

・Semminar at Fatimah Jinnah Medical College with City Traffic Police

Souce: JICA TEAM.

6. Traffic Safety Campaign

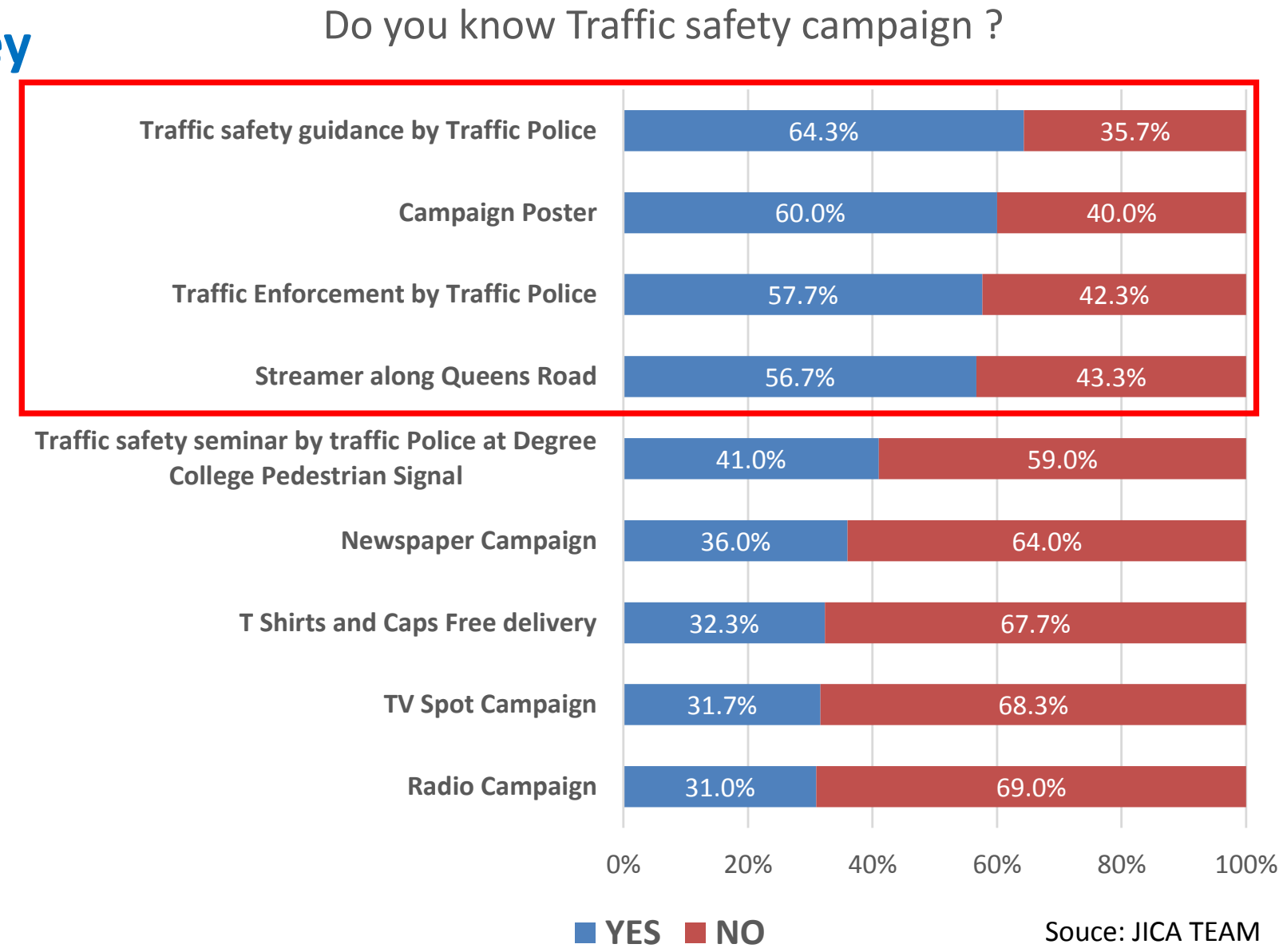
Post-User Interview Survey

-Pedestrian 50
-Resident 50
-Car Driver 50
-Bike Driver 50
-BRT Passenger 50
-Bus Passenger 50

Total: 300 Samples

Do you know?

Traffic safety guidance, Poster, Traffic Enforcement and Streamer were recognized to a majority. They were effective.



Souce: JICA TEAM

7. Lessons Learned from the Pilot Project

To improve the traffic situation in Lahore Central Area, TEPA counterparts and the JICA Project Team conducted Corridor Management along Queens Road together with the Mobility Management and Traffic Safety Campaign as the Pilot Project.

This is the first experiment of the Comprehensive Traffic Management scheme's implementation in Lahore.

Before, during and after the Pilot Project, TEPA counterparts and the JICA Project Team conducted traffic surveys and received various comments from stakeholders.

The following are results of the pilot project and draft additional improvement plan for each work item. Draft additional improvement plan was made based on various comments from stakeholders.

7. Lessons Learned from the Pilot Project

Improvement Works		Observed Outcome	TEPA C/P and JICA Project Team's Evaluation
Corridor Management	Widening of the road lane	• Deviation from lane of large vehicles decreased due to widening of the road lane	○
	Installation of on-street parking space for cars	• The number of parked cars on the street decreased during traffic safety campaign because of the following reasons: (i) Demarcation of on-street parking space, (ii) Parking control by traffic police	△
	On-street parking space for motorbikes	• Due to low recognition, this has not been utilized properly	△
	Mount- up Type sidewalk	• Increased number of pedestrians walking on the sidewalks is observed	○
	Visual separation sidewalk	• Visual separation sidewalks are not very effective due to: (i) Dust affects the visibility of the colored pavement surface, (ii) Lack of information signs	△
	Installation of Crosswalk, planters and small trees	• Rate of walking inside the cross walk has increased at most locations (Except for Ganga Ram Intersection).	○
	Installation of Pelican Signal	• Due to low recognition, this has not been utilized properly (No one stop even if the signal is red).	△
	Intersection Improvement	• Queue length at Ganga Ram became short due to signal coordination by PSCA. • Right turn lanes in Ganga Ram intersection has not worked well due to low recognition. • Changing the signal phase in Ganga Ram from one-direction control to both direction control has not worked well.	△
	Terrace Type Bus Bay	• Increased number of buses stopping near the sidewalk is observed	○
Mobility Management		• Awareness of the students on general transport problem of Lahore and traffic safety is greatly enhanced • Capacity of TEPA to organize such campaign is enhanced as well	○
Traffic Safety Campaign		• The following tools found to be effective: (i) Traffic safety guidance by the Traffic Police, (ii) Campaign Poster, (iii) Traffic Enforcement, (iv) Streamer along Queens Road	○

7. Lessons Learned from the Pilot Project

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Installation of on-street parking space for cars	• Number of parked cars on the street increased after the end of the traffic safety campaign at Queens Road due to the end of parking control by the traffic police. • Parked cars were parked at not designated parking spaces.	1) Transfer parking management to Lahore Parking Company 2) Continued control to illegal parking by traffic police 3) Sign board indicating the parking space 4) Marking showing parking space	1) Lahore Parking Company 2) City Traffic Police 3) TEPA/JICA Project Team 4) TEPA/JICA Project Team
Installation of on-street parking space for bikes	• Designated motorbike parking lots are not well utilized due to low visibility.	1) Sign board indicating the parking space 2) Installation of marking showing parking space	1) TEPA/JICA Project Team 2) TEPA/JICA Project Team

7. Lessons Learned from the Pilot Project

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Installation of Mount- up Type sidewalk	• The number of pedestrians walking on the sidewalks increased from pre to post survey in the section where the Mount- up Type sidewalks were installed. • On the other hand, the number of pedestrians walking on the sidewalk didn't change from pre to post survey in the section (Location E, UK Visa) where many illegal parked vehicles were parked on the sidewalks.	1) Continued control by Traffic Police to illegal parking 2) Sign board indicating the parking prohibited area 3) Installation of marking	1) City Traffic Police 2) TEPA/JICA Project Team 3) TEPA/JICA Project Team

7. Lessons Learned from the Pilot Project

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Installation of Visual separation sidewalk	• Visual separation sidewalks are not well recognized due to: a. Dust affecting visibility of pavement surface marking b. Lack of information signs	1) Periodic cleaning of the road surface 2) Marking showing sidewalk area	1) Lahore Waste Company 2) TEPA/JICA Project Team
Installation of Crosswalk, planters and small trees	• Push Bottom Pelican Signal for pedestrians is not very effective due to low recognition of road users (drivers and pedestrians) and vehicles are not stopping even traffic signal is "red".	1) Assigning Traffic Police to enforce traffic rules 2) Sign board indicating that crosswalk is ahead 3) Marking that the signal is ahead	1) City Traffic Police 2) TEPA/JICA Project Team 3) TEPA/JICA Project Team
Installation of bus stop	• Buses do not stop at the designated stop indicated by a painted box.	1) Relocation of bus stop sign of Waris Intersection Bus Stop (North direction) 2) Education for bus drivers	1) TEPA/JICA Project Team 2) Lahore Transport Company

7. Lessons Learned from the Pilot Project

Improvement by TEPA/JICA Team	Current Issues	Proposed Action by TEPA/JICA Team	Agencies to be involved
Intersection Improvement	• The right turn lanes in Ganga Ram intersection were not worked well due to low recognition. • Changing the signal phase in Ganga Ram intersection from one-direction control to both direction control were not worked well.	1) Addition of Notice arrow marking  Source: Google map 2) Need to conduct more field trial on signal phase	1) TEPA/JICA Project Team 2) Punjab Safe City Authority
Mobility Management Campaign	• During the campaign, there's a call by teachers to (i) expand the scope of the Mobility Management Campaign (MMC) to all schools in Lahore and (ii) to become MMC as regular part of school curriculum.	1) Need to enlarge the scope to cover all primary schools (from 5 to 12 yrs old kids) 2) Need to regularize the campaign as part of educational system of the country	1) TEPA/City Traffic Police 2) TEPA/City Traffic Police

8. Traffic Simulation

(1) Introduction

This presentation covers VISSIM Simulation for evaluation of

1. Mall Rd Coordinated Traffic Signal
2. Qartaba Chowk Improvement
3. Queens Rd Pilot Project

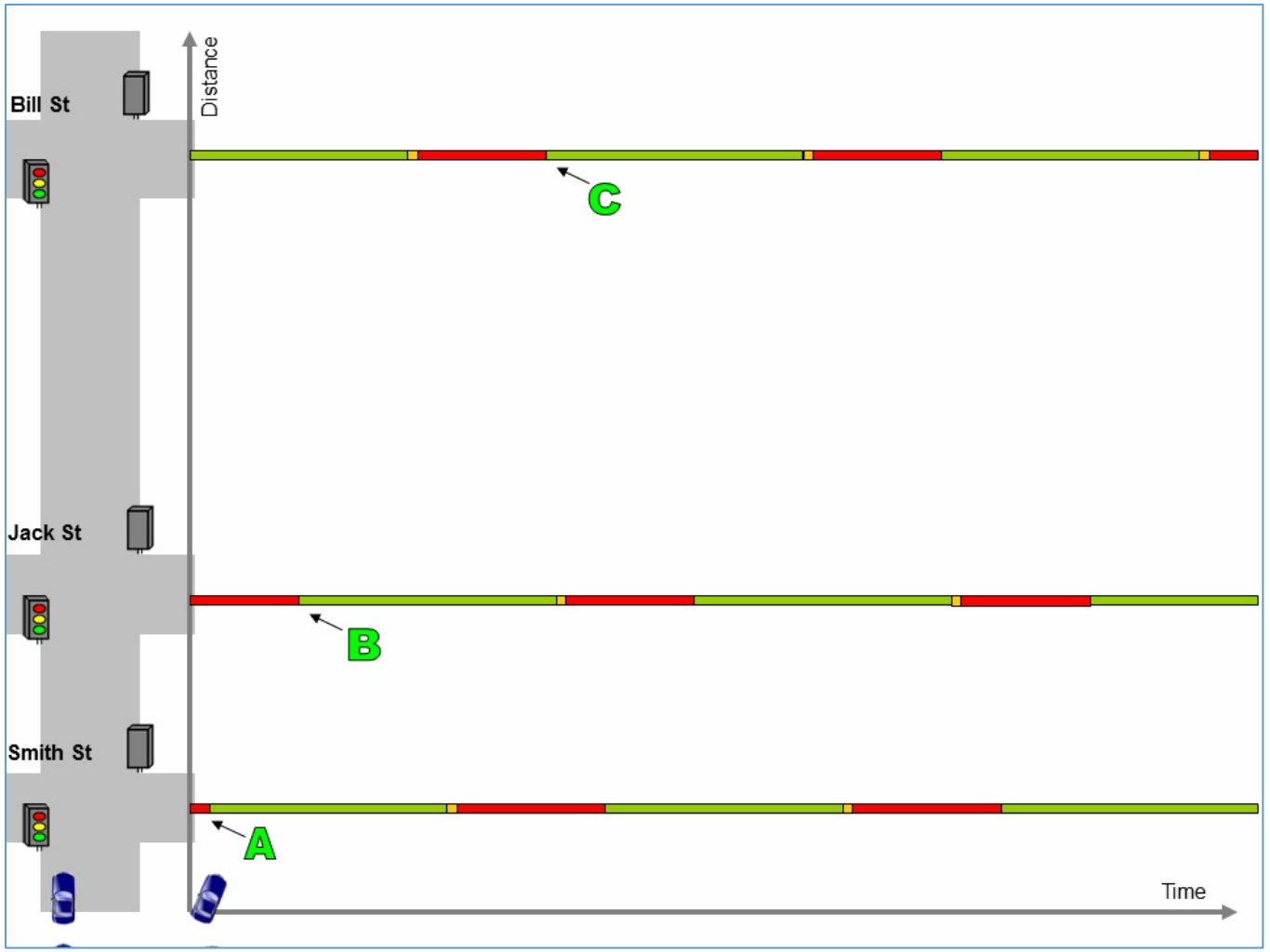
What is Micro Simulation and VISSIM

PTV VISSIM is a microscopic multi-modal traffic flow simulation software package developed by PTV Planning Transport Verkehr AG in Karlsruhe, Germany. The name is derived from "Verkehr In Städten - SIMulationsmodell" (German for "Traffic in cities - simulation model").

8. Traffic Simulation

(2) Coordinated Traffic Signal on Mall Rd

- Coordinated systems are controlled from a master controller and are set up so lights "cascade" (progress) in sequence, so platoons of vehicles can proceed through a continuous series of green lights.
- A graphical representation of phase state on a two-axis plane of distance versus time clearly shows a "green band" that has been established based on signalized intersection spacing and expected vehicle speeds.



8. Traffic Simulation

1) Simulation Case for Mall Rd Coordinated Traffic Signal

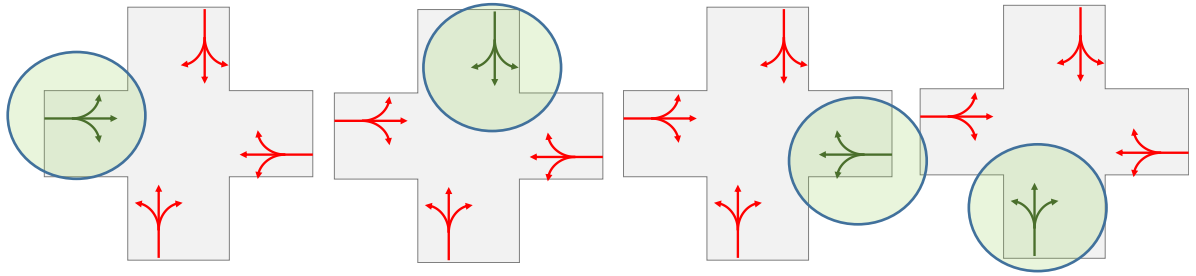
Traffic Signal Pattern

- Case1: Separated 4 Phasing with No coordination
- Case2: 2 Phasing with No coordination
- Case3: 2 Phasing with Coordination

Other Assumptions

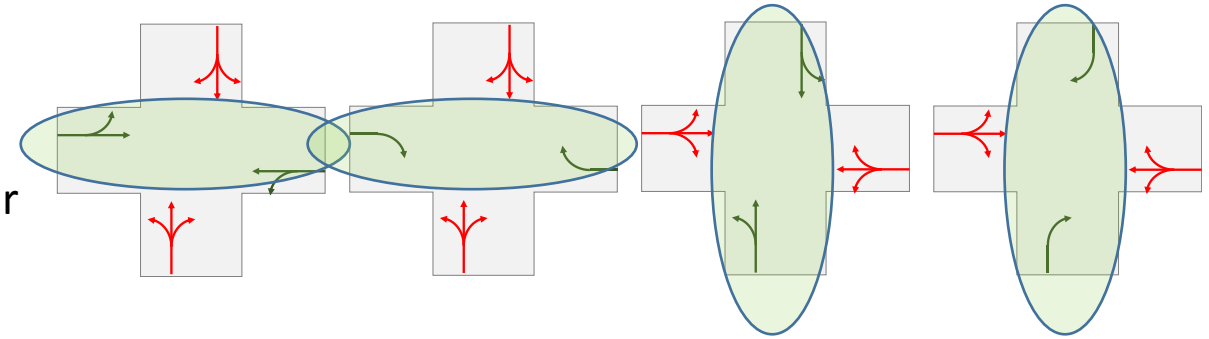
- Cycle Time; 120 sec
- Green Time for Mall Rd; 64%
- Expected Travel speed on Mall Rd; 50 km/hr
- Traffic Volume on Mall Rd; 2400 veh/hr
- Traffic Volume on Crossing Rd; 400 veh/lane/hr

Case1: Separated 4 Phasing without coordination (Existing)



Case2: 2 straight + 2 right turn Phasing without coordination

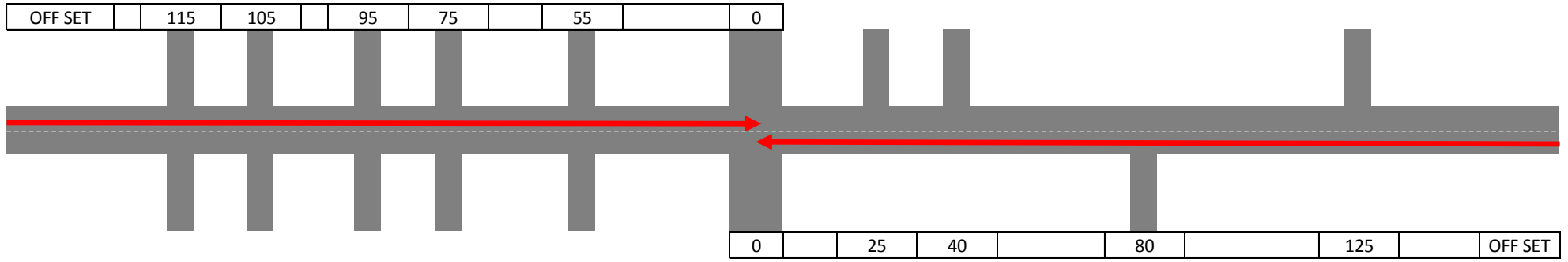
Case3: 2 straight + 2 right turn Phasing with coordination

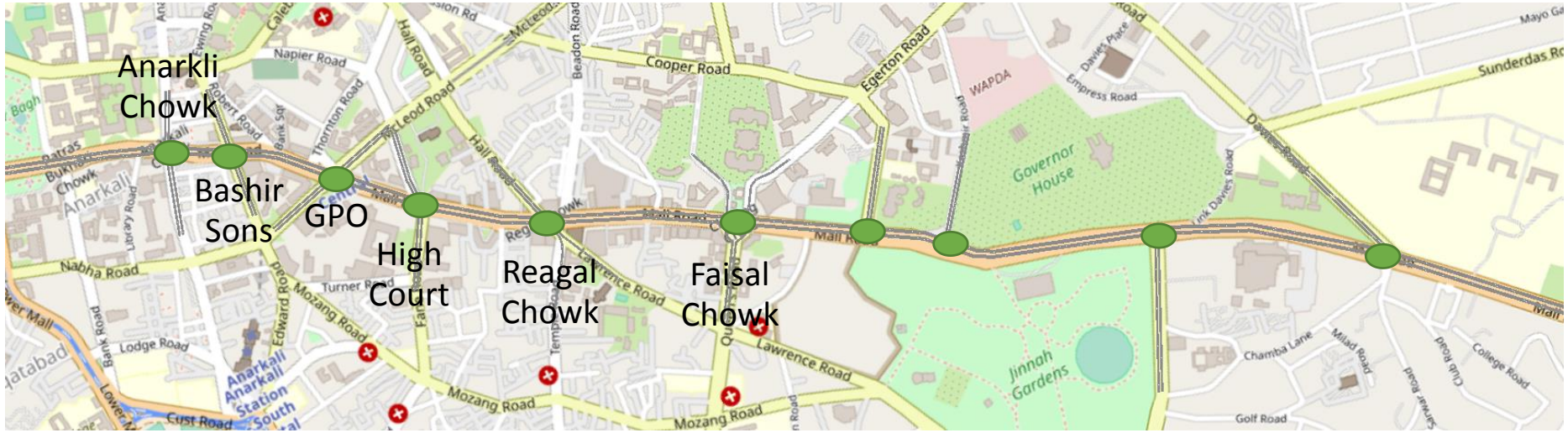


8. Traffic Simulation

2) Off Set Plan for Mall Rd Coordinated Traffic Signal

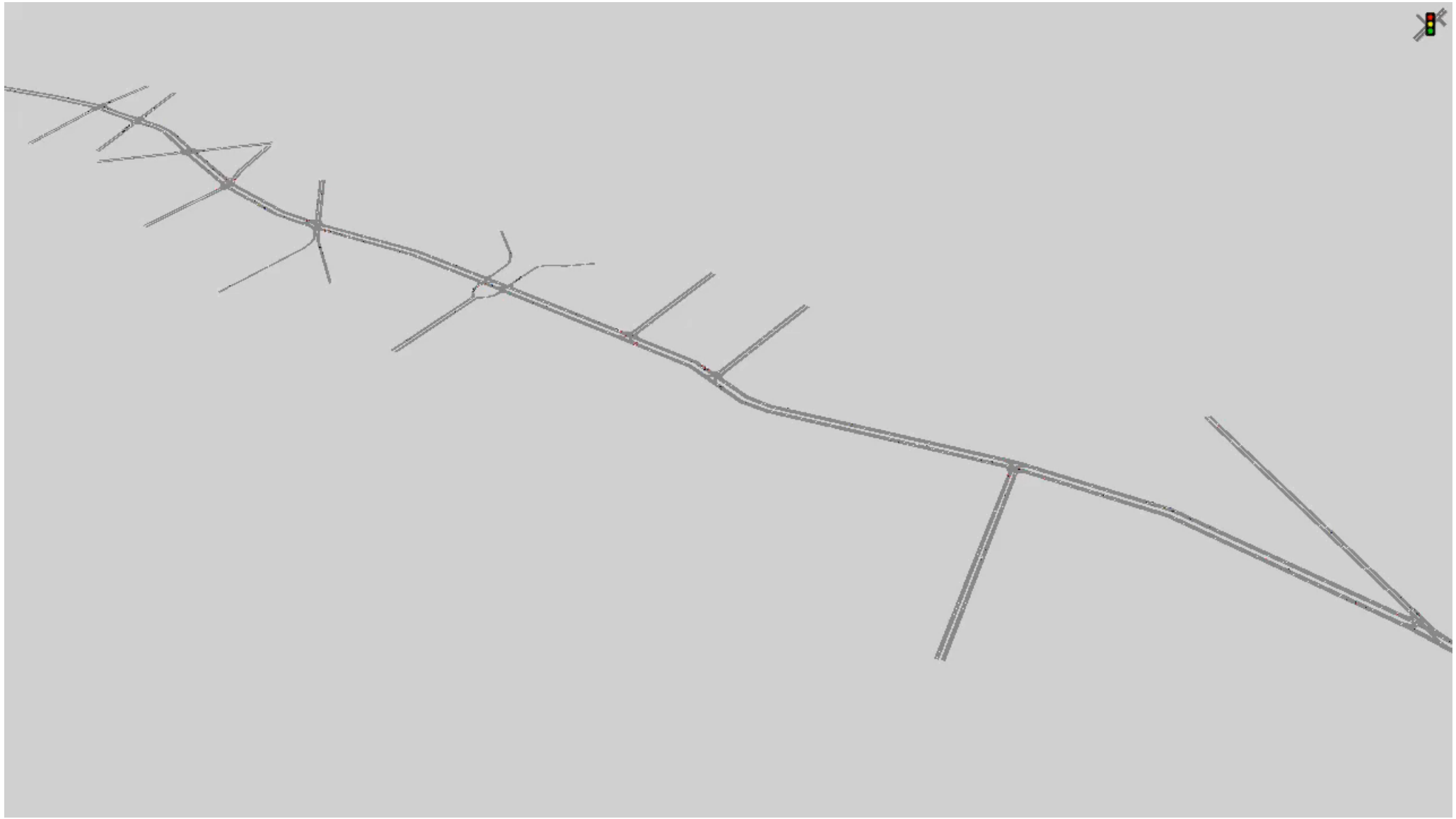
Faisal Chowk





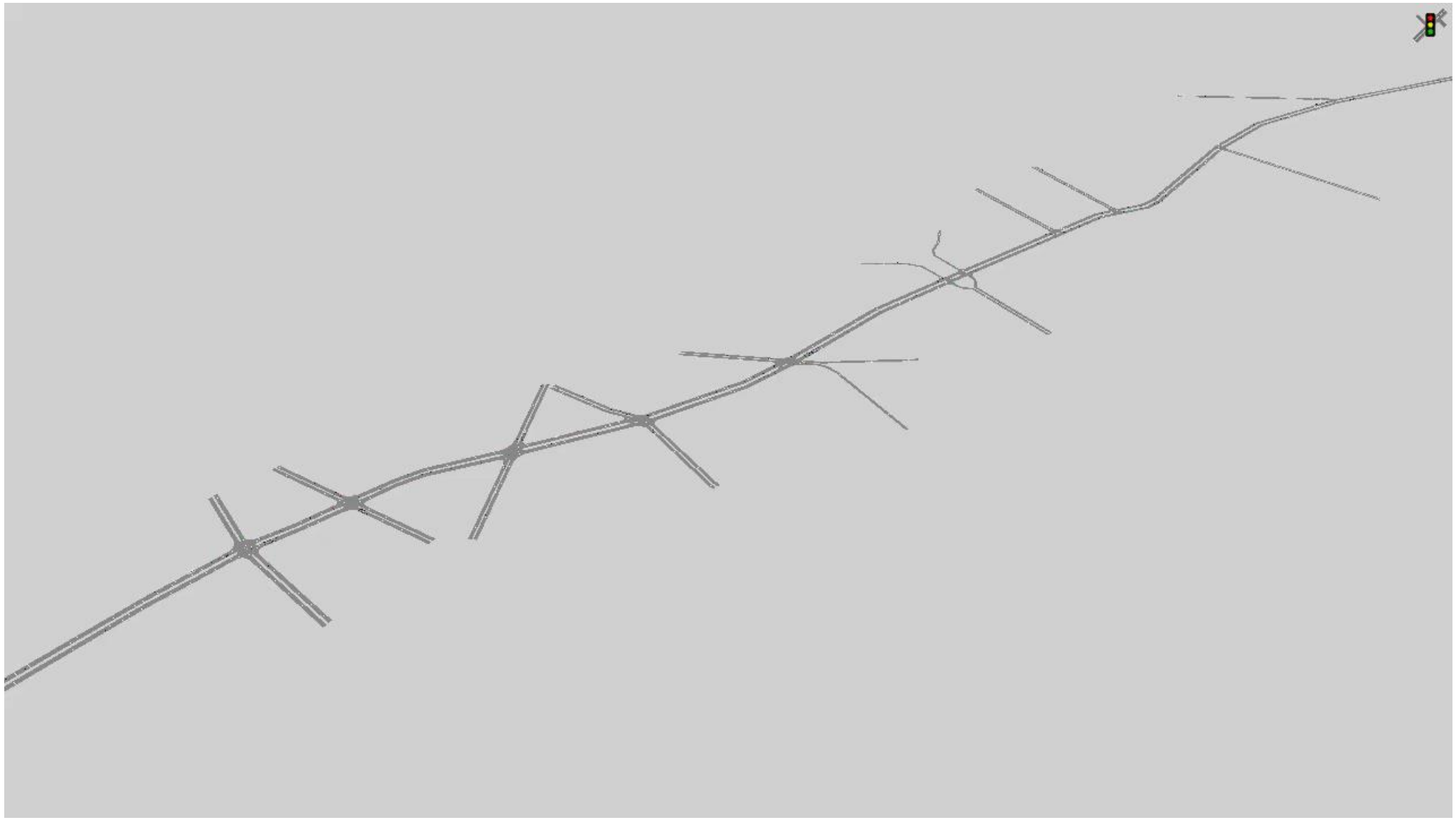
8. Traffic Simulation

3) VISSIM Simulation:Case3, 2 Phasing with Coordinated Signal from East



8. Traffic Simulation

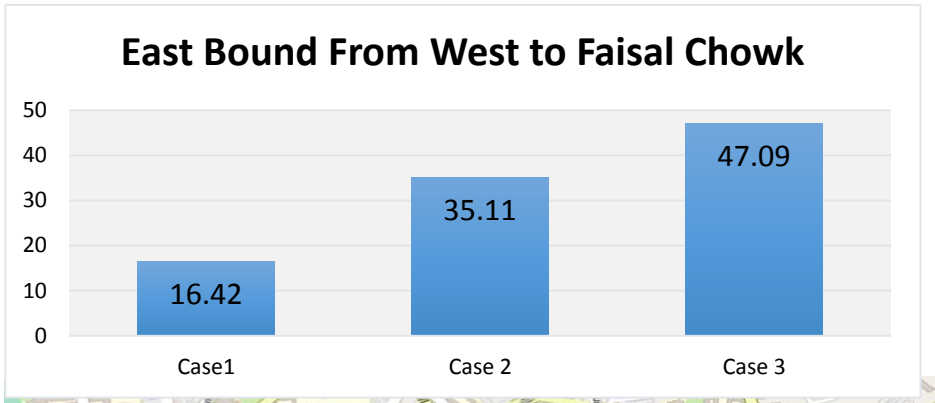
4) VISSIM Simulation:Case3, 2 Phasing with Coordinated Signal from West

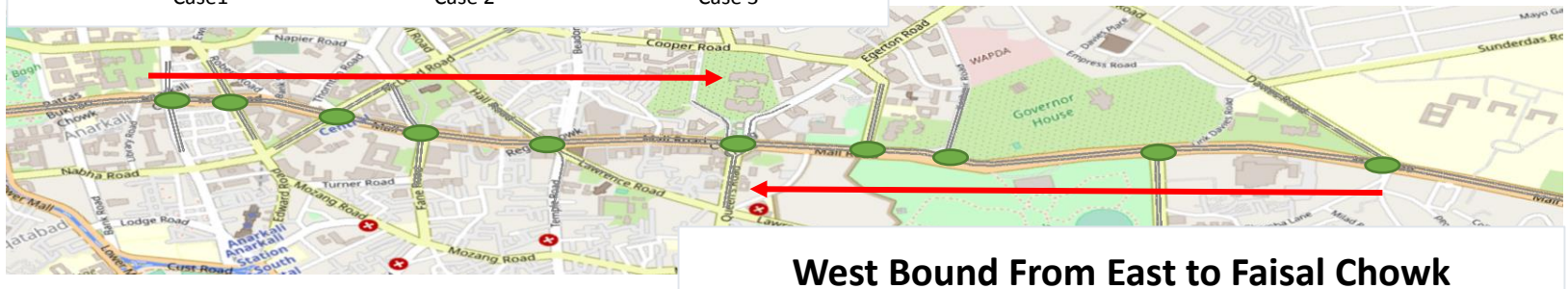


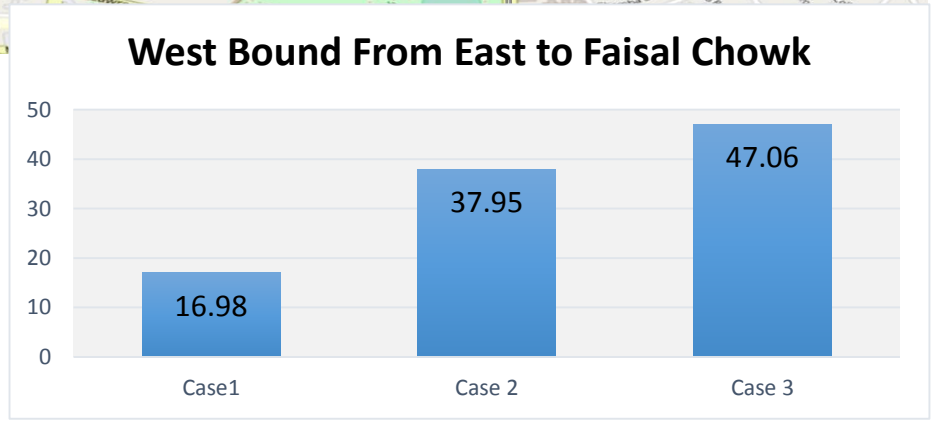
8. Traffic Simulation

5) Evaluation of Coordinated Traffic Signal on Mall Road

1) Travel Speed





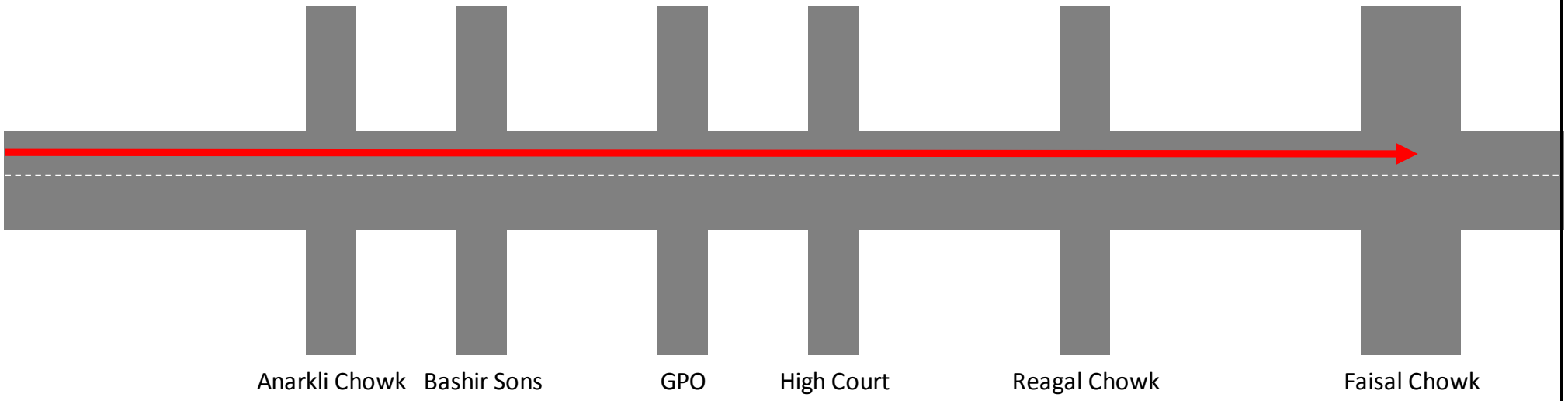


8. Traffic Simulation

6) Evaluation of Coordinated Traffic Signal on Mall Rd

2) Average Stop Delay

Average Stop Delay (sec)										
Case 1		332.0	95.1		129.9	96.0		105.3		133.5
Case 2		24.9	14.3		19.0	27.6		25.9		20.7
Case 3		25.0	9.1		9.3	4.9		9.4		13.5



8. Traffic Simulation

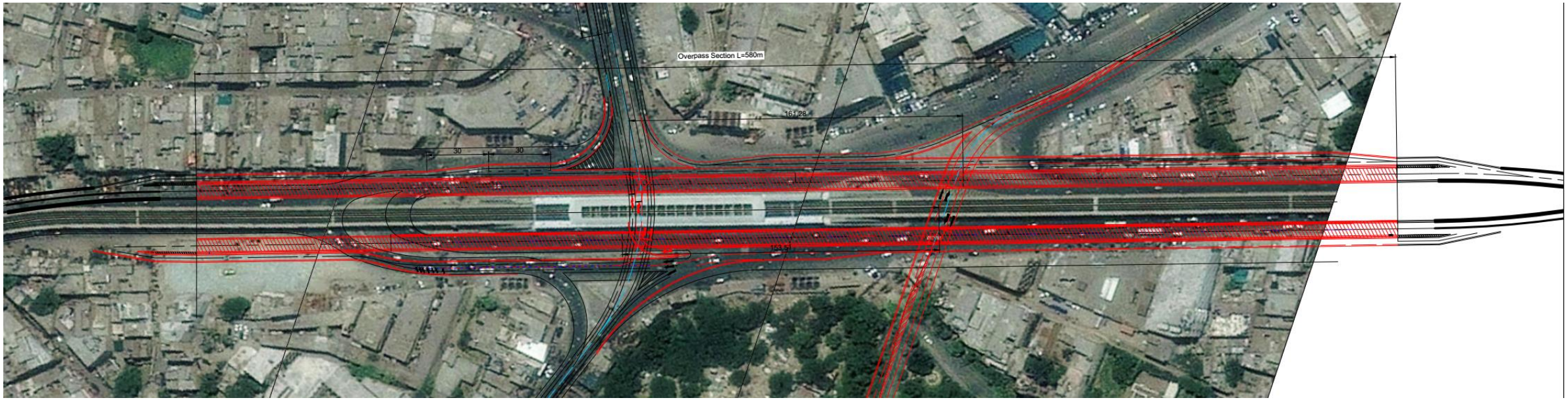
(3) VISSIM Simulation for Qartaba Chowk

1) VISSIM Simulation Case

- Case 0: Existing
- Case 1: Signal installation
- Case 2: Flyover on Lytton Rd
- Case 3: Flyover on Lytton Rd and Traffic Signal Installation

Assumption

- Traffic Flow is the survey data as of April 2016
- No information about queue length and delay, so no model calibration and validation, just for comparison analysis



8. Traffic Simulation

2) i. VISSIM VIDEO Case 0: Existing

8. Traffic Simulation

2) ii. Case 1: Signal Installation

8. Traffic Simulation

2) iii. VISSIM VIDEO Case 2: Flyover on Lytton Rd

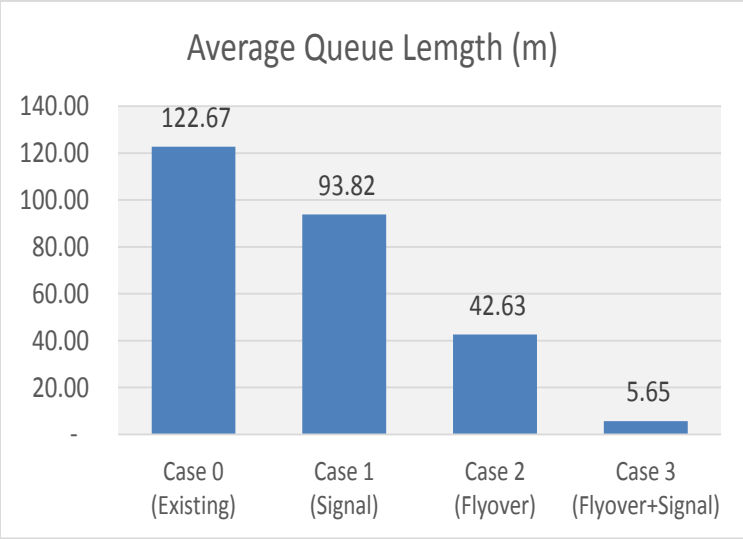
8. Traffic Simulation

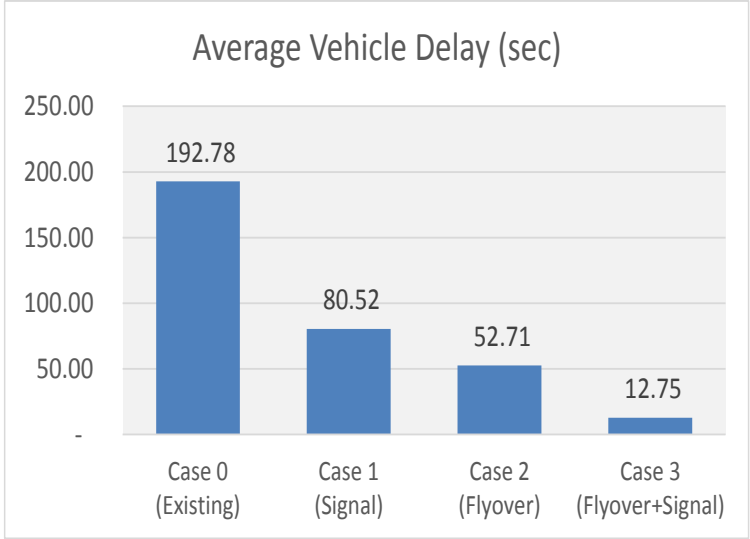
2) iv. VISSIM VIDEO Case 3: Flyover on Lytton Rd and Signal

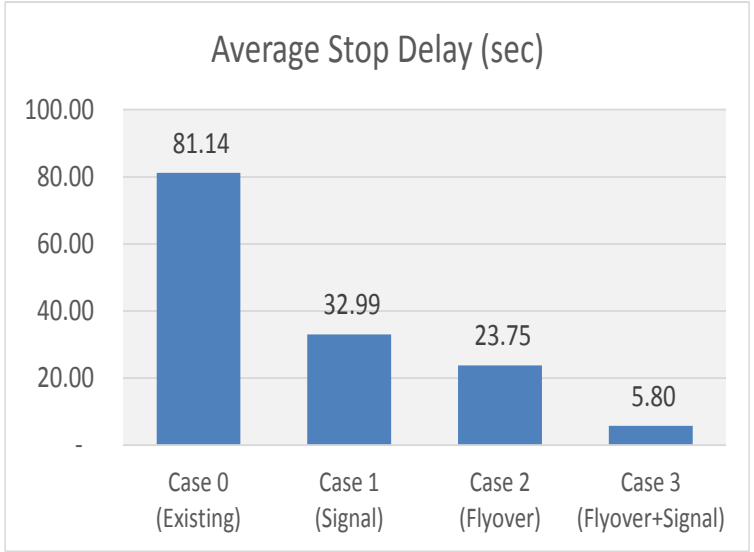
8. Traffic Simulation

3) Evaluation of Qartaba Chowk Improvement Plan

- Evaluation indexes are Average Queue Length, Average Vehicle delay and Average Stop Delay.
- Main problem of existing situation is that weaving sections are very close to intersection between Lyton Rd and Queens Rd and weaving length is very short.
- Case1, Case2 and Case3 are improved gradually, compared with Case 0 Existing because all these countermeasures are decreasing the weaving traffic at Qartaba Chowk.







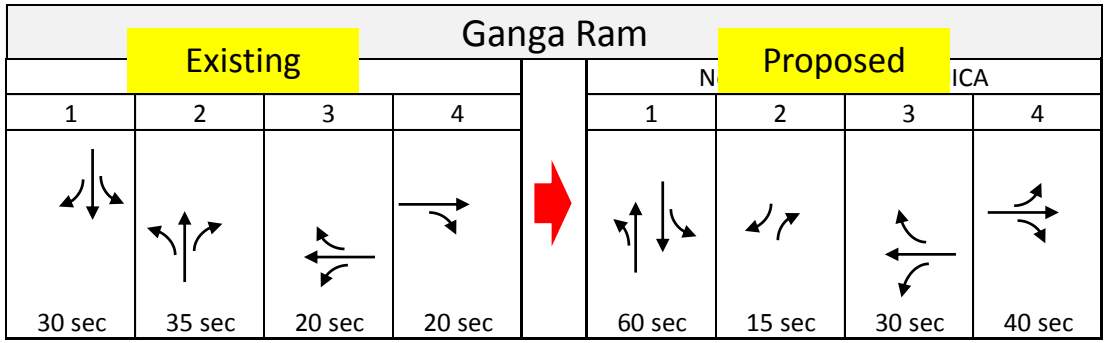
8. Traffic Simulation

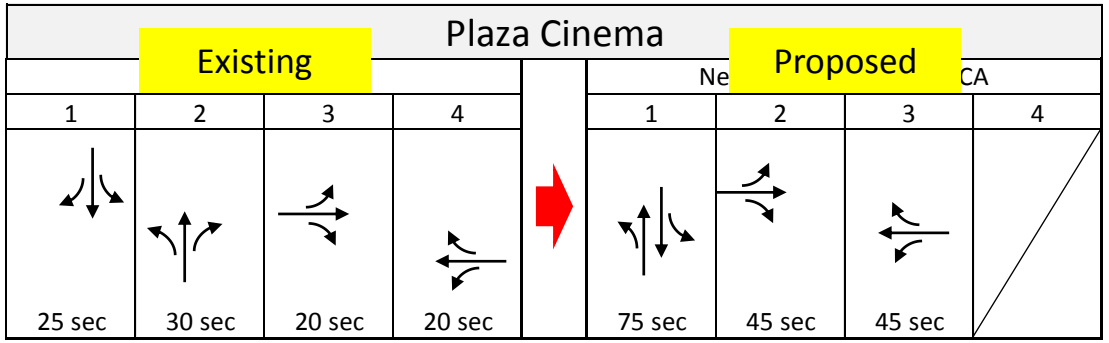
4) Queens Rd VISSIM Simulation

i. Simulation Case and Evaluation

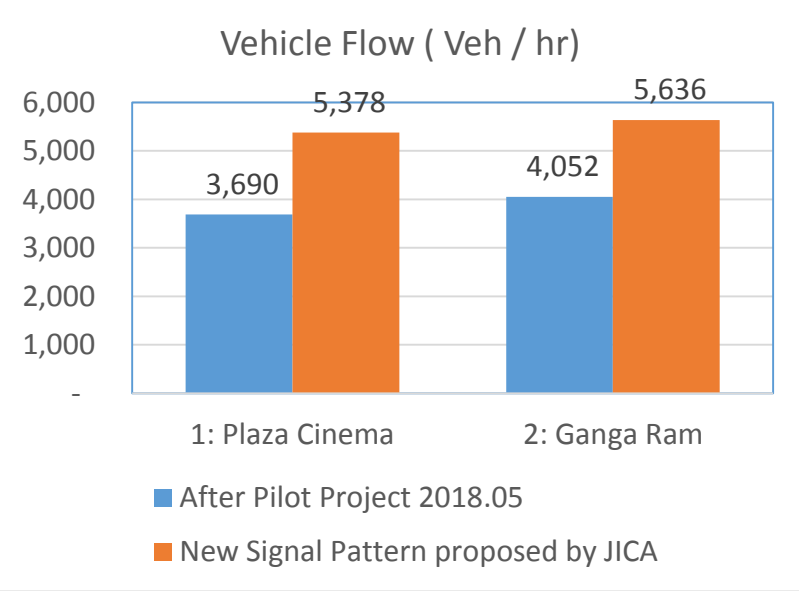
- In this simulation case, TEPA/JICA Study Team tried to modify the signal pattern of Ganga Ram and Plaza Cinema.
- Impact of the proposed New Traffic Signal Pattern is evaluated using VISSIM Simulation
- Vehicle Flows of the two intersections (Capacity of Intersection) increase by about 142 % in average and Average queue length per leg is short to 20 – 33 m (55 %) from 50 m.

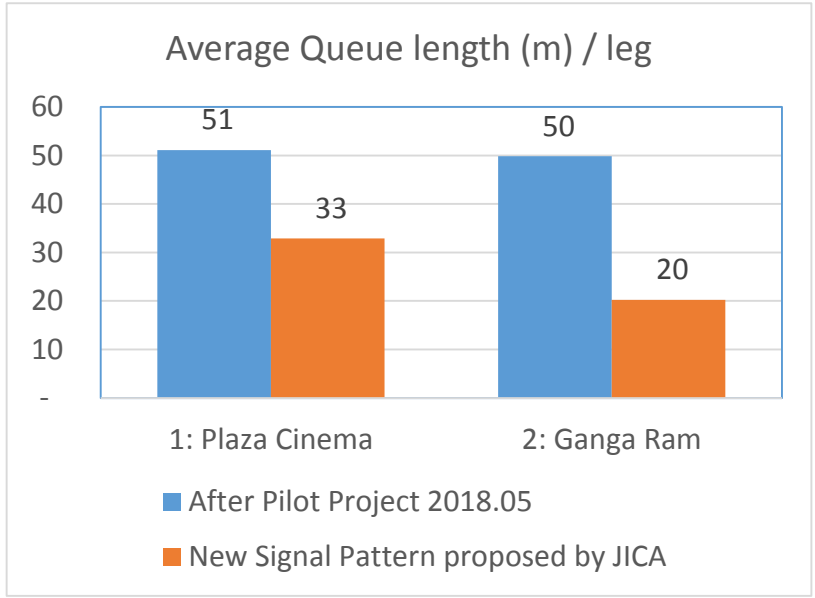
Improvement Signal Pattern proposed by JICA





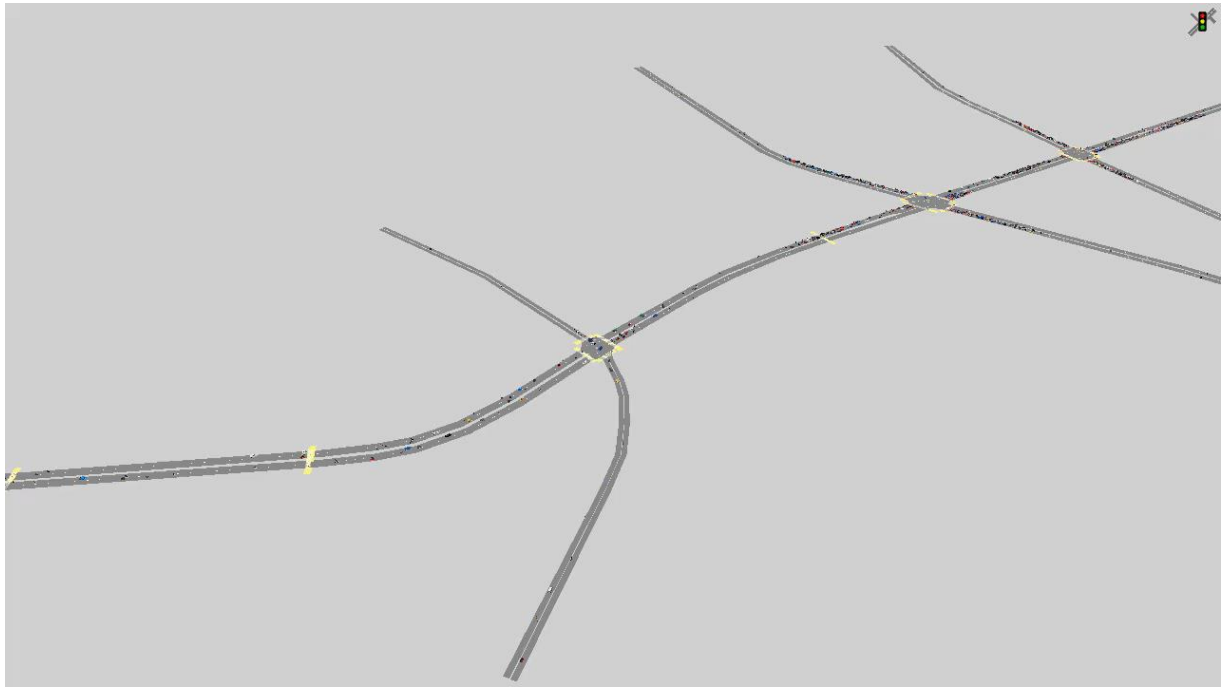
Prohibit right turn from QueensRD.





Queue defines as the vehicle speed is below 5 km/h.

8. Traffic Simulation
(4) ii. VISSIM Simulation for Queens Road Pilot Project



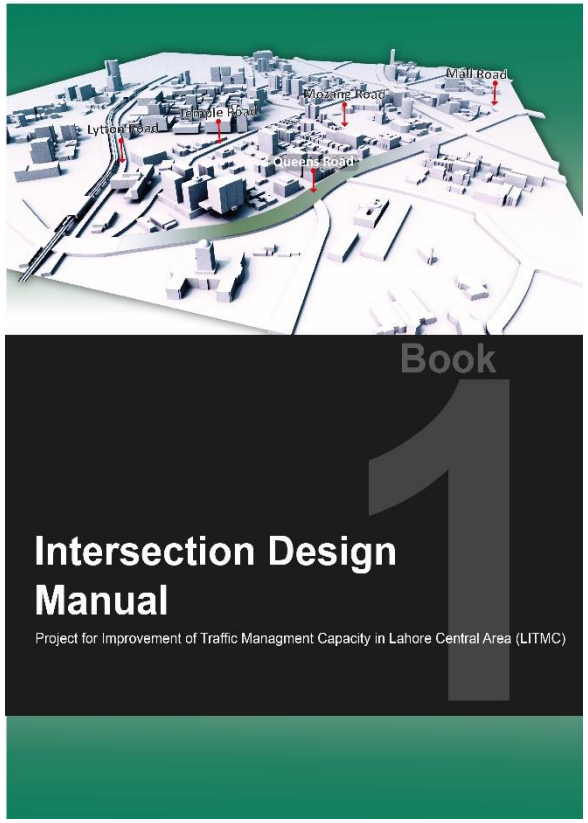
(Present situation as of 2018.05)

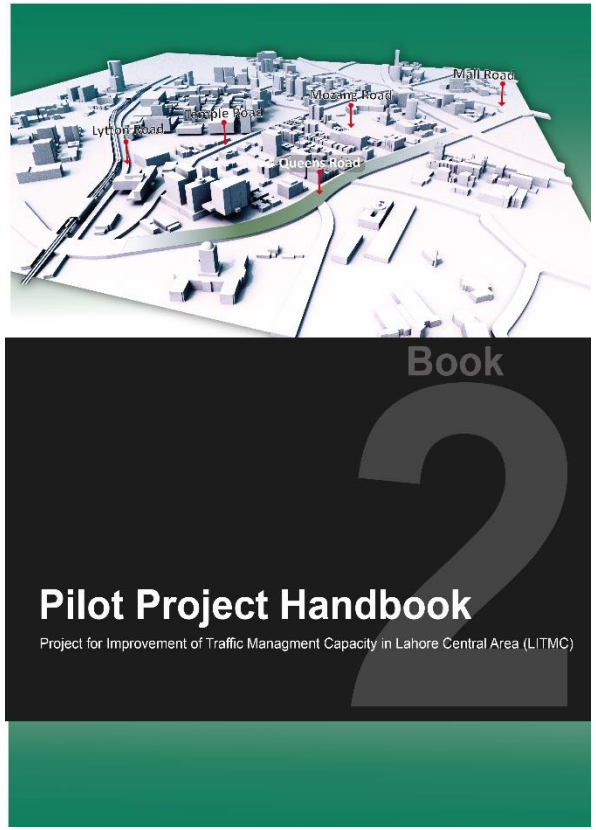
(Proposed Signal Phasing)

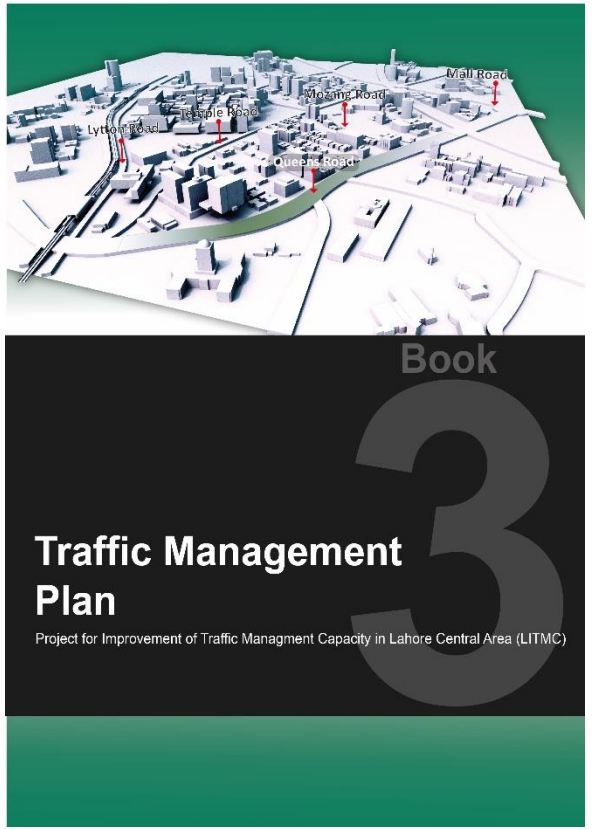
9. Manual, Handbook and Traffic Management Plan

Improvement of the planning and implementation capacity of the traffic management measures of this project is carried out through substantial facility improvement and soft components such as traffic safety campaign and mobility management.

In order to expand the project, training was also conducted for the seminar and development of manual, handbook, traffic management plan and distribute it widely to urban transport planning/implementing agencies in the Pakistan.







9. Manual, Handbook and Traffic Management Plan

(1) Intersection Design Manual

This manual is provided for the corridor management design along the Queens Road following Japanese Standard. And the contents is formed as 5 Steps as below.

Procedure of Intersection Planning and Designing

STEP1: Collect basic data for Intersection Design（Grasp the situation of road condition, traffic condition and Land use）

STEP2: Basic design of Intersection（Design of cross section、Setting of signal control method）

STEP3: Geometric structure design of intersection（Decision of design vehicle and passing method of right and left turn, Right and left turn channel, corner curb, corner cut, crosswalk and road marking design）

STEP4: Traffic handling methods (Setting of cycle and green time, Setting of saturation flow rate and calculation of Intersection demand flow rate)

STEP5: Geometric structure design of Intersection approach（Length of Right and Left turn lane, Road marking(Stop line, Cross walk, lane line, Direction arrow））

9. Manual, Handbook and Traffic Management Plan

(2) Pilot Project Handbook

This handbook is a compilation of the process of the pilot project implementation with main focus on the traffic management scheme. Since this handbook discusses the process of the implementation, the approach is more practical.

TEPA engineers should find this handbook helpful as a reference when implementing the traffic management measures to the other areas in Lahore Central Area. Transport-related agencies such as DCGL, Lahore Transport Company and other cities across Pakistan, particularly in Punjab, should also find this handbook useful.

9. Manual, Handbook and Traffic Management Plan

(3) Traffic Management Plan

Generally, the traffic management implementation plan is designed in the short-term plan (mainly within 5 years) in urban transport planning. However, this Project's main theme is the Traffic Management Plan (TMP). Therefore, TMP's period, area, etc. are subdivided as shown in Table.

Component \ Period	Action 1 (Within 1 year)	Action 2 (3 years)	Action 3 (5 years)
Target Area	Mainly along Pilot Project Corridor	Mainly in Pilot Project Area	Lahore Central Area
Concept	How to Sustain the Pilot Project	How to Improve the Congested Intersections and Pedestrian Facilities	How to Secure the Safe and Smooth Traffic Both Vehicular and Pedestrian
Traffic Management Plan	Improvement measures for the Pilot Project Implementation	・ Improvement of Congested Intersections ・ Improvement of Traffic Signal Phasing	・ Improvement of Qaraba Chowk ・ Coordinated Traffic Signal System along Mall Road
Traffic Improvement Plan for Pedestrian	Safety measures for marking sidewalk and pedestrian signal in front of Women's University	Traffic Improvement for Pedestrians in the Pilot Project Area	Proposed Pedestrian Network in the Lahore Central Area
Traffic Demand Management Plan	How to Sustain the Mobility Management (MM) activity at 3 schools	How to Expand the MM Activity to the Whole Pakistan	

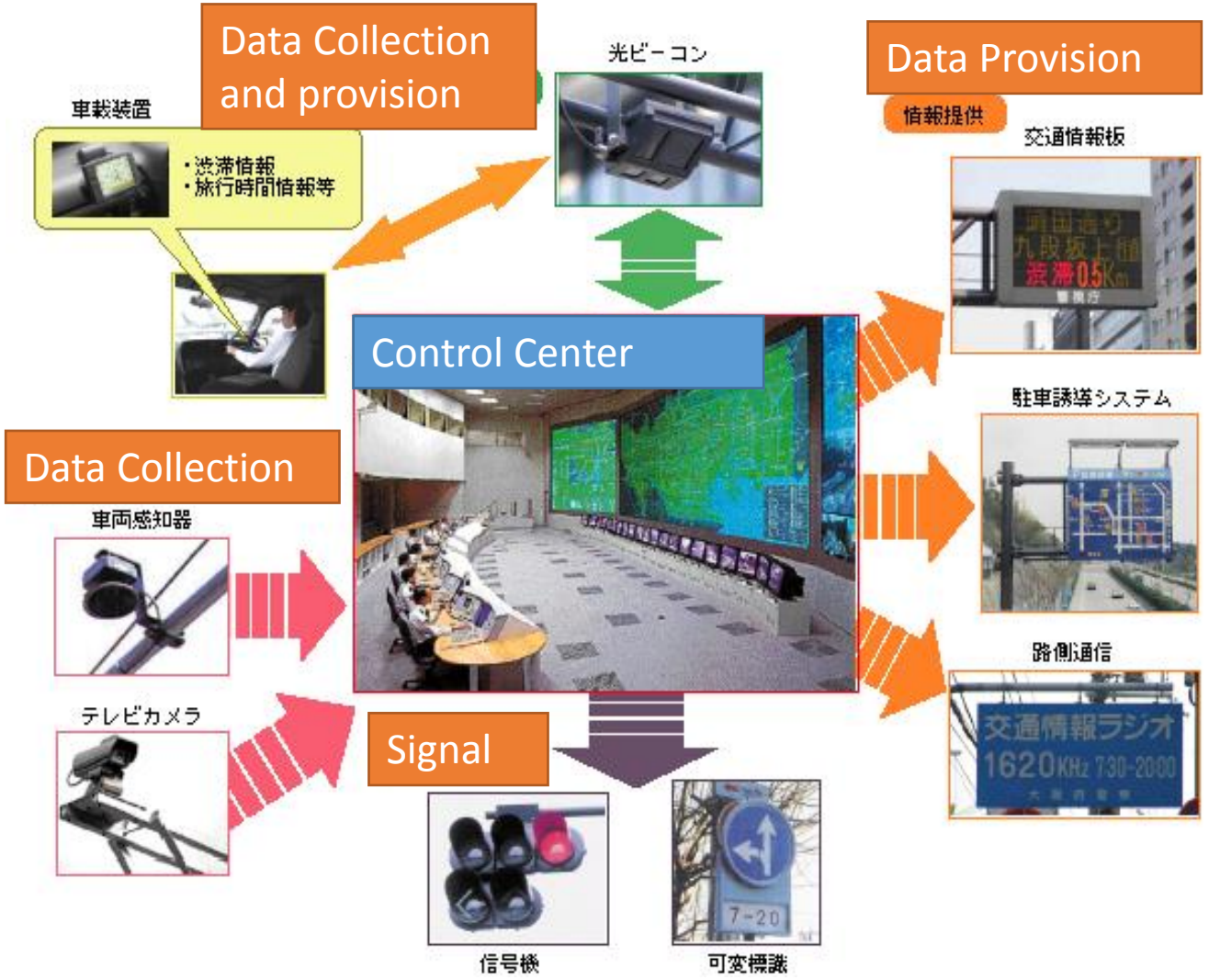
Note: Including Quantitative Analysis (Traffic Simulation)

10. Way Forward

- Sustainability of the Pilot Project
- Future Project
  - The Project for Development of Intelligent Transportation System (ITS) in Lahore
  - The Project for Traffic Improvement in Lahore Central Area (Qartaba Chowk Improvement)
- Collaboration with Related Agencies

10. Way Forward

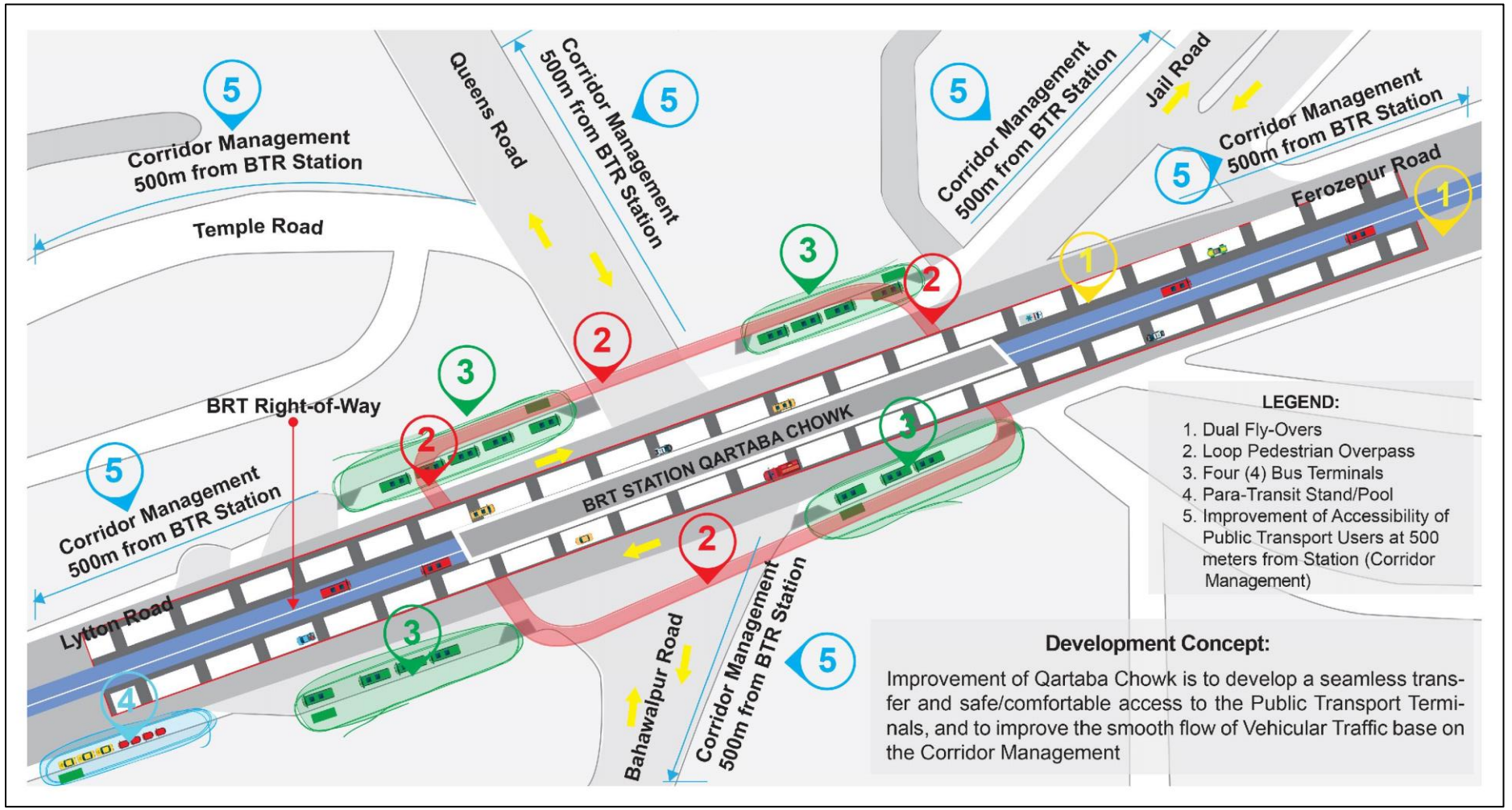
- Future Project
  - The Project for Development of Intelligent Transportation System (ITS) in Lahore



- Optimization of Traffic Signal by Traffic Control Center
- Traffic Information Collection and Provision System on real-time basis
- Monitoring the security in the city
- Traffic Control & Emergency Call Center
- Bus priority system

10. Way Forward

- Future Project
  - The Project for Traffic Improvement in Lahore Central Area (Qartaba Chowk Improvement)



Thank you for your attention

Traffic Engineering & Transport Planning Agency
Government of Punjab

Project for Improvement of Traffic Management Capacity in Lahore

METS Research & Planning, INC.
CTI Engineering International Co. Ltd.
Tokyo, Japan

4th One Day Seminar on
Improvement of Traffic Management Capacity in Lahore

Venue: Summit Hall, Royal Palm Golf & Country Club, Lahore

Date: 12th February, 2019 **Time: 10:00am to 13:30 pm**

Attendance List

No.	Name	Organization	Designation	Email	Signature
1.	MUBEEN ASGHER KHAN	TEPA	DIRECTOR (Tech)	[redacted]	
2.	Sohail Rashid	TEPA.	DIRECTOR H.Q		
3.	Khurram Saeed	TEPA	R.A (Civil)		
4.	M. USMAN MALIK	LTC	Manager Planning		
5.	Nauman Kabir	TEPA	AD		
6.	Hammad Hassan Butt	TEPA	RA		
7.	M. Waqas Aslam	TEPA	T.E		
8.	Khalid	TEPA	AD		
9.	Usman Ahmad Khalid	"	R.A (T)		
10.	Saira Ramzan	PSCA	AM Transport		
11.	Shakila	CTPL	LTW		
12.	Zahid Abbas	TEPA	R.D.E		
13.	Khurram	ECSP	Engineer		
14.	Aqeel	Rescue 1122	Emergency Officer		
15.	NAZAM	UMT	Lecturer		

Traffic Engineering & Transport Planning Agency Government of Punjab

Project for Improvement of Traffic Management Capacity in Lahore

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Tokyo, Japan

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Improvement of Traffic Management Capacity in Lahore

Venue: Summit Hall, Royal Palm Golf & Country Club, Lahore

Date: 12th February, 2019 **Time: 10:00am to 13:30 pm**

Attendance List

No.	Name	Organization	Designation	Email	Signature
16.	RABES BUTT		Taxi Driver	[redacted]	Rabes
17.	Usman Ghani		Supervisor		
18.	M. AMMAR	C&W	Deputy Secretary (P.		
19.	FAISAL SHAFIQ	TEPA LDA	Deputy Director		
20.	SH. ZAIN	LAHORE NEWS	Sr. Reporter		
21.	NOAZAM	TRAFFIC	TW		
22.	NAZIA	11	STW		
23.	Arshad	11	TW		
24.	Faizan	Lahore ~~AMOPS~~	~~LCS~~ AMOPS		
25.	Waqas	UPCL	AM IT		
26.	Dr. Zia-ur-Reh	UET, Lahore	Associate Professor		
27.	Tougeer Hamza	TEPA, LDA	SE		

Traffic Engineering & Transport Planning Agency Government of Punjab

Project for Improvement of Traffic Management Capacity in Lahore

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Date: 12th February, 2019 **Time: 10:00am to 13:30 pm**

Attendance List

No.	Name	Organization	Designation	[redacted]	Signature
28.	Farrukh shahzad	LDA	Asstt. Director		
29.	Sajjad Hussain	TEPA	RA Transpt		
30.	Tanveer	TEPA	AD.		
31.	Zeeshan	TEPA	SE		
32.	Mustafa	TEPA	ARE/I		
33.	Zaibun Nisa	JICA/LTMC	Coordinator		
34.	Masato Koto	Chief Consultant	JICA		
35.	Takahiro Miyazaki	engineer	JICA		
36.	Abdul Qayyum	Social Worker			
37.	Saba Meer	"	"		
38.	USMAN Khalid	Research Associat	TEPA		
39.	M. Furqan	DD Admin	TEPA		

Traffic Engineering & Transport Planning Agency
Government of Punjab

Project for Improvement of Traffic Management Capacity in Lahore

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CTI Engineering International Co. Ltd.
Tokyo, Japan

4th One Day Seminar on
Improvement of Traffic Management Capacity in Lahore

Venue: Summit Hall, Royal Palm Golf & Country Club, Lahore

Date: 12th February, 2019 **Time: 10:00am to 13:30 pm**

Attendance List

No.	Name	Organization	Designation	[redacted]	Signature
40.	Kashif Mughal	LDA TEPA	Sub Engr		
41.	M Saqib Ali	LDA TEPA	Sub Engineer		
42.	Faqih-uz-Zaman	TEPA, LDA	Sub Engineer		
43.	Zahid Abdullah	TEPA, LDA	Asst. Engineer		
44.	Abdul Qayyum	TEPA-LDA	BUSS NAS		
45.	M. Tahir	M.C.L	DMO (HQ)		
46.	Furqan Zia	TEPA	DD Adm		
47.	Qurban Ali	TEPA	SO(HR)		
48.	Yasir Iqbal	TEPA	SO(Admn)		
49.	Farhan Hanif	TEPA	SO (Bill)		
50.	Dr. Awais	Echo-Green	Chief Executive		
51.	Moin Ahmed	UET	Professor		

Traffic Engineering & Transport Planning Agency
Government of Punjab

Project for Improvement of Traffic Management Capacity in Lahore

METS Research & Planning, INC.
CTI Engineering International Co. Ltd.
Tokyo, Japan

4th One Day Seminar on

Improvement of Traffic Management Capacity in Lahore

Venue: Summit Hall, Royal Palm Golf & Country Club, Lahore

Date: 12th February, 2019 **Time: 10:00am to 13:30 pm**

Attendance List

No.	Name	Organization	Designation	Email	Signature
64.	Ambreen Akshad	Govt. Jinnah Degree College for Women Mozang Lahore	Associate Professor	[redacted]	
65.	Col (R) Aaliyah	FJMU & SRGRH	CSO	[redacted]	
66.	Umair Ali	PSCA, Lahore	AEO (ITS)	[redacted]	
67.	Shahida	CTP	LTM	[redacted]	
68.	Mubashir Hussain	UET Lahore	Research Assistant	[redacted]	
69.	M Tayyab	UET Lahore	Supervisor	[redacted]	
70.	Engr. M. Nadeem	UMT	Lecturer	[redacted]	
71.	ABID ISLAM	CLEANERS		[redacted]	
72.	Khadam	[illegible]		[redacted]	
73.	[illegible]	AHuda		[redacted]	
74.	IK Hikram	AL Huda		[redacted]	
75.	Dr. Ammad	UET	Chairman	[redacted]	