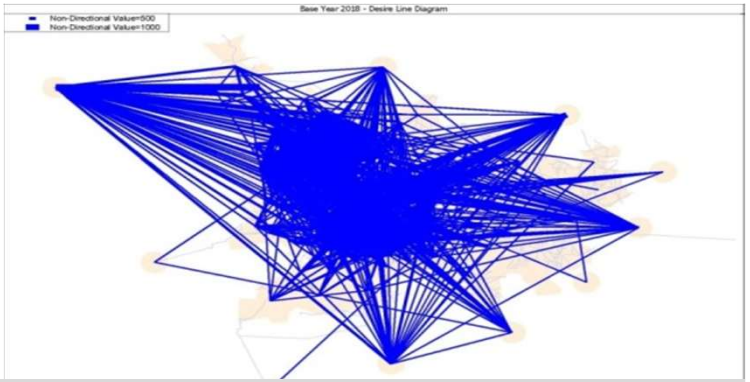
PUNE MUNICIPAL CORPORATION, PUNE

Proposed Development of "Balbharati - Paud Phata Link Road"

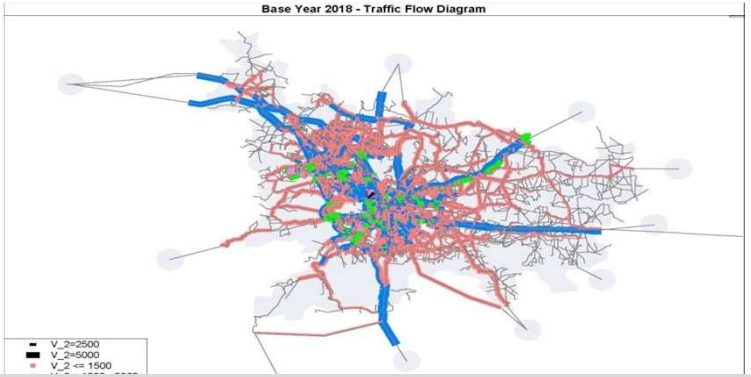
Answers to FAQs related to Traffic study.
July 2023

- Pune is a 8th major metropolitan city in India which is growing in all directions.
- Currently PMC it is the biggest municipal corporation in terms of area after merger of 23 new villages in 2020 (Area 519 Sq.km).
- The Urban Population of Pune is about 78 lakhs (PMR Urban – PMC+PCMC+ industrial areas around city limits)

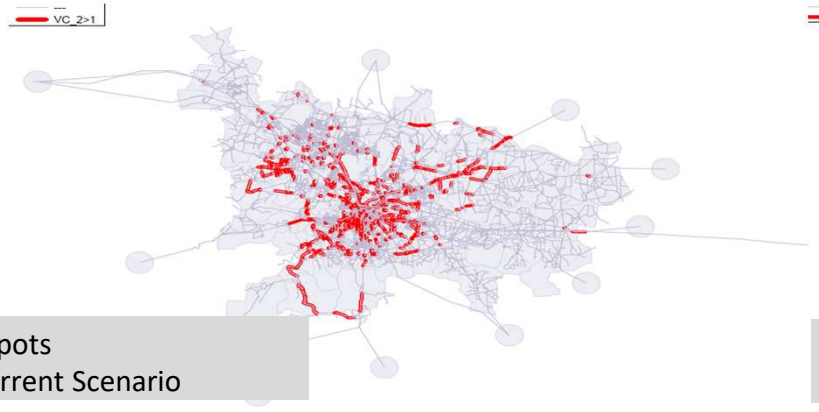
- The biggest issue faced in Pune is Traffic ! This issue is due to 3 primary reasons
    - No. of registered vehicles is 52 lakhs with growth rate 8% per annum. 83% of Households own either Two Wheeler or Two Wheelers & Cars. 68 lakh motorised trips are made daily with total 71% share in total motorised trips daily.
    - PMC has Road length of only 1673 kms with about 70% roads having right of way less than 12m. Over 800 kms of roads from development plan are missing on ground due to lack of land acquisition. Pune is already deficient in terms of roads required. Pune has no ring roads yet making existing radial arterial roads over dependent and congested.
    - Public transit is city is deteriorating. PMPML the bus operating agency carries around 10 lakh passengers daily. This number is decreasing every year. Current share of bus based public transit is only 12%. METRO is getting developed but over 200kms of METRO is required which will take min 2 decades for completion.



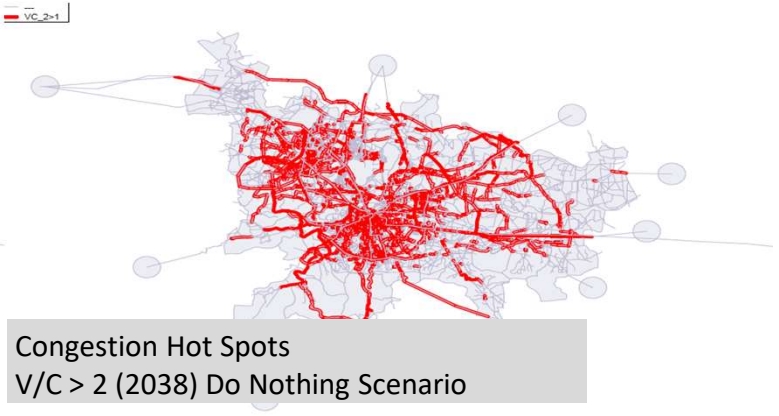
O-D Desire line diagram shows traffic pattern in city. Lack of ring road has resulted in radial dependence and congestion.



The result is having V/C Ratio above 1 and LoS D on all the major arterials / radials.



Congestion Hot Spots
V/C > 2 (2018) Current Scenario



Congestion Hot Spots
V/C > 2 (2038) Do Nothing Scenario

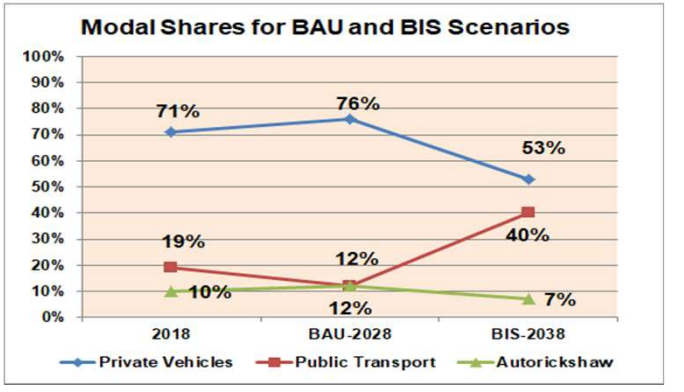
Travel Demand for Horizon Years

Business-As-Usual Scenario (with Committed Projects)

Do Nothing	2018	2028	2038
Trips Assigned in Peak Hour	5,28,281	7,42,453	10,03,084
Private Vehicle Trips	3,75,425 (71%)	5,51,633 (74%)	7,63,023 (76%)
IPT Vehicle Trips	55,913 (10%)	82,967 (11%)	1,17,855 (12%)
Public Transport Trips	96,942 (19%)	1,07,853 (15%)	1,22,204 (12%)

Sustainable Urban Scenario (Bus/BRTS/Metro)

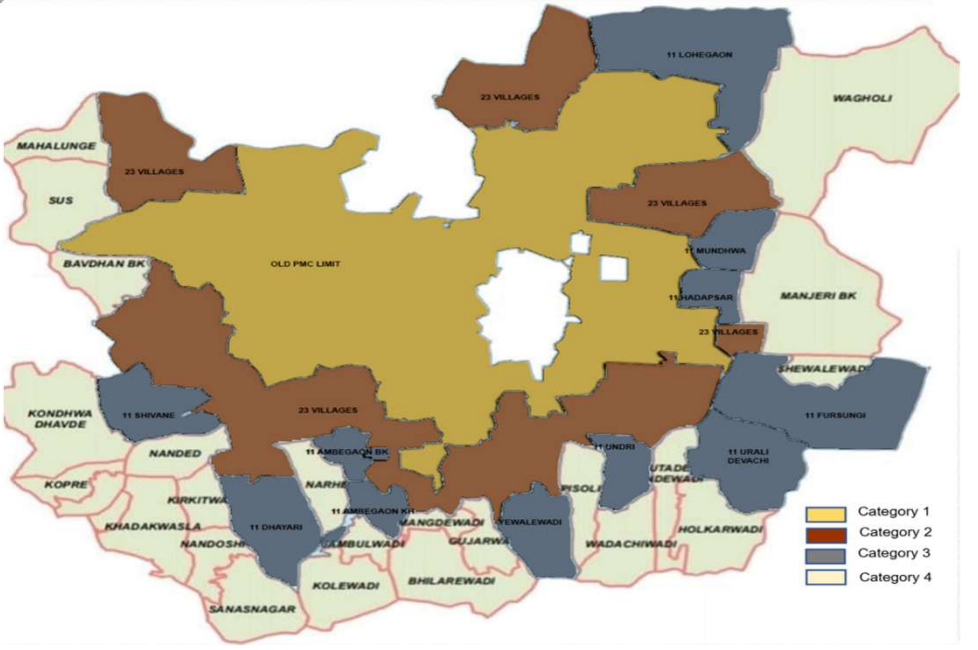
Do Something	2018	2028	2038
Trips Assigned in Peak Hour	5,28,281	7,42,439	10,03,079
Private Vehicle Trips	3,75,425 (71%)	4,64,646 (62%)	5,31,632 (53%)
IPT Vehicle Trips	55,913 (10%)	64,210 (9%)	70,216 (7%)
Public Transport Trips	96,942 (19%)	2,13,583 (29%)	4,01,232 (40%)



Travel Demand Model results highlights that increasing the quality and supply of public transport alone will not achieve desirable public transport share of 50% due to higher income levels. It requires private vehicle restraining and demand management measures

Missing Links from DP in PMC .

This report marks all the links which are there in development plans but are missing on ground with Row above 18m.
The intention of this activity is to prepare a detail inventory of the missing links which will create a basis for deciding priority links for phase wise land acquisition, financial budgeting and implementation structure. These activity involved studying development plans and relating them with satellite images, marking missing links, preparing village / area wise list and presenting in map formats for ease of understanding.

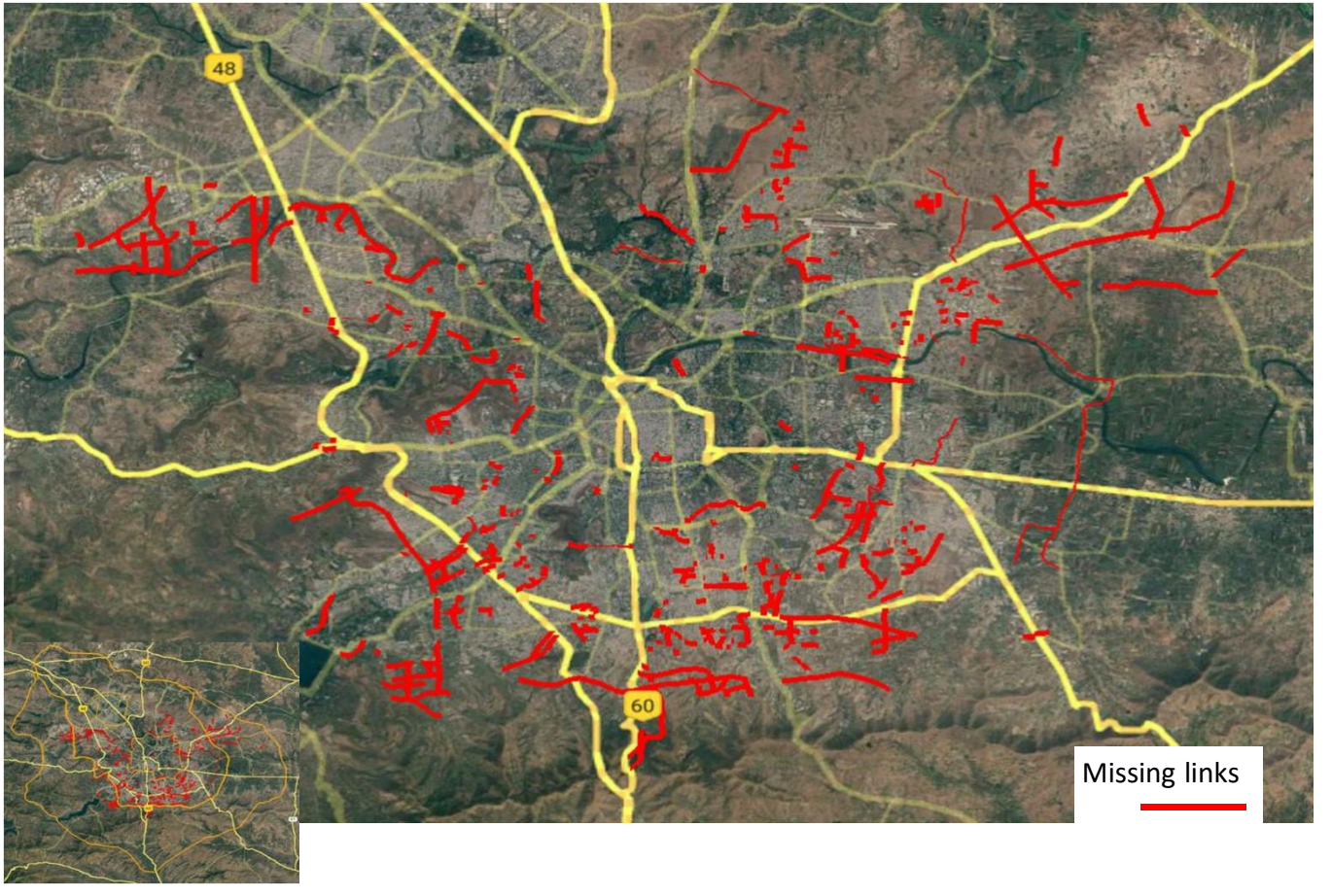


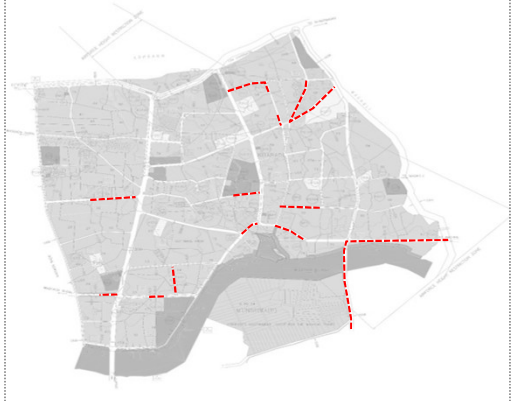
- **Category 1** : Comprising of 23 Old PMC Villages (Merged on 11-09-1997)
- **Category 2** : 11 Old Villages (Merged on 04.10.2017)
- **Category 3** : 11 villages from RP whose DP is not yet published by PMC.
- **Category 4** : 23 villages (merged on 30.6.2021) from PMRDA

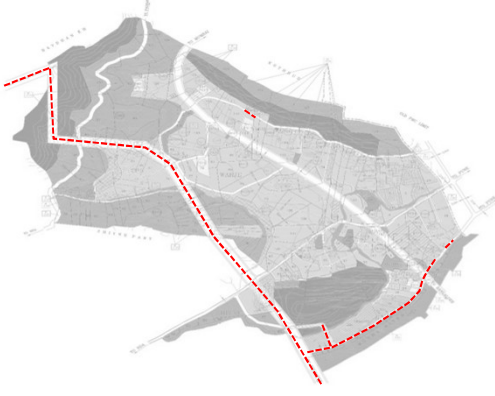
390 Missing Links (274kms) need to be acquired and roads need to be developed in order to complete the road network.

These links need to be acquired on priority and in phases to complete the network and bring in effective traffic dispersal.

Biggest Missing links : Proposed internal Rings roads (HCMTR in PMC and PCMC) and outer ring roads being developed by PMRDA and MSRDC are not added in these maps. Lack of ring roads makes situation even worse.

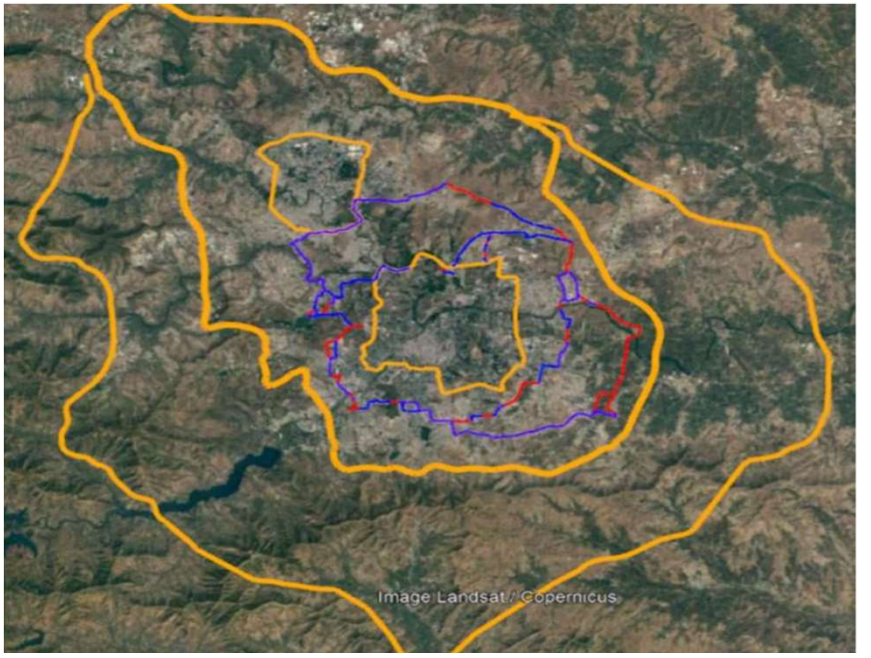






Intermediate Ring Road in PMC

- • Intermediate ring road is formed by connecting the Existing roads with Missing links from Development Plan.
- • Roads having existing / proposed Right of Way above 24m and in PMC limits are considered.
- • This ring is in between proposed HCMTR and PMR Ring road hence it is named as Intermediate Ring road.
- • This proposal is already part of approved Pune Comprehensive Mobility Plan prepared by PMRDA in 2018.
- • All the undeveloped roads / missing links are taken from Development Plan. Their acquisition and development needs to be taken up on priority.
- • Connecting the missing links will create a ring which will connect all the radials and help in effective dispersal of traffic , prove to be a alternative to avoid major junctions.



CMP for PMR 2018 – Page no 9-45 and 9-46

- CMP for PMR Region published in 2018 clearly mentions Balbhatri Paud Phata road as a priority link which will help reduce congestion.

9.4.5 Undeveloped Development Plan Roads

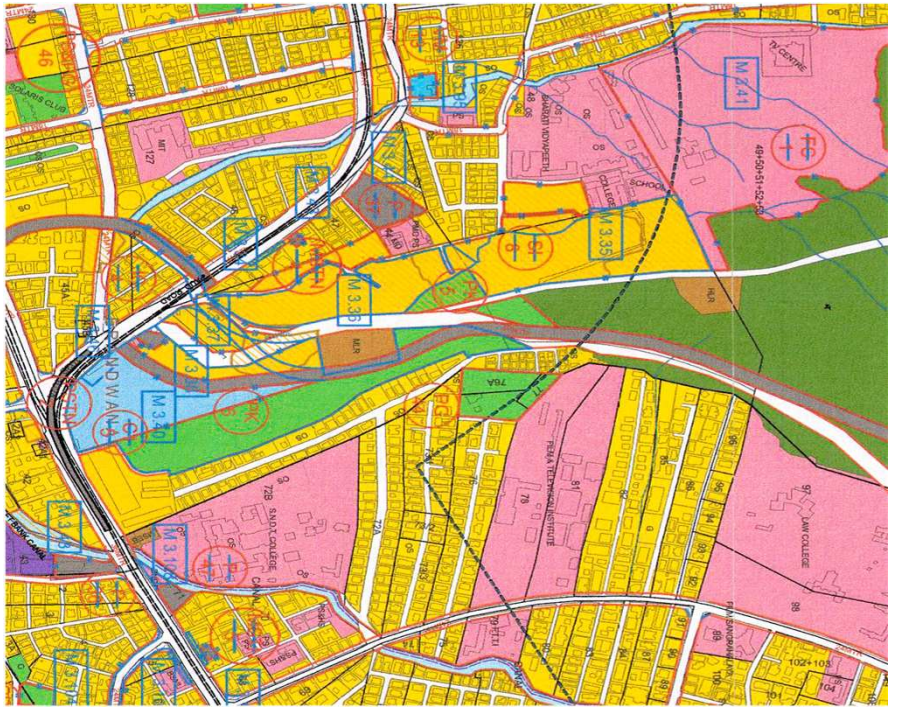
Consultants have identified some of the important undeveloped Development Plan Roads in the study area which are presented in Table 9-27, they can be used as alternative road to existing congested roads. These roads will reduce traffic congestion and improves the access.

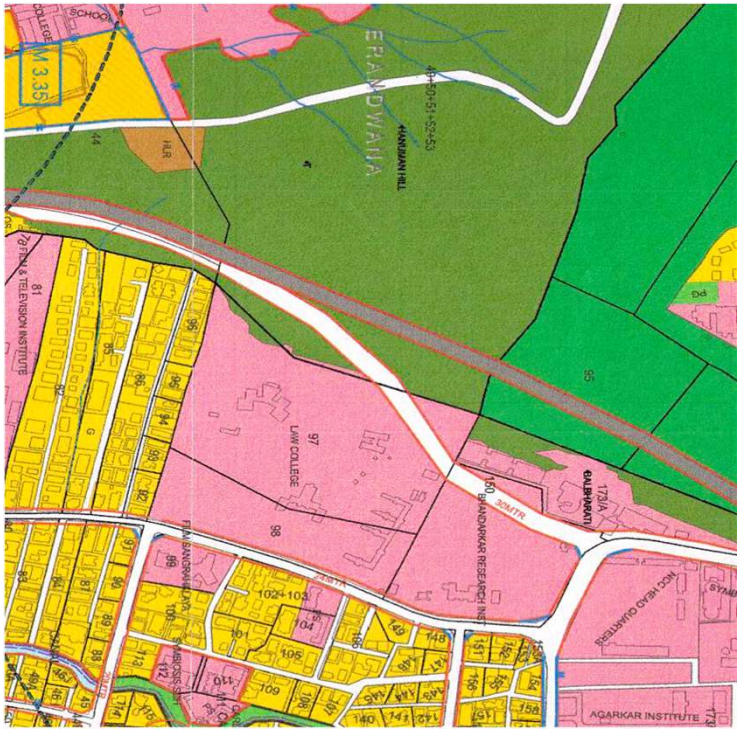
Table 9-27: List of Undeveloped Development Plan Roads

No.	Roads	Length (Km)	Lane Configuration
1	Charoli to Lohegaon	8	4 Lane
2	Dange Chowk to Walekarwadi	2	4 Lane
3	Balabarathi, SB Road to Paud Phata	2	4 Lane
4	Nigdi to Hinjewadi	9	4 Lane
5	Mahalunge to Hinjewadi	1	4 Lane

Apart from the above mentioned priority projects, all the other undeveloped DP projects like roads, bridges, tunnels etc. need to be taken up for effective traffic dispersal and network completion.

PMC Development plan Sheet 5 and Sheet 8





Proposed Balbharti Paud Road, Pune
Traffic Report

RESPONSE

To Frequently Asked Questions

SUSTAINANCY
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TRAFFIC STUDY BY SUSTAINANCY CONSULTANTS

PROJECT TIMELINE

2018	–	Tender process for appointment of Traffic Consultant.
2019	–	a. Appointed on 05.02.2019 for the project b. Conducted traffic volume counts and OD surveys on Law college road and adjoining roads in early 2019.
2019	–	Submitted traffic report in Sept 2019.
2020-21	–	Received comments from Expert Committee members and replied to the same.
2022	–	Received request from Pune Municipal Corporation for Updated Report based on Post Covid scenario, Post Nalstop flyover Construction and CMP Pune 2018.
2023 -		Conducted hourly Turning movement counts and created Demand Forecasting Model in Feb 2023.

TRAFFIC STUDY BY SUSTAINANCY CONSULTANTS

METHODOLOGY OF STUDY

Methodology 1: (Ref: As per 2019 Tender)

1. Conducting Traffic Volume Counts on Law college road, BMCC Road, Bhandarkar road, Prabhat Road and Canal Road to understand the current Level of Service on Law College road to understand the traffic congestion.
2. Conducting OD surveys and Willingness to Shift surveys to understand and determine the percentage of throughfare and likelihood of shift to the Proposed Road.
3. Traffic Simulation to check the results of percentage of shift to the proposed road.

Methodology 2: (Ref: request for Updated Report by Pune Municipal Corporation – 2023)

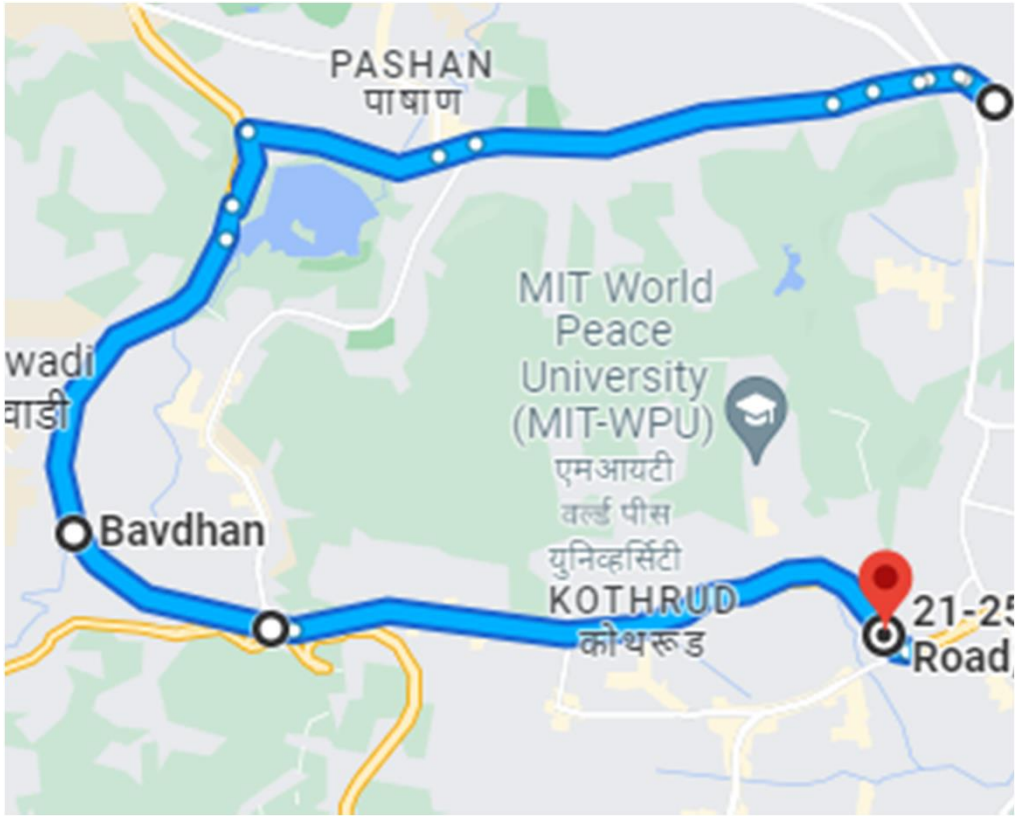
1. Conducting Turning Movement Counts on Dadhichi chowk, Khandekar chowk(German bakery), Athawale chowk, Nalstop entire junction below flyover all 4 arms, SNDT under metro station, Paud phata, and Mandke chowk to understand the movement of commuters.
2. Demand Forecasting to determine the likely shift through Modelling the turning movement counts and forecasting as per CMP 2018.

Q1. WHAT IS THE NEED FOR THE PROPOSED ROAD ?

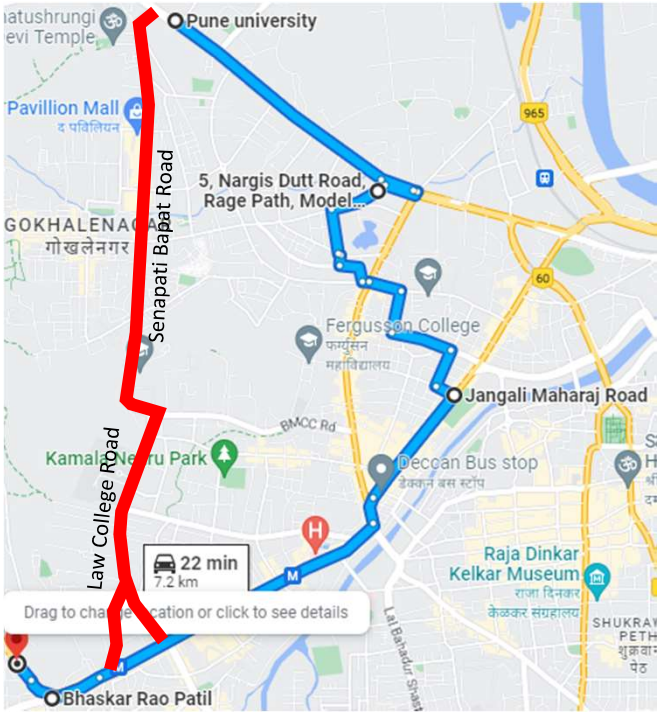
- The 1.37 km long **Law College Road** had been planned as a collector road for the local roads in the Deccan layout.
- Due to development of the area and the city in general over the years, the traffic on Law College Road has grown manifold and it is now working as a sub-arterial road along with Senapati Bapat Road - a total stretch of 5.0 km - connecting University Road to Karve Road. Law College Road is highly utilised by vehicles travelling between Kothrud, Paud road, Warje, South Pune and Pune University, Shivajinagar, Baner, Aundh, Pashan, PCMC areas in North Pune. So the majority of traffic on Law college road is through traffic catering the commuters in above mentioned areas. So alternative route connecting these areas is needed in order to avoid traffic congestion on Law college road.
- ROW as per DP is 24 m wide and Existing road width is varying from 9.68m to 18 m. ROW is largely compromised to only 3 lanes between Athawale chowk and Prabhat road chowk where there are also maximum residential lanes and commercial establishments creating delays due to bottleneck situation. (3 lane capacity is 3600 PCU/ hr which is actual compromised capacity of LCR)
- Current alternative to Law college Road :
  - University - Shivajinagar - JM Road - Karve Road – Paud Phata.
  - University - Bavdhan - Chandni Chowk - Paud Phata
  - Internal lanes like KNP road, Canal road, narrow lanes in Prabhat-Bhandarkar road TP schemes.
- Both these distances are too long as compared to LC Road which is the **shortest North South route**. Therefore, Law College Road is the preferred route for vehicles travelling between University Circle and Paud Phata/Kothrud/Karve Nagar.
- Distance Between Balbharti (on S .B. Road) and Mandke Chowk/Kelewadi (on Paud Road) via same route is 2.60 km.

Q1. WHAT IS THE NEED FOR THE PROPOSED ROAD ?

Maps Showing Alternatives to Law College Road



Via Pashan-Bavdhan



Via J M Road – Deccan - Nalstop

Q1. WHAT IS THE NEED FOR THE PROPOSED ROAD ?

LCR is divided into 3 parts. Part 1 is Khandekar chowk to Prabhat road chowk (4 lanes divided two way), part 2 from Prabhat road chowk to Athawale chowk (3 lanes undivided two way) and part 3 Athawale chowk to Nalstop (3 lanes undivided one way). Part 2 is the narrowest with width varying from 9.68m to 12.45m leading to bottleneck. This bottleneck makes LCR prone to frequent delays and congestion. In addition, 8 residential lanes intersect this narrowest 3 lanes portion of LCR further adding to traffic congestion. Therefore the capacity of LCR has to be considered at its narrowest part that is 3600 PCU/hr.

- The **Peak hour traffic volume** on Law College Road near Athawale Chowk in 2023 is

  Morning Peak – 2908 PCU/Hr
  Evening Peak – 2711 PCU/Hr

- The **Capacity of Law College Road** is estimated at narrowest 3 lanes 2 way undivided portion is 3600 PCUs/Hr @1200 PCU/Hr/lane.

- The **Current Volume to Capacity (V/C) ratio** of Law College Road in its narrowest portion is

  Morning Peak Hour = 0.81 with Level of Service (LOS) – D. Will drop down to E in 2026 as explained later.

  Evening Peak Hour = 0.75 with Level of Service (LOS) – C

  Note : Reference for Level of Service criteria - from Indo-HCM 2017

Q1. WHAT IS THE NEED FOR THE PROPOSED ROAD ?

- Like many cities in India, Pune has grown and developed in a radial fashion.

- From a transportation standpoint, the basic structure of a planned radial city comprises of :
  1. Arterial roads radiating from the centre.
  2. Sub-arterial roads connecting all the arteries to each other at regular intervals.
  3. A Ring Road around the City.
  4. This completes the major road network in a **Web** fashion for effective traffic distribution.

  - This network completion is not only beneficial for personal vehicles but also for the reach and efficiency of **public transport.** The bus frequency from Law college road can be increased once the through-traffic is shifted to this road. The proposed BBPP road is also the alignment for Neo-Metro.

  - Law College Road is currently working as a sub-arterial road but it was not designed for the volume it's currently handling.

  - It was a collector road for traffic generated by local roads in the adjoining residential areas.

Q1. WHAT IS THE NEED FOR THE PROPOSED ROAD ?

- Karve Road is the only direct connection to Kothrud, Karve Nagar, Warje etc for the North and East of Pune and for the Old City.

- This is the reason why the stretch between Sancheti Chowk and Nal stop via JM Road and Deccan has a lot of traffic.

- This also has a ripple effect on Law College Road and adjoining roads like KNP Road, Canal Road etc.

- **It needs to have an alternative Arterial or Sub-arterial road connecting the 2 arterial roads Ganeshkhind Road and Karve Road (which meets Karve Road away from Nalstop)**
  This completes the network and helps distribute the traffic evenly.

- This road is proposed for a suitable capacity (considering population growth and ongoing development of the city).

Q2. WHAT IS THE LIKELY SHIFT OF TRAFFIC FROM LAW COLLEGE ROAD TO THE PROPOSED BBPP ROAD ?

In our September 2019 report, the likely shift percentage was determined as 57% as per OD survey.

From the TMC counts obtained from videography survey done in 2023, the through traffic numbers for Law College Road are given below.

THROUGH TRAFFIC ON LAW COLLEGE ROAD - 2023

	Journey			Traffic Count		
Peak Hour	**Entry Point**	**Exit Point**	**Towards**	**Entry Count**	**Exit Count**	**Through Traffic Percentage**
				PCUs/Hr	PCUs/Hr	(Exit/Entry) X 100
Morning Peak	Khandekar Chowk	Abhinav Chowk	Paud Phata	1248	760	61%
	Athawale Chowk	Khandekar Chowk	S. B. Road	1855	1501	81%
	TOTAL				**2261**	
Evening Peak	Khandekar Chowk	Abhinav Chowk	Paud Phata	1752	1246	71%
	Athawale Chowk	Khandekar Chowk	S. B. Road	1013	851	84%
	TOTAL				**2097**	

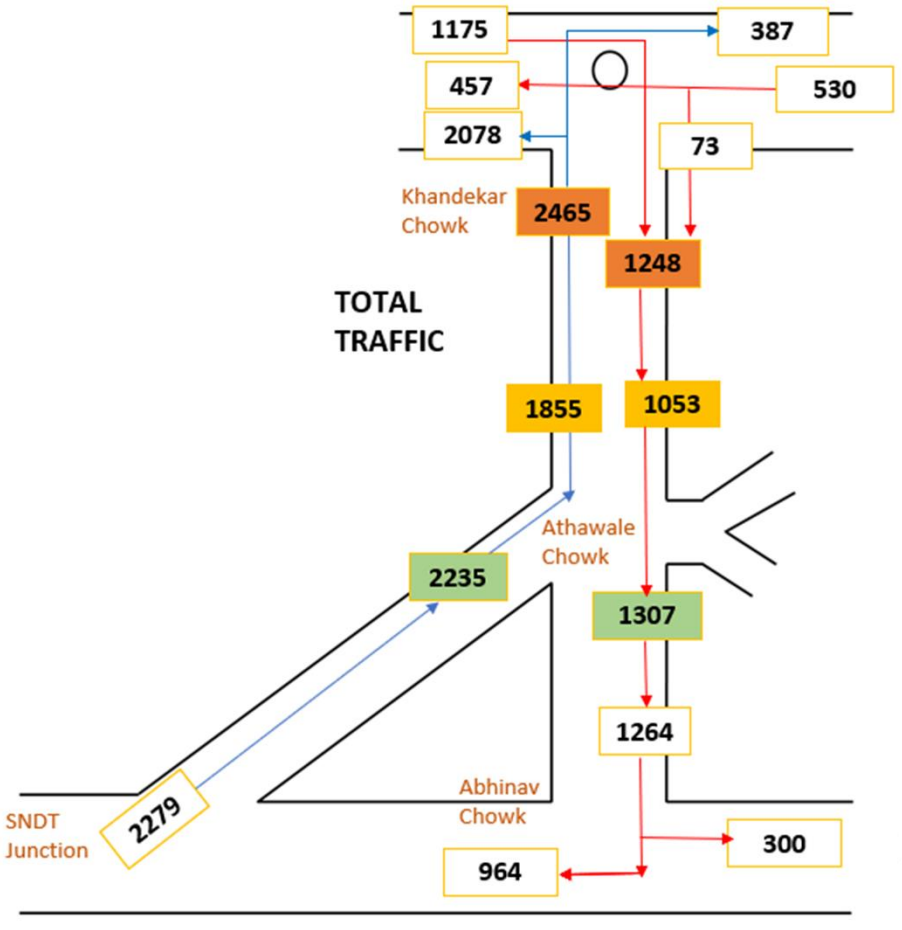
Average Through Traffic Percentage is about 74%.

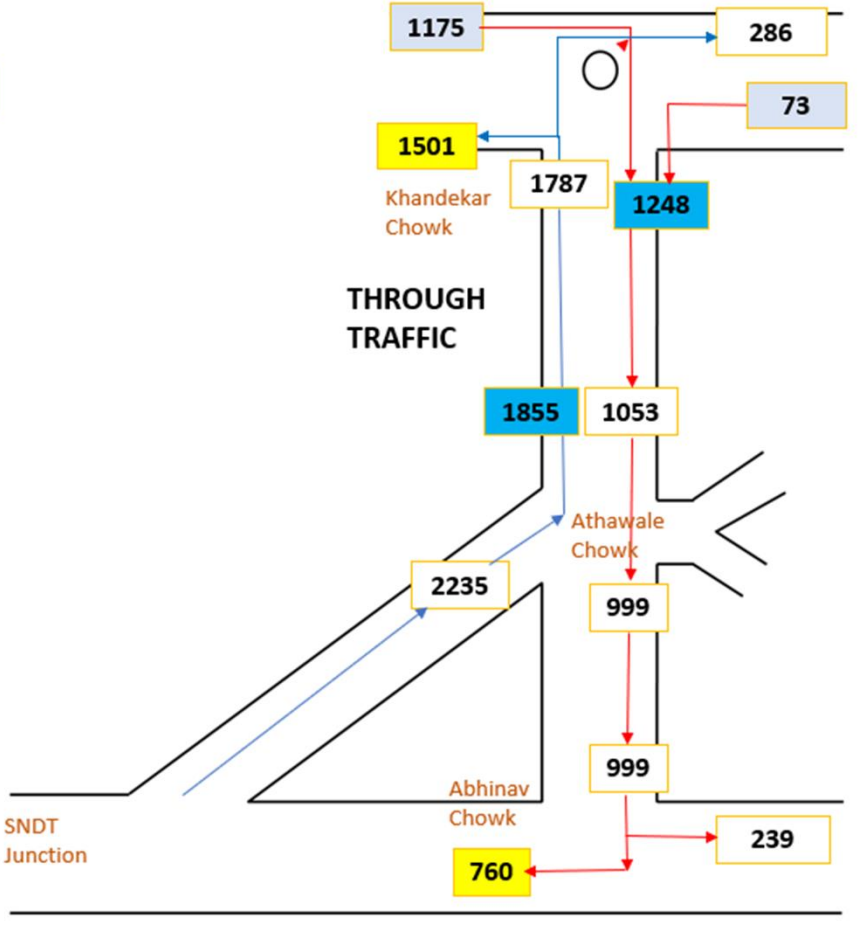
This is the amount of traffic that will shift from Law college Road to the Proposed Road as per TMC count.

Shift Percentage of both the studies are in sync with each other and same has been validated using CMP 2018 model.

Q2. WHAT IS THE LIKELY SHIFT OF TRAFFIC FROM LAW COLLEGE ROAD TO THE PROPOSED BBPP ROAD ?

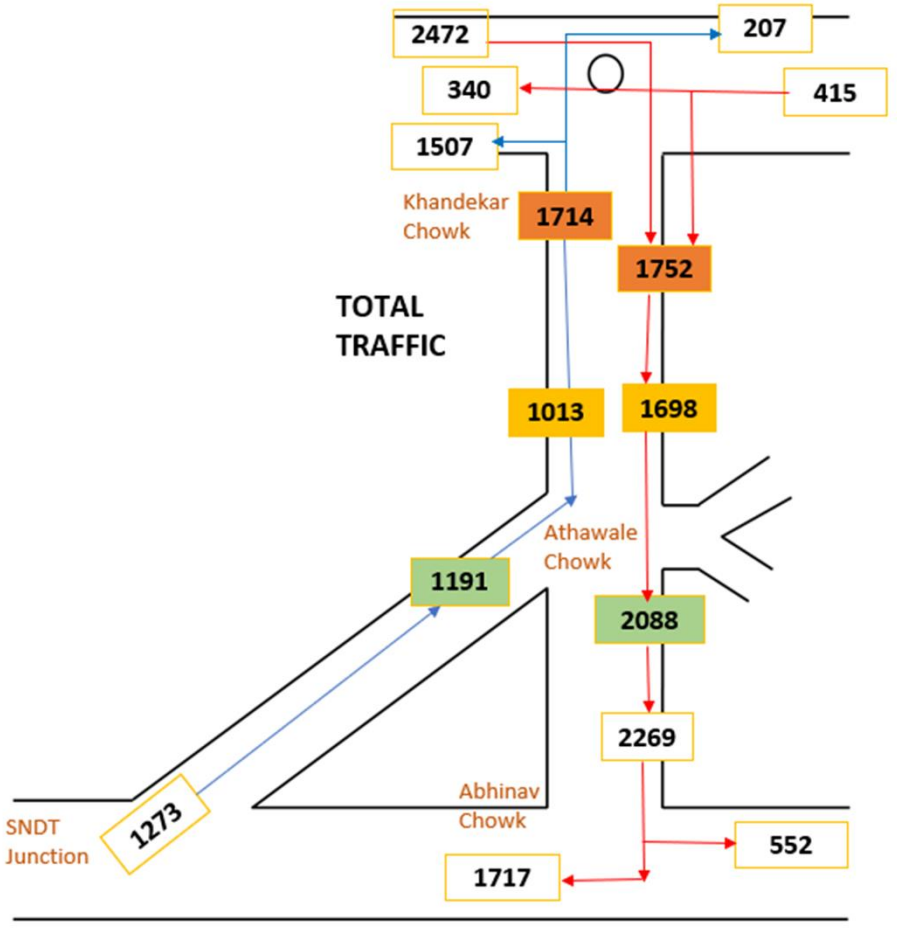
MAPPING OF MORNING PEAK HOUR PCU – BOTH DIRECTIONS

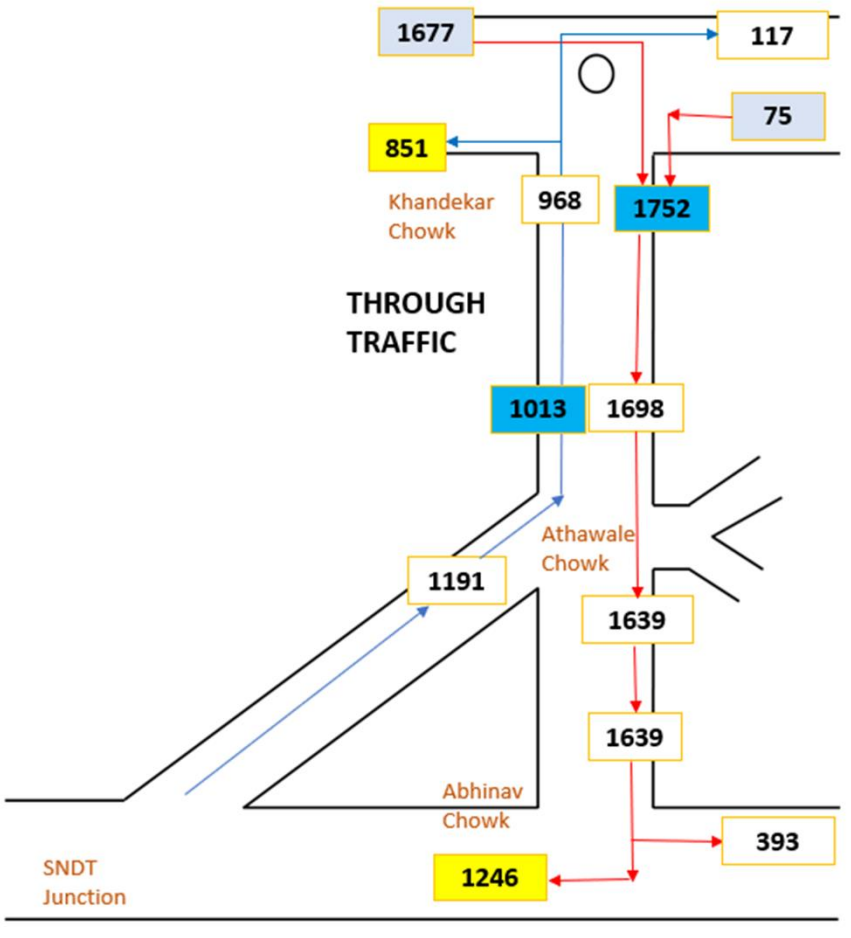




Q2. WHAT IS THE LIKELY SHIFT OF TRAFFIC FROM LAW COLLEGE ROAD TO THE PROPOSED BBPP ROAD ?

MAPPING OF EVENING PEAK HOUR PCU – BOTH DIRECTIONS





Q2. WHAT IS THE LIKELY SHIFT OF TRAFFIC FROM LAW COLLEGE ROAD TO THE PROPOSED BBPP ROAD ?

METHODOLOGY FOR CALCULATING - TOTAL TRAFFIC AND **THROUGH TRAFFIC** ON LAW COLLEGE ROAD.

(Refer to the diagrams given above)

- The PCU counts are shown at various locations in both directions for both the Morning and Evening Peak Hour.
- The TOTAL TRAFFIC (peak hour) at a particular spot is the no. of PCUs recorded in the Peak Hour at that spot.
- The THROUGH TRAFFIC (peak hour) on Law College Road in one direction is calculated by a series of progressive reductions (for PCUs turning away from the Law College Road) from the Entry Count (in blue) to obtain the Exit Count (in yellow). No additions are made.
- For example:

➢ For the Morning Peak Hour, the Entry Count on Law College Rd from Khandekar Chowk is 1248.

➢ Down the road, successive counts are 1053 and 999.

➢ From the Total traffic diagram, traffic exiting at Abhinav Chowk is 1264 and is split as 964 towards Paud Phata and 300 towards Deccan Circle which are respectively 76% and 24% of 1264.

➢ Considering the similar proportions for THROUGH TRAFFIC, 999 is split into **760 (towards Paud Phata**) and 239 (towards Deccan Circle). **760 is thus the Exit count in this direction.**

➢ The same process is repeated for the other direction to obtain **Exit Count of 1501 at Khandekar Chowk towards Balbharti.**

➢ The same process is repeated for the Evening Peak Hour to obtain Exit Counts in both directions.

- This process is based on logical analysis of the traffic movement on the Law College Road. It takes into consideration the traffic moving on the Law College Road, the traffic diverging from and converging at various Junctions on Law College Road. Hence it is a scientific way of deriving the through traffic numbers.

Q3. WHY IS THERE A DIFFERENCE NUMBERS IN THE TWO RESULTS OF O-D SURVEY MATRIX

- The scope of work as per the RFP prepared by the Expert Committee members doesn't mention any specific condition or sample size for conducting the OD survey. The OD surveys conducted by the consultants, have been reviewed by the Expert Committee members during the course of the study. After the first OD survey, we had been instructed to conduct one more day of OD survey and the total sample size for both came to be around 2500 samples.

- As per IRC SP 19-2001, Generally, 15-20% of vehicles may be covered in the peak periods and 25-30% cent in the normal periods. Same has been followed for the OD surveys.

- As per our original OD matrix the percentage of people likely to use the new road came to 57%.

- As per our 2023 videography survey, the percentage of commuters likely to shift to the new road is 74%.

- Shift Percentage of both the studies are in sync with each other and same has been validated using CMP 2018 model.

- Our study recommends 4 lanes as a proposed configuration of the road, which is also supported by CMP 2018. Remaining lanes can be utilised for NMT and Public Transport.

- The 2nd OD matrix with the additional split was prepared on request of the Expert Committee Members of the PMC and was an internal academic exercise which gave invalid results so it is not part of our final report.

Q4. DIFFERENCE IN THE PERCENTAGE SHIFT TO NEW ROAD – OD Survey and WILLINGNESS TO SHIFT Survey ?

- **As per our OD matrix the percentage of people likely to use the new road came to 57%.**
- **As per the Willingness to Shift Survey which is opinion based, the likely percentage came to 86%.** ***(this survey was halted and cancelled so its not part of any report)***
- **But this number was correlated with the respective Origin and Destination recorded for the participant, and this resulted in 57% total shift which has been mentioned in the final report, which is also validated as per the TMC of our videography survey in 2023.**
- Regarding the capacity of the proposed road, the DP provides for a 30m wide road keeping in mind the future growth of vehicles
- **The carrying capacity of the proposed BBPP Road caters to both the percentages.**

Q5. WHAT IS VEHICULAR COUNT OF 1,16,376 - IS IT A MID BLOCK COUNT OF LCR NEAR GERMAN BAKERY IN 2019 TRAFFIC STUDY? WILL ONLY 15% OR LESS OF LCR TRAFFIC SHIFT TO PROPOSED ROAD AS CLAIMED ?

1,16,376/day vehicular count is actually the cumulative junction count at Khandekar Chowk and not the LCR Mid block count at German Bakery. Khandekar chowk is a junction of Senapati Bapat road, BMCC road and Law college road road(LCR). Mid block count of LCR near German bakery is the two way vehicular count on LCR near German bakery. **As per actual data, that is, 2019 Final traffic report,**

Mid block count near German Bakery on LCR is 46,891 vehicles per day

Mid block count near Athwale chowk on LCR is 34,301 vehicles per day.

In 2019 Draft Traffic report, the figure of 1,16,376/day was wrongly quoted as Mid block LCR count at German bakery instead of actual figure 46,891 vehicles per day. This error was corrected by traffic consultant in their Final Traffic Report which was submitted to PMC in Sept. 2019 stating corrected mid block count on LCR near German Bakery as 46,891. The Final traffic report does not mention of 1,16,376 figure at Khandekar chowk as the 2019 traffic study was about mid block traffic counts and not junction count.

VKe consultants (environmental consultant) who prepared the environmental report (ESR) collected the traffic data from the **Draft Traffic report** and not from Final traffic report thus wrongly quoted 1,16,376 vehicular count as mid block LCR count near German bakery in their environmental report. So the confusion has arisen.

But in the same ESR report, on page 83, the consultants have correctly used the actual figure of 46,891 vehicles near German bakery while calculating the LCR Average Daily traffic count and Annual Average daily traffic count (AADT) and not the wrong figure of 1,16,376.

It is surprising that some people missed the actual count used on page 83 while calculating AADT. AADT would have been much higher if 1,16,376 was used instead of 46,891 in calculation which they did not realise.

Q5. WHAT IS VEHICULAR COUNT OF 1,16,376 - IS IT A MID BLOCK COUNT OF LCR NEAR GERMAN BAKERY IN 2019 TRAFFIC STUDY? WILL ONLY 15% OR LESS OF LCR TRAFFIC SHIFT TO PROPOSED ROAD AS CLAIMED?

Some people inspite of knowing that actual mid block LCR traffic count at German bakery is 46,891 as per Final 2019 traffic report kept on deliberately quoting 1,16,376 as mid block count on LCR near German Bakery. They have been trying to portray that this mid block count of 1,16,376 at German bakery reduces to 34,301 count near Athawale Chowk. Thus they are **trying to indicate that most of the traffic on LCR is local traffic and not through traffic so the proposed road is not necessary.**

They have further calculated that 50% of this 34,301 mid block traffic count on LCR near Athwale chowk that is 17,150 vehicles will take a turn towards Paud Phata at Nal stop chowk indicating that only 17,150 traffic out of 1,16,334 traffic at German bakery is through traffic , that is only 15% traffic is through traffic which will shift to BP road telling that proposed road is not needed. All these calculations were done wrongly using wrong figure and wrong method.

In addition, these people made general public believe that the proposed road will be highly underutilised as only 15% of law college road traffic will be shifted to the proposed road. Thus they are carrying out false propaganda using social networking sites, media, presentations etc.

It was just a clerical error of stating wrong traffic count on one page(Page 80 of ESR) even though correct traffic count was used on page 83 of same report which some people missed, and the error was blown out of proportion.

Actually, as per 2019 OD survey, 57% of traffic on LCR will shift to proposed road and **as per 2023 traffic and turning movement survey 74% of traffic on LCR will shift to new proposed road as explained in previous slides.** Both surveys are done using different methods at different times. Still the study proves that majority of traffic on LCR is through traffic and not local traffic and that through traffic will be shifted to proposed road reducing congestion on Law college road.

Q6. MAJOR DIFFERENCE BETWEEN TRAFFIC COUNTS AT GERMAN BAKERY AND ATHAWALE CHOWK IN 2019 TRAFFIC STUDY

Mid block traffic count on LCR near German Bakery 46,891 vehicles per day
Mid block traffic count on LCR near Athawale Chowk 34,301 vehicles per day

This question was raised believing that mid block count on LCR near German Bakery was 1,16,376 vehicles per day. But as explained in previous slide, this was Khandekar chowk junction count.
Also the typing error in mentioning cars in place of two wheelers and vice versa in some tables in 2019 report has created confusion hence we request to only refer the vehicular counts in tables instead of PCU counts.
Difference between traffic mid block counts of Law college road near German Bakery and near Athawale chowk in 2019 were influenced by the ongoing flyover construction at Nal Stop Chowk which caused traffic diversions. Post Nal stop flyover traffic scenario would also differ as people prefer flyover over LCR to avoid delay.
These are also the reasons why PMC asked us to conduct fresh surveys in 2023 with junction turning movement counts.

Q7. Is there big difference in traffic counts in 2023 from 2019 near Athawale chowk? Is there a 300% increase?

- There is not a 300% increase between the counts.

- The interpretation of the numbers has been wrong and the numbers cannot be compared.

- The actual interpretation is :
- 2019 Traffic study had **mid block** counts of Law college road (mid block count is number of vehicles on that particular road).
  2023 study had Total **junction count** and turning vehicle counts. Hence both are different.

34301 vehicles is a mid block count of Law college road near Athawale chowk in 2019 traffic study and 98000 vehicles is a junction count of Athawale chowk junction in 2023 traffic study. So these two figures cannot be compared because mid block count (vehicular count on one road) can not be compared with junction count (where multiple roads meet) like we cannot compare apples and oranges.

Q8. HOW IS THE CAPACITY FOR THE PROPOSED ROAD CALCULATED ?

Through traffic on Law College Road in 2023 - Morning Peak = 2261 PCU/Hr . Evening Peak = 2097 PCU/Hr

Expected shift from Law College Road to BBPP Road - Current year 2023

Morning Peak = **2261** PCU/Hr . Evening Peak = 2097 PCU/Hr

Projected Peak hour PCU for BBPP Road - Year 2050

Morning Peak = **3464** PCU/Hr (Using CMP Growth Projection rates)

Capacity of the Road = 3464/0.6 = **5773** PCU/Hr (With a V/C Ratio of 0.6 and LOS C as road is ideally designed for LoS C).

Proposed Road would be planned for a capacity of 8400 PCU/Hr that is a six-lane road.
Capacity of Urban Roads (Indo-HCM, Table 5.4).

The CMP-Pune 2018 (Chapter 9, page 45 and 46), recommends a four-lane road considering the current traffic scenario.

However, within the proposed width of 30m, in the initial years,

- **4 lanes can be reserved for private vehicles, commercial vehicles and Intermediate Public Transport (autos, taxis, ola/uber etc).**
- Additionally, one lane on either side can be reserved for Buses as road has spare capacity.
- There is also space for Non-Motorised Transport (NMT) i.e. - Sidewalks and Bicycle lanes on either side.

Q8. HOW IS THE CAPACITY FOR THE PROPOSED ROAD CALCULATED ?

Capacity of Roads based on Typology of Road (Source: Indo HCM 2017)

S. No.	Typology of the Road	Capacity *(PCUs/hr)*	Lane Capacity *(PCUs/hr)*	Design Service Volume *(PCUs/hr)*
1	Two-lane Undivided	2400	1200	1680
2	Four-lane Divided	5400 *(2700)*	1350	3780 *(1890)*
3	Six-lane Divided	8400 *(4200)*	1400	5880 *(2940)*
4	Eight-lane Divided	13600 *(6800)*	1700	9520 *(4760)*
5	Ten-lane Divided	20000 *(10000)*	2000	14000 *(7000)*

Note: The values in parenthesis / brackets represent PCUs per h our per direction'

LOS of Multilane Divided Urban Roads based on V/C Ratio (Source: Indo HCM 2017)

LOS	Volume/Capacity Ratio
LOS A	≤ 0.15
LOS B	0.15 - 0.45
LOS C	0.46 - 0.75
LOS D	0.76 - 0.85
LOS E	0.86 - 1.00

Q10. IS BALBHARTI PAUD ROAD GOING TO BE UNDERUTILISED ?

- The Capacity of the BBPP Road has been calculated based on growth rate and projections for the year 2050 as prescribed by Comprehensive Mobility Plan of Pune published by PMRDA.

- Also, with reference to Indo-HCM (Table No. 5.7), the capacity has been calculated keeping in mind a Volume to Capacity Ratio (V/C) ratio of 0.46 to 0.75 with a Level of Service C.

- We have considered a V/c ratio of **0.6.**

- This is optimum design – neither under designed nor over designed.
  And it will be a road with a good Level of Service even beyond the year 2050. So it is going to be a long term solution.

- If the V/C ratio goes beyond 0.75, its a case of heavy, slow-moving traffic - LOS D
- If the V/C ratio goes beyond 0.85, its a case of very heavy, bumper to bumper traffic - LOS E
- If the V/C ratio goes beyond 1.0, its a case of complete traffic blockage - LOS F

- **So, the road is not under-utilised, but it is designed for an optimum Level of Service.**

- **Also, we recommend that a Public Transport Lane and space for NMT be included in this road.**

- **The width of 30m can accommodate the same.**

Q10. IS BALBHARTI PAUD ROAD GOING TO BE UNDERUTILISED ?

Since 74% traffic on Law college road will be shifted to proposed road, the proposed road will not be underutilised

Through traffic on Law College Road in 2023 –

Morning Peak = 2261 PCU/Hr .

Evening Peak = 2097 PCU/Hr

Expected shift from Law College Road to BBPP Road - Current year 2023

Morning Peak = **2261** PCU/Hr . Evening Peak = 2097 PCU/Hr

So this road will not be underutilised in 2023 also.

Q11. ARE THE FLYOVER, UNDERPASS AND ELEVATED ROAD REQUIRED ?

- Based on the through traffic figures of Law College road that is the likely shift to the Proposed BBPP Road and future projections, the decision for grade separators can be taken by the PMC.

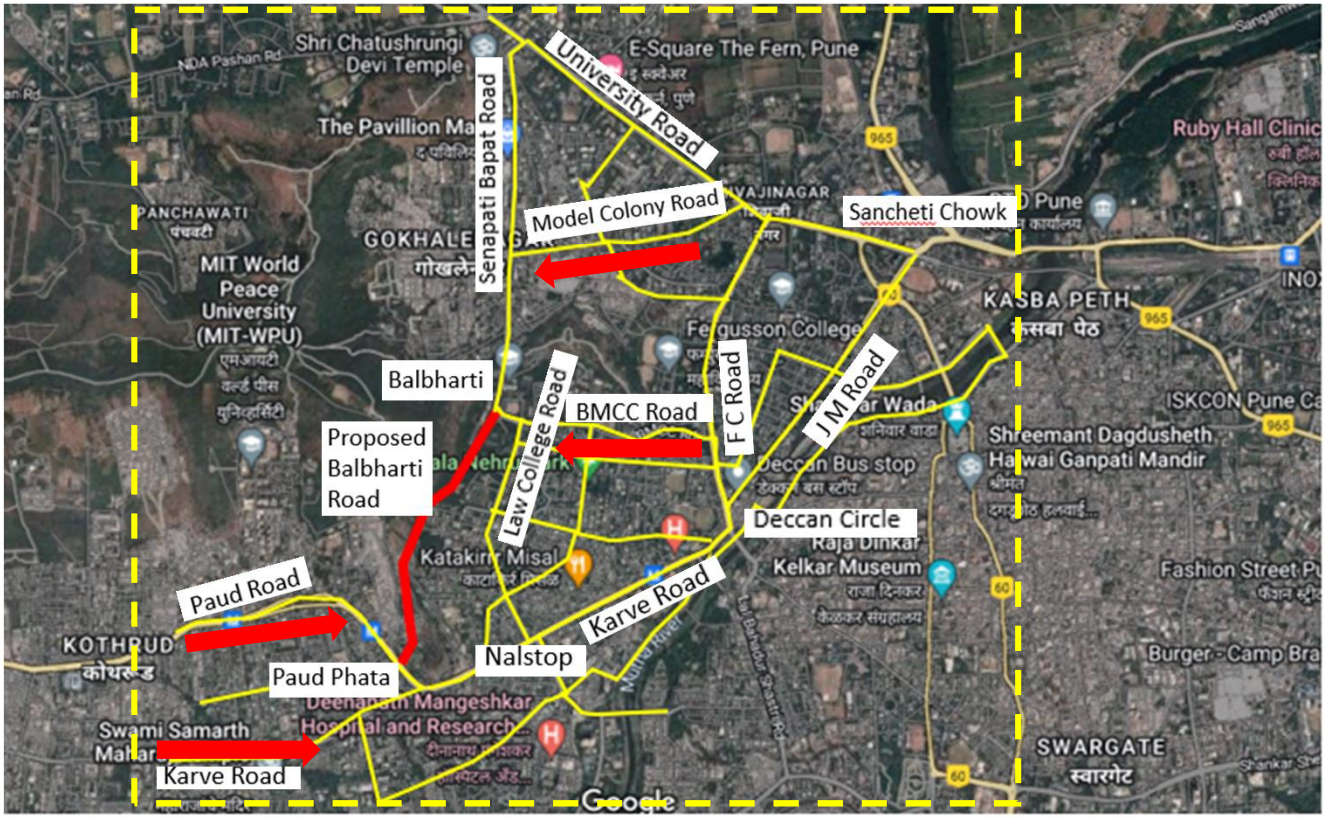
- Looking at the natural slope and safety concerns at both these locations - Balbharti Junction and Paud Road, we recommend that an opinion be taken from the Traffic Police Department regarding grade separators.

- The Traffic Police Department would give an opinion on the same from the point of view of junction management - traffic operations and safety. DPR has considered extra provision so that it can be added when necessary.

- **The PMC could take a decision on the grade separators based on the above.**

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

INFLUENCE AREA UNDER CONSIDERATION



Approaches to the Proposed BBPP Road

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

- The proposed Balbharti Road (shown in red) will have a positive impact on all the roads shown in yellow colour.
- Once the road is made, much of the traffic in the area will be diverted to the new road based on induced traffic principles.
- Traffic from Aundh, Baner, Pune University side and Shivaji Nagar, Deccan, PMC side will use this road to **avoid Nalstop and Law College Road** to reach Kothrud, Karve Nagar, Warje, Erandwane.
- Traffic from University to Paud Road/Karve Nagar will be diverted to the new road via Senapati Bapat Road
- Traffic from Shivaji Nagar to Paud Road/Karve Nagar will be diverted to the new road via Model Colony Road and BMCC road.
- **The Level of Service of the following roads and junctions will show considerable improvement:**
  - Law College Road,
  - Kelkar Road and adjoining lanes
  - Karve Road and Paud Road near SNDT
  - KNP Road and Canal Road
  - Nalstop , Deccan-Garware Chowk/Khandoji Baba Chowk, Shridhar Phadke chowk etc. The portion of LCR between Athawale chowk to Abhinav chowk (Nal Stop) is 3 lane one way road. Based on 2023 traffic study, majority of LCR traffic travelling from Khandekar chowk to Athawale chowk (North to South) will be shifted to proposed road, **so the congestion beneath the Nal stop flyover for Law college road traffic that will be turning right at Nal stop will be considerably reduced.**
  - It is also to be noted that River side road may be closed in monsoons and for RFD project. All traffic will be diverted to Karve road and Gulavni Maharaj road both of which are already facing congestion issues. **Proposed link will serve to be beneficial in long term.**

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

Currently the Peak Hour PCU for Law College Road in narrowest 3 lane portion (bottleneck portion near Athawale chowk) in 2023:

Morning Peak Hour – 2908 PCU/Hr.

Evening Peak Hour – 2711 PCU/Hr.

The Level of Service of the Law College Road currently in 2023 is

Morning Peak Hour - V/c Ratio = 0.81 (LOS - D), Evening Peak Hour - V/c Ratio = 0.75 (LOS - C approaching D).

Here the growth rates for vehicles have been considered for the most likely scenario as mentioned in CMP 2018.

The Level of Service for the Law College Road in the coming years without the addition of BBPP Road

For the Morning peak hour

Reaches E in the year 2026 with 3086 PCUs/hr.

For the Evening peak hour

Reaches E in the year 2030 with 3084 PCUs/hr

This means it shall make it difficult to accommodate the traffic on the existing road. The capacity of adjoining alternative roads is already saturated.

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

As per 2023 Turning Movement Counts,

Through Traffic on Law College Road in peak hours –

Morning Peak – 2261 PCU/Hr

Evening Peak – 2097 PCU/Hr

This is the traffic that's estimated to shift to the proposed BBPP road.

After addition of the BBPP Road, the Peak Hour PCU for Law College Road in 2025 :

Morning Peak Hour – Total Current Traffic – Through Traffic = 2908 – 2261 = 647 PCU/Hr.

Evening Peak Hour – Total Current Traffic – Through Traffic = 2711 – 2097 = 614 PCU/Hr.

Here the growth rates for vehicles have been considered for the most likely scenario as mentioned in CMP 2018.

The Level of Service of the Law College Road in 2025 would be

Morning Peak Hour - V/c Ratio = 0.18, LOS – B.

Evening Peak Hour - V/c Ratio = 0.17, LOS – B.

The LOS would remain B upto the horizon year 2050.

Due to the proposed BBPP road, the major impact will be observed at Nalstop junction below the flyover.

The improvement in Level of Service on Law college road in the future years makes it ideal for increasing Bus routes on the Law College Road.

Q12.WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

TRAVEL TIME SAVING

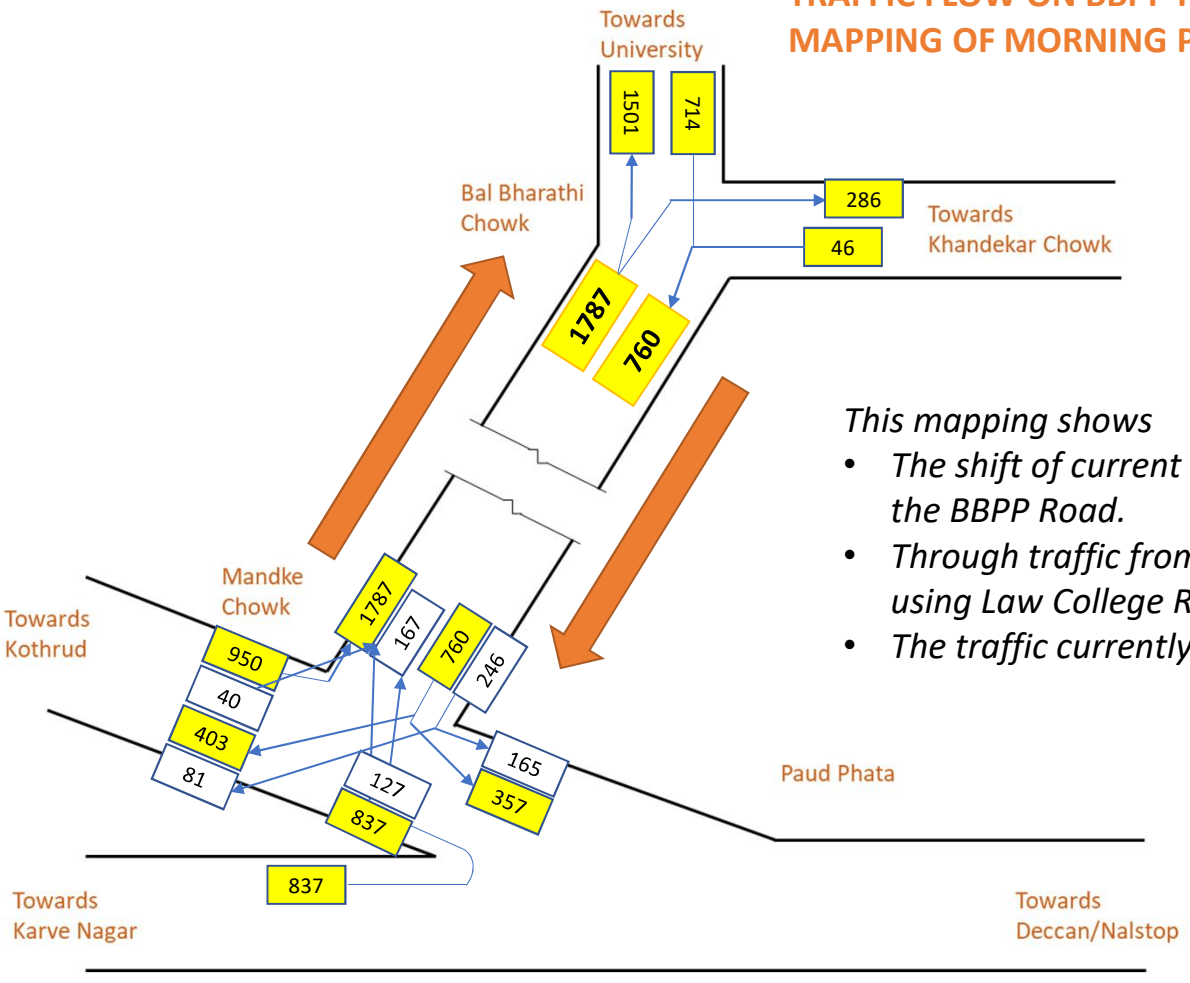
Currently different modes take different amounts of time to travel from Law College Road and adjoining roads at different times of the day.

On an average in peak hour and from speed delay analysis,
buses take over 20-30 minutes, cars take 15 to 20 minutes and two-wheelers take around 10 minutes to travel from Law College Road.

As per the Simulation model, the travel time required from BBPP Road and the decongested Law College Road (post construction of BBPP Road) will both come down to about 5 mins.

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

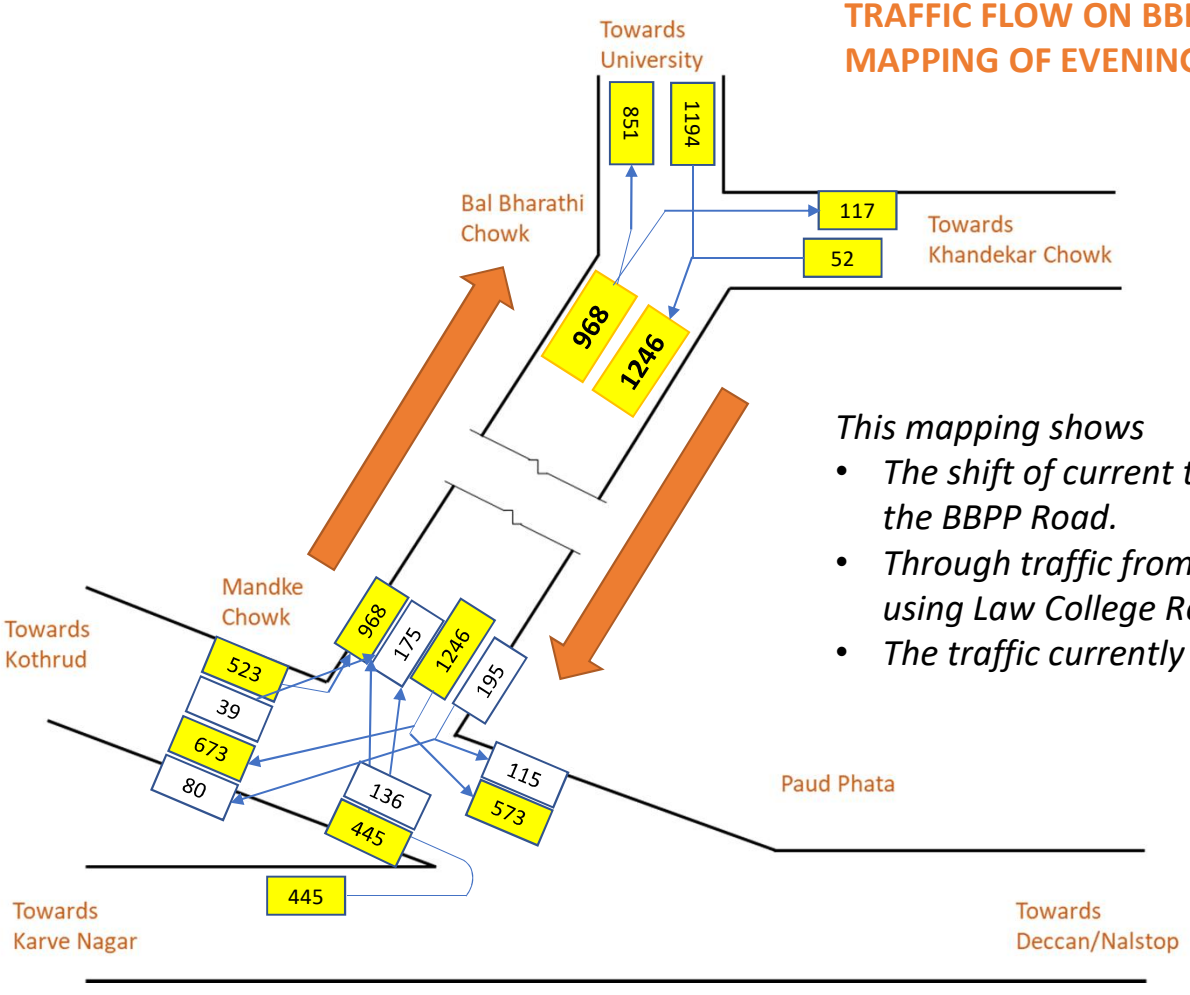
TRAFFIC FLOW ON BBPP ROAD
MAPPING OF MORNING PEAK HOUR PCU - 2023



This mapping shows

- *The shift of current through traffic from Law College Road to the BBPP Road.*
- *Through traffic from Paud Phata to Shivajinagar currently using Law College Road and BMCC Road.*
- *The traffic currently on ARAI Road.*

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

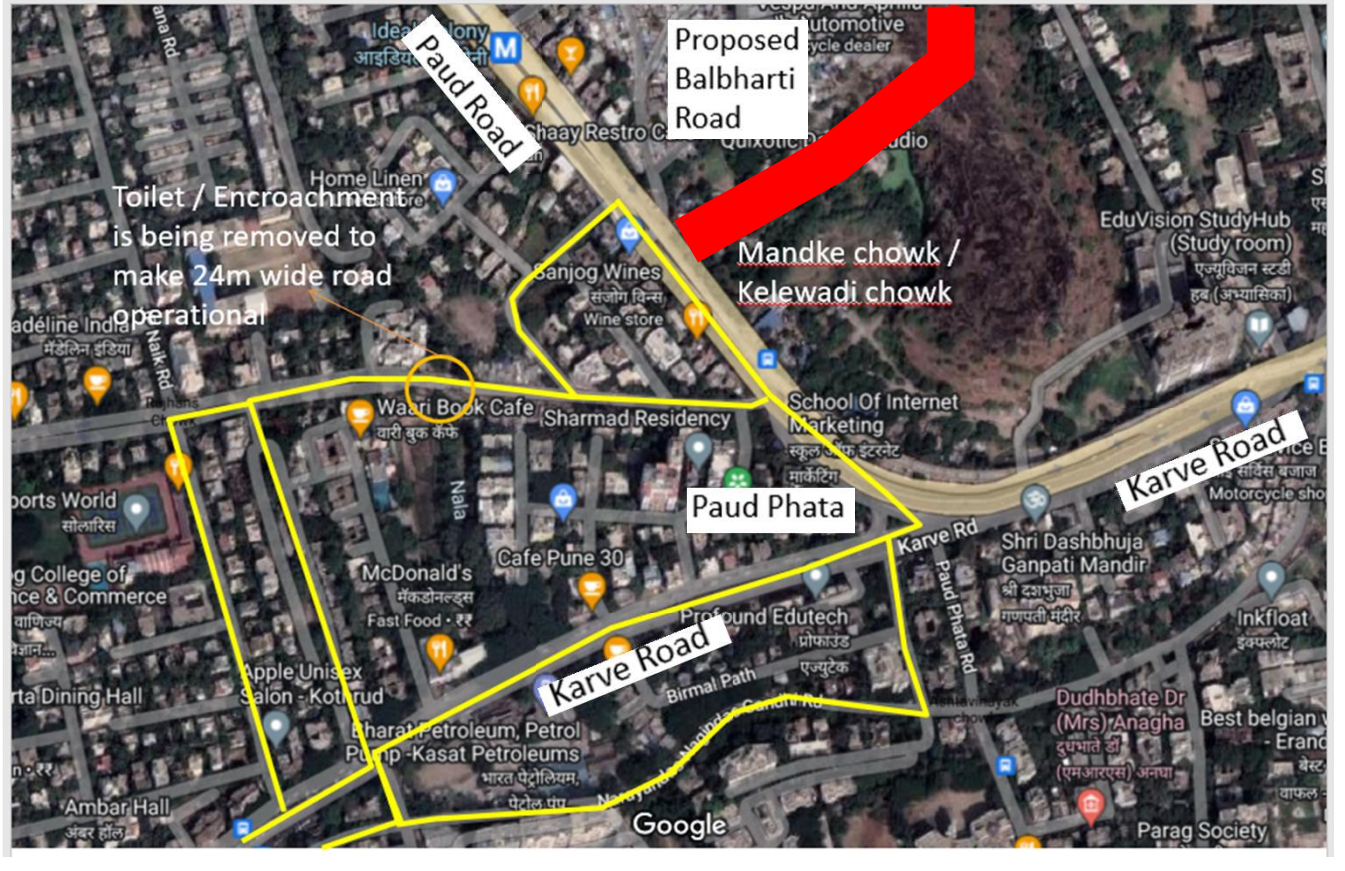


This mapping shows

- *The shift of current through traffic from Law College Road to the BBPP Road.*
- *Through traffic from Paud Phata to Shivajinagar currently using Law College Road and BMCC Road.*
- *The traffic currently on ARAI Road.*

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

MANDKE CHOWK AND PAUD PHATA JUNCTION AFTER BALBHARTI ROAD



Traffic measures to be undertaken to ensure smooth traffic flow and effective dispersal:

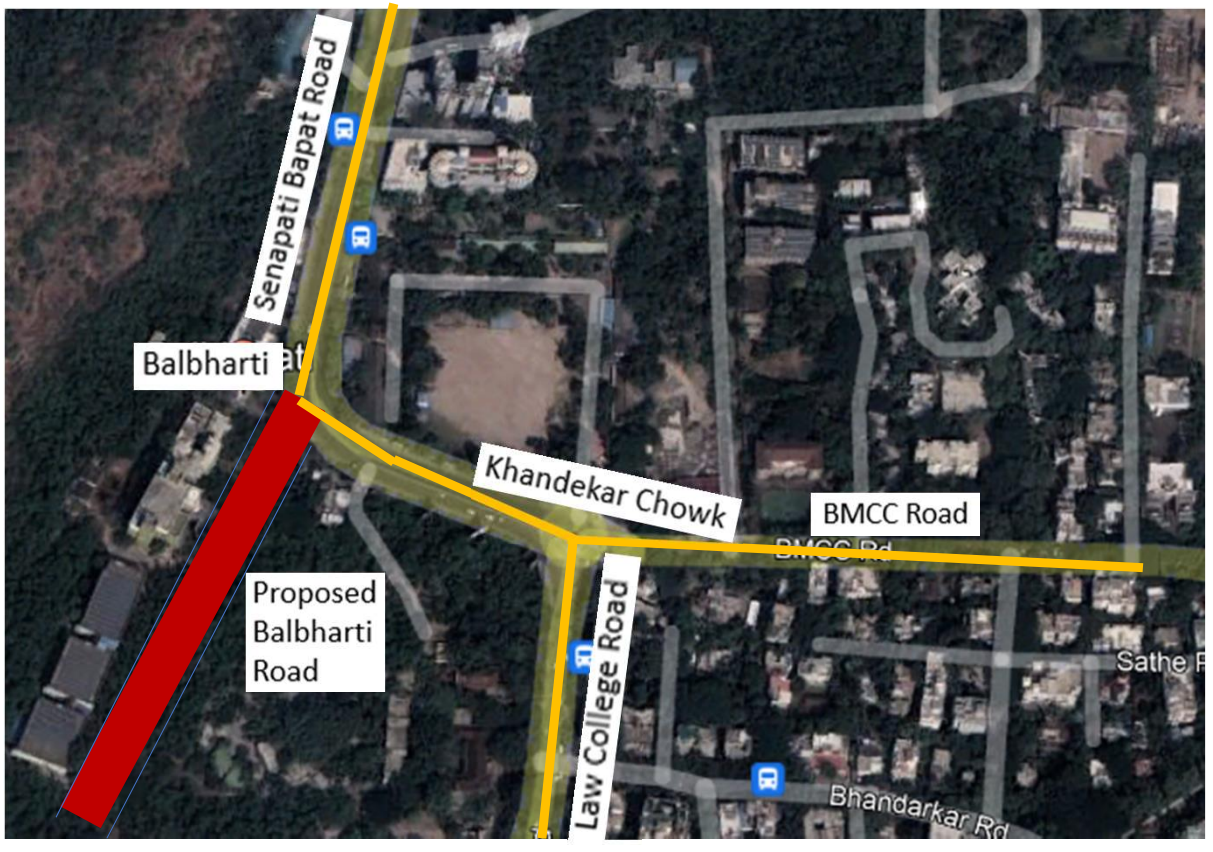
- From Mandke chowk towards Paud road traffic will turn right.
- Traffic towards Karve Nagar side will have 24m wide Ideal Colony road which can be accessed from lane in front of Mandke chowk.
- Buses and heavy vehicles towards Karve Nagar will use Paud Phata chowk.

The Junction and Curvature design can be done as part of detail engineering.

Based on safety and traffic aspects decision for grade separator can be taken.

Q12. WHAT IS THE TRAFFIC IMPACT OF BBPP ROAD ON SURROUNDING ROADS ?

BALBHARTI JUNCTION AFTER BALBHARTI ROAD



Traffic measures to be undertaken to ensure smooth traffic flow and effective dispersal:

- All Traffic from University side and Model Colony Side towards Paud Phata will use the Balbharti Road.
- The Gradient, Junction and Curvature design can be done as part of detail engineering. Based on safety and traffic aspects decision for grade separator can be taken.
- Traffic towards Deccan Circle and Deccan Gymkhana area will use the Law College Road, BMCC Road, Bhandarkar Road, Prabhat Road and internal roads.
- The Through Traffic going towards University/Aundh/Baner will go through Senapati Bapat Marg.
- The Through Traffic going towards Shivaji Nagar will go through Model Colony Road and BMCC Road.

Q13. CAN THE PROPOSED ROAD BE AVOIDED BY INCREASING THE NUMBER OF BUSES ON LAW COLLEGE ROAD ?

The portion of Law college road from Prabhat road chowk to Athawale chowk is 3 lanes undivided 2 way road with width varying from 9.68m to 12.5m leading to bottleneck. This bottleneck makes LCR prone to frequent delays and congestion. 8 lanes intersect this narrowest portion of law college road causing additional traffic congestion. So there is limitation in adding new buses on law college road.

- The PMPML can add more routes and increase the frequency of buses on their part.
- However, currently the **V/C Ratio of narrowest portion of Law College Road is 0.81** with LOS D
- Increasing bus trips on this roads will further increase the V/C ratio lowering the Level of Service.
- The Karve Road which is six lanes has a higher capacity than Law College Road and can take more buses
- Once the BBPP road is made, the through-traffic on Law College Road will be diverted to the BBPP Road.
- At that time **V/c ratio of Law College Road would be 0.18** with LOS B**.**
- **This would present the right opportunity to increase the number of buses on Law College Road.**
- Roads are an important part of the transportation infrastructure of a city.
- **No Public Transportation can work efficiently without a good road network.**

Q14. WHAT ABOUT THE CMP'S VISION AND TARGET OF A PEDESTRIAN FRIENDLY CITY ?

COMPREHENSIVE MOBILITY PLAN (CMP) - 2018

- In the 2008 CMP for Pune, the HCMTR was recommended in the same alignment as the proposed BBPP Road.
- After every five to ten years the CMP needs to be revised since traffic is a dynamic sector.
- In 2018, the PMRDA prepared a CMP for the entire urbanized region of Pune.
- CMP -2018 - Chapter 9 – Page 45/46 clearly mentions the BBPP Road as an important link in the city's transportation network.
- The Proposed BBPP road will also have the Neo-Metro and the HCMTR going over it.
- **Hence this road is not only beneficial for private vehicles but also for Public Transportation and Non-Motorised Transport (NMT) that is Walking and Cycling.**

Q14. WHAT ABOUT THE CMP'S VISION AND TARGET OF A PEDESTRIAN FRIENDLY CITY ?

RECOMMENDATIONS OF CMP-2018 FOR PROMOTING THE USE OF PUBLIC TRANSPORT :

1. Road Network Completion

- The road network as per the Development Plan needs to be completed.
- The missing links need to be connected.
- Roads mentioned in the development plan need to be made.
- The Proposed BBPP Road is one of the many missing links.
- Developing this road is explicitly mentioned as a necessary link in the CMP (Chapter 9, page 45, 46)
- **This network completion is not only beneficial for personal vehicles but also for the reach and efficiency of public transport.**

Q14. WHAT ABOUT THE CMP'S VISION AND TARGET OF A PEDESTRIAN FRIENDLY CITY ?

2. Improving the Public Transport Infrastructure.

- The frequency of PMPML buses should be improved.
- Projects like Metro and BRTS should be implemented.

3. Restraining Measures for Private Vehicles.

- Pollution Charges.
- Parking Charges based on size of vehicles.
- Area Licensing – differentiating between vehicles of local area and thoroughfare.
- Congestion Charges.
- Restricting Access to Private vehicles by adopting odd / even registration number plates system.

All these measures have to be undertaken simultaneously and must be in sync with each other.

Q14. WHAT ABOUT THE CMP'S VISION AND TARGET OF A PEDESTRIAN FRIENDLY CITY ?

- CMP has projected that the population of Pune City will increase to 1.26 Cr till 2038 from 78 lacs in 2018, which means that the population in expected to double. (Chapter 8 - Page 28,29,30)

- CMP has worked out two scenarios - Business as Usual Scenario and Sustainable Transport Scenario

- **CMP has recommended the Sustainable Transport scenario. In order to achieve this, the CMP has recommended about 196 kms of Metro network in the city along with HCMTR and 2 Outer Ring roads.**

- **Even after doing this, the predicted modal shift is 40% towards Public transport and 10% more modal shift can be brought by introducing Private vehicular restraining measures.**

- **Still about 50% of the Motorised trips will happen by private modes. As per best practices 5km of road network is required for 1 Sq.km area. Pune (520 Sq.km area with only 1673km of road network) is already deficient in terms of road network. Its deficiency needs to be recovered by completing the missing links.**
- No new roads can be added but the only possibility is to complete the road network as per the Development Plan approved by PMC. Which means acquiring and developing the missing links and widening the existing roads till permitted DP widths.
- As per recent study done by PMC, there are over 390 missing links of roads that have an ROW of above 18 m. Therefore, from the city's point of view, CMP recommends simultaneous working on all 3 sectors, i.e

1. Completing the incomplete road network
2. Substantial improvement in Public Transport and NMT
3. Introduction of Private Vehicle Restraining Measures.

Q15. HAVE YOU EXPLORED OTHER WAYS OF DECONGESTING LAW COLLEGE ROAD ?

1. **Widening of the Law College road.**

   This will just add one lane, marginally reducing traffic, which wouldn't provide a long-term solution.

2. Elevated Road on Law College Road

This is extremely difficult due to the restricted width of Law College Road, land use abutting the road and the flyover and Metro at Nalstop Chowk.

3. BRTS (Bus Rapid Transit System) or DBL (Dedicated Bus Lane) on Law College Rd.

- The width of the road is not enough to reserve 2 bus lanes in case of Dedicated Bus Lane or cordon off 2 bus lanes and space for bus stops in case of BRTS.
- Also, BRTS works efficiently only if it's designed as a citywide network eg: Ahmedabad.
- Road Network is very important for a BRTS to work efficiently.
- And once the BBPP Road is constructed, the BBPP road can have a Dedicated Bus Lane.

Q15. HAVE YOU EXPLORED OTHER WAYS OF DECONGESTING CITY ROADS around LCR road ?

1. Proposed METRO (Vanaj to Ramwadi and Shivaji Nagar to Hinjewadi):

Proposed road is a important arterial connection between two underdevelopment METRO lines. Rapid Population growth and vehicular growth of Pune requires METRO and efficient bus transport to handle the ever growing load of vehicles on the roads. METRO does not reduce the importance and necessity of roads. The success of Pune METRO lies in absorbing the future growth in Public transport limiting the congestion level on roads. Roads are not enough for current population and we cannot stop the population and developmental growth hence meeting the deficiencies in road network is also essential for success of METRO.

2. The Neo Metro / HCMTR can be proposed on the same BBPP Road alignment.

Neo METRO (Dedicated Elevated High Capacity Electric Bus service) is an important project proposed to be developed in Pune. With the current and estimated level of service of proposed road, a dedicated public transport lane can be created on this road as an alternative which will considerably save the cost and hence prove to be economic to its users.

3. Pashan-Kothrud and Pashan S B Road Tunnels:

Two tunnels have been proposed in the Pune Development Plan viz. the Pashan - Kothrud Tunnel and the Pashan - SB road Tunnel. These will together help in decongesting Chandani Chowk and Pune University junctions by providing a sufficient alternative for local traffic , avoiding its collusion with regional / by passable traffic thereby making the entire network efficient for future growth.

Q16. WHAT WILL BE THE TRAVEL TIME SAVINGS AFTER THE BBPP ROAD

TRAVEL TIME SAVINGS :

- Currently different modes take different amounts of time to travel from Law College Road and adjoining roads at different times of the day.

- On an average in peak hour and from speed delay analysis, buses take over 20-30 minutes, cars take 15-20 minutes and two-wheelers take around 10 minutes to travel from Law College Road.

- As per the model, the travel time required from BBPP Road and the decongested Law College Road (post construction of BBPP Road) will both come down to about 5 mins.

ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

The existing traffic volume count (PCU) on Senapati Bapat Road, Law College Road, Karve Road, Paud Road:

Traffic data collection through **videographic survey** conducted on **6th February 2023** on the below mentioned locations:

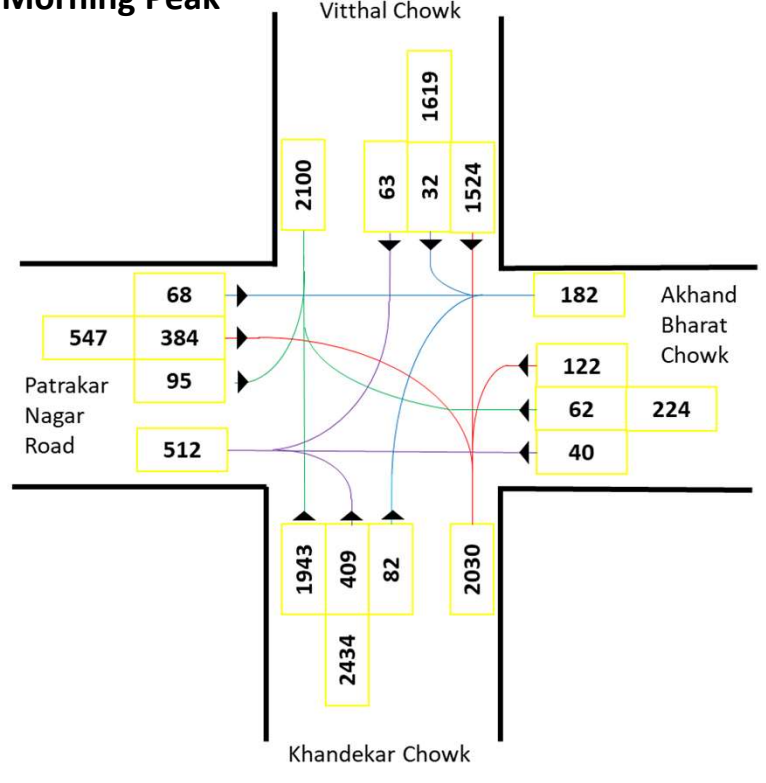
1. Maharshi Dadhichi Rushi Chowk
2. Khandekar Chowk
3. Athawale Chowk
4. Nalstop Chowk - Abhinav Chowk
5. SNDT Road Junction
6. Paud Phata
7. Mandke Chowk

ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

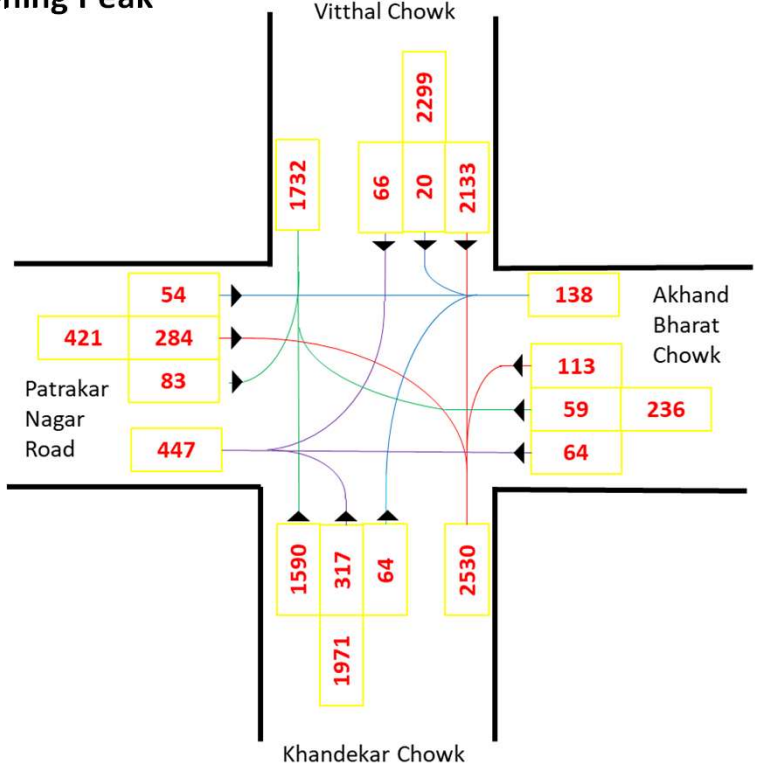
Maharshi Dadhichi Rushi Chowk

Turning movement diagram

Morning Peak



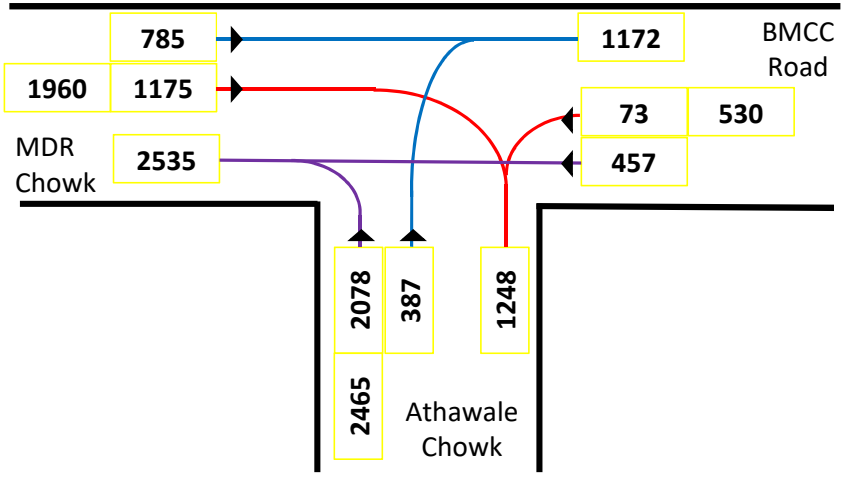
Evening Peak



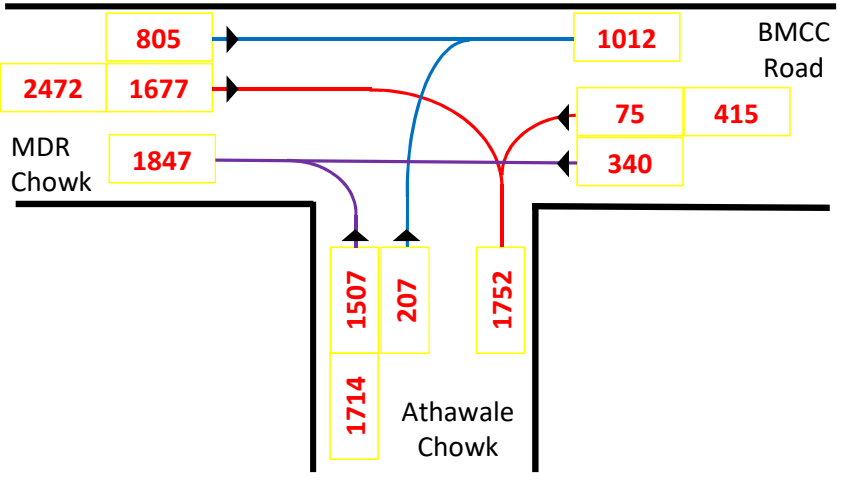
ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

Khandekar Chowk Turning movement diagram

Morning Peak



Evening Peak

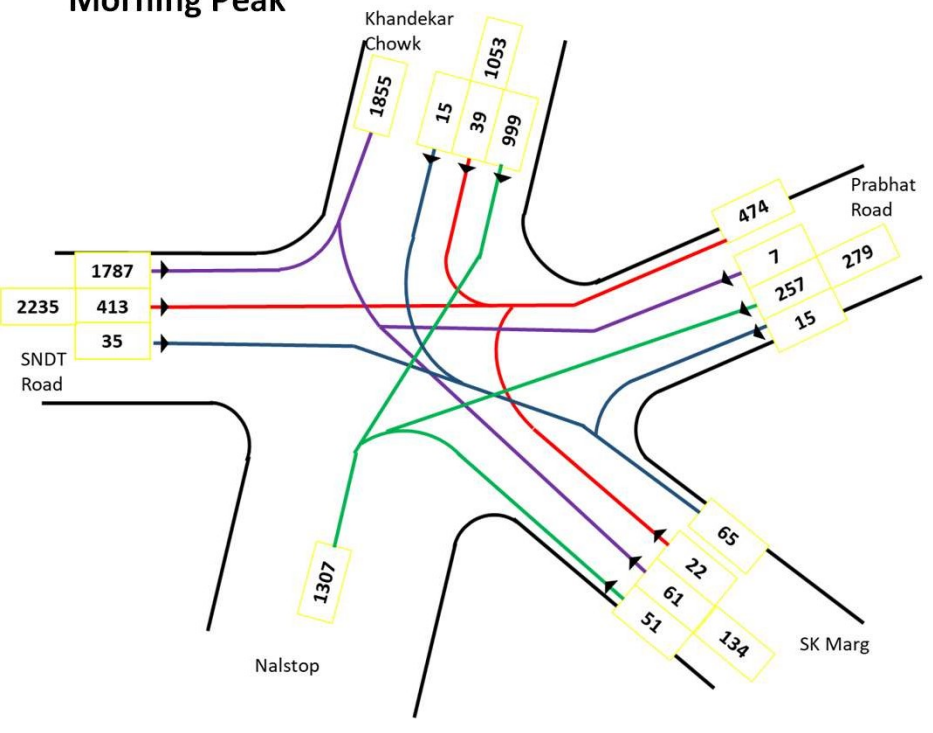


ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

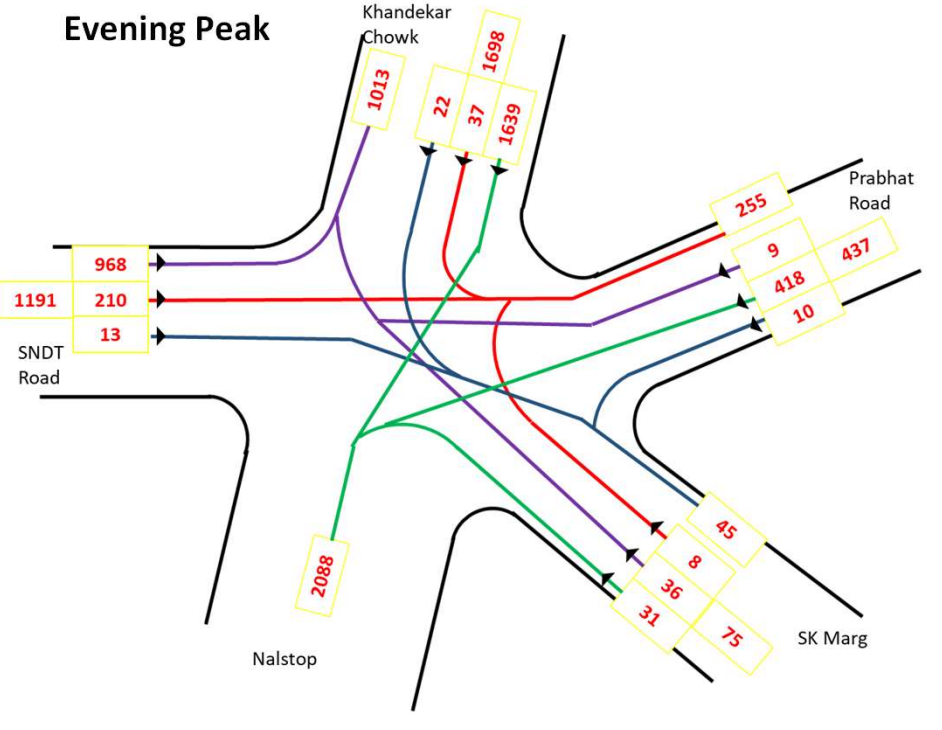
Athawale Chowk

Turning movement diagram

Morning Peak

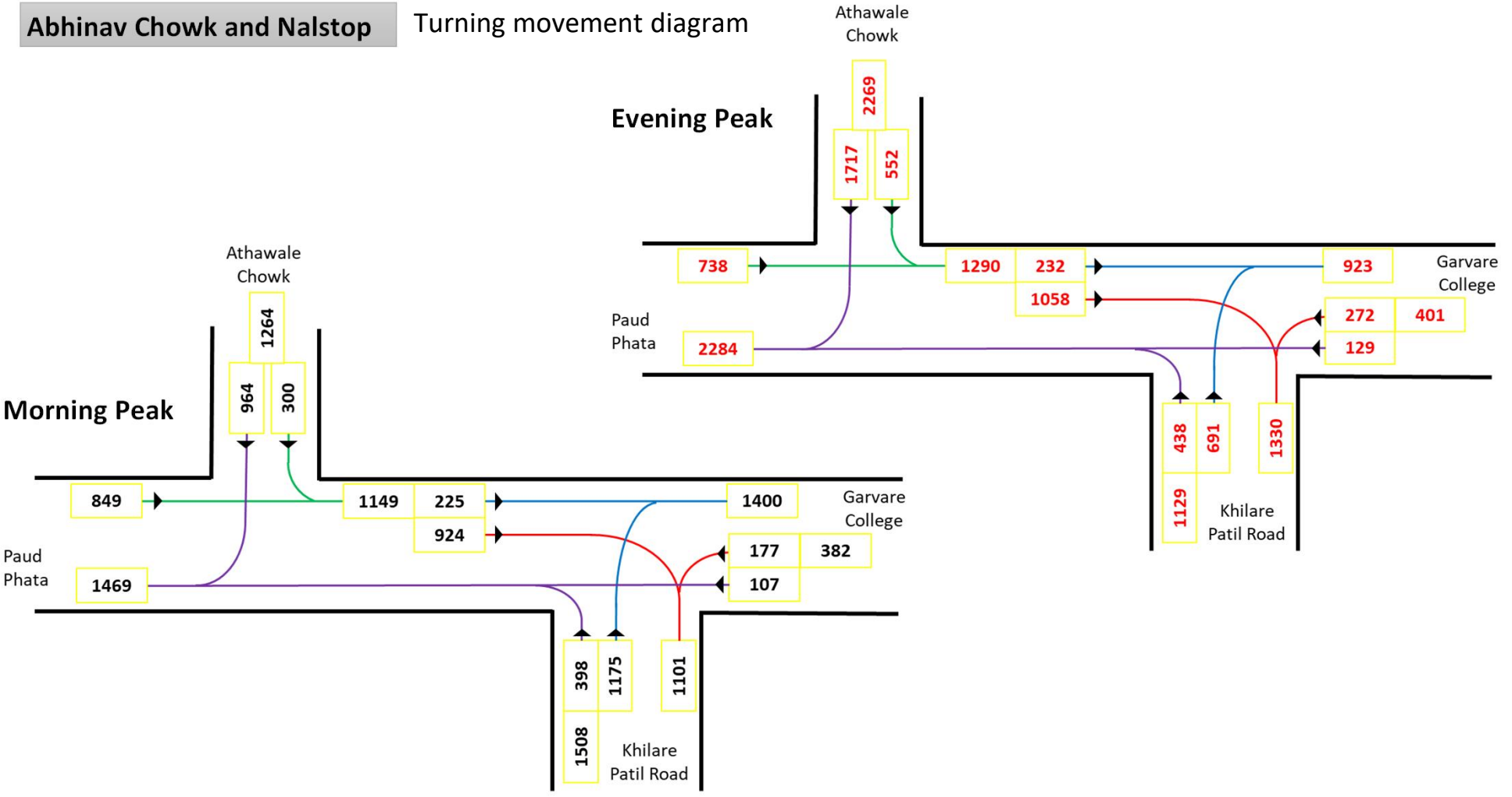


Evening Peak



ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

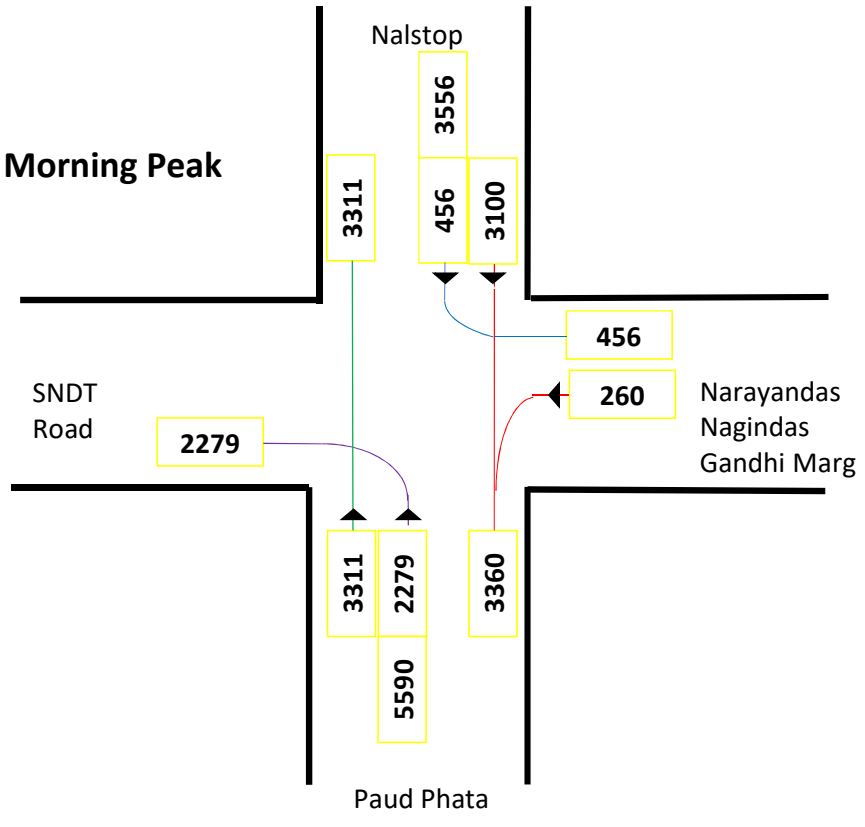
Abhinav Chowk and Nalstop Turning movement diagram

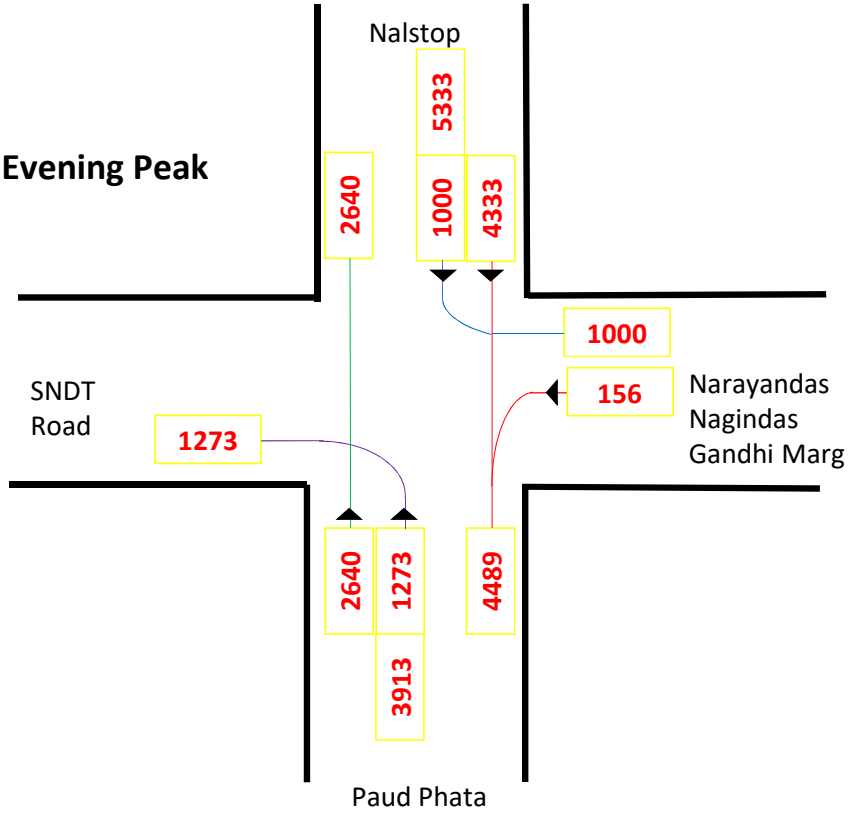


ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

SNDT Road Junction

Turning movement diagram

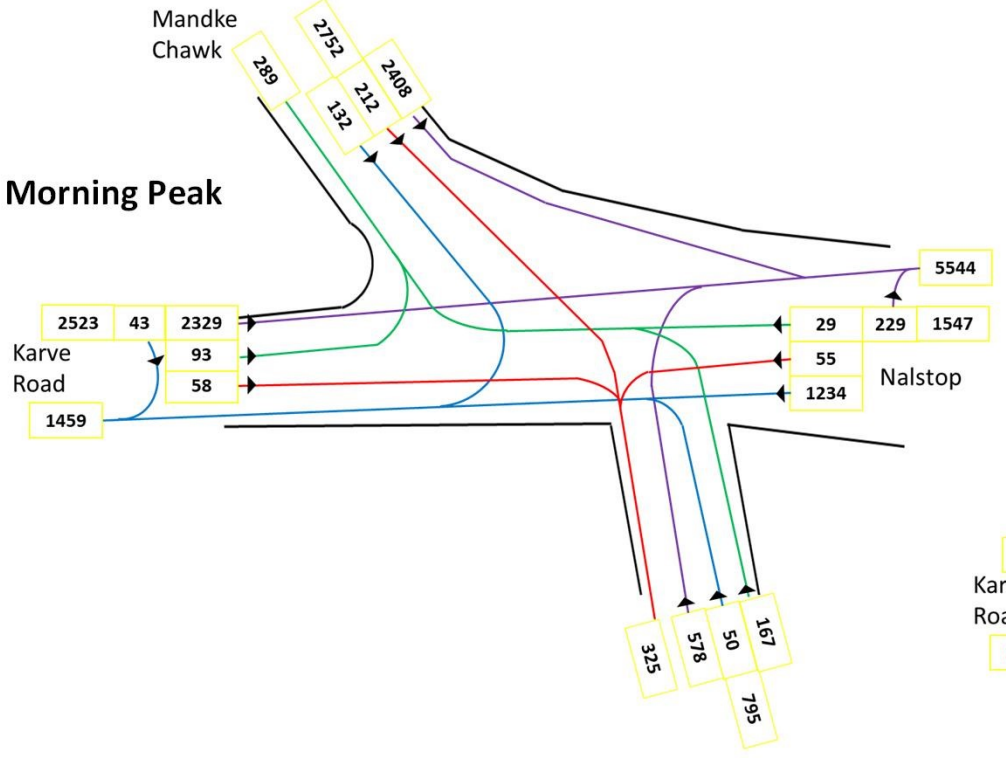


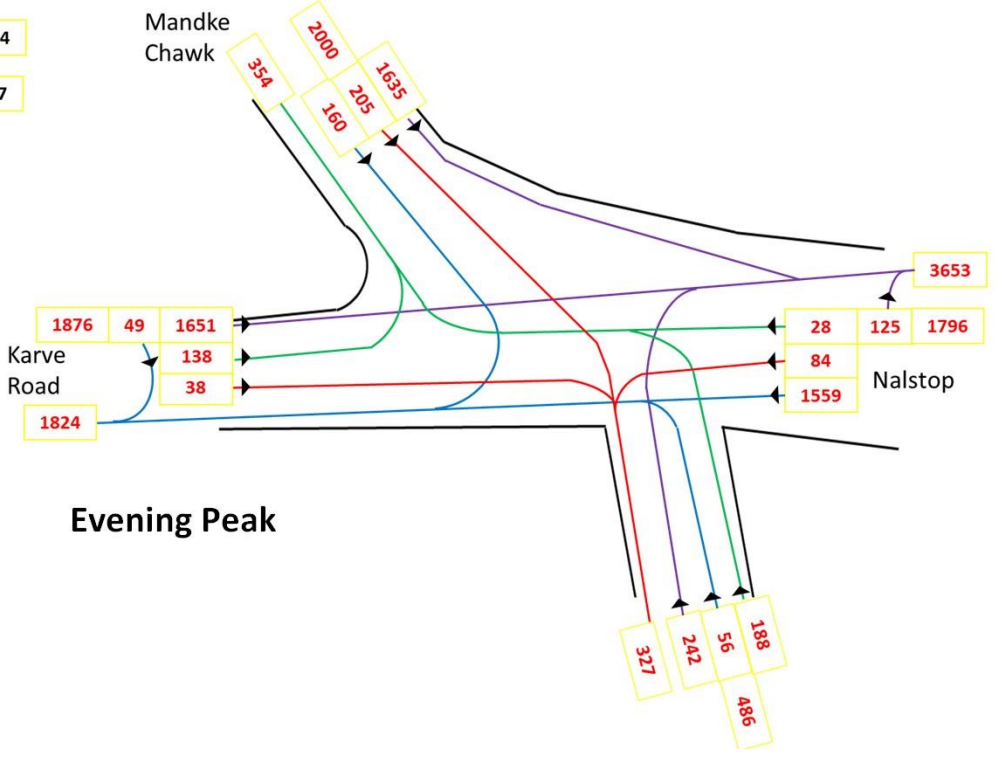


ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

Paud Phata Junction

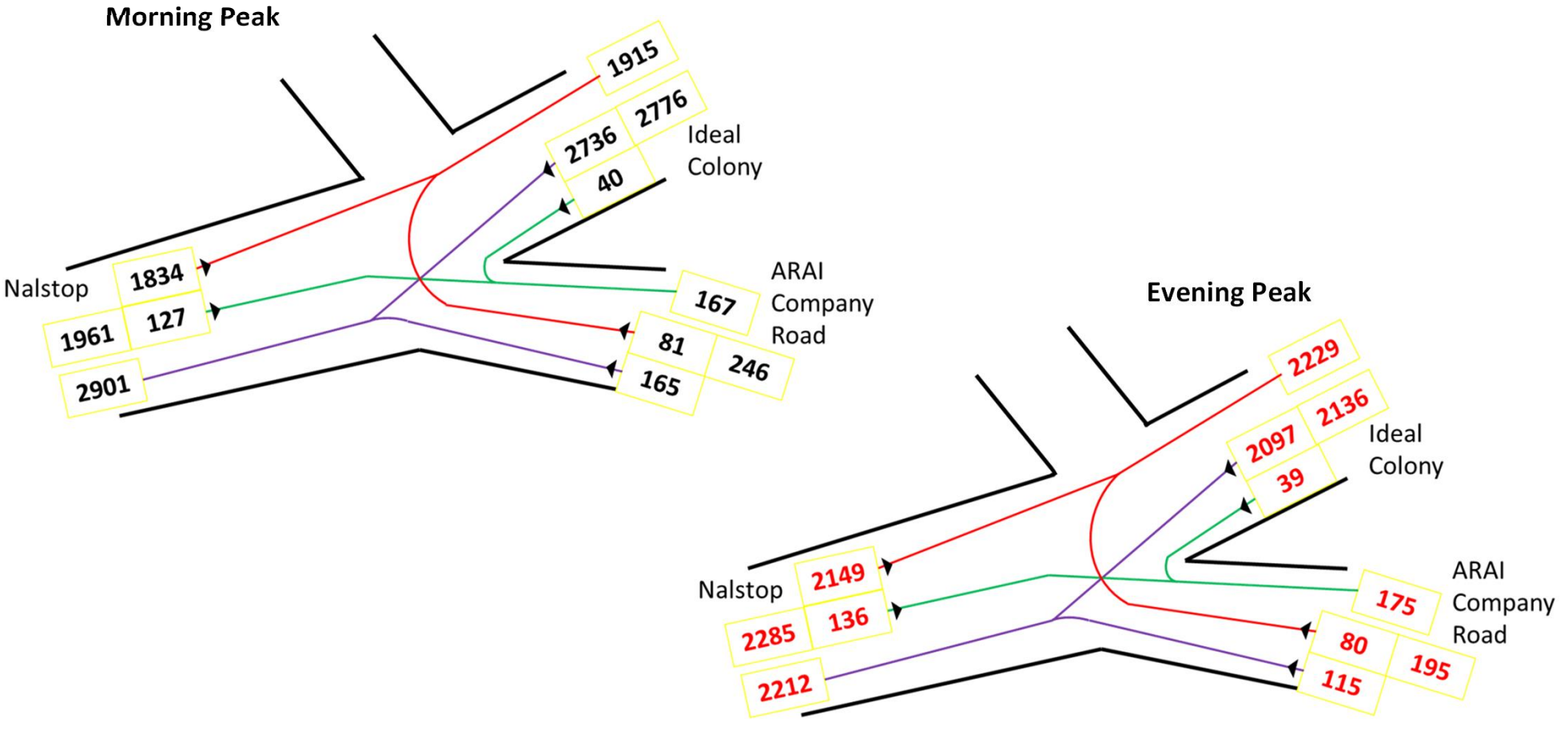
Turning movement diagram



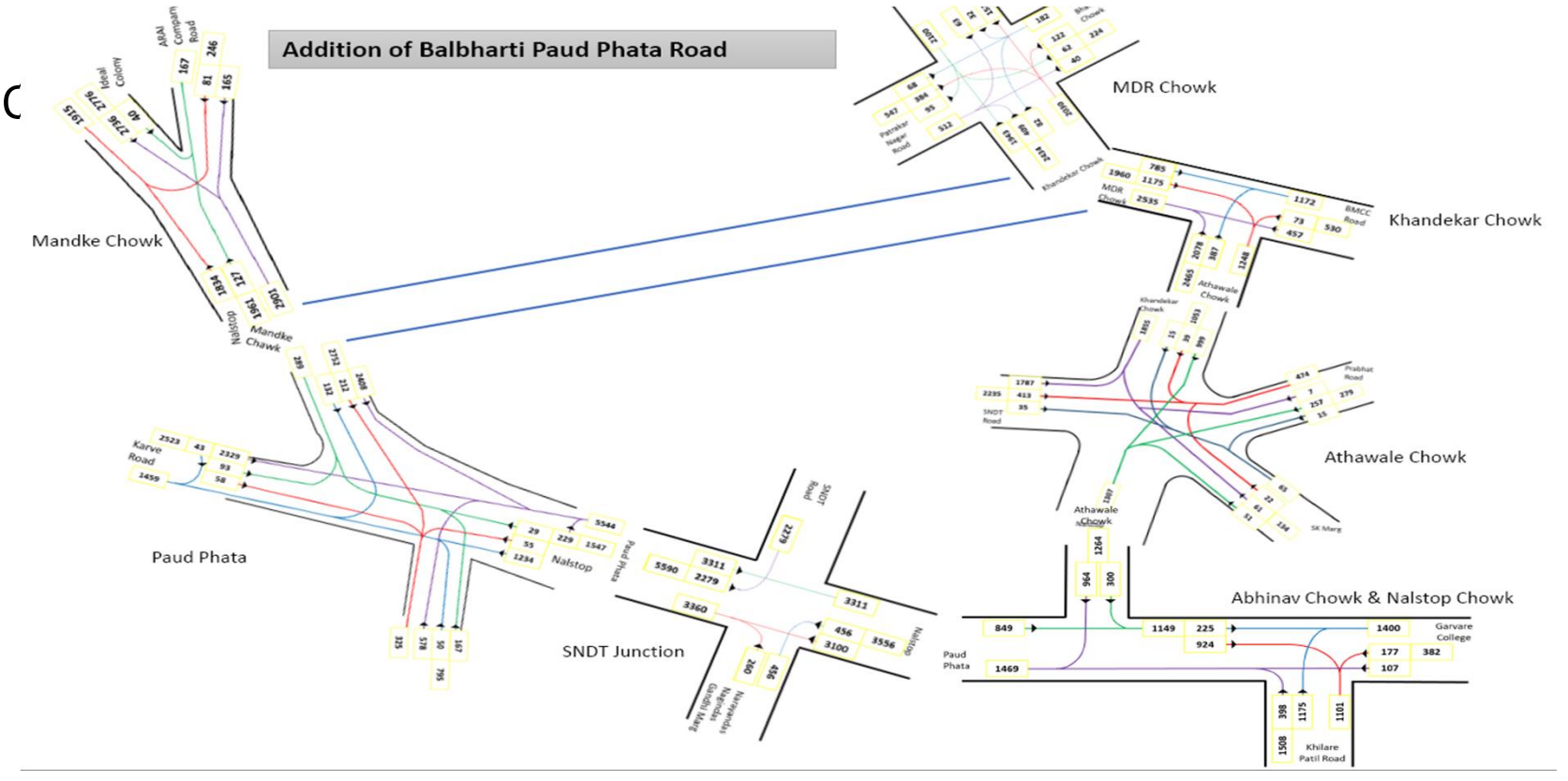


ANNEXURE - 1 : VIDEOGRAPHIC SURVEY 2023 - RESULTS

Mandke chowk Turning movement diagram



BBPP Rc



Proposed road will reduce the distance, travel time ,5 junctions can be avoided. Passengers travelling from SB road (Pune University, Aundh, Baner, Pashan, PCMC) and BMCC road (Deccan, Shivajinagar) will sihift to the proposed road

BBPP Road -

- Without BBPP road the Level of Service of Law college road and adjoining roads (Karve road, internal roads, canal roads etc) will

drop down from D to E in 2026 and F till 2050.

	Morning Peak			Evening Peak		
Year	Count (PCUs/hr)	v/c Ratio	LOS	Count (PCUs/hr)	v/c Ratio	LOS
2023	**2908**	0.81	D	**2711**	0.75	C
2024	2966	0.82	D	2765	0.77	D
2025	3025	0.84	D	2821	0.78	D
2026	3086	0.86	E	2877	0.80	D
2027	3148	0.87	E	2934	0.82	D
2028	3211	0.89	E	2993	0.83	D
2029	3259	0.91	E	3038	0.84	D
2030	3308	0.92	E	3084	0.86	E
2031	3357	0.93	E	3130	0.87	E
2032	3408	0.95	E	3177	0.88	E
2033	3459	0.96	E	3224	0.90	E
2034	3511	0.98	E	3273	0.91	E
2035	3563	0.99	E	3322	0.92	E
2036	3617	1.00	F	3372	0.94	E
2037	3671	1.02	F	3422	0.95	E
2038	3726	1.04	F	3474	0.96	E
2039	3782	1.05	F	3526	0.98	E
2040	3839	1.07	F	3579	0.99	E
2041	3896	1.08	F	3632	1.01	F
2042	3955	1.10	F	3687	1.02	F
2043	4014	1.12	F	3742	1.04	F
2044	4074	1.13	F	3798	1.06	F
2045	4135	1.15	F	3855	1.07	F
2046	4197	1.17	F	3913	1.09	F
2047	4260	1.18	F	3972	1.10	F
2048	4324	1.20	F	4031	1.12	F
2049	4389	1.22	F	4092	1.14	F
2050	4455	1.24	F	4153	1.15	F

BBPP Road -

- With BBPP road the Level of Service of Law college road and adjoining roads (Karve road, internal roads, canal roads etc) will

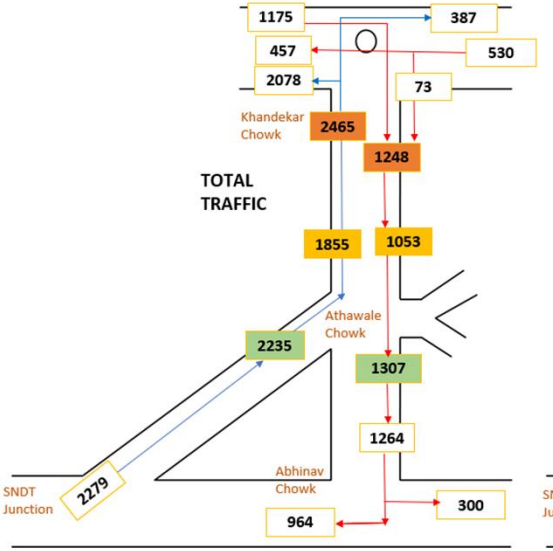
improve from from D to B till 2050.

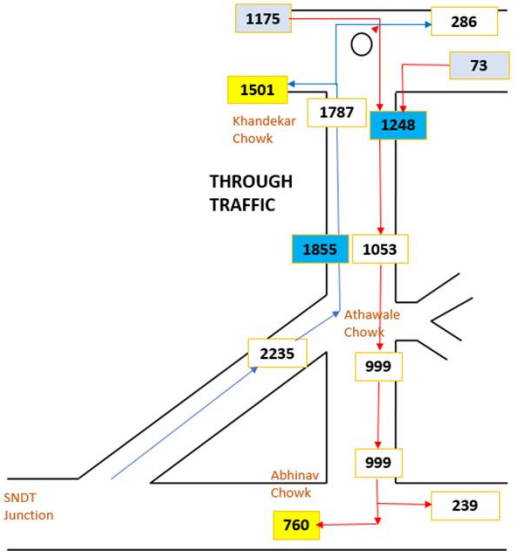
	Morning Peak			Evening Peak		
Year	Count (PCUs/hr)	v/c Ratio	LOS	Count (PCUs/hr)	v/c Ratio	LOS
2023	**2908**	0.81	D	**2711**	0.75	C
2024	2966	0.82	D	2765	0.77	D
***2025**	**647**	0.18	B	**614**	0.17	B
2026	**660**	0.18	B	**626**	0.17	B
2027	**673**	0.19	B	**639**	0.18	B
2028	**687**	0.19	B	**652**	0.18	B
2029	**697**	0.19	B	**661**	0.18	B
2030	**707**	0.20	B	**671**	0.19	B
2031	**718**	0.20	B	**681**	0.19	B
2032	**729**	0.20	B	**692**	0.19	B
2033	**740**	0.21	B	**702**	0.19	B
2034	**751**	0.21	B	**712**	0.20	B
2035	**762**	0.21	B	**723**	0.20	B
2036	**773**	0.21	B	**734**	0.20	B
2037	**785**	0.22	B	**745**	0.21	B
2038	**797**	0.22	B	**756**	0.21	B
2039	**809**	0.22	B	**768**	0.21	B
2040	**821**	0.23	B	**779**	**0.22**	B
2041	**833**	0.23	B	**791**	0.22	B
2042	**846**	0.23	B	**803**	0.22	B
2043	**858**	0.24	B	**815**	0.23	B
2044	**871**	0.24	B	**827**	0.23	B
2045	**884**	0.25	B	**839**	0.23	B
2046	**898**	0.25	B	**852**	0.24	B
2047	**911**	0.25	B	**865**	0.24	B
2048	**925**	0.26	B	**878**	0.24	B
2049	**939**	0.26	B	**891**	0.25	B
2050	**953**	0.26	B	**904**	0.25	B

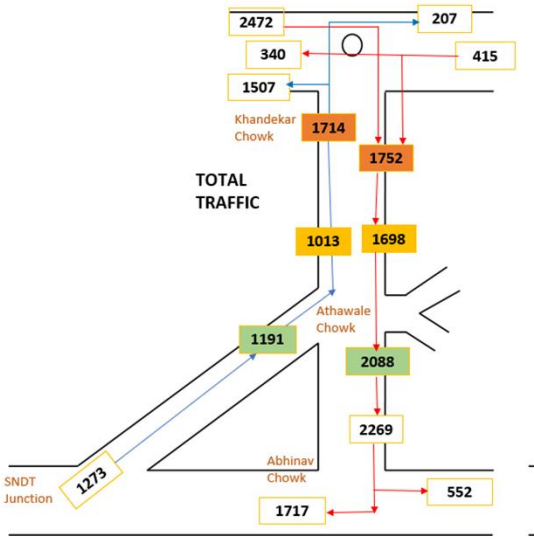
BBPP road

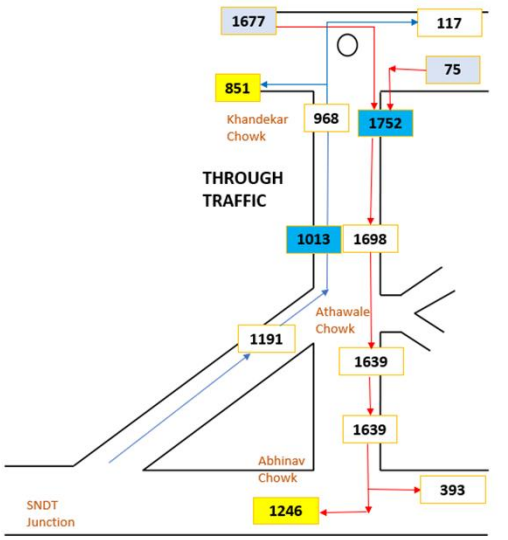
Figure 10-9-1 Influenced Roads by proposed BBPP Road

There is a high percentage of through traffic that uses law college road and adjoining roads like canal road, kamala Nehru park road, BMCC, Bhandarkar road, Prabhat road etc to travel from Kothrud Karve nagar side towards Aundh and Deccan side. All these roads will be impacted by proposed BBPP road and situation will improve.









BBPP road

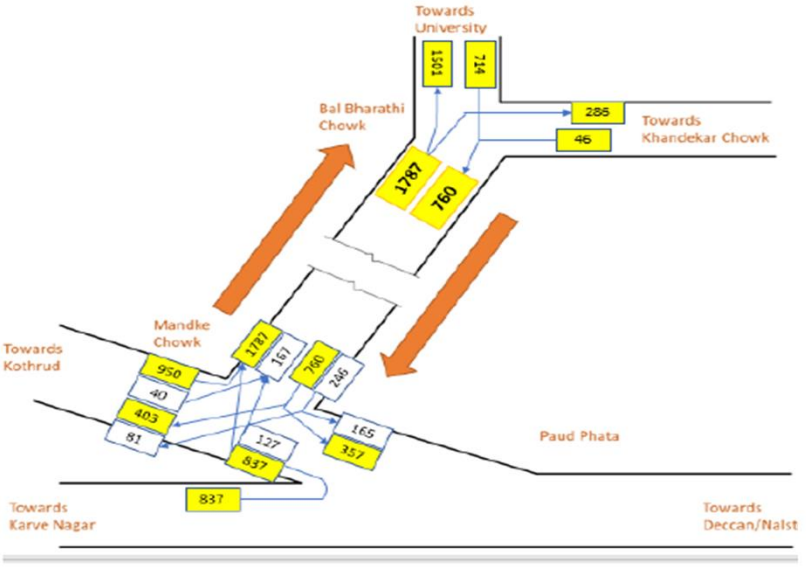


Figure 10-4 Mapping of Morning Peak Hour PCU - BBPP Road

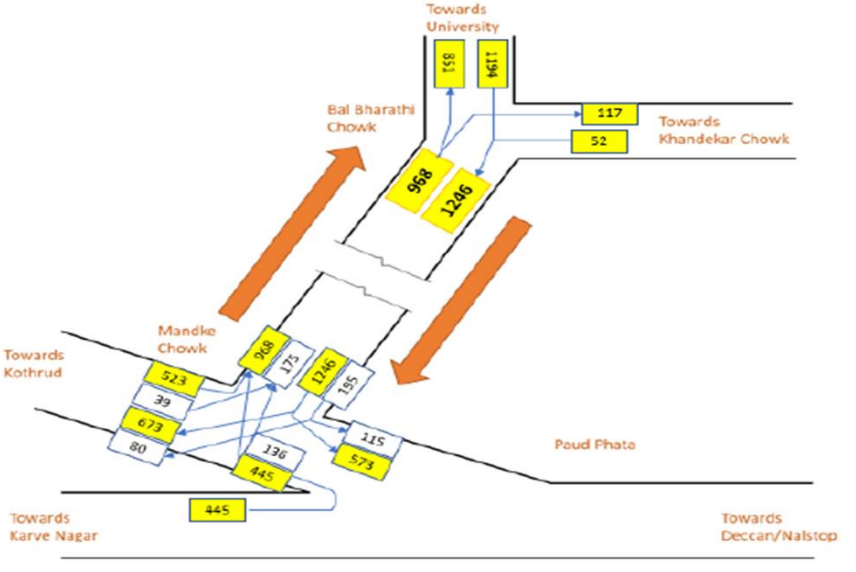


Figure 10-5 Mapping of Evening Peak Hour PCU - BBPP Road

- BBPP road will carry around 2000 to 2500 PCU/hr once operational and the figures will rise over 3000 PCU / hr in coming 5 years.
- This road is 30m wide and till 2050 it will operate at Level of Service C which is good and the extra space can be dedicated for Public Transport (HCMTR/neo METRO/bus lane) and NMT (Cycle Track and Footpath)

THANK YOU