

# **Mitigating Traffic Congestion of Chandigarh - Nayagaon Stretch**

## **(A case study)**

### **Team Members:**

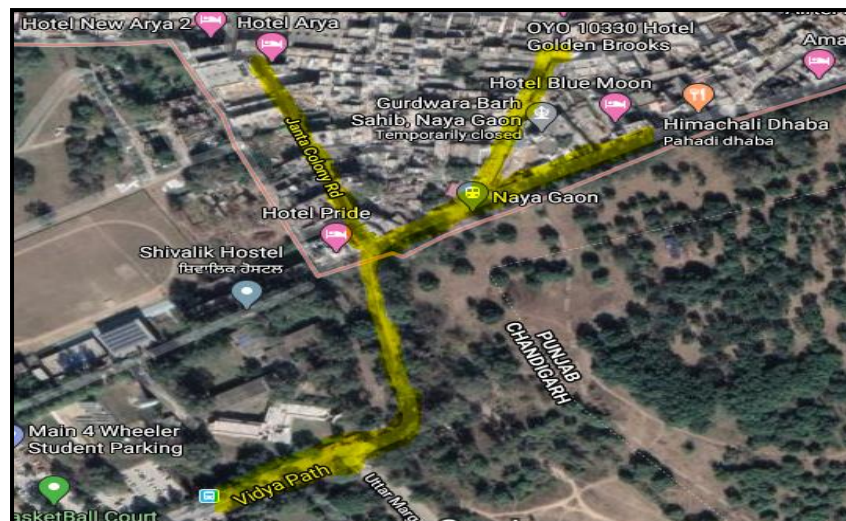
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## Introduction

This study aims at suggesting some solutions to the increasing traffic congestion by carrying out traffic volume studies in Naya Gaon, Punjab which is just at the outskirts of Chandigarh. Naya Gaon has seen a tremendous rise in population over the last few decades. Also, due to its vicinity of Chandigarh, many people undergo round trips from Naya Gaon to Chandigarh and vice versa every day. The number of people started settling in Naya Gaon due to affordable housing as compared to Chandigarh. Today it has become a conglomerate of people from states of Punjab, Haryana, Himachal Pradesh, U.P., Bihar as well as the North Eastern States.

## Need of the Study

Naya Gaon faces major traffic congestions arising out of various problems such as the four-lane road Vidhya Path converges into a much narrower two-lane road and is almost fully choked during the morning and evening peak hours. This lead to increase in accidents over the years. The lack of a traffic light and improper management of traffic has made the matter worst over the years. Another thing that adds to the congestion problem is that there is no proper cycle track and pedestrians and cyclists are forced to move along the normal traffic and that too in a two-lane road. Various encroachments and street vendors further reduce the road thickness to almost half of its original width which further leads to congestion. Thus, in this study, an attempt has been made to study the causes of problems leading to congestion and proposing mitigating measures.



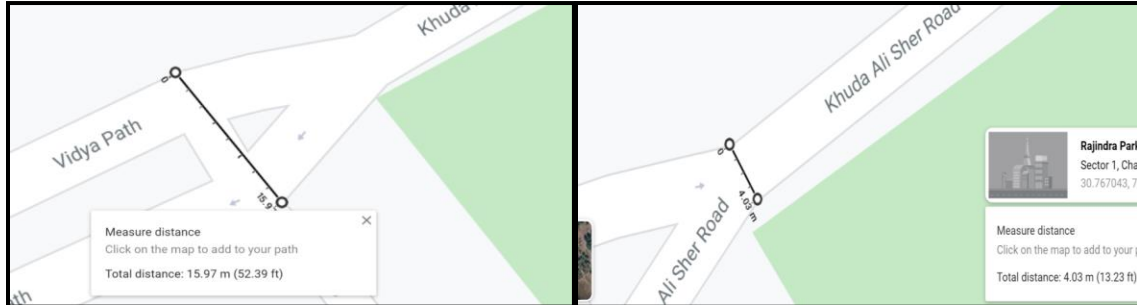
## Possible reasons of traffic congestion:

### 1. A tremendous increase in Population

Number of people have settled here due to its proximity to Chandigarh and lower costs of accommodations. The growth rate of population for the decade 2001-2011 was 24.3% per annum which was extremely high as compared to Chandigarh which was 1.50%.

## 2. Merging of four-lane Vidya Path into a two-lane road

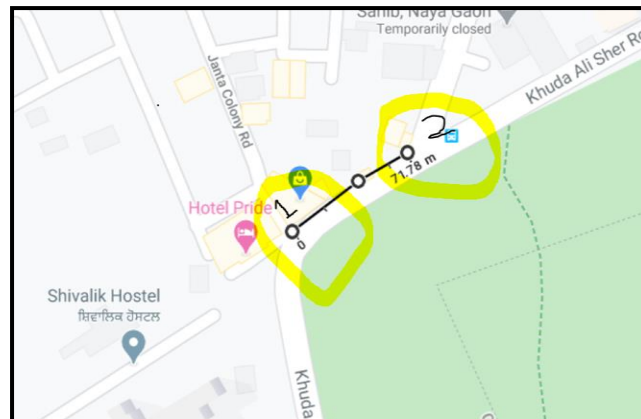
The traffic from Vidya Path which is a four-lane road gets merged into a two-lane Khuda Ali Sher road. Vidhya Path, having an approximate width of about 16m, narrows down to a mere 4m road leading to severe congestion.



## 3. Intersections

### 3.1. Janta Colony and Khuda Ali Sher Road (Pt 1)

- A major amount of traffic comes from the Janta Colony road which is only about 3.5m wide with buildings and shops on both sides, which causes jamming conditions on the road.
- Also the right-turning traffic from the Janta Colony road usually faces a lot of problems due to heavy load. Due to this, the right-turning traffic directly enters this stretch and then the whole of the intersection chokes down. This leads to traffic jams and long queues of traffic are formed on every side.



### 3.2. Shiv Mandir Road and Khuda Ali Sher Road (Pt 2)

- This intersection is almost at a distance of about 70m from the 1<sup>st</sup> intersection.
- The non-availability of parking and absence of shoulders increases the congestion on this road.

## 4. Absence of proper cycle tracks

- Although, the vidhya path (upto Chandigarh barrier) has cycle tracks adjacent to the carriageway on both sides with an approximate width of 2m, while the road approaches Naya Gaon; the four-lane road reduces to a two-lane road and that too without a median.

- Another problem is that there is no cycle path or footpath for cyclists and pedestrians. So, they are forced to either use the unpaved shoulders or to come on the carriageway.

### **5. Presence of religious places nearby**

Due to the presence of Gurudwara and Shiv Mandir along this stretch, which further add to the increasing congestion on roads.

### **6. Street Vendors on the roadside and Autorikshaws stopping at mid roads**

- The street vendors occupy the carriageway and people stop their vehicles on road only, which causes choking conditions during the evening peak hours.
- The autorickshaws stops anywhere for dropping and carrying passengers. This blocks the ongoing traffic on the road as there is no proper median on the road and this leads to increased congestion and delays in traffic.

### **7. Absence of a proper drainage system**

As there is a lack of proper drainage facilities in Naya Gaon, the city finds itself partially submerged in water during rainfall. The unpaved shoulders become muddy and hence the pedestrians and the cyclists are forced to come on the road. The roads get flooded with water which hampers the movement of traffic in the region which in turn causes traffic jams and increases congestion.



### **8. Lack of paved shoulders and median**

Since there is no proper median in this stretch, people start overtaking from the wrong lane and also overtake through the unpaved shoulders. Due to this, there is no space left for pedestrians and cyclists and they have to use road. This further worsens the situation.

## **Methods of data Collection**

### **1. Google Images**

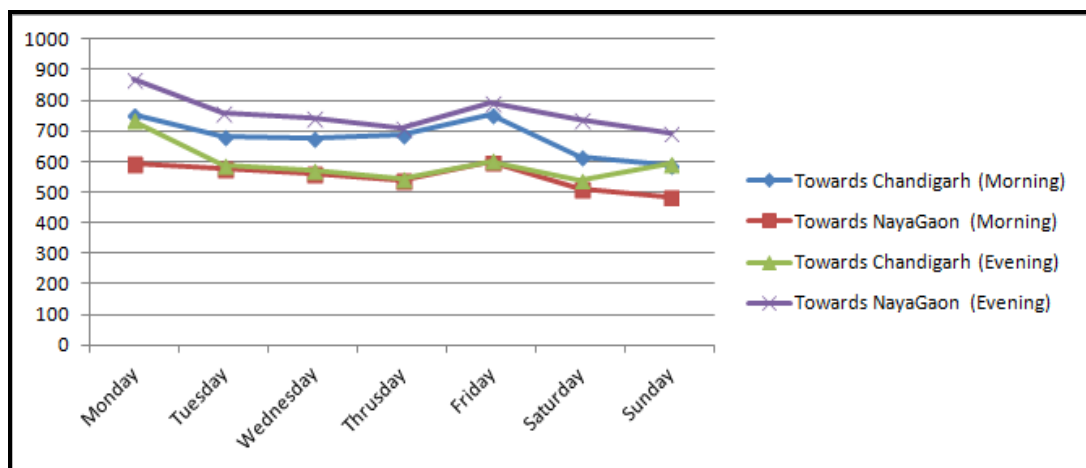
The google maps are used for measuring the width of the carriageway of the roads, the width of the shoulders on the sides of the roads and distances between the roads and intersections.

## 2. Traffic Volume Studies

The PCU (Passenger Car Unit) per hour have been counted manually from the videos by taking into account the number of different vehicles moving on the road such as autorickshaws, two-wheelers, buses, cycles, and four-wheelers, etc, which is an indicator of the congestion on the road. The average PCU/hour on road from Naya Gaon towards Chandigarh is calculated as 637.1 PCU/hour and from Chandigarh towards Naya Gaon as 654.75 PCU/hour.

As per IRC, a two lane road is 7m wide but in India most of the roads are intermediate roads i.e. they have their width around 4-5.5m. Due to its free frontage access, parked vehicles and heavy cross traffic, the Chandigarh-Nayagaon stretch comes under the collector category of the urban roads and according to IRC, a two lane road should be designed for 900 PCU/hour. As this road stretch is an intermediate road and its carriageway is simultaneously used by cyclists, pedestrians and street vendors. The traffic studies are carried out for 7 days at peak hours of the day i.e. one hour in the morning (8:15 a.m. to 9:15 a.m.) and one hour in the evening (6:30 p.m. to 7:30 p.m.). Two cameras were installed at the junction of Chandigarh and Naya Gaon for recording the number of vehicles coming from Naya Gaon to Chandigarh and vice-versa. If we provide paved shoulders along with the u shaped drains which can also be used as footpath.

The PCU/hour for the seven days can be graphically depicted as shown below:



## Some Suggestions to the Problems

### 1. Increasing the Carriageway width by providing paved shoulders:

As the carriageway's width of this stretch is approximately 4m, this is one of the major reasons behind the choking of traffic and hence traffic jams. According to **IRC:SP:73-2015**, in built-up areas, there should be paved shoulders of 2.5m. By providing paved shoulders with width 1.5m (not uniform throughout) as the present width of unpaved shoulders vary from 1.6-3m, there would be additional space for the vehicles to move, and hence the jamming conditions would be reduced considerably.

## 2. Providing a proper median:

A proper median should be provided after providing paved shoulders. The median would ensure that the vehicles do not change respective lanes. Presently, the police have installed a temporary median with cones and ropes near the intersection. It is recommended to replace it by a permanent median.

## 3. Traffic lights should be provided at the 2 intersections:

The traffic lights should be provided at both the intersections. The traffic lights would ensure that there are no jamming conditions and would also reduce the number of accidents. The two traffic lights should be in sync with each other and hence the heavy flow of traffic at these intersections would be distributed.

Also, the traffic lights would be for pedestrians too so that they can cross the roads safely.

## 4. Providing a proper U-shaped covered drain:

A covered RCC/Cement Concrete with manholes at suitable intervals should be provided in a built area like this as per **IRC:SP:73-2015**. The width of the drain provided can vary from 0.75-1m. This would serve the following purposes:

- it would solve the drainage problems during the rainy season.
- the upper covered area of the U-shaped RCC drain will act as a footpath and hence the problem of the pedestrians walking on the carriageway would not be there.
- if there would be paved shoulders and a footpath, then the people would avoid parking vehicles on the sides of the carriageway.

## 5. Provision of Auto – Rickshaws stand

The auto-rickshaws should be restricted to park on the sides of the carriageway to ferry the passengers. A proper auto-rickshaw stand should be made for the boarding and de-boarding of the passengers so that there is no un-necessary crowding and congestion.

