



# Case Study on

# Effectiveness of Passenger Information System (PIS) in New Town Kolkata

# 1. INTRODUCTION TO PASSENGER INFORMATION SYSTEM (PIS) IN NEW TOWN KOLKATA

Newtown Kolkata Development Authority has created a network of Realtime Passenger Information Display System across the bus stoppages in Newtown area. These are outdoor LED display board which are enabled to accurately predict the ETA (estimated time of arrival) of buses from 15 minutes prior at each stop. It is aimed to encompass all bus routes plying through Newtown.

## BUS STOPS



29 Nos.

## BUSES



600 Nos.

Government Buses- 198 Nos.  
Private Buses- 402 Nos.



## PIS installed in 29 bus stops in New Town

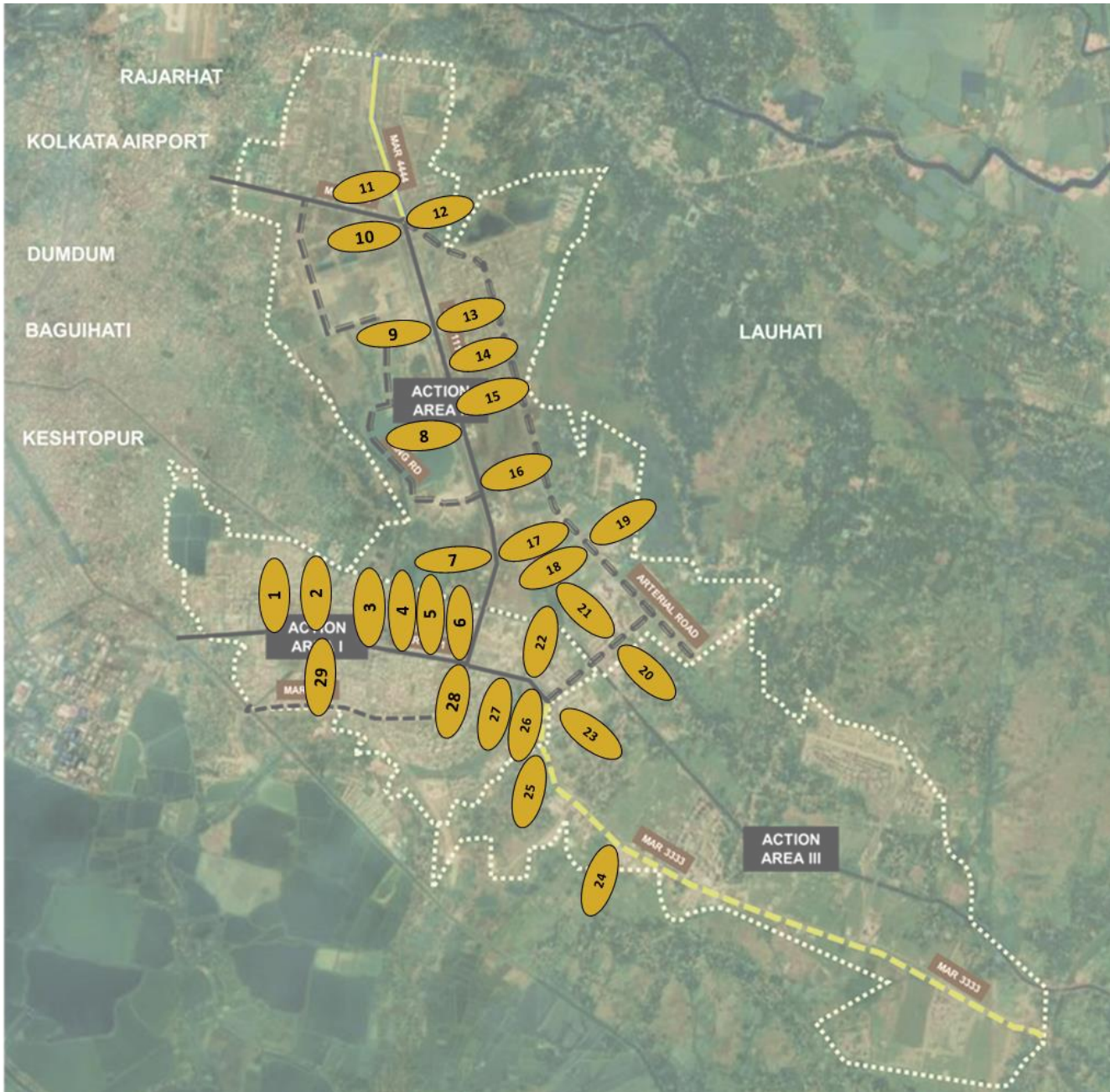


## PIS Dashboard in ICCC of New Town Kolkata

Presently the system works with an innovative designed network of RFID tags affixed on every bus in order to increase the accuracy and density of tracking of the buses within the Newtown area. It can be said, that this system is first of its kind, where high accuracy RFID is being used to correctly estimate the arrival times and departure scenarios without the delays often associated with relying solely on GPS-based Vehicle Tracking Systems.

The PIS is monitored through the Integrated Command and Control Centre (ICCC) of New Town Kolkata Development Authority.

## 2. LOCATION OF PIS INSTALLED BUS STOPS IN NEW TOWN KOLKATA



1. Coal India
2. Eastern High
3. Novotel
4. Mela Ground 1
5. Mela Ground 2
6. Rabindra Tirtha 1
7. Subhas Bose 1
8. Prakriti Tirtha 1
9. Misti Hub
10. Akankha More 1
11. 7<sup>th</sup> Rotary
12. Akankha More 2
13. Misti Hub 2
14. Owl More
15. Prakriti Tirtha 2
16. Coffee House
17. Subhas Bose 2
18. Alia University (West)
19. Alia University (East)
20. TCS
21. TCSL
22. Tata Cancer
23. Food Plaza (Opp. Candor)
24. Karigari Bhawan
25. Eye Hospital
26. Newtown P.S.
27. NKDA Stop
28. Rabindra Tirtha 2
29. Zero Shop

### 3. PROBLEM STATEMENT

The case study addresses the problem of lack of clarity among the passengers regarding the pattern of bus movement along the PIS-equipped routes of New Town Kolkata, compounded by increased demand for buses during peak office hours.

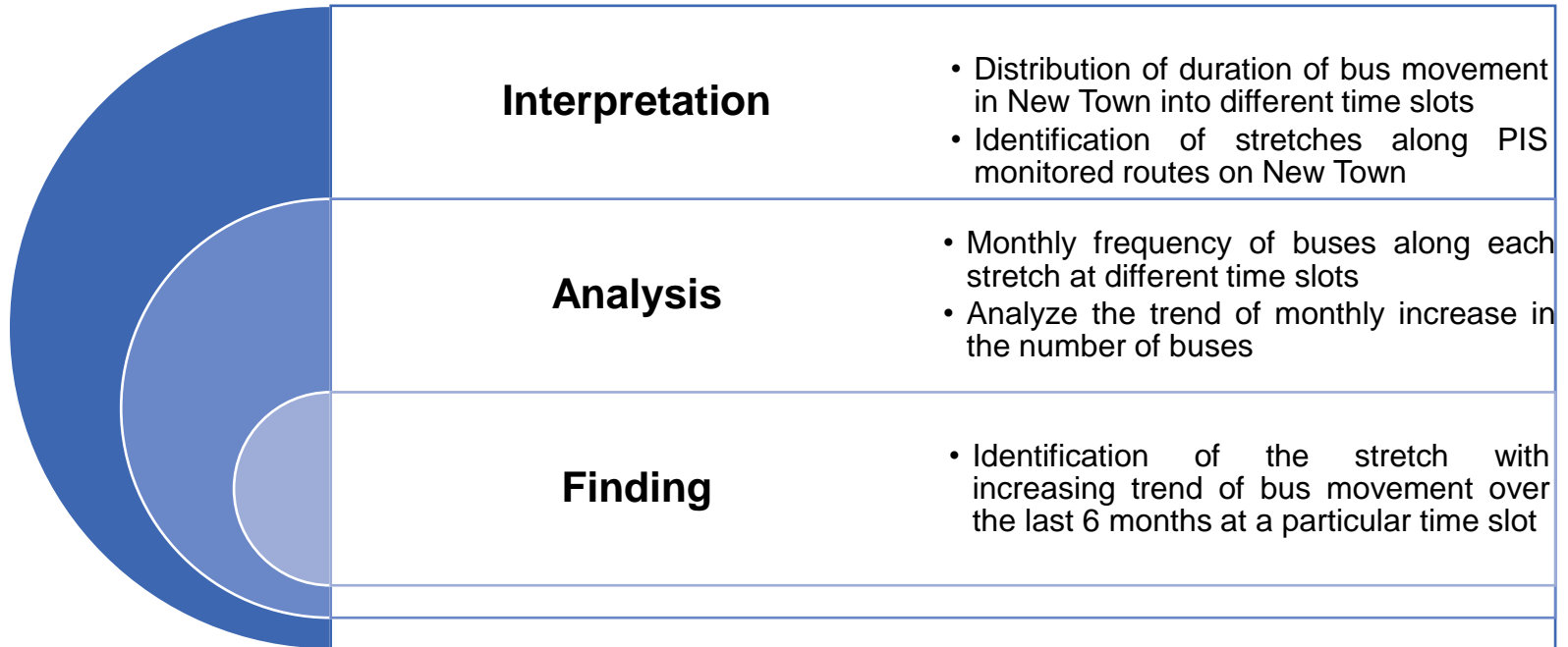
### 4. OBJECTIVES

To address the above problem and evaluate the effectiveness of installing a Passenger Information System (PIS) at bus stops of New Town Kolkata, the following objectives and methodologies have been outlined:

- I. Analyze the pattern of bus movement along the roads of New Town Kolkata
- II. Study the trend of bus movement to and from major junctions in New Town Kolkata during the peak office hours

#### Objective I

Analyze the pattern of bus movement along the roads of New Town Kolkata



## Interpretation

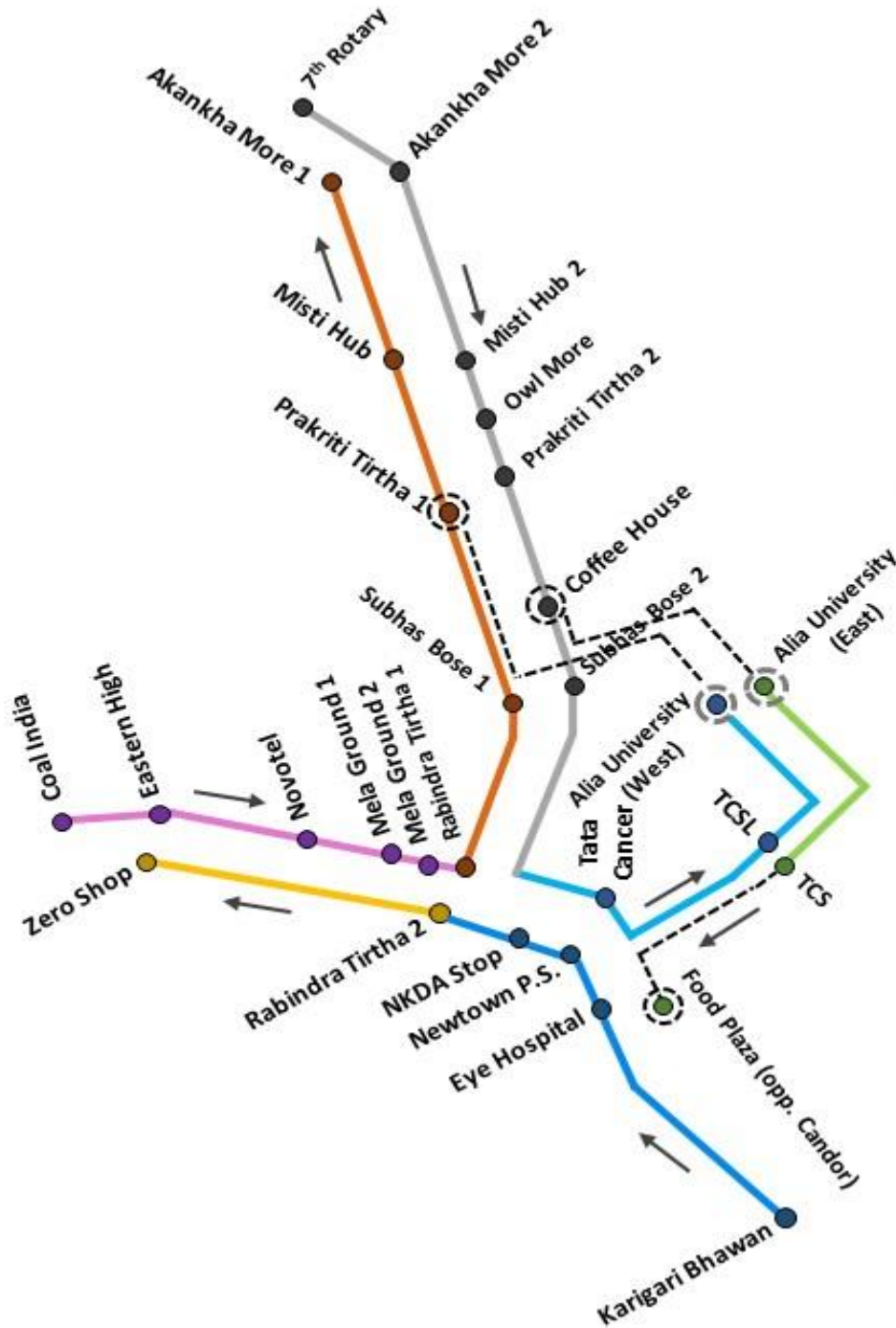
For the purpose of analysis, the duration of bus movement along the roads of New Town have been distributed into 9 different time slots:

Before 6 am	6am- 8am	8am- 10 am (Morning Peak Hour)	10am- 12pm	12pm- 2pm
2pm- 4pm	4pm- 6pm (Evening Peak Hour)	6pm- 8pm	After 8pm	

Also, for the purpose of analysis, 7 stretches have been identified along the PIS monitored routes of New Town:

	Stop 1	Stop 2	Stop 3	Stop 4	Stop 5	Stop 6	Stop 7
<b>Stretch 1</b>	Coal India	Eastern High	Novotel	Mela Ground 1	Mela Ground 2	-	-
<b>Stretch 2</b>	Rabindra Tirtha 1	Subhas Bose 1	Prakriti Tirtha 1	Misti Hub	Akankha More 1	-	-
<b>Stretch 3</b>	7th Rotary	Akankha More 2	Misti Hub 2	Owl More	Prakriti Tirtha 2	Coffee House	Subhas Bose 2
<b>Stretch 4</b>	Rabindra Tirtha 2	Zero Shop	-	-	-	-	-
<b>Stretch 5</b>	Tata Cancer	TCSL	Alia University (West)	-	-	-	-
<b>Stretch 6</b>	Alia University (East)	TCS	Food Plaza	-	-	-	-
<b>Stretch 7</b>	Karigari Bhawan	Eye Hospital	Newtown P.S.	NKDA Stop	-	-	-

# STRETCH IDENTIFICATION ALONG NEW TOWN ROADS BASED ON PIS MONITORED BUS STOPS

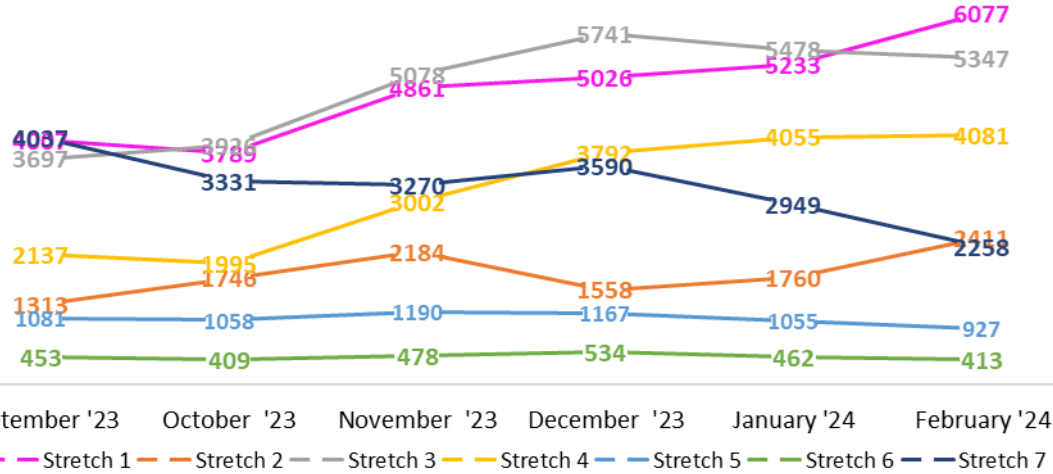


LEGEND	
	Stretch 1: Coal India to Narkel Bagan
	Stretch 2: Narkel Bagan to Akankha More
	Stretch 3: 7 <sup>th</sup> Rotary to Narkel Bagan
	Stretch 4: Narkel Bagan to Zero Shop/1 <sup>st</sup> Rotary
	Stretch 5: Narkel Bagan to Alia University (West)
	Stretch 6: Alia University (East) to Food Plaza (opp. Candor)
	Stretch 7: Karigari Bhawan to Narkel Bagan

# Analysis

# Findings

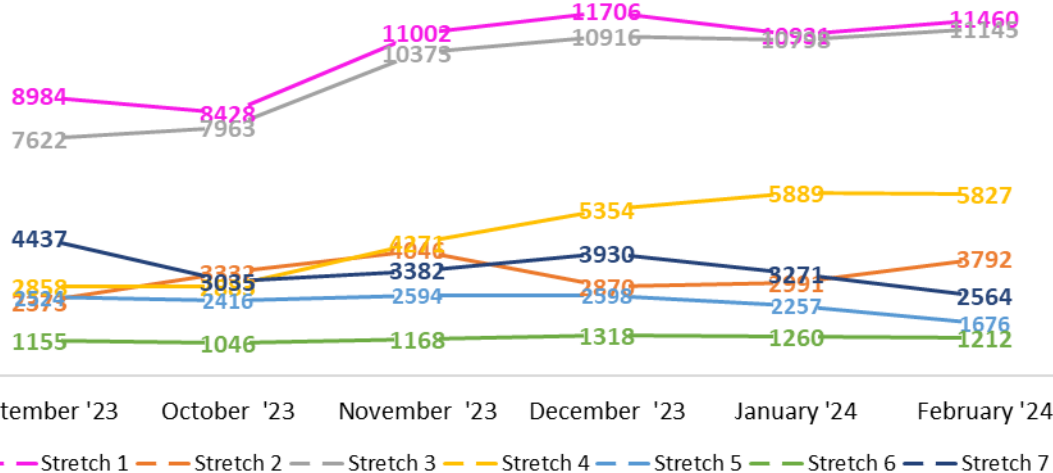
**MONTHLY BUS FREQUENCY DURING MORNING HOUR (6AM-8AM)**



Time slot: 6am-8am

Stretch 1 has seen a significant rise in the monthly bus frequency after the month of October.

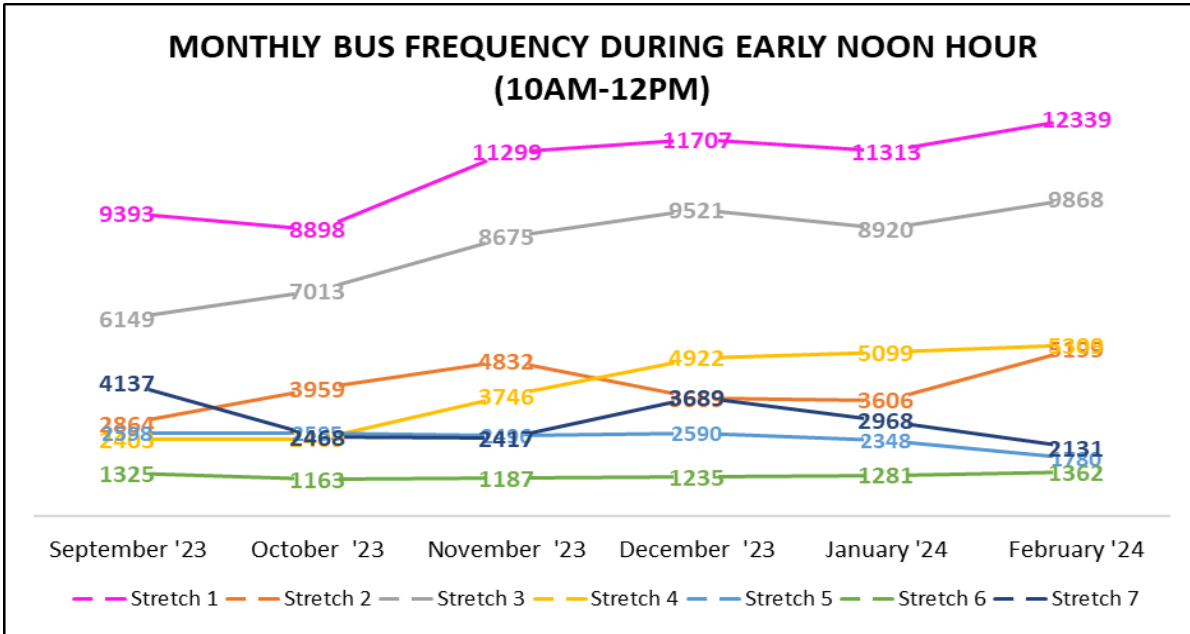
**MONTHLY BUS FREQUENCY DURING MORNING PEAK HOUR (8AM-10AM)**



Time slot: 8am-10am (Morning Peak Hour)

Stretch 3 and Stretch 4 have seen a considerable rise in the monthly bus frequency over the last six months

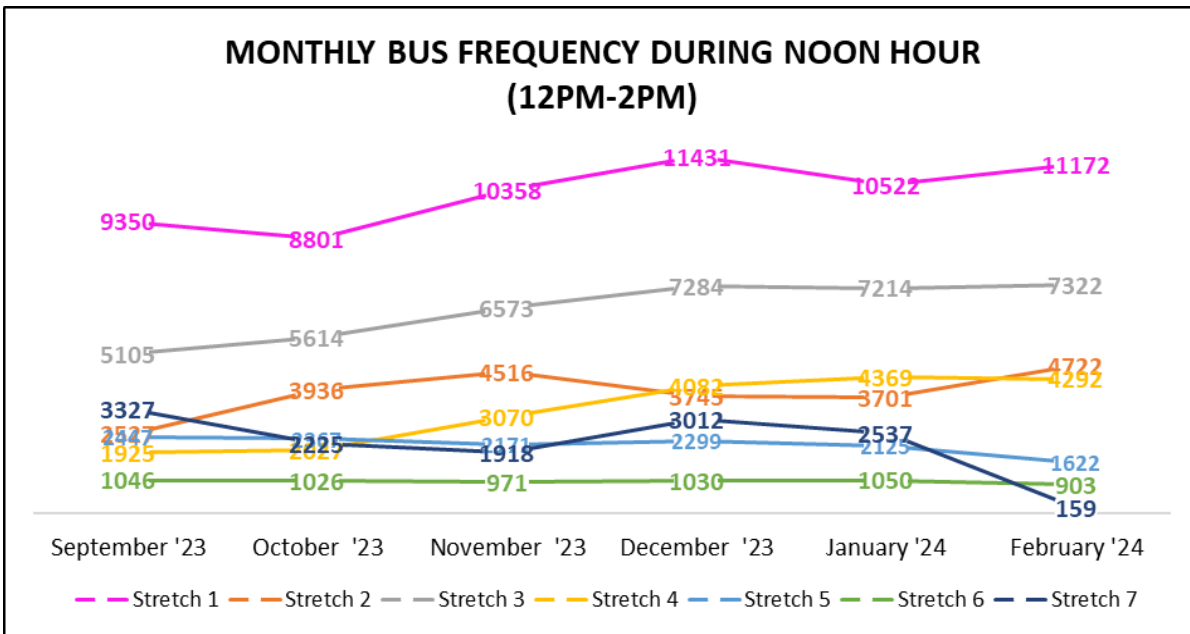
## Analysis



## Findings

Time slot: 10am-12pm

**Stretch 4** has seen a significant rise in the monthly bus frequency over the last six months. **Stretch 6** has seen a considerable rise after the month of October.

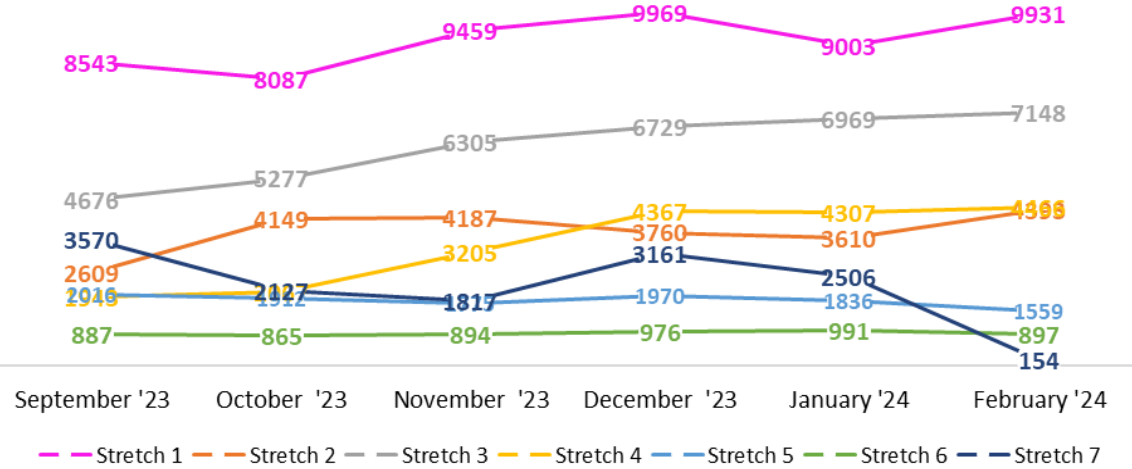


Time slot: 12pm-2pm

**Stretch 3** and **Stretch 4** have seen a considerable rise in the monthly bus frequency over the last six months

## Analysis

### MONTHLY BUS FREQUENCY DURING LATE NOON HOUR (2PM-4PM)

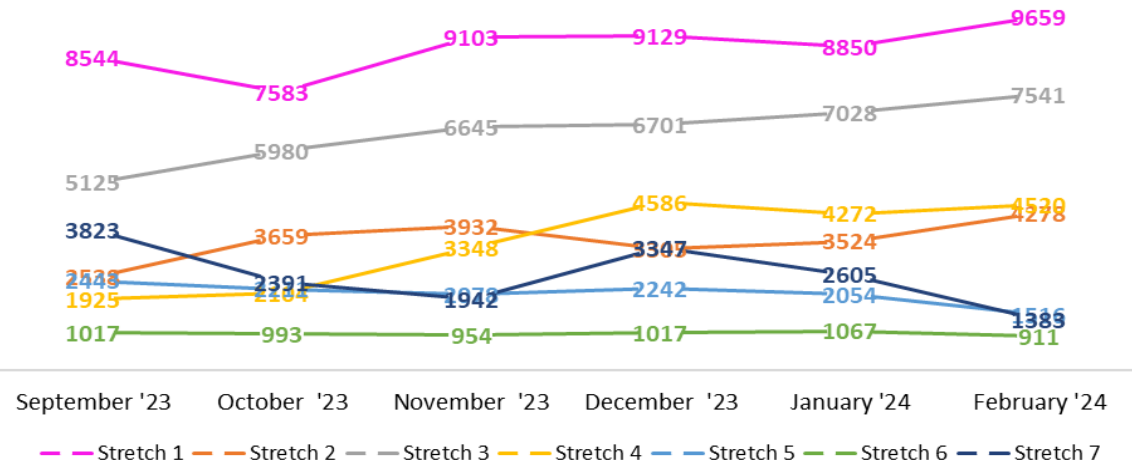


## Findings

**Time slot: 2pm-4pm**

Stretch 3 has seen a significant rise in the monthly bus frequency over the last six months. Stretch 4 and Stretch 6 have also seen a considerable rise.

### MONTHLY BUS FREQUENCY DURING EVENING HOUR (4PM-6PM)

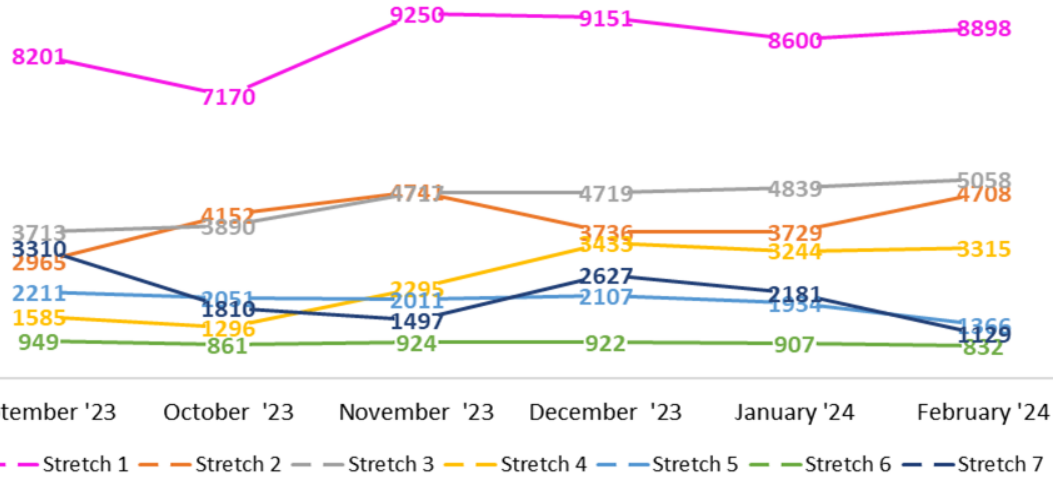


**Time slot: 4pm- 6pm**

Stretch 3 has seen a significant rise in the monthly bus frequency over the last six months. Stretch 6 has also seen a considerable rise.

## Analysis

**MONTHLY BUS FREQUENCY DURING EVENING PEAK HOUR (6PM-8PM)**

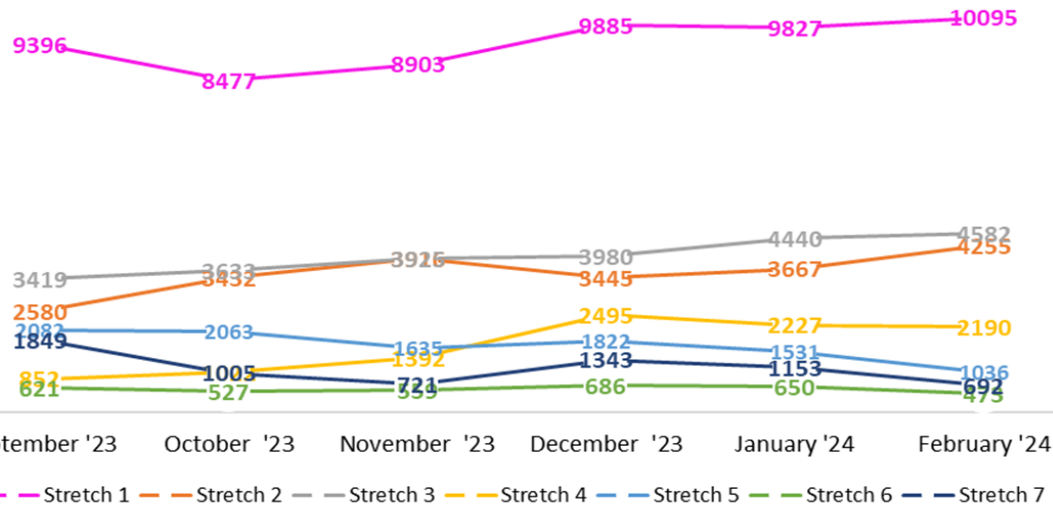


## Findings

**Time slot: 6pm- 8pm (Evening Peak Hour)**

Stretch 3 has seen a significant rise in the monthly bus frequency over the last six months

**MONTHLY BUS FREQUENCY DURING LATE EVENING HOUR (AFTER 8PM)**

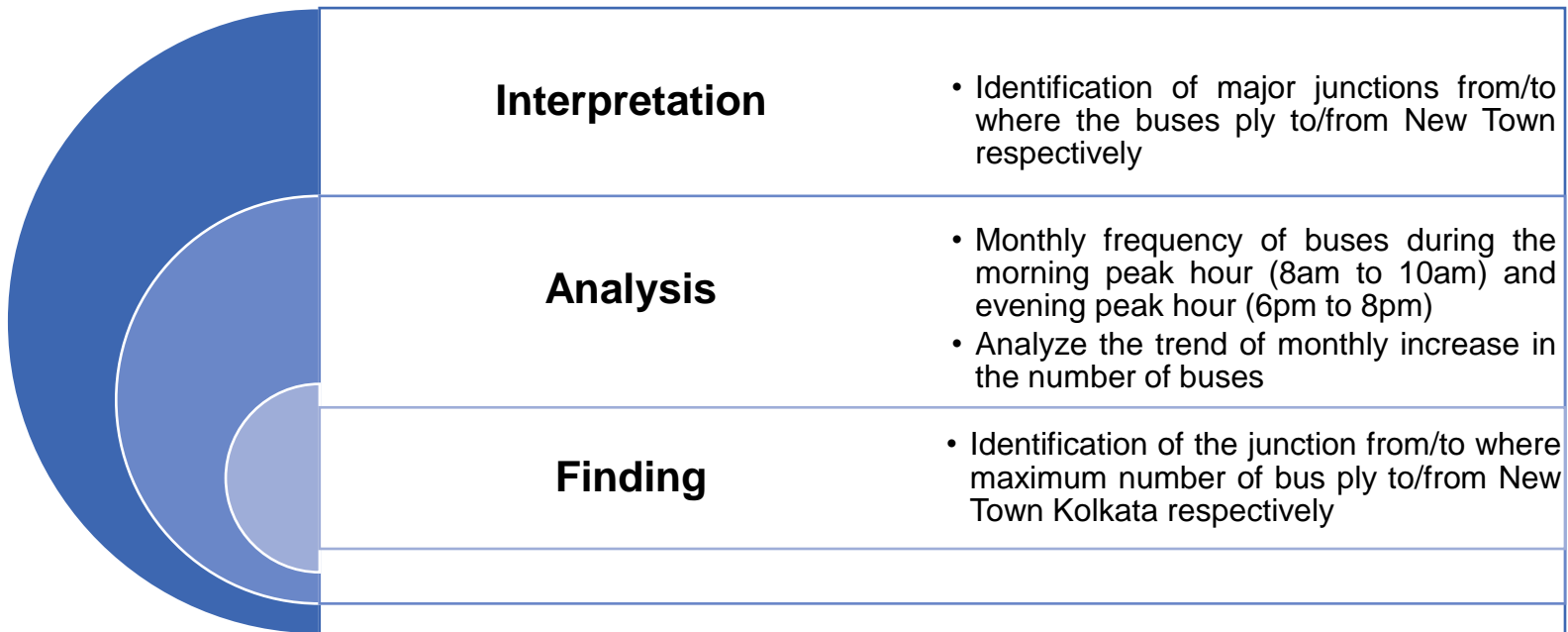


**Time slot: After 8pm**

Stretch 3 has seen a significant rise in the monthly bus frequency over the last six months

## Objective II

Study the trend of bus movement to and from major junctions in New Town Kolkata during the peak office hours



## Interpretation

For the purpose of analysis, the time slots considered are:

Morning Peak Hour: 8 am to 10 am
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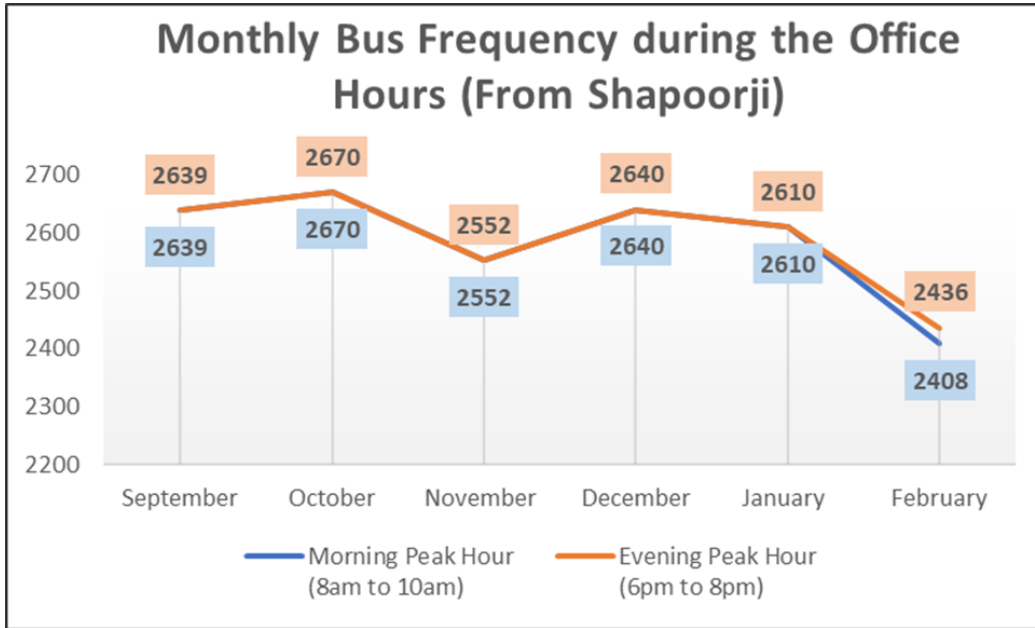
Morning Peak Hour: 6 pm to 8 pm
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For the purpose of analysis, the major junctions identified are:

FROM	TO
Shapoorji	New Town Kolkata
Salt Lake	
Barasat	
Kolkata Station	

FROM	TO
New Town Kolkata	Shapoorji
	Salt Lake
	Barasat
	Kolkata Station

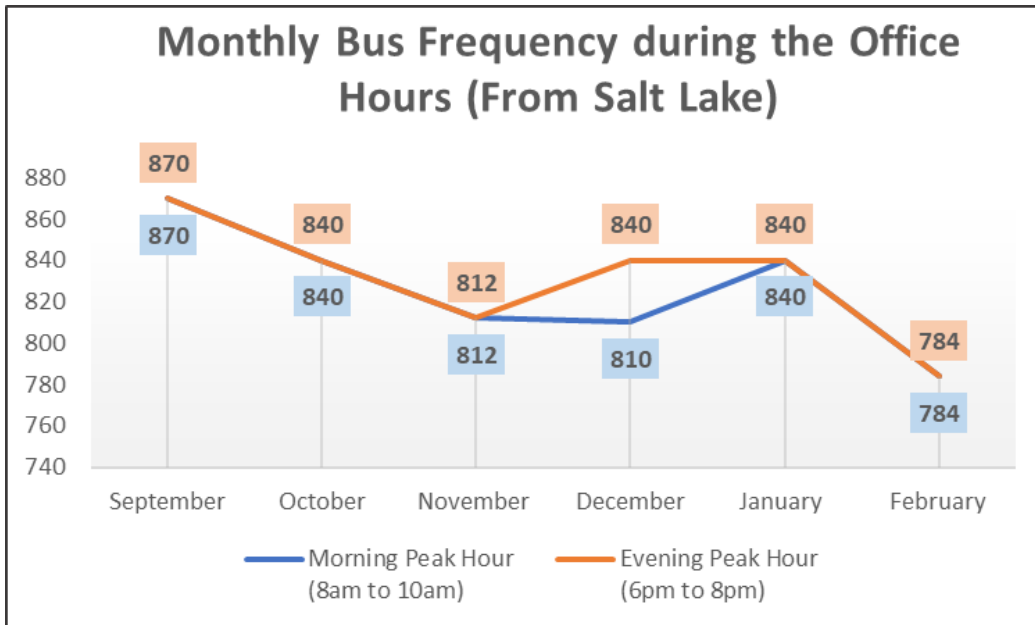
## Analysis



## Findings

### From: Shapoorji

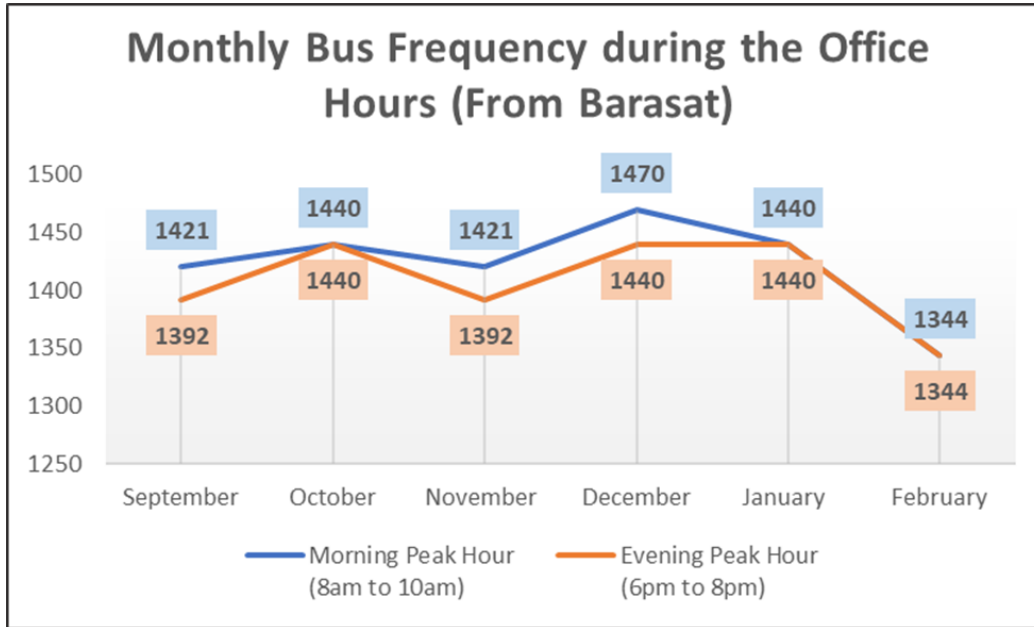
The number of buses plying from Shapoorji to New Town is of considerable number over the last six months. The average daily frequency is 86 nos. during both the morning and evening peak hour.



### From: Salt Lake (Karunamoyee)

The number of buses plying from Salt Lake (Karunamoyee) to New Town is of considerable number over the last six months. The average daily frequency is 28 nos. during both the morning and evening peak hour.

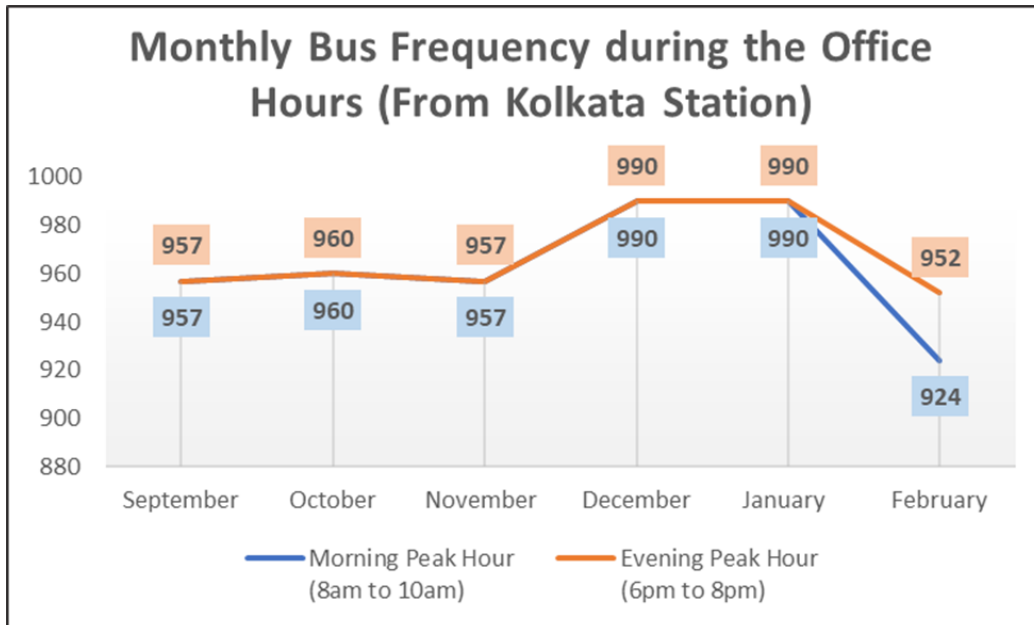
## Analysis



## Findings

### From: Barasat

The number of buses plying from Barasat to New Town has seen no much fluctuations over the last six months. The average daily frequency is 47 nos. during both the morning and evening peak hour.

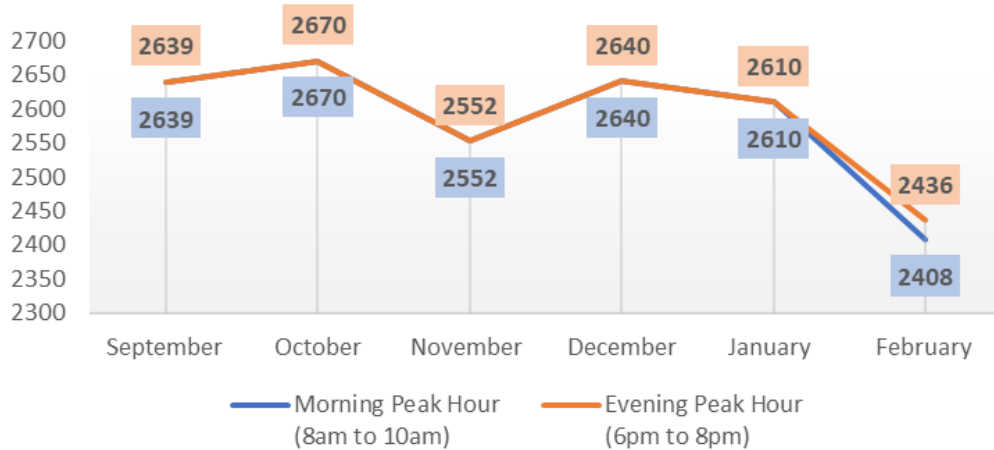


### From: Kolkata Station

The number of buses plying from Kolkata Station to New Town is of considerable number over the last six months. The average daily frequency is 32 nos. during both the morning and evening peak hour.

## Analysis

### Monthly Bus Frequency during the Office Hours (To Shapoorji)

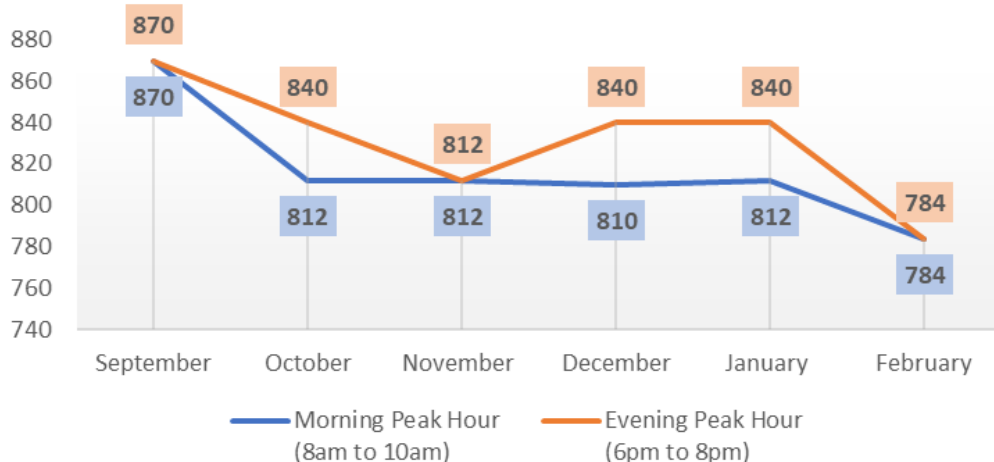


## Findings

### To: Shapoorji

The number of buses plying to Shapoorji from New Town is of considerable number over the last six months. The average daily frequency is 86 nos. during both the morning and evening peak hour.

### Monthly Bus Frequency during the Office Hours (To Salt Lake)

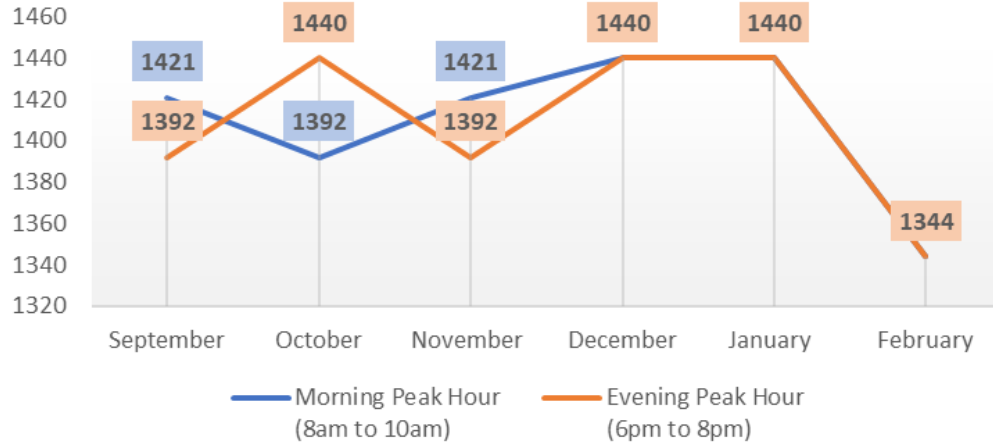


### To: Salt Lake (Karunamoyee)

The number of buses plying to Salt Lake (Karunamoyee) from New Town is of considerable number over the last six months. The average daily frequency is 27 nos. during the morning peak hour and 28 nos. during the evening peak hour.

## Analysis

### Monthly Bus Frequency during the Office Hours (To Barasat)

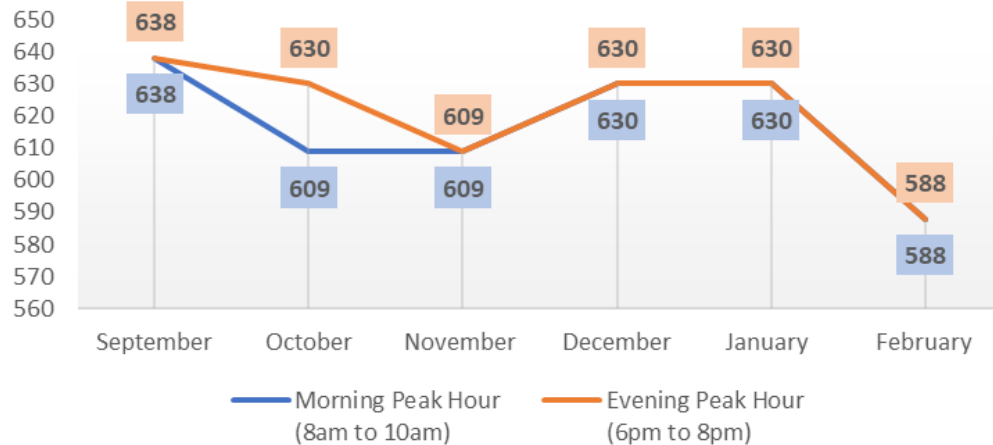


## Findings

### To: Barasat

The number of buses plying to Barasat from New Town has seen no much fluctuations over the last six months. The average daily frequency is 47 nos. during both the morning and evening peak hour.

### Monthly Bus Frequency during the Office Hours (To Kolkata Station)



### To: Kolkata Station

The number of buses plying to Kolkata Station from New Town is of considerable number over the last six months. The average daily frequency is 21 nos. during both the morning and evening peak hour.

## 5. CONCLUSION

In conclusion, this comprehensive study has intended to provide valuable insights into the patterns of bus movement within New Town Kolkata, addressing the crucial issue of passenger clarity regarding bus routes. Through rigorous analysis, there was a successful identification of stretches of New Town Kolkata experiencing increasing bus movement and the pattern of bus movement from/ to the key junctions during peak office hours to/ from the city.

The implementation of Passenger Information Systems (PIS) by New Town Kolkata has emerged as a pivotal solution in enhancing passenger awareness and streamlining bus services. By leveraging technology to disseminate real-time information, PIS has played a vital role in alleviating confusion among passengers and optimizing bus utilization.

The findings of this study underscored the effectiveness of PIS in facilitating smoother commuting experiences for residents and commuters in New Town Kolkata. Furthermore, it highlighted the proactive measures undertaken by local authorities to address transportation challenges, thereby fostering the overall prosperity and efficiency of the region.