

## Feeder Route Between Kamrej And Surat Station:An Alternate To GSRTC Route

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**Abstract** — GSRTC is a state owned corporation for passenger transport provide bus services both within state of Gujarat and neighbouring states of Gujarat. Mass rapid transit system play important role in the development of the city. Day by day population of the people and vehicles both increase and from that numbers of journey also increases. Saving travel time is one of the major problem for all people. Surat is the traffic congested city and traffic problems increases day by day. GSRTC served major facility to travelling in Surat. Purpose of the study is to suggest GSRTC to provide feeder bus on Surat station to Kamrej station route to save travel time, readuce journey length, reduce delay and provide Economic and more facilitate way to transport.

**Keywords-** GSRTC, Kamrej, Kadodara, Travel time, Delay, Paratransit

### I. INTRODUCTION

GSRTC is a state owned corporation for passenger transport providing bus services both within state of Gujarat and neighbouring state of Gujarat. Gujarat State Road Transport Corporation has played important role in the economic growth of state by operating an extensive passenger transport network and reaching out to villages. It also runs buses to the Daman & Diu. There are numbers of buses available in GSRTC like A.C.Coach, Sleeper Coach, Volvo, CNG, Mini Bus. GSRTC was established on 1 May 1960. GSRTC play role of life line in Gujarat state. Gujarat road transport corporation play very important role in the economic growth of Gujarat by giving extensive passenger transport network and reaching out to villages. Large fund of goodwill collected from people by providing transport facility. It is only the government corporation, which provides direct transportation service to the people. It also provide other benefits to students, blinds, physically handicapped, freedom fighters, news reporters etc. GSRTC provide connectivity to about 98 per cent of villages in Gujarat and connect some important destination in neighbouring states.

### II. OBJECTIVES

- To Reduce Travel Time.
- To Introduce Feeder Bus Between Kamrej to Surat Station Route.
- To Provide Economic And More Facilitate Way To Transport.

### III. STUDY AREA

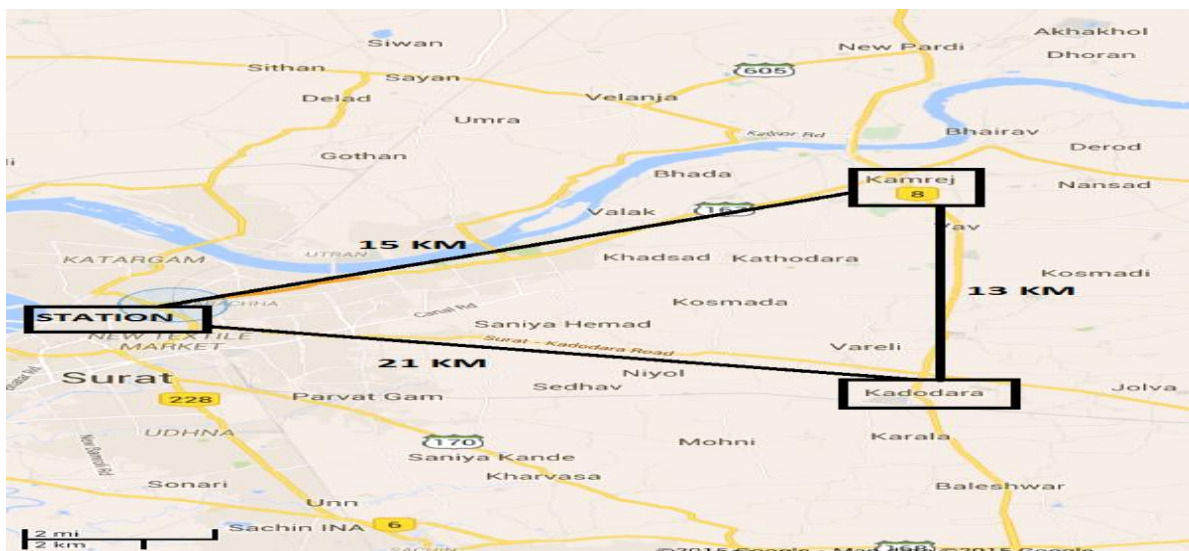


Figure 1. Study Area And Site Plan

In surat city there are three stations(Kamrej, Surat station, Kadodara) are selected as study area. Surat city is located in the western part of India in the Gujarat. It is one of the most dynamic city with fastest growth rate due to immigration of people from various part of states. In Surat city there are total 516 numbers of GSRTC buses and 6 main bus stands available. KAMREJ & KADODARA are two stations from where bus enter and exit to reach surat station. Long route buses are travel through KAMREJ-SURAT STATION-KADODARA route. Surat station to kamrej is of 15km and traffic congested route. On the route there are college, school, baroda pristage shopping market, podar arcad ,mini bajar etc, this all cause congestion of public and Vehicles. Surat to Kadodara route is of 21km and traffic congested route. Highway to highway distance between KAMREJ AND KADODARA route is 13km.



*Figure 2. Surat Station*



*Figure 3. Kamrej Station*

#### **IV. LITERATURE SURVEY**

Mohammad Abojaradeh studied in their research the Travel time and delay study on the public transit system inside Amman area in Jordan. Importance study is to convince and attract the public to use public transit system for travel instead of using their private cars. Advantages like reducing congestion on road network, reducing cost of traveling for public, increasing efficiency of road network, increasing safety, reducing maintenance cost of the roads, reducing air pollution and preserving the environment. S.A Kanalli, H.S Satish and R.Satyamurthy observed the Proposed Feeder Bus(mini Bus) Operating Through The Radial Areas Of Metro Station In Banglore. Reduction In Traffic Density On Road, Reduction In Travel Time, Fuel Consumption, Road Accident. Talati Vaishakhi A. and Talati Ashish V. have found in their research that the Innovative Transportation Techniques play a major role to overcome problems of congestion of the roads, rise in the pollution level, road accidents, increase in fuel consumption, increase travel time in the Ahmedabad city. Benefit to the road users in terms of saving travel time, reduction in fuel consumption and improvement in air quality. Miteshkumar N Damor, Smita kumara and N.D Hajiani studied in this research that why commuters are not using BRTS between stations Kalupur to Town Hall in Ahmedabad. And use other modes Auto-Rickshaws and AMTS, instead of BRTS. Commuters of BRTS are facing travel time delay due to the absence of priority at junctions. By giving priority measures for BRTS at busy intersections will ultimately reduce the transit delay, save travel time and attracting more commuters to use it. Agrawal P K, Anupama Sharma and Singh A.P. observed Problems related with public transport such that increase in number of accidents, Environmental degradation, Congestion, increase travel time, Over crowding due to inadequate system, Frequency of service and schedule is not strictly adhered. Bus Rapid Transit Systems have emerged as one of the important mode of public transport and from that Benefits like Saving in Travel Time, Reduce Congestion, Increase Safety, Reduce Pollution.

#### **V. IMPLIMENTATION ENVIRONMENT**

##### **5.1 INVENTORY SURVEY OF STUDY AREA**

Implementation environment chapter gives information about the implementation environment. It contains introduction of carried out survey.

##### **5.1.1 Questionnaire survey**

Questionnaire survey evaluates the opinion of the people regarding their willingness to use the feeder service. This survey plays an important role in deciding the probable loadings in the area. The survey was conducted at bus stops within the study area by issuing a form to the passengers, containing various questionnaire.

##### **5.1.2 Travel Time and Delay survey**

In travel time survey travel time calculated of highway to highway running bus and the buses travelling through city from Kamrej Station to Surat Station route. And obtain the saving in travel time by providing Feeder Bus facility. Delay is the time lost by a vehicle due to causes beyond the control of the driver.

Delay done by the floating car method, average speed, and moving-vehicle techniques. Delay influenced by many factors including passengers, buses, stops and their surrounding traffic conditions. Delay survey carried out by moving vehicle method on the Surat Station to Kamrej and Kadodara to Surat Station route.

**VI. DATA COLLECTION AND ANALYSIS**

**6.1 ORIGIN OF PASSENGERS**

Table 6.1. Origin Of Passenger

Passengers Whose Origin is Not Surat City	262
Passengers Whose Origin is Surat City	38
Total Number Of Forms	300

**6.2 DESTINATION**

OF PASSENGERS

Table 6.2 Destination Of Passenger

Passengers Whose Destination is Not Surat City	230
Passengers Whose Destination is Surat City	68
Total Number Of Forms	300

**6.3 OPINION SURVEY**

From Public opinion survey 65% people are agree to Travel in the running buses from Highway to Highway.

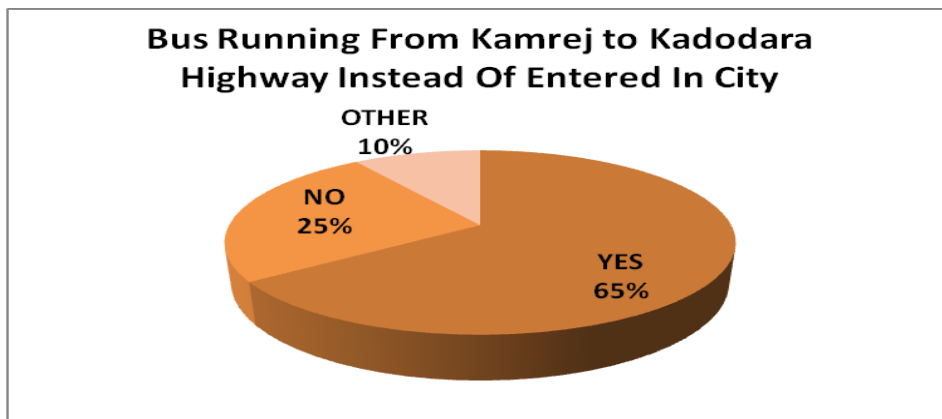


Figure 4. Graphical representation of the opinion survey

**6.4 OPINION SURVEY**

From Public opinion survey 58% people are ready to Provision of feeder bus on Kamrej to Surat Route and use this Bus.

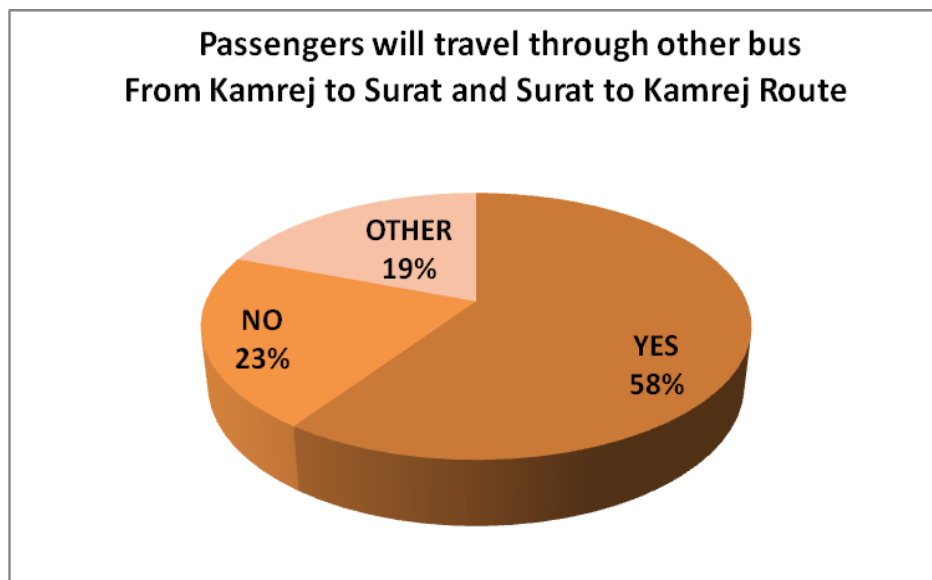


Figure 5. Graphical representation of the opinion survey

6.4 PUBLIC OPINION SURVEY

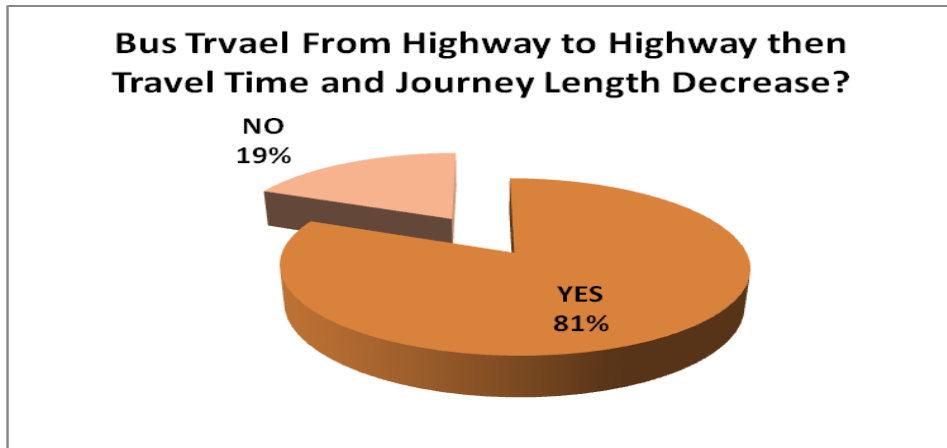


Figure 6. Graphical representation of the Public opinion survey

6.5 DELAY TIME SURVEY

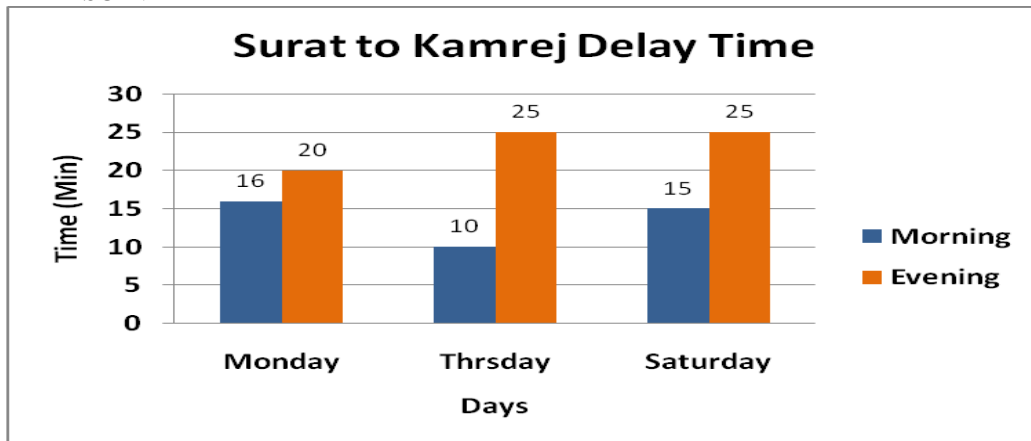


Figure 7 Graphical representation of Delay Time On Surat to Kamrej Route

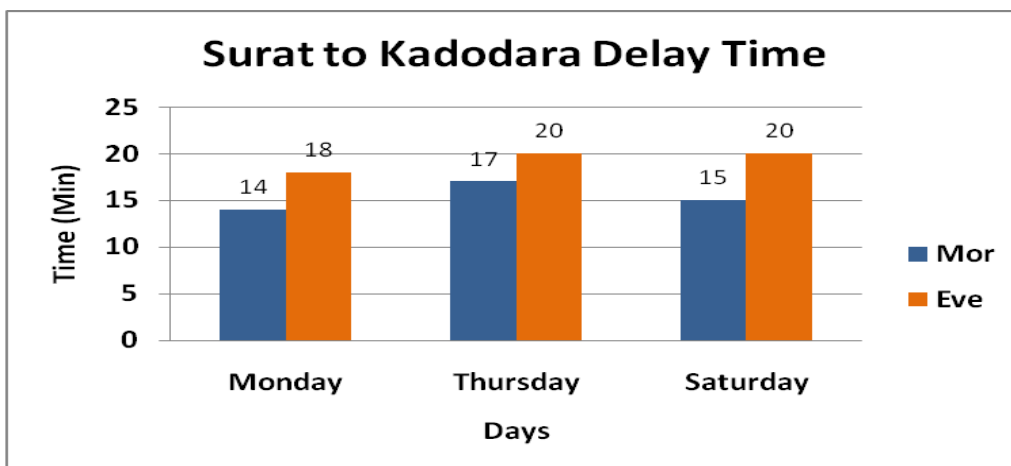


Figure 8 Graphical representation of Delay Time On Surat to Kadodara Route

## 6.6 TRAVEL TIME SURVEY

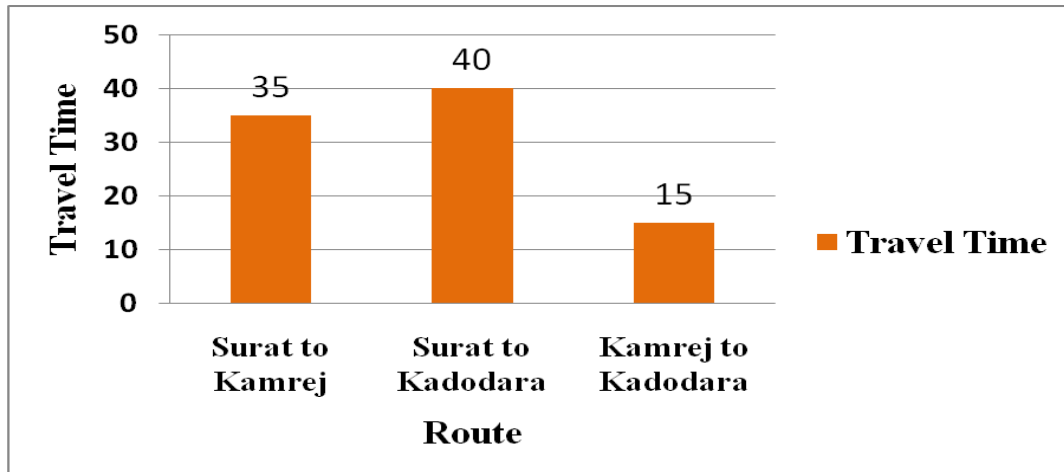


Figure 9 Graphical representation of Travel Time On Surat to Kamrej Route

## VII. FREQUENCY ANALYSIS

### 7.1 FREQUENCY CALCULATION

Frequency = Cp / No. Of Unit \* Capacity \* Load Factor

Table 7.1 Frequency Analysis

Surat Station To Kamrej Route						
	No. Of Unit	Frequency Of Feeder Bus	Capacity	Load Factor	No.Of Passenger/Hr	Interval
Existing	1	8	38	1.2	365	20 Min
Proposed	1	8	35	1.2	336	7 Min
Proposed	1	10	30	1.2	360	6 Min
Proposed	1	14	21	1.2	353	4 Min

## VIII. CONCLUSION

Kamrej Station to Surat Station and Surat Station to Kadodara Station routes are congested. Introducing Feeder Bus between Kamrej and Surat station will provide travel time reduction, reduce vehicle operating cost and reduce journey length.

From Questionnaire Survey result found out that 65% people are ready to travel of Bus from Highway to Highway instead of travel in the city area, 58% people are ready to travel from Feeder Bus on Surat to Kadodara route, 81% people are agree to Introducing feeder bus on Surat to Kamrej Route. Saving in Travel Time is around 1.15 -1.20 Hrs. 36kms Journey Length also decreases by providing feeder bus and run Buses on Highway route.

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