Up-Gradation of Existing Traffic System of Vidisha using Traffic Management Techniques

Sachin Nagayach[1] Prof. K.K. Punjabi[2] Rohit Gurjar[3] Sachin Jat[4]
[1,3,4]P.G Student [2]Associate Professor
[1,2,3,4]Department of Civil Engineering
[1,2,3,4]Samrat Ashok Technological Institute Vidisha (M.P) 464001

Abstract— Demonstration of traffic is an essential addition to both urban and non urban organization. This dissertation describes a simulation study of traffic management opportunities with an extended personal rapid transit (PRT) network at VIDISHA. The investigation was based on the citymobil reference scenario of VIDISHA PRT between PEETALMILL Square to EIDGAAH Square a main street of VIDISHA city known as NH 146. There are six squares are comes under the main street between PEETALMILL to EIDGAAH. Traffic management problem is increasing day by day due to increasing in population. Changing in life style & due to development of nation traffic management become a serious problem. Based on the traditional traffic flow theory & traffic control methods that is being used wildly. In addition we came to the consideration of traffic density & discuss the advantage of traffic signals & rotary controls. Effective management of urban congestion derives directly from accurate data collection & analysis at intersection. This study report outcome of a comparative investigation of the cost & efficiency of manual method of collection of traffic delay. Rotary is most preferred strategy for measurement at junction delay. Traffic signal as a traffic control device for traffic safety aims t regulating & control traffic by providing proper time for crossing with ease without conflict. Control methodologies of traffic signals have significantly improved during the recent past along with advantage.

Key words: Traffic Management System, Traffic System of Vidisha

I. INTRODUCTION

The Institute of Traffic Engineering defines traffic engineering as "that phase of engineering which deals with planning, geometric design and traffic operations of roads and streets and highways. There networks, terminals, abutting lands, relationships with other kinds of transportation for the achievement of safe, efficient and convenient movement of person and goods."

As the traffic on the existing road system in cities grows, congestion becomes a serious problem. Medium and long term solution like widening roads, providing elevated fly-over and constructing bypasses and urban expressway are costly. Simple and inexpensive solutions can tide over the crisis for some time. Transportation make the most productive and cost-effective use of existing transportation facilities, service and modes.

Traffic engineering is a comparatively new branch of engineering and has grown with the increase in traffic in recent years. As vehicular traffic began to growth, the concourse on the streets began to hurdle the safe and efficient movement to traffic. More and more accident were caused and serious problem of parking and environmental pollution began to be felt. It was, therefore, necessary to give increasing attention to the operational characteristics of highway transportation and study the need for better geometric design, capacity, intersection, traffic regulation, signals, traffic signs, roadway marking, parking facilities, design of bus stands and truck terminals and street lighting. The above specialized needs were sought to be met with by the services of the traffic engineer.

Some well known traffic management measures are:

- Restrictions of turning movements
- One-way streets
- Tidal-flow operations
- Exclusive bus-lanes
- Closing side-streets

II. METHODOLOGY

A. IRC Method for Signal Design

- The pedestrian green time required for the major and minor roads are calculated based on walking speed of 1.2 m/sec. and initial walking time of 7.0 secs. These are the minimum green time required for the vehicular traffic on the minor and major roads respectively.
- The green time required for the vehicular traffic on the major road is increased in the proportion to the traffic on the two approach roads.
- The cycle time is calculated after allowing amber time of 2.0 secs. Each
- The minimum green time required for clearing vehicles arriving during a cycle is a determined for each lane of the approach road assuming that the first vehicle will take 6.0 sec. And the yielding vehicles (PCU) of the queue will be cleared at a rate of 2.0 secs. The minimum green time required for the vehicular traffic on any of the approaches is limited to 16 secs.
- The optimum signal cycle time is calculated using Webster's formula The saturation flow values may be assumed as 1850,1890,1950,2250,2550and 2990 PCU per hour for the approach roadway widths (keb to median or centerline) of 3.0,3.5,4.0,4.5,5.0 and 5.5m; for width above 5.5m, the saturation flow may be assumed as 525 PCU per hour per meter width. The lost time is calculated from the amber time, inter-green time and the initial delay of 4.0 secs. For the first vehicle, on each leg.
- The signal cycle time and the phases may be revised keeping in view the green time required for clearing the vehicles and the optimum cycle length determined in steps (iv) and(v) above.

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B. Traffic Rotary

1) Guidelines for the choice of rotaries

Because of the above boundary, rotaries are not applicable for every place. There are few guidelines that help in conclusive the suitability of a rotary. They are listed down.

- Rotaries are suitable when the traffic entering from all the four approaches are relatively equal.
- A total volume of about 3000 vehicles per hour can be considered as the upper limiting case and a volume of 500 vehicles per hour is the lower limit.
- A rotary is very beneficial when the proportion of the right-turn traffic is very high; typically if it is more than 30 percent constant and regular flow is achieved.

2) Traffic operations in a rotary

- Diverging
- Merging
- Weaving

3) Design elements

Radii of curves at entry and exit

Rotary design speed v (k. p. h.)	Suggested values of radius at entry (m)
40	20-35
30	15-25

Width of carriageway at entry and exit

Carriageway width of the Approach road	Radius at entry	Width of carriageway at entry and exit
7 m (2 lanes) 10.5 m (3 lanes) 14 m (4 lanes) 21 m (6 lanes)	25-35	6.5 7.0 8.0 13.0
7 m (2 lanes) 10.5 m (3 lanes) 14 m (4 lanes) 21 m (6 lanes)	15-25	7.0 7.5 10.0 15.0

Radius of Central Island

Weaving Length

Design speed (K.P.H.)	Minimum Weaving Length (m)
40	45
30	30

Width of weaving section

$$W_{weaving} = \left(\frac{e_1 + e_2}{2}\right) + 3.5m$$

4) Capacity of the Rotary

$$Q_w = \frac{280w[1 + \frac{e}{w}][1 - \frac{p}{3}]}{1 + \frac{w}{l}}$$

$$p = \frac{b + c}{a + b + c + d}$$

This capacity formula is acceptable only if the following conditions are satisfied.

1) Weaving width at the rotary is in between 6 and 18 meter.
2) The ratio of average width of the carriage way at entry and exit to the weaving width is in the limit of 0.4 to 1.
3) The ratio of weaving width to weaving length of the roundabout is in amid 0.12 and 0.4.
4) The proportion of weaving traffic to non-weaving traffic in the rotary is in the limit of 0.4 and 1.
5) The weaving length available at the intersection is in between 18 and 90 m.

C. Design

Design of Traffic Rotary at Pitalmill Intersection

Intersection Details:

1) Road number 1:

- Importance- Connecting Khariphatak
- Nature - Two way
- Width - 9.4*2

2) Road number 2:

- Importance- Connecting Bantinagar
- Nature - Two way
- Width - 9.4

3) Road number 3:

- Importance- Connecting Aehmadpur Square
- Nature - Two way
- Width - 10

D. Design of Rotary Intersection

Equivalency factors use in rotary design:

S. No.	Vehicle type	PCU
1.	Cars and light commercial vehicles, including 3-wheelers	1.0
2.	Buses and medium heavy vehicles	2.8
3.	Motorcycles and scooters	0.75
4.	Pedal cycles	0.5
5.	Animal drawn vehicles	4 to 6

E. Diagram

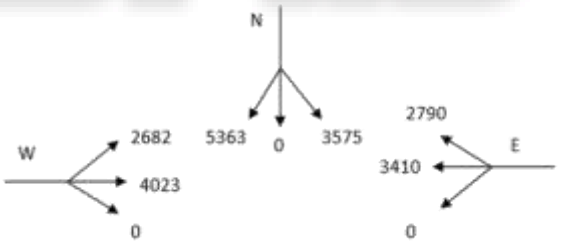

Fig. 1: Diagram

In the above diagram

N= Aehmadpur Square

E= Khariphatak

W= Bantinagar

F. Calculation

P= Proportion of weaving traffic, i.e. ratio of sum of crossing streams to the total traffic on the weaving section

P = b+c/ (a+b+c)

Where,

b= crossing/ weaving traffic turning towards right while entering the rotary

c= crossing/ weaving traffic turning towards left while entering the rotary

a= Left turning traffic moving along left extreme lane

P_{NE}= (5963+3575) + (4023+839) / (5963+839+3575)

= 1.36

P_{NW}= (4023+2682) + (3410+989) / (4023+989+2682)

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= 1.44

P_{EW}= (3410+2790) + (5963+620) / (3410+620+2790)

= 1.87

So, P_{WN} has maximum value i.e. = 1.87

Width of weaving section W= 18m. (Depend upon 6 to 18)

l_1= 20m.

l_2 = 18.8m.

e = (l_1+l_2) / 2

e= 19.4 or 20m.

Capacity of Rotary

Q_p= {280W (1+e/W)(1-P/3)} / (1+W/L)

= {280×18(1+20/18)(1-1.87/3)} / (1+18/34)

Q_p = 6142 vehicle/ hr.

Design Element

Speed = 30 kmph

Shape = Circular

Radius of rotary road way

R_1= V^2/ 127*f*

Where, *f*= 0.47 for 30kmph

For V=30kmph

R_1= Radius of entry curve= 15 to 25m.

Weaving length

L= 30 to 60m. for 30kmph

L= 4W

Width of carriage way at entry and exit:

Width of approach road	e_1
7m(2 lanes)	7.0
10.5m(3 lanes)	7.5
14m(4 lanes)	10.0
21m(6 lanes)	15.0

ee_2= Width of single entry, e_2<W

Width of rotary roadway

W= [(e_1+e_2/2) +3.5]

7. Radius of central island: R= 1.33×R_1

8.9 Results

V= 30kmph

R_1= V^2/127*f*

= 30^2/ (127×0.47)

= 15m.

$R_{1=}$ 15 to 25m. for 30kmph

So, R_1= 20m.

For 2- lane road :

e_1= 5m.

e_2= 5m.

W= [(e_1+e_2/2) +3.5]

= (5+5/2) + 3.5

=8.5m.

Length of weaving section:

L= 4W

= 4×8.5

= 34m.

L= 30 to 60m. for 30kmph

So, L= 40m.

Radius at exit curve:

R_2= 1.5 to 2 times of R_1

= 2×20

= 40m.

Central diameter:

R= 1.33R_1

= 1.33×20

= 26.6 say 27m.

G. Design of Traffic Signal at Durga nagar Square

Design traffic on road 1 = 1374/2=687 PCU/hour

Design traffic on road 2 = 309 PCU/hour

Width of road 1 = 10m

Width of road 2 = 9.5m

1) Pedestrian green signal time for road 1 = $\frac{10}{1.2}$ + 7.0 = *15.33 sec.*

Pedestrian green signal time for road 2 = $\frac{9.5}{1.2}$ + 7.0 = 14.91 sec.

2) Green signal time for vehicles on road 2, G_2 = 15.33 sec

Green signal time for road 1, G_1 = 15.33 X $\frac{687}{309}$ = 34 sec

3) Adding 2.0 sec each to the clearance amber and 2.0 sec to the inter-green period for each phase

Total cycle time required = (2+15.33+2)+(2+34+2) = 57.33 sec

Signal cycle time may be conveniently made in multiple of 5 sec.

So the cycle time will be 60 sec.

The extra 2.5 sec. per cycle may be assigned to the green time of road 1 and 2 as 1.5 and 1.0 sec. respectively.

G_1 = 34 + 1.5 = 35.5 ≈ 36 sec.

G_2 = 15.33 + 1.0 = 16.33 ≈ 16 sec.

4) Vehicles arrivals per lane cycle on road 1 = $\frac{687}{60}$ = 11.45 PCU

Minimum green time for clearing vehicles on the road 1= 6 + (11.45-1) 2= 26.9 sec.

Vehicles arrivals per lane cycle on road 2 = $\frac{309}{60}$ = 5.15 PCU

Minimum green time for clearing vehicles on the road 2= 6 + (5.15-1) 2= 14.3 sec.

As the green time designed above for two roads by pedestrian crossing criteria are having values high, thus the above values can be accepted as they are alright and minimum.

5) Total lost time per cycle = (amber time + inter-green time + time lost for initial delay of first vehicle) for two phase

= (2+2+4)X 2

= 16 sec.

H. From IRC: 93-1985

The total lost time per cycle is equal to the total amber time per cycle i.e. 8 sec, plus 4 sec. reaction time for first vehicle in phase 1, plus 4 sec reaction time for first vehicle in phase 2, i.e. equal to total 16 sec.

Saturation flow = 525 X W PCU per hour

Where ,

W = width of the approach measured from kerb to the inside of the central median or mentioned centre line of the approach.

The width lesser from 5.5 m, the values for saturation flow is taken from the table below:

Width in m	3	3.5	4	4.5	5	5.5
Saturation flow (PCU)per hour	1850	1890	1950	2250	2550	2990

Saturation flow for critical approach for road 1 = 2550 + $\frac{40X5}{5}$ = 2590 PCU/hour

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Saturation flow for critical approach for road 2 = $2250 + \frac{40X4.75}{5}$ = 2288 PCU/hour

$y_1 = \frac{687}{2590} = 0.26$

$y_2 = \frac{309}{2288} = 0.13$

$Y = y_1 + y_2$

Y= 0.26 + 0.13

Y = 0.39

The Webster's formula for optimum cycle time

$$C_o = \frac{1.5L+5}{1-Y}$$

Where ,

C_o = optimum cycle length in seconds

L = total lost time per cycle

Y = volume/ saturation flow for critical approach in each phase.

$C_o = \frac{1.5L+5}{1-Y}$

$C_o = \frac{1.5X16+5}{1-0.39}$

$C_o = \frac{29}{0.61}$

C_o = 47.54 sec

Thus the total cycle time of 60 sec is acceptable.

Road	Green	Amber	Red	Cycle
Road 1	36	2	(20+2)	60
Road 2	22	2	(16+20)	60

Time	Motorised Traffic												Non- Motorised Traffic				Total
	Passenger Vehicles					Good Vehicles				Agriculture		Construction	Passenger	Goods			
							Trucks										
	2-Wheeler	3-Wheeler	Car/Jeep	Bus	Magic	Auto/magic	2-Axle	3-Axle	Multi-Axle	Trac.-Trailor	Tractor		Cycle	Horse Cart	Animal Drawn	Hand Cart	Vehicle No.
6am-7am	87	12	2	1	0	7	0	1	1	2	0	0	18	1	0	1	133
7am-8am	168	21	3	3	1	10	1	1	0	1	1	0	37	1	0	3	251
8am-9am	303	15	8	0	0	11	0	0	0	1	0	0	18	0	0	2	358
9am-10am	437	29	17	0	1	14	0	0	0	3	1	1	21	0	0	1	525
10am-11am	489	32	47	0	1	16	1	0	0	1	0	0	15	1	1	1	605
11am-12pm	438	33	34	0	2	17	0	0	0	1	0	0	32	0	0	1	558
12pm-1pm	387	19	30	0	1	11	0	0	0	2	0	1	18	0	0	3	472
1pm-2pm	408	13	13	0	0	9	1	0	0	1	0	0	7	0	0	1	453
2pm-3pm	329	9	18	0	0	8	1	1	0	3	1	0	10	1	0	1	382
3pm-4pm	317	15	26	0	0	13	0	0	0	3	0	0	5	0	0	1	380
4pm-5pm	404	32	20	0	1	16	1	0	0	2	0	1	27	0	0	1	505
5pm-6pm	428	27	17	0	0	11	1	0	0	2	2	1	33	1	1	2	526
6pm-7pm	487	25	23	0	0	20	0	0	0	1	0	0	27	0	0	0	583
7pm-8pm	395	14	20	0	0	9	1	0	0	2	1	1	17	1	0	3	464
8pm-9pm	303	22	17	0	1	8	1	1	0	1	0	1	7	0	0	2	364
9pm-10pm	168	10	9	0	0	3	1	0	0	2	1	0	3	0	0	1	198
10pm-11pm	83	6	3	0	0	2	0	0	0	1	0	0	2	0	0	0	97
11pm-12am	27	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	31
Total	5658	335	309	4	8	185	9	4	1	29	7	6	298	6	2	24	6885
PCU	2829	335	309	12	8	277.5	27	12	4.5	130.5	7	9	149	6	2	24	4141.5
Avg.H.T	314.3	18.61	17.17	0.222	0.444	10.28	0.5	0.222	0.056	1.611	0.389	0.333	16.56	0.333	0.111	1.333	382.5

Table 1durga nagar to railway station

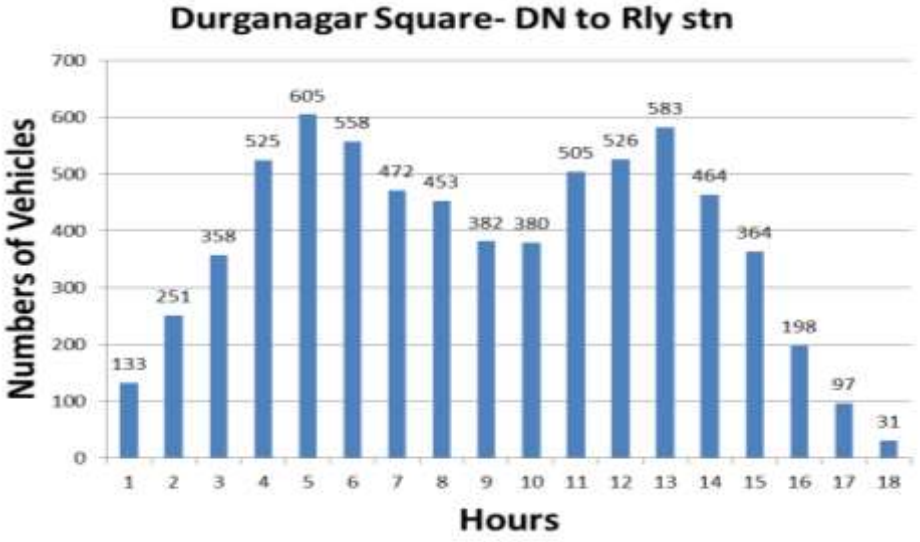

Fig. 2: Chart 1durganagar to railway station

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Time	Motorised Traffic												Non-Motorised Traffic				Total
	Passenger Vehicles					Good Vehicles				Agriculture			Passenger		Goods		
							Trucks										
	2-Wheeler	3-Wheeler	Car/Jeep	Bus	Magic	Auto/magic	2-Axle	3-Axle	Multi-Axle	Trac.-Trailor	Tractor	Construction	Cycle	Horse Cart	Animal Drawn	Hand Cart	Vehicle No.
6am-7am	109	12	14	6	1	7	4	3	1	3	0	0	31	2	0	3	**196**
7am-8am	218	24	29	11	2	12	5	6	2	2	1	0	44	1	1	6	**364**
8am-9am	311	22	69	8	4	9	6	4	2	2	1	0	32	0	0	1	**471**
9am-10am	432	31	83	12	1	12	7	6	3	5	3	0	23	0	0	2	**620**
10am-11am	516	46	108	14	5	25	7	5	5	1	0	2	10	1	0	0	**745**
11am-12pm	538	44	132	11	3	23	8	7	6	3	0	1	27	0	0	3	**806**
12pm-1pm	779	66	93	9	2	30	11	10	7	1	0	0	13	0	0	1	**1022**
1pm-2pm	813	106	108	8	4	41	13	12	4	4	2	1	37	0	0	1	**1154**
2pm-3pm	839	49	91	11	6	25	14	10	8	0	0	0	22	1	0	2	**1078**
3pm-4pm	790	51	77	12	3	22	10	6	3	1	0	1	11	0	0	0	**987**
4pm-5pm	1023	64	114	7	2	24	6	5	2	8	4	0	43	0	0	1	**1303**
5pm-6pm	947	56	81	9	1	15	8	7	4	5	2	1	36	0	0	1	**1173**
6pm-7pm	1144	58	138	9	2	22	7	5	3	6	1	0	45	0	0	1	**1441**
7pm-8pm	753	21	89	2	1	16	4	3	1	6	2	1	24	0	0	1	**924**
8pm-9pm	393	18	61	2	0	9	6	4	1	3	0	0	3	0	0	2	**502**
9pm-10pm	317	14	47	1	0	7	10	7	4	1	0	1	5	0	0	0	**414**
10pm-11pm	116	1	23	1	0	1	17	13	8	0	0	0	0	0	0	0	**180**
11pm-12am	31	1	17	1	0	0	6	5	3	0	0	0	0	0	0	0	**64**
Total	**10069**	**684**	**1374**	**134**	**37**	**300**	**149**	**118**	**67**	**51**	**16**	**8**	**406**	**5**	**1**	**25**	**13444**
PCU	**5035**	**684**	**1374**	**402**	**37**	**450**	**447**	**354**	**301.5**	**229.5**	**16**	**12**	**203**	**5**	**1**	**25**	**9575.5**
Avg.H.T	**559.4**	**38**	**76.33**	**7.444**	**2.056**	**16.67**	**8.278**	**6.556**	**3.722**	**2.833**	**0.889**	**0.444**	**22.56**	**0.278**	**0.056**	**1.389**	**746.89**

Table 2 sati to overbridge

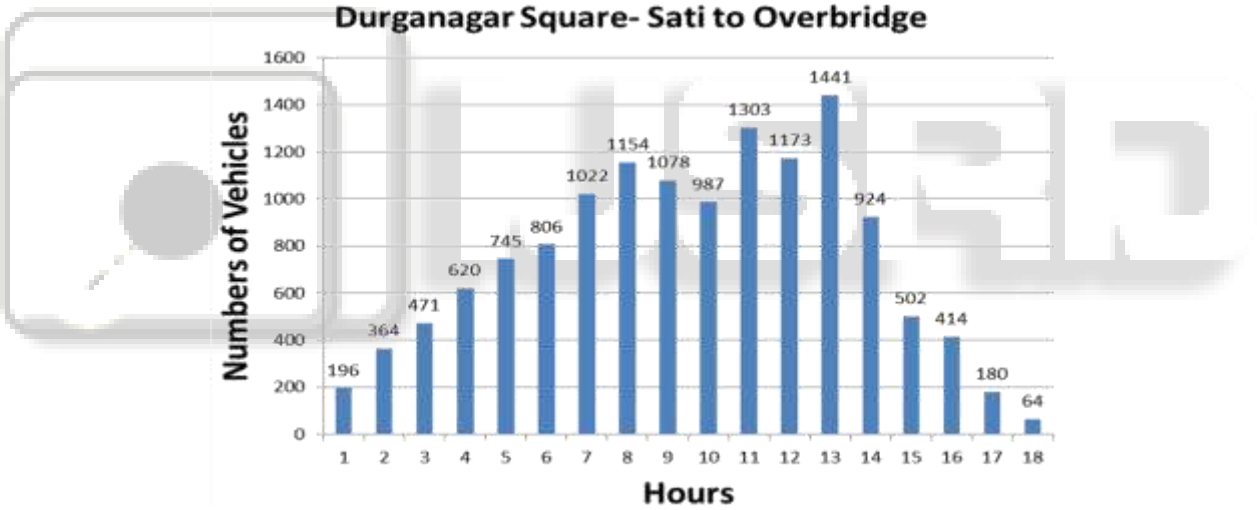

Fig. 3: Chart 2 sati to overbridge

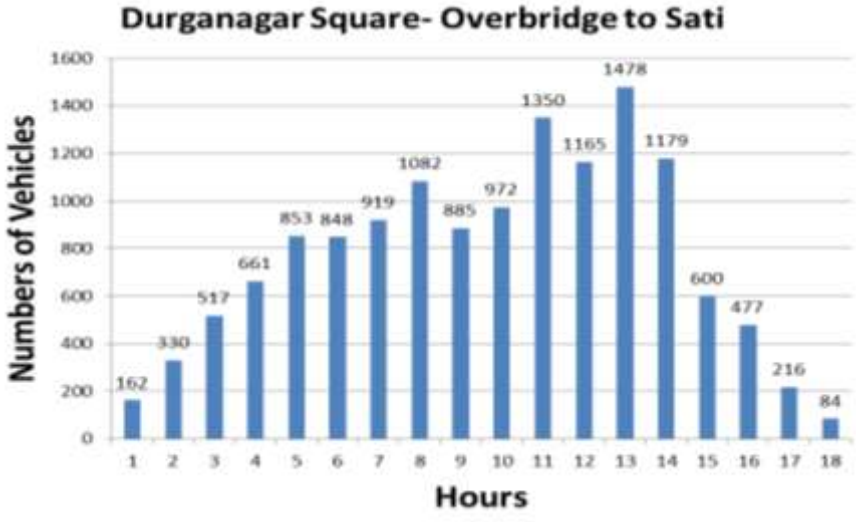

Fig. 4: Chart 3 overbridge to sati

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Time	Motorised Traffic												Non-Motorised Traffic				Total
	Passenger Vehicles					Good Vehicles				Agriculture			Passenger		Goods		
							Trucks										
	2-Wheeler	3-Wheeler	Car/Jeep	Bus	Magic	Auto/magic	2-Axle	3-Axle	Multi-Axle	Trac.-Trailor	Tractor	Construction	Cycle	Horse Cart	Animal Drawn	Hand Cart	Vehicle No.
6am-7am	104	19	10	3	2	1	8	1	1	2	1	0	9	0	0	1	162
7am-8am	208	41	19	11	3	3	11	4	2	0	0	0	28	0	0	0	330
8am-9am	387	29	55	8	5	4	8	1	0	0	0	0	17	0	0	3	517
9am-10am	439	51	110	13	6	9	8	0	0	0	1	0	23	0	0	1	661
10am-11am	621	49	118	11	8	11	11	3	1	3	0	1	13	0	0	3	853
11am-12pm	579	60	131	7	3	7	24	3	2	9	3	0	20	0	0	0	848
12pm-1pm	713	69	63	7	1	4	27	3	3	0	1	0	27	0	0	1	919
1pm-2pm	820	71	79	8	5	16	30	8	1	6	0	0	37	0	0	1	1082
2pm-3pm	663	61	97	6	0	5	29	4	0	4	0	1	13	0	0	2	885
3pm-4pm	742	53	107	11	2	8	29	5	3	1	0	0	11	0	0	0	972
4pm-5pm	1068	59	105	8	4	14	10	5	0	13	2	0	59	0	0	3	1350
5pm-6pm	931	66	76	9	3	7	15	2	0	9	0	0	41	0	0	6	1165
6pm-7pm	1170	72	141	9	6	10	12	4	1	9	0	0	41	0	0	3	1478
7pm-8pm	941	40	110	2	2	7	10	2	0	5	0	1	57	0	0	2	1179
8pm-9pm	493	29	34	3	0	5	15	3	0	2	1	0	13	0	0	2	600
9pm-10pm	393	17	43	1	0	1	13	0	0	1	0	0	7	0	0	1	477
10pm-11pm	143	11	19	1	2	0	31	5	2	0	0	0	2	0	0	0	216
11pm-12am	41	3	21	1	0	0	10	6	1	0	1	0	0	0	0	0	84
Total	**10456**	**800**	**1338**	**119**	**52**	**112**	**301**	**59**	**17**	**64**	**10**	**3**	**418**	**0**	**0**	**29**	**13778**
PCU	**5228**	**800**	**1338**	**357**	**52**	**168**	**903**	**177**	**76.5**	**288**	**10**	**4.5**	**209**	**0**	**0**	**29**	**9640**
Avg.H.T	**580.9**	**44.44**	**74.33**	**6.611**	**2.889**	**6.222**	**16.72**	**3.278**	**0.944**	**3.556**	**0.556**	**0.167**	**23.22**	**0**	**0**	**1.611**	**765.44**

Table 3 overbridge to sati

Time	Motorised Traffic												Non-Motorised Traffic				Total
	Passenger Vehicles					Good Vehicles				Agriculture			Passenger		Goods		
							Trucks										
	2-Wheeler	3-Wheeler	Car/Jeep	Bus	Magic	Auto/magic	2-Axle	3-Axle	Multi-Axle	Trac.-Trailor	Tractor	Construction	Cycle	Horse Cart	Animal Drawn	Hand Cart	Vehicle No.
6am-7am	39	15	4	0	0	2	0	0	0	0	0	0	10	0	0	1	71
7am-8am	86	31	10	0	2	1	0	0	0	0	0	0	23	0	0	1	154
8am-9am	147	23	16	0	3	0	1	0	0	2	1	0	13	0	0	2	208
9am-10am	189	27	29	0	1	0	0	0	0	1	0	0	18	0	0	1	266
10am-11am	203	33	11	0	2	0	0	0	0	0	0	0	7	0	0	1	257
11am-12pm	161	18	5	0	0	0	0	0	0	1	0	0	12	0	0	3	200
12pm-1pm	187	21	7	0	0	1	0	0	0	1	0	0	3	0	0	2	222
1pm-2pm	153	13	8	0	11	1	0	0	0	0	0	0	9	0	0	1	196
2pm-3pm	230	32	12	0	0	0	0	0	0	1	1	0	7	0	0	0	283
3pm-4pm	203	24	10	0	2	0	0	0	0	0	0	0	13	0	0	1	253
4pm-5pm	304	40	15	0	1	2	1	0	0	2	0	1	31	0	0	3	400
5pm-6pm	338	58	21	0	0	3	0	0	0	1	0	0	38	0	0	1	460
6pm-7pm	359	38	19	0	1	1	0	0	0	0	0	0	33	0	0	0	451
7pm-8pm	278	17	17	0	1	1	0	0	0	0	0	0	21	0	0	0	335
8pm-9pm	163	21	11	0	2	0	0	0	0	1	0	0	6	0	0	1	205
9pm-10pm	103	13	3	0	1	0	1	0	0	0	0	0	2	0	0	2	125
10pm-11pm	37	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	45
11pm-12am	11	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Total	**3191**	**433**	**201**	**0**	**27**	**12**	**3**	**0**	**0**	**10**	**2**	**1**	**246**	**0**	**0**	**20**	**4146**
PCU	**1596**	**433**	**201**	**0**	**27**	**18**	**9**	**0**	**0**	**45**	**2**	**1.5**	**123**	**0**	**0**	**20**	**2475**
Avg.H.T	**177.3**	**24.06**	**11.17**	**0**	**1.5**	**0.667**	**0.167**	**0**	**0**	**0.556**	**0.111**	**0.056**	**13.67**	**0**	**0**	**1.111**	**230.33**

Table 4 railway station to Durganagar

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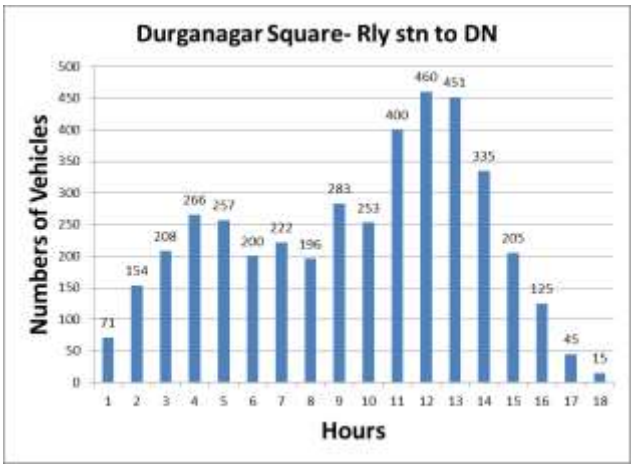

Fig. 5: Chart 4 Railway station to durganagar

III. CONCLUSION

The improvement of town traffic condition is largely dependent on the modern ways of traffic management and control. Advanced traffic signal controllers and control system contribute to the improvement of the traffic problem. The object of the study is to develop the traffic management that can be used to give better traffic conditions with safety and ease. The data which is collected after manual survey of all squares can be used to estimate the vehicular speed on the ramps of the intersection, by using this data, the system of traffic management can upgrade with various terms like geometric design, signal, sign etc.

The main types of collision at signal controlled function are single vehicle while lane changing on the approach to the function right angle collision, principle right turn collision and pedestrian collision. These collisions could not occur if all drivers acted in accordance with the signals. Right angle collision and those involving non-motorized user have the highest mean severity around 60% of serious and fatal pedestrian injuries that occur at signals were found to be associated with the pedestrian not using the crossing in compliance with the highway-code.

IV. SUGGESTION

A. Commercialization Potential

The purposes of this project are to design a safe and efficient traffic flow and to assign the right way to minimize delay waiting time in road. This project is to improve the movement of the vehicles on the road at the junctions. This project is the study of all busy and non-busy roads.

In VIDISHA city there are six squares which are major in point of view of maximum PCU. All six squares are having maximum crowd in both, peak hours and normal hours. All six squares are connected to the main road street in city known as NH146, which is connected to major sub division cities, BHOPAL & SAGAR.

There are many faults which were seen by us at the time of survey. There are much needed traffic signal, traffic sign and traffic rotary, where the people are facing problems in the absence of all this.

We are designing traffic signal at DURGA-NAGAR square and traffic rotary at PEETAL MILL square. The rotary which is already designed and situated on it, the geometric design of the pre-constructed rotary is not proper by present condition PCU. So needed reduction in width of rotary and shift it little in direction of AEHMADPUR square. The traffic signs are much needed at all square for information about direction and distance and also for nearly available Places.

Also after the survey we observe that the rush on collectorate road is also due to the people who like to travel on BHOPAL SAGAR road but have to enter in the city due to absence of bypass so we can also make a bypass which help the people to connect directly BHOPAL SAGAR road without entering in the city.

We should also provide a bypass which is directly connected BHOPAL, SAGAR road. By this bypass people who's don't want to enter in city can easily go to SAGAR OR BHOPAL without wasting time to cross VIDISHA city. After this the city avoid the rush of traffic by some heavy vehicles like tandem axle, tri-axel etc.

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