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COMPREHENSIVE TRANSPORTATION PLANNING FOR SELECTED ZONES IN BANGALORE CITY

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Project :Comprehensive Transportation Planning for Selected Zones in Bangalore City

Objectives of the Project:

a) To collect and review information on development of GIS based Transport Planning.

b) To develop GIS database of urban transportation system.

c) To develop database with details collected and collated from different agencies.

d) To develop Multiple Parameter Model for various travel demand dimensions which would account for Demographic and Socio-Economic Factors.

e) To study the modal choice of the people including the Metro Rail and other existing public transit modes.

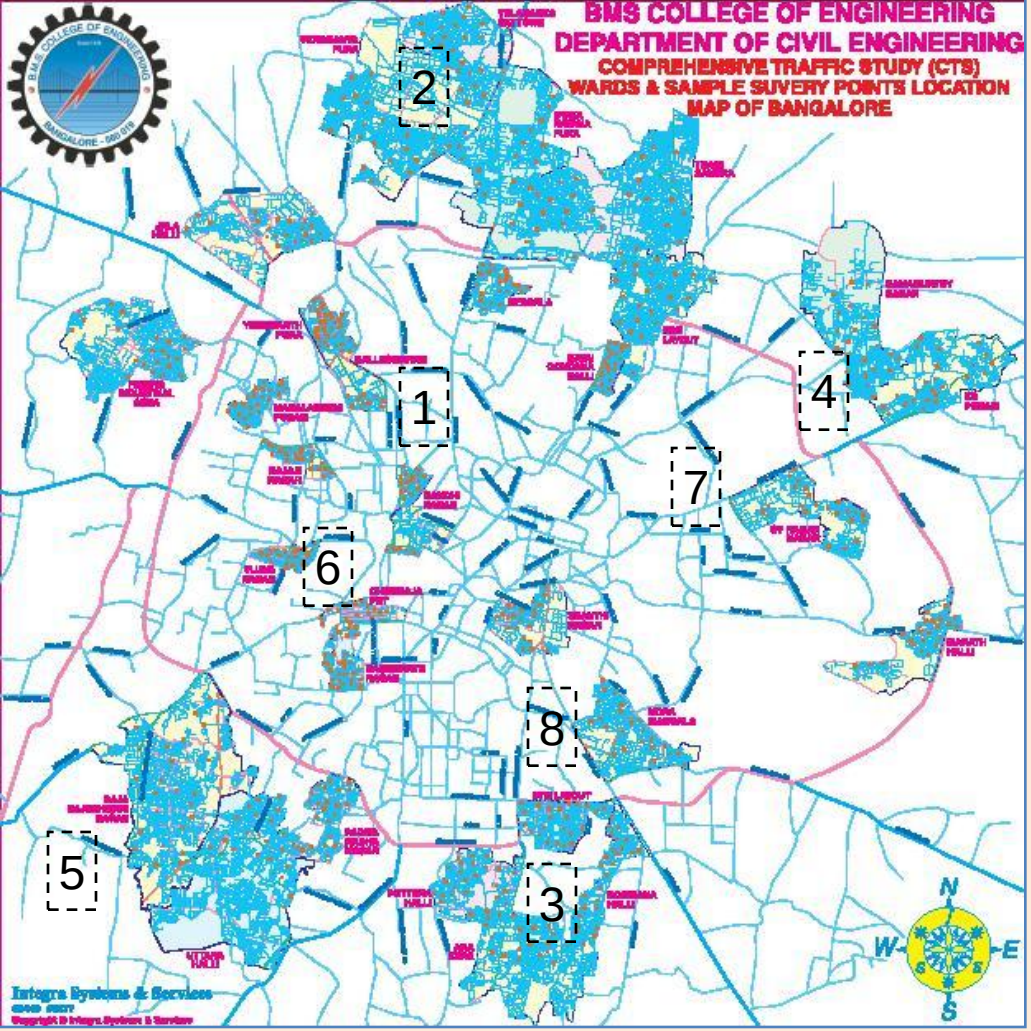
f) To Calibrate and validate Transport planning model for the selected wards.

g) To develop Economic and Financial Analysis.

Project Area Details

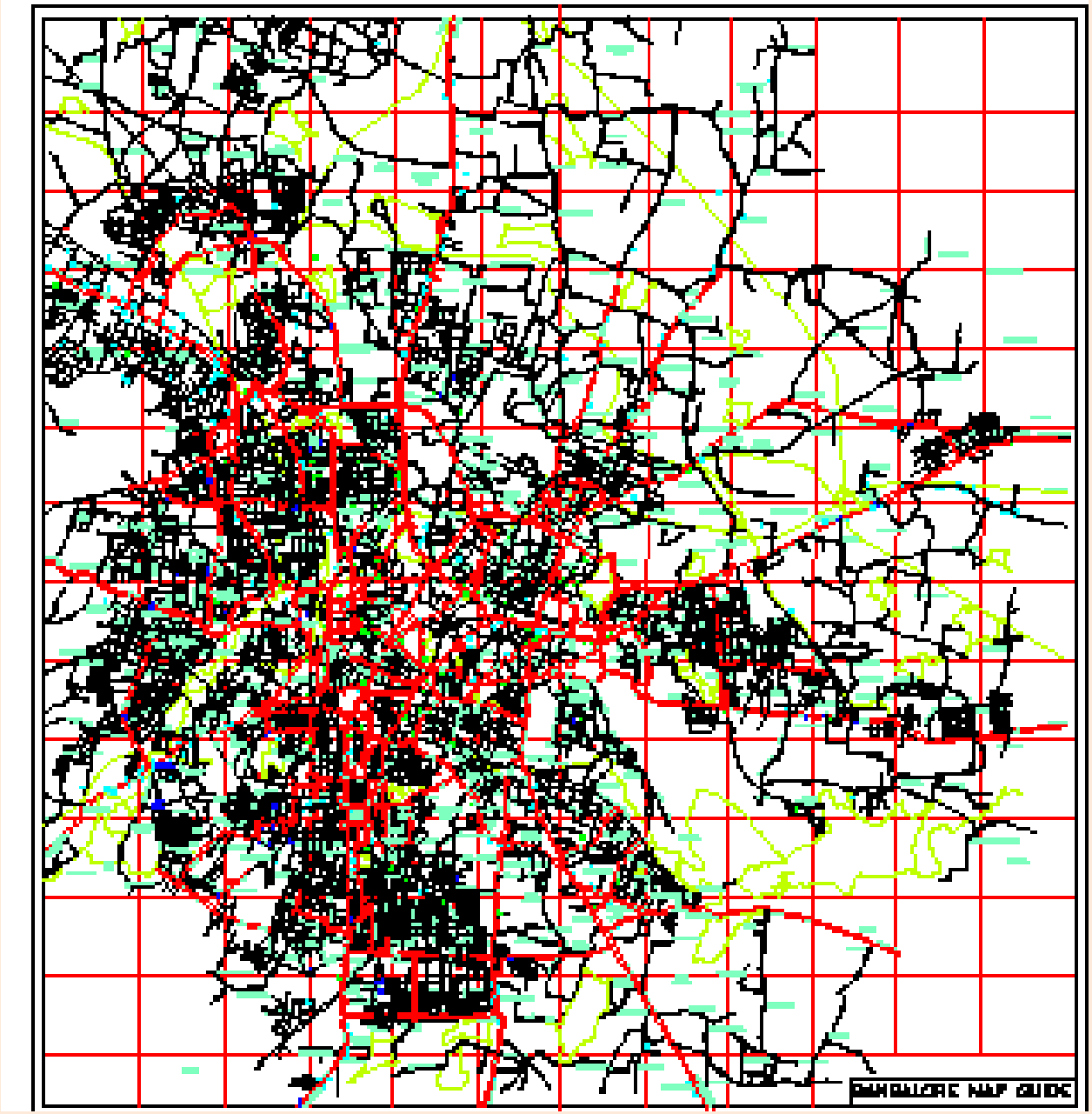
For this study, 30 newly added wards (Bruhut Bengaluru Mahanagara Palike) have been considered:

- Average Population of each ward :30000
- Sample size : 1.5%
- Type of Survey : House hold Survey
- No. of sample Collected : 3450



PROPOSED MAP OF STUDY AREA

Ward name	Zone name
	Dasarahalli Zone (1)
Peenya Industrial Area	
Yelahanka Satellite Town	Yelahanka Zone (2)
Thanisandra	
Byatarayanapura	
Vidyaranyapura	
Bommanahalli	Bommanahalli Zone (3)
Uttarahalli	
Puttenahalli	
Arakere	
Ramamurthi Nagar	Mahadevapura Zone (4)
K R Puram	
Marathahalli	
Jalahalli	RR Nagara Zone (5)
Yeshwanthpura	
Mahalakshimpuram	
Rajarajeshwari Nagar	
Malleswaram	West Zone (6)
Gandhinagar	
Rajaji Nagar	
Chamrajapet	
Hebbala	East Zone (7)
HBR Layout	
Kadugondanahalli	
C V Raman Nagar	
Shanthi Nagar	
Vijayanagar	South Zone (8)
Koramangala	
Hanumanth Nagar	
BTM Layout	
Padmanabha Nagar	



BANGALORE MAP DIGITIZED IN AUTOCAD

Ward Wise Trip Sheet

WARD	WORK	EDUCATION	BUSINESS	SHOPPING	SOCIAL	RECREATION	HOSPITAL	OTHER PURPOSES	RETURN HOME
Arakere	166	65	22	95	0	0	4	1	0
Bommanahalli	171	45	27	82	0	0	1	0	0
BTM	149	48	41	97	4	0	3	1	0
Byatarayanapura	134	43	24	83	0	0	4	16	0
Chamrajpet	137	61	44	130	5	0	16	3	1
CV raman nagar	158	48	14	90	1	0	4	3	0
Gandhinagar	126	88	42	97	0	10	3	1	0
Hanumanth nagar	133	63	38	123	0	0	11	2	0
HBR Layout	176	25	13	67	5	0	5	3	0
Hebbal	133	55	17	88	0	0	4	25	1
Jalahalli	141	78	34	92	4	1	4	0	0
Kadugondanahalli	119	37	84	72	0	0	4	52	1
Koramangala	153	26	11	95	3	0	6	3	0
KR Puram	135	40	26	96	0	0	22	15	0
Mahalaxmipuram	122	27	46	101	9	0	15	2	0
Malleswaram	95	99	55	77	11	12	6	0	0
Marathalli	150	47	21	103	2	0	18	0	0
Padmanabhanagar	132	55	41	136	8	0	7	0	0
Peenya	145	75	17	113	1	3	3	0	0
Puttenhalli	199	55	7	71	0	0	22	5	0
Rajajinagar	144	72	24	100	8	7	10	2	0
Rajarajeshwari nagar	143	86	29	92	2	15	9	1	0
Ramamurthy nagar	161	36	8	93	0	0	14	6	0
Shantinagar	140	78	26	77	2	9	8	2	0
Thanisandra	124	26	36	79	2	1	4	18	0
Uttarahalli	220	51	18	93	4	1	18	2	0
Vidyaranyapura	144	65	30	129	3	0	7	3	0
Vijaynagar	145	86	15	70	1	34	3	0	0
Yelahanka	143	42	12	79	3	0	3	9	0
Yeshwantpur	122	62	38	115	2	10	15	0	0
TOTAL	**4051**	**1684**	**860**	**2835**	**80**	**101**	**252**	**175**	**3**

Sub Projects Till Date

Using the survey data, socio economic details and previous day travel details, following sub projects have been completed:

1. Trip Distribution for Selected zones in Bangalore using Fratar Method

2. Work Trip Distribution by Gravity Model

3. Studies on Adequacy of Sampling for Urban Transport Planning - A Case Study of Bangalore

Trip Distribution for Bangalore Roads using Fratar Method

Outcome of Work

- This study is concluded with O-D table is successively corrected and balanced in 2nd iteration.
- Present 454 trips for the year 2011 obtained from house hold interview survey has been projected as 499 trips for the year 2021 for 1.5% sample size considered.
- Fratar method is applicable for a moderate growth rate of 1.1 to 1.50.

Work Trip Distribution by Gravity Model

Objectives :

1. To identify the travel pattern of the residents of study area.
2. To study the pattern of work based trips considering the travel time, distance and travel cost.
3. To develop Friction factors and socio economic adjustment factors.
4. To develop a gravity model for distributing the trips between the zones.

Work Trip Distribution by Gravity Model

Outcome of Project

- The analysis of work based trips by mode of travel indicate that majority of work trips are performed by two wheeler followed by bus. The cost of travel for work trips ranges from Rs 500-2000 per month.

- The analysis of work based trips by length of travel indicates that the majority of the people travel 5 to 10 km every day to perform work trips.

- The travel time was replaced by friction factor assuming low impedance value as the base value.

- After the third iteration, it was found that a satisfactory agreement was reached between the desired and actual attraction figures. Balancing procedure yielded improved Gravity model prediction on a cell by cell basis.

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Objectives :

- To determine the statistics of sampling and to establish the confidence levels for the attributes size of the family, per capita income, distance travelled, travel time and travel cost respectively.

- The histograms, frequency distribution curves and Ogive curves are plotted and statistical parameters are determined for the various attributes. Also the coefficient of skewness and kurtosis are determined for the various attributes.

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- The data obtained from House Hold Interview was stratified in the range of 0-15%, 10-25% and 100%.

- The total number of households interviewed was 3450 and the stratification was made into three divisions as 450 households, 875 households and 3450 households respectively.

- The percentage of stratified data works out to be 13% for 450 households, 21.37% for 750 households and 100% for 3450 households.

- The statistical parameters considered for analysis are Mean, Standard Deviation and Coefficient of variation.

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Conclusions Drawn

- From the statistical parameters analyzed it can be concluded that as the sample size increases, the standard deviation for the size of the family as attribute increases. This indicates that as the sample size increases the scatter also increases for this attribute.

- The attribute per capita income has a gradual reduction of coefficient of variation with increase in sample size which indicates higher reliability at large sample size is obtained for this attribute.

- The standard error of estimate (e) at 95% confidence level has a decreasing trend with the increase in sample size for all the attributes considered.

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Conclusions Drawn

- From the histograms of various attributes for stratified data, it can be concluded that the attributes per capita income and distance travelled show a normal tendency with symmetrical behavior where as the remaining attributes size of the family, travel time and travel cost are skewed to the right.
- The coefficient of skewness is negative for the attributes per capita income and travel cost for lower sample size.
- As the sample size increases the negative skewness disappears exhibiting positive trend.
- Similarly the coefficient of kurtosis is negative and it exhibits positive kurtosis as sample size increases.

THANK YOU