



Roads and Buildings Department Government of Gujarat

Second Gujarat State Highway Project

ROAD USER SATISFACTION SURVEY EXECUTIVE SUMMARY

August 2015



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EXECUTIVE SUMMARY

1 OVERVIEW OF SECOND GUJARAT STATE HIGHWAY PROJECT

1.1 THE PROJECT

With the demonstrated excellence through Gujarat State Highway Project¹, Government of Gujarat (GoG) - Roads and Buildings Department (R&BD) and the World Bank (WB) are now continuing with their successful partnership. This is another teaming up and effort towards empowering the communities with enriched road infrastructure and building the capacities of stakeholders² participating in Second Gujarat State Highway Project (GSHP-II).

In order to achieve the objective, major components of the projects have been identified as; Highway Improvement, Sector Policy and Institutional Development, and Road Safety enhancement.

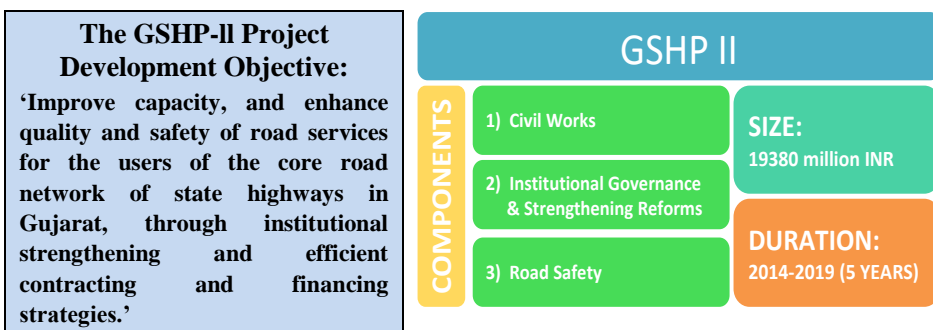
However, for project monitoring, and to see whether the project is able to make progress towards achievement of Project Development Objectives (PDO), following measurable project performance parameter³ have been developed:

- Parameter 1: Increase in roads in good and fair condition as a share of the state's Core Road Network (CRN);
- Parameter 2: Reduced average travel time on project roads;
- Parameter 3: Reduced average Volume/Capacity (V/C) ratios on project roads; and
- Parameter 4: Reduction in number of annual fatalities on the safe corridor.

1.2 SALIENT FEATURES

Table 1-1: Salient Features

Particular	Details
Project size	323 million US\$ (1938.00 Crore)
Loan Size	175 million US\$ (1050.00 Crore)
Project Period	5 Years (2014 to 2019)
Approval of Loan	13 December 2013
Signing of Agreement	12 February 2014
Effective Date	19 March 2014
Period for Loan Repayment	18 years (including 5 years grace period)
Payment terms	Loan Repayment in Equal Amount Installments, Every year on 1 st June and 1 st December
Project Component	Upgradation of State Highway of CRN: 320.68 Km (a) Rehabilitation of State Roads: 175.45 Km (b) Maintenance and Repair on OPRC basis: 130.00 Km (c) (Rs.1734 Crore (a+b+c)) Sector Policy and Institutional Development: 12 M US\$ (Rs.72 Crore) Road Safety Management: 22 M US\$ (Rs.132 Crore)



¹ GSHP, 2001-2007 one of the most successful WB assisted state highway project, set many benchmarks for others to follow.

² Institutional strengthening and governance reforms is one of the major focus components of GSHP-II.

³ Besides these, specific other indicators are agreed between the WB and GoG.

1.3 INTENT OF RUSS

As a post construction activity; one of the sub task under Civil works, road user satisfaction survey need to be carried out on all the road corridors which are improved/rehabilitated. To assess the level of satisfaction of those road users where road corridors improved/rehabilitated under GSHP-II; satisfaction survey has been carried out. This report is intended to draw out the survey details and its outcomes along with detailed analysis. Also a comparison with inferences of road user perception conducted by PIU through consultant is done in this report.

1.4 SURVEY

Road User Satisfaction Survey (RUSS) is conducted to assess the level of satisfaction of the road user of the road where improvement or rehabilitation work has been completed by PIU, R&BD, GoG, under second Gujarat State Highway project-II a World Bank aided project.

1.5 OBJECTIVE

As a post construction activity; one of the sub task under Civil works, road user satisfaction survey need to be carried out on all the road corridors which are improved/rehabilitated. This survey is carried out to assess the level of satisfaction of those road users where, road corridors are improved/rehabilitated under GSHP-II.

The objective is to assess the satisfaction level with respect to:

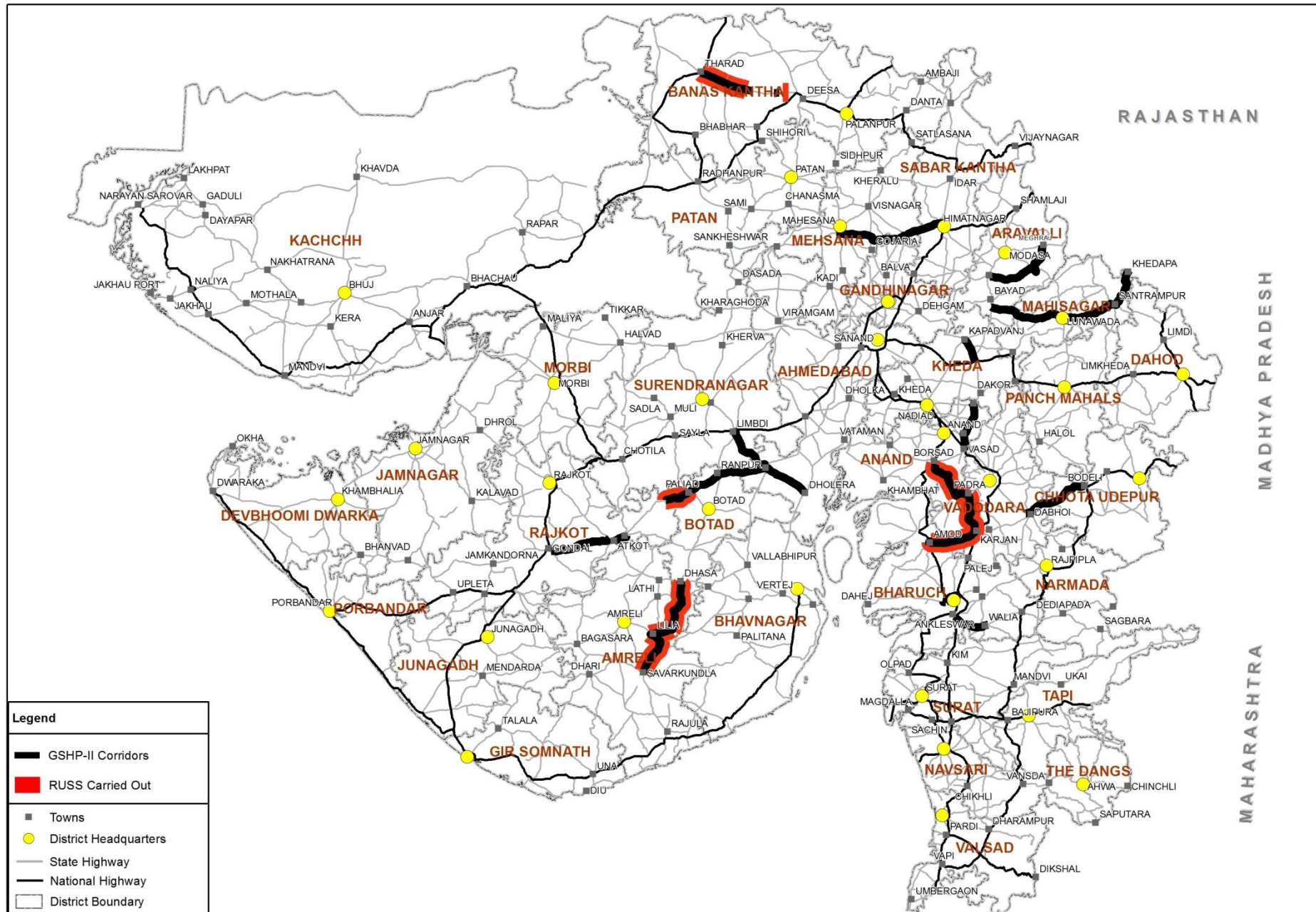
- Engineering Parameter
- Comfort and Convenience parameter
- Satisfaction with road furniture on the road segment
- Environmental Parameter
- Economic Parameter
- Law-Enforcement and Security

1.6 CORRIDORS SURVEYED

The Corridors on which the execution of the work is completed are provided in Table 1-2; are the corridors on which the surveys were conducted. Map 1 shows survey corridors.

Table 1-2: Survey Corridors

Package No	Corridor Name	Improvement Implemented	Length in km
NCB-01	Amod- Karjan (SH-161)	Rehabilitation Corridor	28.00
NCB-03	Atkot – Paliyad (SH-01)	Rehabilitation Corridor	15.80
NCB-04	Karjan- Borsad (SH-160 and SH-06)	Rehabilitation Corridor	55.15
NCB-06	Savarkundla–Dhasa (SH-21 and SH-236)	Rehabilitation Corridor	46.60
NCB-09	Deesa –Tharad (SH-54)	Rehabilitation Corridor	29.90
Grand Total			175.45



Map 1: Survey Corridors

1.7 APPROACH AND METHODOLOGY

The approach to conduct the survey was followed based on Road User Perception Study (RUPS), conducted by PIU, R&BD on survey corridors. In RUPS road user’s perceptions were surveyed for, now RUSS is conducted for road user’s satisfaction level. A detail review of similar studies conducted in India was undertaken. MDRA’s recent experience in conducting world’s largest road user satisfaction survey for NHAI and other similar studies in Karnataka and Odisha were also referred for any value addition for this study.

The methodology followed to conduct the survey is as per Figure 1-1.

1.8 IDENTIFIED PARAMETERS

To know the road user satisfaction of road by the commuters/respondents, 9 parameter are identified, further sub dividing them in to 35 sub parameter to record travel experience level. These parameter and sub parameter are presented in Figure 1-2.

To measure the levels of satisfaction of each parameter a scale of 1 to 5 is used where for some parameter 1 means least satisfied and 5 means highly satisfied. For few measurable parameter were also indicated with don’t know/ can’t say as 8 number and not applicable/not available as 9 number. Few parameter indicating law and enforcement levels are recorded as a possibility of occurrence.

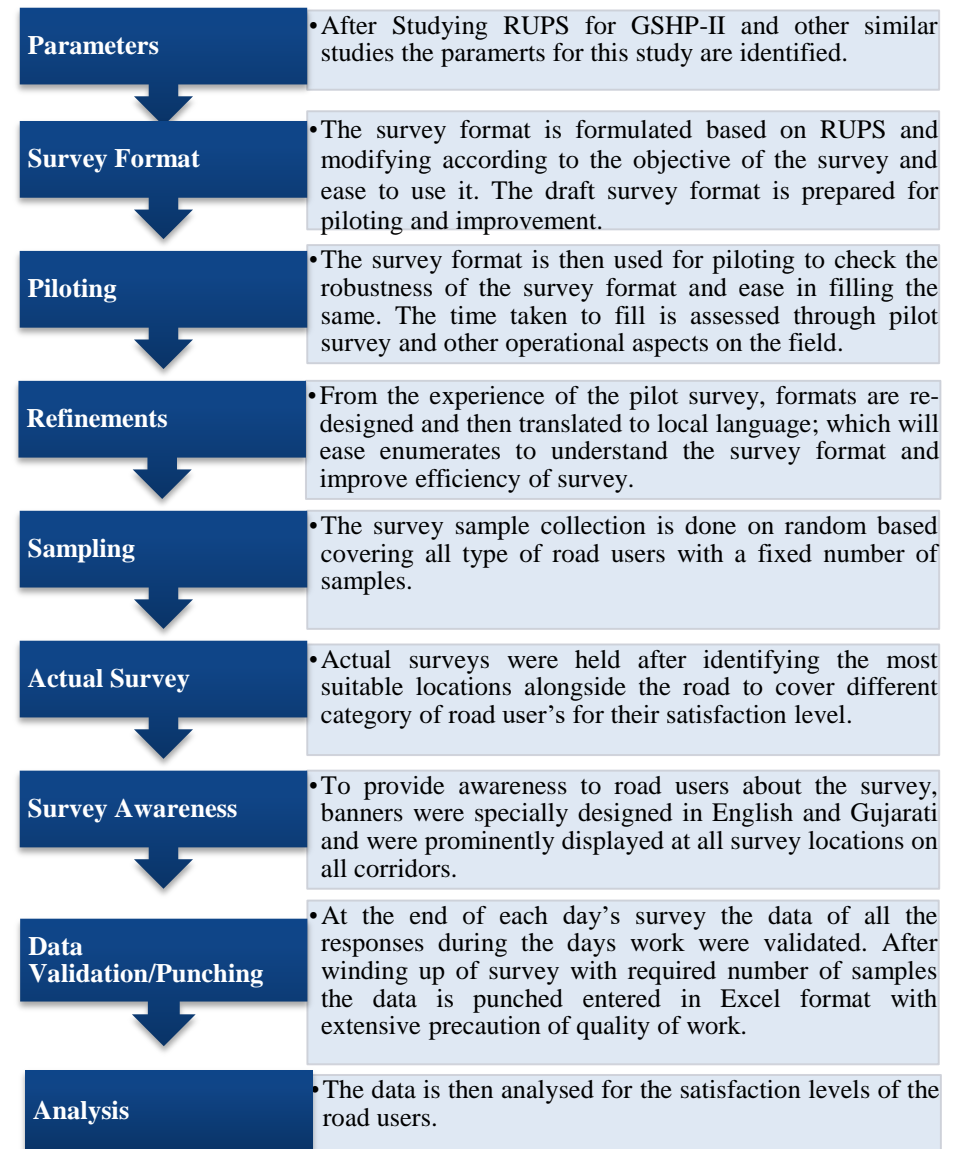


Figure 1-1: Survey Methodology

1.9 SAMPLE SIZE

Sample size is determined based on the adequacy and representation of the population using road, and degree of precision.

The survey sampling is done on random basis. The size of sample and the type of sample are the key factors considered during survey.

The survey sample size⁴ is derived considering not less than 1000 road users, covering about 50 km collectively as a representative sample.

The details of sample achieved against planned sample size is presented below in Table 1-3.

Table 1-3 Sample Size

Pkg. No	Corridor Name	Chainage	Improvement	Approx. Length (Km)	Designed/Achieved Sample Size
GSHP-II /NCB-01	Amod- Karjan (SH-161)	0+000 to 28+815	Rehabilitation Corridor	28.00	650
GSHP-II /NCB-03	Atkot – Paliyad (SH-01)	151+200 to 167+000	Rehabilitation Corridor	15.80	350
GSHP-II /NCB-04	Karjan- Borsad- (SH-160)	0+000 to 23+200	Rehabilitation Corridor	55.15	1000
		Padra to Mahuvad (SH-06)			
		Borsad to Gambhira (SH-06)			
GSHP-II /NCB-06	Savarkundla – Dhasa (SH-21)	3+000 to 12+350	Rehabilitation Corridor	46.60	1000
		(SH-236)			
		(SH-236)			
GSHP-II /NCB-09	Deesa –Tharad (SH-54)	33+290 to 60+000	Rehabilitation Corridor	29.90	650
		(SH-54)			
Grand Total				175.45	3650



Karjan-Borsad- Road User



Amod-Karjan-Farmer/Tractor Driver



Tharad-Deesa-Fruit Vendor



Atkot-Paliyad- Police Officer



Savarkundla-Dhasa School Principal

⁴ The Sample size considered is as per the requirement of RFP of RUPS for GSHP-II

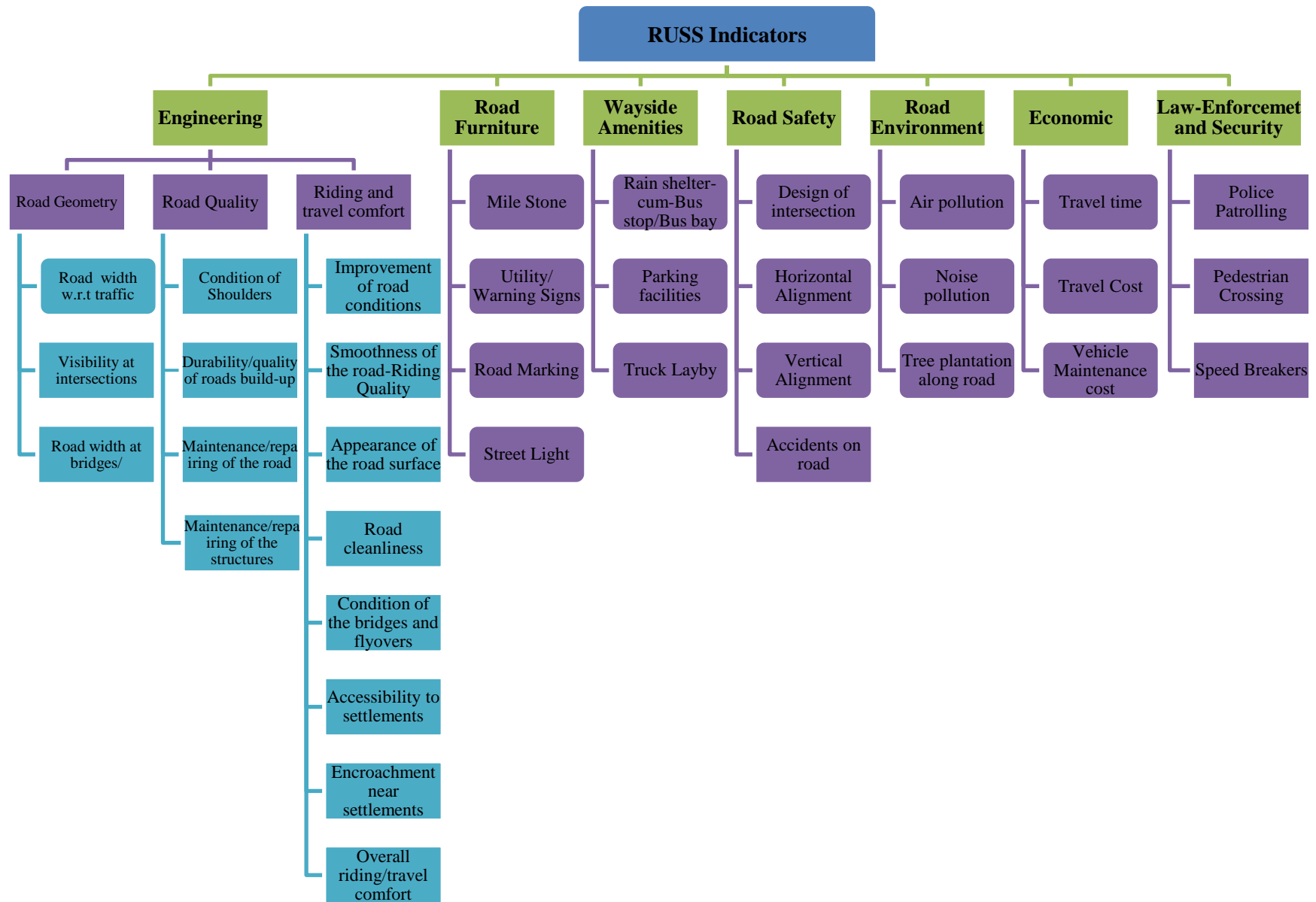


Figure 1-2: Identified Parameter and Sub Parameter

2 SURVEY ANALYSIS

2.1 OVERALL SATISFACTION LEVELS OF KARJAN – BORSAD

Table 2-1 shows the overall satisfaction levels of the road. It is very clear from the data that; road users have rated the road Highly Satisfied in all the parameter i.e Engineering, Road Furniture, Wayside Amenities, Road Safety, Road Environment, Economic Indicator and Law-Enforcement and Security

Table 2-1: Overall Satisfaction Levels of Karjan-Borsad Road

Indicator	Highly dissatisfied/ Never	Somewhat dissatisfied/ Rarely	Neither satisfied nor dissatisfied/	Somewhat satisfied/Often	Highly satisfied/ Very often	Don't Know / Can't Say	Not applicable
Engineering Indicator	3.5%	2.0%	1.3%	20.6%	72.0%	0.5%	0.1%
Road Furniture	5.2%	2.6%	2.9%	15.2%	73.7%	0.4%	0.0%
Wayside Amenities	26.5%	2.7%	2.4%	25.0%	40.2%	3.2%	0.0%
Road Safety	4.8%	3.0%	2.3%	20.9%	68.6%	0.4%	0.0%
Road Environment	6.6%	2.0%	2.2%	14.6%	74.5%	0.1%	0.0%
Economic Indicator	0.7%	1.1%	0.9%	18.5%	76.1%	0.8%	1.8%
Law-Enforcement and Security	38%	10%	7%	4%	4%	0.0%	37%

2.2 OVERALL SATISFACTION LEVELS OF KARJAN - AMOD

Table 2-2 shows the overall satisfaction levels of the road. It shows that for related parameters to strengthening component road users have rated the road as Highly Satisfactory. Exception is those which are not part of strengthening i.e. Wayside Amenities and Road Environment, Road Safety where the road users are Highly Dissatisfied

Table 2-2 Overall Satisfaction Levels of Karjan-Amod Road

Indicator	Highly dissatisfied/ Never	Somewhat dissatisfied/ Rarely	Neither satisfied nor dissatisfied/	Somewhat satisfied/Often	Highly satisfied/ Very often	Don't Know / Can't Say	Not applicable
Engineering Indicator	7.3%	1.2%	0.3%	11.2%	13.3%	0.1%	0.0%
Road Furniture	7.6%	4.1%	1.3%	22.5%	64.5%	0.1%	0.0%
Wayside Amenities	41.6%	6.4%	2.8%	30.3%	18.6%	0.2%	0.0%
Road Safety	8.5%	8.3%	2.3%	33.2%	47.2%	0.3%	0.2%
Road Environment	20.8%	3.6%	1.9%	12.4%	61.2%	0.0%	0.0%
Economic Indicator	0.7%	1.3%	0.8%	23.6%	62.2%	2.0%	9.3%
Law-Enforcement and Security	26.3%	9.0%	4.7%	3.2%	10.6%	46.2%	37.1%

2.3 OVERALL SATISFACTION LEVELS OF THARAD-DEESA

Table 2-3 shows the overall satisfaction levels of the road. It shows that for related parameters to strengthening component road users have rated the road as Highly Satisfactory. Exception is those which are not part of strengthening i.e. Wayside Amenities and Road Environment, Road Safety where the road users are Highly Dissatisfied.

Table 2-3: Overall Satisfaction Levels of Tharad-Deesa Road

Indicator	Highly dissatisfied/ Never	Somewhat dissatisfied/ Rarely	Neither satisfied nor dissatisfied/ A few times	Somewhat satisfied/Often	Highly satisfied/ Very often	Don't Know / Can't Say	Not applicable
Engineering Indicator	24.6%	13.1%	6.5%	23.2%	31.6%	0.5%	0.5%
Road Furniture	19.6%	10.6%	5.7%	23.2%	35.4%	5.5%	0.1%
Wayside Amenities	34.4%	10.4%	5.3%	6.1%	10.9%	32.8%	0.0%
Road Safety	8.5%	8.3%	2.3%	33.2%	47.2%	0.3%	0.2%
Road Environment	20.8%	3.6%	1.9%	12.4%	61.2%	0.0%	0.0%
Economic Indicator	0.7%	1.3%	0.8%	23.6%	62.2%	2.0%	9.3%
Law-Enforcement and Security	26.3%	9.0%	4.7%	3.2%	10.6%	46.2%	37.1%

2.4 OVERALL SATISFACTION LEVELS OF ATKOT – PALIYAD

Table 2-4 shows the overall satisfaction levels of the road. It shows that for related parameters to strengthening component road users have rated the road as Highly Satisfactory. Exception is those which are not part of strengthening i.e. Wayside Amenities and Road Environment, Road Safety where the road users are Highly Dissatisfied.

Table 2-4: Overall Satisfaction Levels of Atkot – Paliyad Road

Indicator	Highly dissatisfied/ Never	Somewhat dissatisfied/ Rarely	Neither satisfied nor dissatisfied/ A few times	Somewhat satisfied/Often	Highly satisfied/ Very often	Don't Know / Can't Say	Not applicable
Engineering Indicator	16.27%	11.23%	3.47%	36.90%	30.00%	1.93%	0.20%
Road Furniture	21.9%	20.4%	2.6%	26.9%	27.6%	0.5%	21.9%
Wayside Amenities	55.5%	13.6%	1.2%	15.8%	13.0%	0.8%	55.5%
Road Safety	20.2%	12.4%	2.6%	35.5%	26.9%	2.5%	20.2%
Road Environment	36.2%	2.1%	2.4%	16.7%	42.7%	0.0%	0.0%
Economic Indicator	0.7%	5.1%	3.5%	30.4%	18.0%	11.8%	45.8%
Law-Enforcement and Security	27.0%	8.0%	5.8%	0.3%	0.3%	58.6%	27.0%

2.5 OVERALL SATISFACTION LEVELS OF SAVARKUNDLA-DHASA

The Table 2-5 the overall satisfaction levels of the road. It shows that for related parameters to strengthening component road users have rated the road as Highly Satisfactory. Exception is those which are not part of strengthening i.e. Wayside Amenities and Road Environment, Road Safety where the road users are Highly Dissatisfied.

Table 2-5: Overall Satisfaction Levels of Savarkundla-Dhasa Road

Indicator	Highly dissatisfied/ Never	Somewhat dissatisfied/ Rarely	Neither satisfied nor dissatisfied/ A few times	Somewhat satisfied/Often	Highly satisfied/ Very often	Don't Know / Can't Say	Not applicable
Engineering Indicator	10.3%	10.6%	5.1%	50.4%	23.2%	0.3%	0.0%
Road Furniture	22.6%	8.8%	1.7%	34.4%	32.5%	0.0%	0.0%
Wayside Amenities	58.9%	14.0%	3.0%	19.5%	4.7%	0.0%	0.0%
Road Safety	25.5%	11.3%	3.1%	44.3%	15.8%	0.0%	0.0%
Road Environment	36.7%	3.0%	4.0%	34.7%	21.6%	0.0%	00.0%
Economic Indicator	3.7%	2.7%	1.3%	29.43%	15.2%	35.0%	12.7%
Law-Enforcement and Security	24.9%	6.5%	5.7%	0.7%	0.2%	62.0%	0.00%

3 SUMMARY OF SATISFACTION LEVELS

The roads covered under this survey are under rehabilitation type of improvement option, where the road is rehabilitated with improved riding condition and improved safety with all road furniture with existing wayside amenities. Hence the significance of the satisfaction level of few of parameter/sub parameter will not be considered to assess the overall satisfaction level.

Corridor wise analysis was carried out. Summary of finding is mentioned as below:

- Based on the survey findings on all five corridors, about 30% of the respondents were literates with education level at least up to High school / SSLC level.
- About 62% of the respondents interviewed were daily users of the road using the road mainly for purposes related to work/business.
- With respect to road condition, road furniture, and safety road users are highly satisfied.
- Majority of Road users never over speed, never drink and drive and never break traffic rules.
- Majority of Road users use helmet while riding two wheeler and never use seat belt on Karjan –Borsad, Amod-Karjan, Tharad-Deesa corridors and on Atkot -Paliyad, Savarkundala-Dhasa corridors road users use helmets and seat belt a few times.
- Road users are highly satisfied with respect to police patrolling on all the corridors
- Except Karjan-Borsad, road users are highly dissatisfied with respect to emergency response on other corridors. The summary of satisfaction level for each parameter by corridor is presented in Table 3-1.

Table 3-1: Summary of Satisfaction Level for each Parameter by Corridor

Parameters	Karjan - Borsad	Amod-Karjan	Tharad-Deesa	Atkot - Paliyad	Savarkundala-Dhasa
Engineering Parameter					
Road Geometry	HS	HS	HD	S	S
Road Quality	HS	HS	HS	S	S
Overall Travel Comfort	HS	HS	HS	HS	S
Road Furniture					
Mile Stone	HS	HS	HS	S	S
Utility/Warning signs	HS	HS	HS	HS	S
Road Marking	HS	HS	HS	S	HS
Street Light	HS	HS	HD	HD	HD
Wayside Amenities					
Rain Shelter	HS	HS	HS	HD	S
Parking Facilities	S	HD	HD	HD	HD
Truck Layby	HD	HD	HD	HD	HD
Road Safety					
Design of intersection	HS	HS	HS	S	S
Horizontal Alignment	HS	HS	HS	S	S
Vertical Alignment	HS	HS	HS	HD	S
Pedestrian Crossing/Zebra crossing	HS	HS	HS	S	S
Speed Breakers	HS	HS	HD	S	S
Road Environment					
Air Pollution	HS	HS	HS	HS	S
Noise Pollution	HS	HS	HS	HS	S
Tree Plantation along the Road	HS	HD	HD	HD	HD
Economic Parameters					
Travel time	HS	HS	HS	S	S
Fuel consumption of the vehicle	HS	HS	HS	S	S
Overall maintenance of vehicle	HS	HS	HS	S	S
Delay due to Police/RTO checking	HS	HS	HS	S	S
Law-Enforcement and Security					
Over Speed?	Never	Never	Never	Never	Never
Drunk and Drive?	Never	Never	Never	Never	Never
Use Seat Belt/	Never	Never	Never	FT	FT
Use Helmet?	Never	Never	Often	Rarely	Rarely
Break Traffic Rules	Never	Never	Never	Never	Never
Availability of Police vans	HS	HS	HS	HS	S
Emergency response	HS	HD	HD	HD	HD

Note:

S= SATISFIED NA= NOT AVAILABLE HS= HIGHLY SATISFIED FT= FEW TIMES
D= DISSATISFIED VS=VERY SATISFIED HD= HIGHLY DISSATISFIED

3.1 CONCLUSION

Suggestions derived from the survey:

1. The rehabilitation of such road with standard width shall be taken up for improvement.
2. The rehabilitation of road should include possible interventions on way side amenities such as bus shelters, truck lay byes where ever feasible.
3. Conduct awareness campaigns concerning the road sector, especially on safe driving habits, road signs awareness, and other road safety aspects by use of various media like televisions (display one road sign each during prime time), newspapers etc. and aid of NGOs and other associations if required.
4. Provision of bus bays should be made for buses and trucks to stop and with parking zones.
5. Appropriate footpaths / guard rails / pavements / lanes / shoulder should be made available for pedestrians / cyclists.
6. Proper security arrangements and lighting should be provided for creating a feeling of safety among the users. Wherever possible, these facilities should be provided at somewhat crowded areas like major junctions, approaching to village, schools etc.
7. Strict measures against temporary roadside hotels and other petty shops who occupy right of way.
8. Maintenance of road signs, Km stones to be followed up and monitored on regular basis.
9. Maintain road side aesthetics with proper landscape
10. Adopt speed regulation technics using ITS.

For the users who are dissatisfied/somewhat dissatisfied, a matrix is prepared in Table 3-2 for those parameters where R&BD is required to take actions.

Table 3-2: Matrix for Actions to be taken

Desired Parameters	Karjan - Borsad	Karjan Amod	Deesa-Tharad	Atkot-Paliyad	Dhasa-Savarkundala
Road Furniture					
Mile Stone	✓	✓	✓	✓	✓
Road signs	✓	✓	✓	✓	✓
Road Marking	✓	✓	✓	✓	✓
Street Light	✓	✓	χ	χ	χ
Road Quality					
Shoulder condition	✓	✓	χ	✓	✓
Maintenance of road	✓	✓	✓	✓	✓
Safety Measures					
Design of Intersection	✓	✓	✓	✓	✓
Horizontal Alignment	✓	✓	✓	✓	✓
Vertical Alignment	✓	✓	✓	✓	✓
Pedestrian Crossing/Zebra crossing	✓	✓	✓	✓	✓
Speed Breakers	✓	✓	χ	✓	✓
Animal/Cattle Crossing	✓	χ	χ	χ	✓
Road Environment					
Tree plantation along road/ Greenery	✓	χ	χ	χ	χ
Legend:					
χ Users are dissatisfied					
✓ Users are satisfied					