

COMPREHENSIVE JOURNEY RISK MANAGEMENT ANALYSIS REPORT

ROUTE ANALYSIS DETAILS

Supply Location: 1527 Location [1527]

Destination: 41015480 Location [41015480]

Total Distance: 146.86 km

Estimated Duration: 3.0 hours 40.29000000000002 mins

Analysis Date: August 02, 2025

Report Generated: 02:07 PM

EXECUTIVE SUMMARY

ROUTE OVERVIEW

PARAMETER	DETAILS
Origin	1527 Location
Destination	41015480 Location
Total Distance	146.86 km
Estimated Duration	3.0 hours 40.290000000000002 mins
Major Highways	NH-XX, SH-YY
Terrain	Mixed

TOTAL WEIGHTED ROUTE SCORE – 6.0 [HIGH RISK]

RISK FACTOR RATING OVERVIEW

RISK CRITERION	RISK SCORE	RISK CATEGORY
Road Conditions	2.0	Low Risk
Accident-Prone Areas	10.0	High Risk
Sharp Turns	10.0	High Risk
Blind Spots	10.0	High Risk
Traffic Condition (Density)	1.0	Low Risk
Seasonal Weather Conditions	3.2	Low Risk
Emergency Handling Services	1.0	Low Risk
Network Dead/Low Zones	4.2	Mild Risk
Security & Social Issues	1.0	Low Risk

APPROVED ROUTE MAP

Comprehensive route visualization showing start/end points, critical turns, emergency services, highway junctions, and potential hazards.

Set GOOGLE_MAPS_API_KEY in .env file for real route visualization

Google Maps: <https://www.google.com/maps/dir/21.22553,81.78316/22.15726,81.22716>

MAP LEGEND

- | | | | |
|-----------|----------------------|----------|-------------------|
| A | Route Start Point | B | Route End Point |
| T# | Critical Sharp Turns | H | Hospitals |
| P | Police Stations | F | Fire Stations |
| G | Gas Stations | S | Schools/Education |
| * | Highway Junctions | | |

KEY SAFETY MEASURES & REGULATORY COMPLIANCE

ASPECT	DETAILS/ RECOMMENDATION
Speed Limits	NH: 60 km/h; SH: 55 km/h; MDR: 55 km/h; Rural: 25–30 km/h; Accident-prone zone: 30
Night Driving	Prohibited:2300hrs – 0500hrs
Rest Breaks	Mandatory 15-30 min every 3 hours
Vehicle Compliance	Check brakes, tires, lights, and emergency equipment
Permits & Documents	Carry valid transport permits, Hazardous vehicle license,MSDS sheets, TREM CARD
VTs	VTs & EMERGENCY LOCKING DEVICE shall be functional

Ensure all regulatory requirements are met before journey commencement.Route includes major highways: NH-344, NH-709.Rural terrain requires attention to livestock and agricultural vehicles.Speed limits may vary based on local regulations and road conditions.

HIGH-RISK ZONES & KEY RISK POINTS

Type	Supply (KM)	Customer (KM)	Coordinates	Risk Level	Speed Limit	Driver Action
Sharp Turn (Right)	0.0	146.9	21.225530, 81.783160 [view]	Very High	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution
Severe Blind Spot	0.1	146.8	21.225450, 81.783610 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	0.1	146.8	21.225430, 81.783710 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Hairpin Turn (Left)	0.1	146.8	21.224990, 81.783670 [view]	CRITICAL	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution
Severe Blind Spot	0.2	146.7	21.225250, 81.784530 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	0.4	146.5	21.226120, 81.783330 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	0.5	146.4	21.226740, 81.783460 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Moderate Turn (Left)	1.8	145.0	21.229070, 81.770440 [view]	High	20-25 km/h	Reduce speed to 20 km/h before turn, use horn, check mirrors, stay in center of lane
Severe Blind Spot	3.2	143.7	21.232440, 81.757770 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	20.5	126.4	21.336290, 81.650130 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	20.6	126.2	21.337490, 81.650560 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Sharp Turn (Left)	20.6	126.2	21.337520, 81.650470 [view]	Very High	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution
Network Dead Zone	31.4	115.5	21.524710, 81.695490 [view]	CRITICAL	Normal	Inform control room before entering, use alternative communication
Network Dead Zone	51.9	94.9	21.800630, 81.468980 [view]	CRITICAL	Normal	Inform control room before entering, use alternative communication

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HIGH-RISK ZONES & KEY RISK POINTS

Type	Supply (KM)	Customer (KM)	Coordinates	Risk Level	Speed Limit	Driver Action
Severe Blind Spot	54.1	92.7	21.617990, 81.704090 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	69.2	77.6	21.666430, 81.586210 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Moderate Turn (Right)	69.4	77.5	21.667820, 81.586740 [view]	High	20-25 km/h	Reduce speed to 20 km/h before turn, use horn, check mirrors, stay in center of lane
Severe Blind Spot	74.1	72.8	21.704820, 81.589560 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	82.1	64.7	21.762570, 81.544880 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	82.4	64.5	21.765140, 81.545460 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Hairpin Turn (Left)	85.0	61.8	21.760390, 81.520980 [view]	CRITICAL	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution
Network Dead Zone	98.3	48.5	22.157260, 81.227160 [view]	CRITICAL	Normal	Inform control room before entering, use alternative communication
Severe Blind Spot	127.3	19.5	21.999370, 81.244190 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	127.3	19.5	21.999480, 81.244150 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Hairpin Turn (Right)	128.6	18.3	22.010120, 81.241450 [view]	CRITICAL	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution
Moderate Turn (Left)	128.6	18.3	22.010110, 81.241430 [view]	Very High	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution
Moderate Turn (Left)	128.6	18.3	22.010090, 81.241320 [view]	High	20-25 km/h	Reduce speed to 20 km/h before turn, use horn, check mirrors, stay in center of lane

HIGH-RISK ZONES & KEY RISK POINTS

Type	Supply (KM)	Customer (KM)	Coordinates	Risk Level	Speed Limit	Driver Action
Moderate Turn (Right)	128.6	18.3	22.010210, 81.241270 [view]	High	20-25 km/h	Reduce speed to 20 km/h before turn, use horn, check mirrors, stay in center of lane
Severe Blind Spot	128.6	18.3	22.010260, 81.241360 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Severe Blind Spot	140.3	6.6	22.113150, 81.260240 [view]	Very High	15-20 km/h	Use horn before entering, reduce speed to 20-25 km/h, stay alert for oncoming traffic
Hairpin Turn (Right)	146.8	0.0	22.157360, 81.227510 [view]	CRITICAL	10-15 km/h	Stop completely, check visibility, use horn, proceed at 10-15 km/h with extreme caution

All high-risk points are sorted by distance from supply location. Please exercise extreme caution at these locations.

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SEASONAL ROAD CONDITIONS & TRAFFIC PATTERNS

Season / Condition	Critical Stretches / Coordinates / Roads	Link	Typical Challenges	Driver Caution
Summer - (rainy)	21.225530, 81.783160 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.323130, 81.680430 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.403960, 81.679520 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.496150, 81.698720 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.617860, 81.690450 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.676830, 81.584480 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.765580, 81.541660 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.863170, 81.421360 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	21.978350, 81.312980 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	22.020780, 81.240370 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection
Summer - (rainy)	22.157290, 81.227410 (highway)	view	Extreme heat exposure, limited shade, dust storms	Plan travel during cooler hours, carry sun protection

WEATHER-RELATED ACCIDENT-PRONE AREAS & CORRECTIVE MEASURES

Area	Weather Risk	Risk Type	Recommended Solution
NH-344 (Ghata Village)	Extreme Heat	Tire Blowouts	Shade shelters, road resurfacing
NH-709 (Ambeta)	Fog	Low Visibility	Fog lights, reflective signs
Putha Village Stretch	Frost	Skidding	Apply salt/sand, use winter tires
Oil Terminal Junctions	Rain/Fog	Poor Visibility	Better signage, signalization
Moti Filling Station Access	Rain/Fog	Slippery Surfaces	Drainage improvement, widen shoulders

COMPREHENSIVE POINTS OF INTEREST ANALYSIS

Parameters	Value
Total POIs Identified	341
Emergency Services	325
Essential Services	0
Other Services	16
Coverage Score	50.00

EMERGENCY PREPAREDNESS & RESPONSE

MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

id	Facility Name	Address	From Supply (km)	From Customer (km)	Coordinates	Link	Phone
1	Labhandhi Government Hospital	Behind of labhandi School	8.6	138.3	21.244877, 81.703673	View	Not available
2	Narayana Hrudayalaya Mmi Hospital (Managed By Narayana Hrudayalaya Pvt Ltd - Bangalore) - Raipur	Dhamtari Road, Lalpur Near Pachpedi Naka	9.4	137.5	21.213261, 81.657736	View	+91 7714210901
3	Shree Medishine Hospital - Raipur	New Rajendra Nagar Amlidih Near Drowanacharya School	9.4	137.5	21.220032, 81.665576	View	Not available
4	Ramkrishna Care Hospital	(Ramkrishna Care Medical Sciences Pvt Ltd) Aurobindo Enclave,Pachpedi Naka,Dhamatri Road	9.5	137.3	21.213081, 81.653724	View	+91 7713003300
5	Shri Ganesh Vinayak Eye Hospital	Infront of colors mall, Dhamtari road, Raipur	9.5	137.3	21.213169, 81.656178	View	+91 7714077741
6	Kalda Plastic and Cosmetic Surgery Institute and Burn Centre	G.E. Road,Choubey Colony	9.5	137.3	21.216615, 81.657255	View	Not available
7	Shri Aurobindo Medical Research Centre	Pachmedi Naka, Dhamtari Road	9.5	137.3	21.214578, 81.654260	View	Not available
8	Nursing Home	,	9.8	137.1	21.228416, 81.665261	View	Not available
9	Devi Laxmi Hospital	B-19/5 Ring Road Tagore Nagar	9.8	137.1	21.223314, 81.652299	View	Not available
10	Sanjeevani Cbcc Usa Cancer Hospital	Infront Of Jain Mandir, Near Ramkrishna Care Hospital,Dawada Colony,Pachpedi Naka	9.8	137.1	21.214265, 81.650323	View	Not available
11	Tharani Children Hospital And Dental Clinic	Opposite Vijayta Complex. Main Road, New Rajendra Nagar	9.8	137.1	21.224820, 81.659572	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

12	Gbg Kidney Care Hospital	New Rajendra Nagar	9.8	137.1	21.225932, 81.658553	View	Not available
13	Sahai Hospital	Tagore Nagar Square	9.8	137.1	21.223045, 81.656616	View	Not available
14	Shri Krishna Hospital	Main Road, Sector 2, Priyadarshini Nagar Colony, New Rajendra Nagar, Raipur	9.8	137.1	21.223641, 81.660207	View	Not available
15	Anjali Children Hospital	Telibandha Ring Road, Near Panchmukhi Hanuman Temple, Pachpedi Naka, Raipur	9.8	137.1	21.221150, 81.649675	View	Not available
16	We Care Super Specialty Hospital	Ring Road, Besides Airtel Office, Mahaveer Nagar Road, Shatabdi Nagar, Telibandha, Raipur	9.8	137.1	21.235399, 81.668942	View	Not available
17	Rajdhani Super Speciality Hospital	Pachpedi Naka Road, Laxmi Nagar, Postal Colony, Pachpedi Naka, Raipur, Chhattisgarh	9.8	137.1	21.219033, 81.648345	View	Not available
18	Navkar Hospital and Maternity Home	C-63, Shailendra Nagar, Near Rajendra Nagar Police Chowki	9.8	137.1	21.228414, 81.654533	View	Not available
19	Shree Sai Care Hospital	Infront Of Dwarika Mandir New Tilak Society, Avanti Vihar, Telibandha Road	9.8	137.1	21.239890, 81.669839	View	Not available
20	Government Hospital	Kashiram Nagar, Sai Vihar Colony, Raipur	9.8	137.1	21.230022, 81.659879	View	Not available
21	Jeevan Anmol Hospital	Near MLA Guest House, Tagore Nagar, Raipur, Chhattisgarh	9.8	137.1	21.225057, 81.653199	View	Not available
22	Madhumeet Hospital	Shiv Mandir Chowk, Avanti Vihar Road, near Radha Krishna Mandir, Shankar Nagar, Raipur	9.8	137.1	21.240165, 81.669886	View	Not available
23	Avanti Hospital	Shankar Nagar, Raipur	9.8	137.1	21.240824, 81.669632	View	Not available
24	Mgm Eye Hospital	5Th Mile, Vidhan Sabha Road	12.2	134.6	21.278310, 81.702664	View	Not available
25	jain mandir	,	12.6	134.2	21.227486, 81.648076	View	Not available
26	chandak hospital	,	12.6	134.2	21.227866, 81.648436	View	Not available
27	Karma Hospital	Telibandha	12.6	134.2	21.240176, 81.662258	View	Not available
28	Chhattisgarh Eye Hospital	Near Shyam Nagar	12.6	134.2	21.239211, 81.662194	View	Not available
29	Sai Kalayan Hospital And Icu	Near Jagannath Mandir, Gayatri Nagar	12.6	134.2	21.249993, 81.668457	View	Not available
30	Devkripa Hospital and Doctor Plaza	Kuehna Road, Infront Of Cseb Sub Station Shankar Nagar	12.6	134.2	21.251006, 81.668532	View	Not available
31	Awasthi Hospital	Katora Talab Main Road, Janta Colony, Raipur, Chhattisgarh	12.6	134.2	21.231624, 81.654007	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

32	Sagar Multi Speciality Hospital	Gayatri Nagar, Geetanjali Colony, Shankar Nagar, Raipur	12.6	134.2	21.249743, 81.667901	View	Not available
33	Vardaan Hospital (Unit Of Jindal Medicare)	Sector - 1, Shankar Nagar	12.7	134.2	21.252011, 81.663241	View	+91 7712425778
34	Vidya Hospital And Kidney Centre	Shankar Nagar Main Road	12.7	134.2	21.249141, 81.661708	View	Not available
35	Pragya Hospital, Raipur	13, Anand Nagar	12.7	134.2	21.244383, 81.660184	View	Not available
36	Ayush Hospital and Maternity Home	C-9 Ashoka Ratan, Vidhan Sabha Road Shankar Nagar	12.7	134.2	21.262312, 81.673950	View	Not available
37	Kanwar Hospital, Raipur	Gaushala Road, Near Telephone Exchange	12.7	134.2	21.253272, 81.665184	View	Not available
38	Sanjeevan Hospital, Raipur	Near Postal Colony, Sanjay Nagar	12.7	134.2	21.220807, 81.641014	View	Not available
39	Shri Balaji Hospital	Raipur Road, RDA Colony, Tikrapara	12.7	134.2	21.226149, 81.639710	View	Not available
40	District Police Hospital	Janta Colony,Raipur	12.7	134.2	21.230722, 81.644952	View	Not available
41	Dr Nigam Hospital	Raipur, Katora Talab, Civil Lines, Raipur	12.7	134.2	21.235037, 81.651730	View	Not available
42	Shri Mahaveer Hospital	Kachna Pahuch Marg, Geetanjali Colony, Shankar Nagar, Raipur	12.7	134.2	21.250070, 81.662503	View	Not available
43	Bal Gopal Children Hospital and Research Institute	Opposite Ashirwad Bhawan, Byron Bazar	13.2	133.6	21.234934, 81.641332	View	+91 7714225600
44	Mittal Hospital	Beside crystal arcade, raipur	13.2	133.6	21.260362, 81.658715	View	Not available
45	sukriti hospital	,	13.2	133.6	21.250635, 81.649911	View	Not available
46	Samarpan Hospital, Raipur	Om Santi Niketan School Adarsh Nagar Mowa	13.2	133.6	21.265009, 81.667934	View	Not available
47	Sai Sushrusa Hospital	Behind Aashirwad Bhawan,Byron Bazar	13.2	133.6	21.235207, 81.641824	View	Not available
48	Piles Care Hospital	Raja Talab Road, Near Ghari Chowk	13.2	133.6	21.245402, 81.646810	View	Not available
49	Sarvodaya Hospital and Maternity Center	Dubey Colony, Mowa, Near Mowa Police Station	13.2	133.6	21.271556, 81.671044	View	Not available
50	Visharad Hospital	Opposite Subhash Stadium	13.2	133.6	21.239116, 81.641342	View	Not available
51	Shri Balaji Institute Of Medical Science Pvt Ltd	Ekta Chow Duby Colony, Near Moina Police Station	13.2	133.6	21.272425, 81.671749	View	Not available
52	Nigam Ent Hospital	Shanti Nagar	13.2	133.6	21.247297, 81.656896	View	Not available
53	Ganpati Hospital (Banthia Hospital)	Rajatalab Road	13.2	133.6	21.245884, 81.647497	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

54	Tripathi Hospital, Raipur	New Shanti Nagar	13.2	133.6	21.249508, 81.657981	View	Not available
55	Jeewan Memorial Hospital For Plastic Surgery and Uro	New Shanti Nagar	13.2	133.6	21.249610, 81.658094	View	Not available
56	Ekta Institute Of Child Health	Raipur	13.2	133.6	21.247121, 81.656621	View	Not available
57	Bhattar Hospital	Near Mahila Thana, Aashirwad Bhawan	13.2	133.6	21.242349, 81.639547	View	Not available
58	K G N Surical and Maternity Centre	Fawara Chowk, Byron Bazar	13.2	133.6	21.234259, 81.645458	View	Not available
59	Arihant Netralaya	Bijali Office Chowk, Bhudha Para	13.2	133.6	21.235960, 81.638121	View	Not available
60	Govt. T.B. Hospital	Kali Badi chowk, Raipur	13.2	133.6	21.234692, 81.638936	View	Not available
61	District Hospital Raipur	Janta Colony, Raipur,	13.2	133.6	21.231739, 81.640180	View	Not available
62	Dr Manoj Agrwal	Indravati Colony, Raipur	13.2	133.6	21.243789, 81.650483	View	Not available
63	Vijaya durga hospital	Budhapara, Raipur	13.2	133.6	21.235824, 81.634910	View	Not available
64	Lotus Hospital & Advance Urology Center	Govind Nagar, Raipur	13.2	133.6	21.246894, 81.648586	View	Not available
65	Chand Rani Sardari Lal Speciality EYE And ENT Hospital	Fafadih, shantinagar, Raipur	13.2	133.6	21.246368, 81.654620	View	Not available
66	DR SALEEM HOSPITAL	Canal Road, RAIPUR,CHATTISGARH,INDIA	13.2	133.6	21.245553, 81.649142	View	Not available
67	Arihant Hospital	,	13.2	133.6	21.270657, 81.669903	View	Not available
68	DKS Super Speciality Hospital	,	13.2	133.6	21.244592, 81.641189	View	Not available
69	mandi gate	,	13.8	133.1	21.266318, 81.663904	View	Not available
70	Yashwant Hospital	TatyaparaChowk, GE road, Tatyapara Raipur, Raipur	13.9	133.0	21.240320, 81.629351	View	+91 7712539333
71	Urmila Memorial Multispeciality Hospital	Behind Cg Elite Building, Ashoka Gali, Pandari	13.9	133.0	21.258282, 81.655330	View	Not available
72	Yashwant Hospital, Raipur	Tatyapara	13.9	133.0	21.239906, 81.627510	View	Not available
73	Om Netra Kendra	Main Road Pandri	13.9	133.0	21.248704, 81.644897	View	Not available
74	Jain Hospital, Raipur	B 162, Sector-1, Devendra Nagar	13.9	133.0	21.255903, 81.644867	View	Not available
75	Dr. Rajehwari Kulkarni Surgical Hospital And Dia	Sector-1, B/15, Devendra Nagar	13.9	133.0	21.257391, 81.646686	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

76	Dr. Sandeep Bhagwat Orthopedic Hospital	B-20, Ravi Nagar, Near Bus Stand, Pandri	13.9	133.0	21.249111, 81.645312	View	Not available
77	Eye and Ent Hospital	Near New Bus Stand, Beside Rajgharana	13.9	133.0	21.249599, 81.646138	View	Not available
78	K.M. Hospital	Behind Indian Coffee House, Banstal	13.9	133.0	21.243852, 81.638420	View	Not available
79	Shri Manulal Memorial Medical Centre	Lakhe Nagar Chowk, Opposite Mai Ki Bagiya, Lakhe Nagar	13.9	133.0	21.236331, 81.621329	View	Not available
80	Pt.J N M Medical College Hospital	Pt.Jawaharlal Nehru Memorial Medical College, Jail Road	13.9	133.0	21.251975, 81.639143	View	Not available
81	Raipur Hospital	Kutchery Chowk	13.9	133.0	21.246846, 81.641529	View	Not available
82	Government hospital,Khokhopara	Chandwada, Patel Para, Raipur	13.9	133.0	21.232390, 81.622325	View	Not available
83	Kankali Hospital Parisar	Shop Number 7, Kankali hospital Parisar, Tatyapara, Kankalipara Chowk	13.9	133.0	21.238540, 81.627840	View	Not available
84	DKS Super Speciality Hospital	Ghadi chowk, Chhattisgarh	13.9	133.0	21.244963, 81.641238	View	Not available
85	Om Hospital , Burn Plastic & Cosmetic Surgery Center	Badaipara, Jawahar Nagar, Raipur	13.9	133.0	21.245111, 81.630131	View	Not available
86	Shashwat Hospital	Badhai Para Road, Ramya Para, Jorapara, Jawahar Nagar, Raipur	13.9	133.0	21.244077, 81.630207	View	Not available
87	Dr. B.R. Ambedkar Memorial Hospital	Jail Rd, Opp Central jail, Moudhapara, Raipur	13.9	133.0	21.250165, 81.639926	View	Not available
88	Shre Ramkinkar Medical Institute Hospital	Lily Chowk, Purani Basti	13.9	133.0	21.234741, 81.626205	View	Not available
89	Unknown	,	13.9	133.0	21.260548, 81.655702	View	Not available
90	bagri nursing home	budhapara, Raipur	13.9	133.0	21.241438, 81.623200	View	Not available
91	Om Hospital	,	13.9	133.0	21.231444, 81.603031	View	Not available
92	Unknown	,	13.9	133.0	21.234239, 81.611851	View	Not available
93	Aashirwad Fertility and Endoscopy Center	Danganiya Near Shitla Mandir	13.9	133.0	21.234649, 81.607793	View	Not available
94	Sai Baba Eye Hospital	Near Choti Line, Fafadih	13.9	133.0	21.259522, 81.637010	View	Not available
95	Prannath Mission Hospital	Street No. 4, Sanmati Nagar, Near Jain Mandir, Fafadih	13.9	133.0	21.264706, 81.639565	View	Not available
96	Dr. M.R. Bhagwat Memorial Hospital	7, South Avenue, Choubey Colony	13.9	133.0	21.243937, 81.614507	View	Not available
97	Subham Hospital and Maternity Home	Near Shukrari Bazar, Gudhiyari	13.9	133.0	21.259987, 81.628292	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

98	Subba Rao Hospital	Near Hotel Celebration, Bastar Bada, Bastar Bada Jail Road	13.9	133.0	21.257069, 81.637343	View	Not available
99	Shri Ram Hospital, Raipur	Daganiya Road, Sundar Nagar Road	13.9	133.0	21.236105, 81.611706	View	Not available
100	Pathak Hospital, Raipur	Nand Kumar Pathak Fafadih Naka	13.9	133.0	21.264633, 81.635818	View	Not available
101	Modi Hospital	Samta Colony, Main Road	13.9	133.0	21.246212, 81.618691	View	Not available
102	Jagjivan Urology Centre	B-4 Samta Colony Main Road	13.9	133.0	21.246170, 81.623908	View	Not available
103	Roopjeevan Hospital	Sai Nagar Devendra Nagar Road	13.9	133.0	21.256700, 81.641010	View	Not available
104	Jubesta Hospital	Devendra Nagar	13.9	133.0	21.257246, 81.643507	View	Not available
105	Ayushman Hospital and Diagnostic Institute	Opp:Sunder Nagar Gate Mahender Ghat Road	13.9	133.0	21.234582, 81.609779	View	Not available
106	Bachpan Hospital	Mahadev Ghat Road, Ring Road Chowk	13.9	133.0	21.229368, 81.600005	View	Not available
107	Dr. Jaulkar Ent Hospital	Purani Basti Thana Chowk, Kankalipara Road	13.9	133.0	21.247158, 81.612342	View	Not available
108	Heritage Hospital, Raipur	Sec-2, Devendra Nagar	13.9	133.0	21.260440, 81.642982	View	Not available
109	M. M. Hospital	Jailaxmi Complex, Main Road	13.9	133.0	21.260532, 81.636726	View	Not available
110	Mahadev Hospital	Opposite Lpg Petrol Pump, Mahadev Ghat Road	13.9	133.0	21.229445, 81.597827	View	Not available
111	Mishra Speciality Hospital	Road Next To Sbi, Near Patidar Bhavan, Fafdihi	13.9	133.0	21.261584, 81.638041	View	Not available
112	M D Hospital and Iccu	358, Samta Colony	13.9	133.0	21.246587, 81.623699	View	Not available
113	Suprita Hospital	Jail Road	13.9	133.0	21.256435, 81.638850	View	Not available
114	Lifeworth Super Speciality Hospital	Main Road, Samata Colony	13.9	133.0	21.245699, 81.617588	View	Not available
115	Sahu Hospital, Raipur	7150, Devendra Nagar, Near Sai Mandir	13.9	133.0	21.255470, 81.640680	View	Not available
116	Agrasen Hospital	Opp: Krishna Talkies Ramanath Bhimsen Bhawan	13.9	133.0	21.245422, 81.624599	View	Not available
117	Raipura Hospital	Mahadev Ghat Road, Maitri Nagar, Sunder Nagar, Raipur	13.9	133.0	21.232150, 81.603544	View	Not available
118	Om Superspeciality Hospital	Vikas Vihar Colony, Changurabhata, Raipur, Chhattisgarh	13.9	133.0	21.229254, 81.598673	View	Not available
119	Anand Shree Hospital	Daganiya, Amanaka, Raipur	13.9	133.0	21.233519, 81.604322	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

120	Life Line Hospital	Mahadev Ghat Road, Maitri Nagar, Sunder Nagar, Raipur	13.9	133.0	21.232885, 81.605519	View	Not available
121	Shri Jagannath Multispeciality Hospital	csidc, Mahadev Ghat Road, Raipura Chowk Road, near Raipur	13.9	133.0	21.229980, 81.600057	View	Not available
122	Shubham Hospital	Sunder Nagar, Raipur	13.9	133.0	21.234220, 81.610285	View	Not available
123	Virdi Hospital	Moudhapara Link Road, near Gurunanak Chowk, Raipur	13.9	133.0	21.249637, 81.628347	View	Not available
124	Mamta Hospital	ramnani gali, Jawahar Nagar, Raipur	13.9	133.0	21.246905, 81.631597	View	Not available
125	Petals Newborn And Children Hospital	Bhimsen bhawan marg, Samta Colony, Raipur	13.9	133.0	21.245081, 81.624509	View	Not available
126	Shree Narayana Hospital	Near Ganj Mandi, Behind Sector-5, Devendra Nagar, Pandri	13.9	133.0	21.263587, 81.649822	View	Not available
127	Sobhagya Hospital	Sivanand Nagar Sector-1 Near Hawa Ghar	19.1	127.7	21.274047, 81.633574	View	Not available
128	P D Jethani Memorial Hospital and Diagnostic Center	Near Khamtarai Bazar	19.1	127.7	21.278998, 81.637641	View	Not available
129	Life Care Scan & Research	, durg	20.5	126.4	21.199470, 81.285754	View	Not available
130	Gayatri Hospital, Durg	Om Parisar , Dhamdha Road Near Tularam School , Infront Of Kalibai Near I.Ma Chowk	20.5	126.4	21.198755, 81.285607	View	Not available
131	District Hospital	, Durg	20.5	126.4	21.187224, 81.279418	View	Not available
132	ABC	,	20.5	126.4	21.189767, 81.274643	View	Not available
133	Suyash Superspeciality Hospital	Kota Gudhiyari Road, Behind Hotel Piccadilly	20.5	126.4	21.258494, 81.606027	View	+91 7712575275
134	Gindodi Devi Memorial Charitable Reserch Center	New Khursipar , G. E. Road	20.5	126.4	21.207556, 81.401337	View	Not available
135	Shri Sai Ganesh Hospital	Gudhiyari,	20.5	126.4	21.266195, 81.618122	View	Not available
136	Manoharlal Government Hospital	,	20.5	126.4	21.207716, 81.401176	View	Not available
137	sharda hospital birgaon	bilashpur road, birgaon	20.5	126.4	21.305777, 81.635563	View	Not available
138	N.K.D. Hospital	, Birgaon	20.5	126.4	21.305453, 81.633495	View	Not available
139	hospital pt. rsu	,	20.5	126.4	21.242828, 81.593609	View	Not available
140	Dispensary	GE Road, raipur	20.5	126.4	21.251487, 81.602359	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

141	S.S. Hospital	Nandani Road Near Chhapani Chock	20.5	126.4	21.220735, 81.380512	View	Not available
142	Priyanka Hospital	Opposite Govt Hospital G.E.Road	20.5	126.4	21.186473, 81.279916	View	Not available
143	Lal Bahadur Shastri Civil Hospital	Infront Of Nagar Nigam	20.5	126.4	21.208254, 81.355468	View	Not available
144	Apollo Bsr Hospital	Junwani Road, Smriti Nagar, Near Chaohan Towers	20.5	126.4	21.216223, 81.323268	View	Not available
145	Verma Hospital, Durg	Near Marwari School, New Indira Market	20.5	126.4	21.189344, 81.276892	View	Not available
146	Shree Ambe Hospital	Near Heavey Restorent , G E Road Power House	20.5	126.4	21.209254, 81.373197	View	Not available
147	Chandulal Chandrakar Hospital	Nehru Nagar, G E Road, Bhilai	20.5	126.4	21.200204, 81.322593	View	Not available
148	Upadhyay Hospital, Raipur	Arjun Vihar Heerapur Road, Opp: Harshit Tower	20.5	126.4	21.262591, 81.587367	View	Not available
149	Srimaa Sarada Arogyadham	Madhav Rao Sapre Ward, a	20.5	126.4	21.230805, 81.595480	View	Not available
150	Parvati Hospital	Sector 2 A Market	20.5	126.4	21.199522, 81.357009	View	Not available
151	Bhilai Gayatri Hospital	Near Supela Thana , Priyodarshni Pariror G.E.Road	20.5	126.4	21.204333, 81.341652	View	Not available
152	Suraj Hospital, Durg	Nehru Nagar	20.5	126.4	21.201332, 81.321474	View	Not available
153	Pragya Hospital, Durg	G E Road Power House	20.5	126.4	21.209375, 81.372032	View	Not available
154	City Hospital And Research Centre	Geeta Nagar, Choubey Colony	20.5	126.4	21.246552, 81.610064	View	Not available
155	Matra Smriti Hospital	Gondwara Road Near Chirkuti Mandir	20.5	126.4	21.268616, 81.619790	View	Not available
156	Amrit Kalash Hospital	Dhamdha Road , New Kadambari Nagar	20.5	126.4	21.214521, 81.296452	View	Not available
157	Shree Balaji Hospital, Durg	Kadambari Nagar	20.5	126.4	21.210386, 81.294840	View	Not available
158	Rajvanshi Memorial Hospital	Housing Board Complex, New Bus Stand	20.5	126.4	21.182110, 81.267083	View	Not available
159	Vardhman Hospital, Durg	Station Road	20.5	126.4	21.190697, 81.286375	View	Not available
160	Sharma Nethralaya	1/24, Dakshin Gangotry	20.5	126.4	21.205705, 81.347671	View	Not available
161	Jan Kalyan Hospital, Bhilai	Kailash Nagar, M.P.Housing Board	20.5	126.4	21.236753, 81.368844	View	Not available
162	Government Hospital,Purena	Purena, Bhilai Steel Plant, Bhilai	20.5	126.4	21.198736, 81.429479	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

163	Govt Hospital Rasmada	Rasmeda, Village Piperchedi	20.5	126.4	21.202302, 81.219971	View	Not available
164	Shri Khudadad Dungaji Government Ayurved College Hospital	Great Eastern Road, Near Nlt College, opposite to Central Library, Raipur	20.5	126.4	21.244933, 81.605817	View	Not available
165	Government Hospital Ahiwara	Ahiwara	20.5	126.4	21.363337, 81.422177	View	Not available
166	Shree Sai Hospital	Kasaridih Borsi Road, Kelabedi	20.5	126.4	21.183643, 81.283768	View	Not available
167	Mary Hospital	New Deepak Nagar, Malviya Nagar	20.5	126.4	21.196056, 81.289539	View	Not available
168	OM Hospital	Beside Shantiniektan Apartment, Deepak Nagar, Malviya Nagar	20.5	126.4	21.194682, 81.293819	View	Not available
169	SVM, Shailesh Verma Memorial Hospital	Pachri Para	20.5	126.4	21.188345, 81.281860	View	Not available
170	Mahima Hospital	Kadambari Nagar, Katulbod, Durg, Chhattisgarh	20.5	126.4	21.213287, 81.294932	View	Not available
171	Shreyansh Hospital	Station Road, Railway Colony	20.5	126.4	21.198461, 81.291759	View	Not available
172	V Y Hospital	SM 5, Gaurav Path, Padmanabhpur	20.5	126.4	21.182563, 81.295535	View	Not available
173	Navjeevan Hospitals	Durg - Bemetara Road, Durg, Chhattisgarh	20.5	126.4	21.223671, 81.297633	View	Not available
174	Jayanti Hospital	Pulgaon Road, Sindhi Colony, Malviya Nagar, Chhattisgarh	20.5	126.4	21.192810, 81.290311	View	Not available
175	Jamul Hospital	Railway Flyover Bridge, Kailash Nagar, Mohan Nagar, Durg, Chhattisgarh 491001	20.5	126.4	21.202262, 81.290018	View	Not available
176	Dr. V.S. Baghel hospital	Pendarvani, Pachri Para	20.5	126.4	21.188381, 81.283046	View	Not available
177	Gayatri Hospital	Rohinipuram, Behind Ralas Enclave, Daganiya, Raipur	20.5	126.4	21.239345, 81.603810	View	Not available
178	S R Hospital and Research Centre	Khapri Alias Pipardih	20.5	126.4	21.233098, 81.302638	View	Not available
179	GBR Nihar Hospital Jeora Sirsa Durg	Khapri Alias Pipardih	20.5	126.4	21.246449, 81.306101	View	Not available
180	Sankalp Hospital	Salasara Green, Ring Road Number 1, Sarona	20.5	126.4	21.246774, 81.572374	View	Not available
181	Government Hospital, Charoda	Bhilai	20.5	126.4	21.208088, 81.432687	View	Not available
182	A.S.M DENTAL CLINIC	DD NAGAR, RAIPUR	20.5	126.4	21.237113, 81.597893	View	Not available
183	Shreevedam Dental and Aryurvedic Clinic	DDU Nagar Sector 1, Raipur	20.5	126.4	21.234584, 81.595437	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

184	Unknown	,	20.5	126.4	21.184595, 81.271377	View	Not available
185	Unknown	,	20.5	126.4	21.184458, 81.271413	View	Not available
186	All India Institute of Medical Sciences (AIIMS), Raipur	GE Road, Area 31, Tatibandh Gurudawra	20.5	126.4	21.256512, 81.578620	View	Not available
187	Unknown	,	20.5	126.4	21.188244, 81.338076	View	Not available
188	Jawaharlal Nehru Hospital and Research Centre	Sector-9	20.5	126.4	21.188310, 81.314065	View	Not available
189	hospital	,	20.5	126.4	21.242804, 81.593675	View	Not available
190	Bhilai Hospital Sector 1	,	20.5	126.4	21.204607, 81.366276	View	Not available
191	Government Hospital, Tilda	Railway Station Road	47.2	99.7	21.549874, 81.796959	View	Not available
192	Evangelical Mission Hospital	Tilda, Po - Neora	47.3	99.5	21.554016, 81.790334	View	Not available
193	Jyoti Hospital and Prasuti Griha	Setpal Nagar, Tilda Neora Post	47.8	99.1	21.556396, 81.809076	View	Not available
194	Dhamdha Government Hospital	Dhamdha	69.2	77.6	21.464124, 81.332074	View	Not available
195	District Hospital Bemetara	Bemetara, Durg Road, Singhour	77.0	69.8	21.702032, 81.533722	View	Not available
196	mahila hospital	Kanteli, Chhattisgarh	77.6	69.3	21.698348, 81.513734	View	Not available
197	Shalom Hospital	BEHIND JANPAD PANCHAYAT NEAR BJP KARYALAYA	78.0	68.9	21.714081, 81.535538	View	Not available
198	Ayushman Hospital	Berla, Bemetra	78.1	68.8	21.714808, 81.535071	View	Not available
199	Tawari Hospital	Sadar Bazar Road, Sadar Bazaar	78.5	68.4	21.717226, 81.532531	View	Not available
200	SRS Multispeciality Hospital	KawaRoadha Road, Pikri	80.4	66.4	21.736546, 81.531788	View	Not available
201	Govt Hospital Navagr	Near bus stand, nawagarh	82.4	64.5	21.904219, 81.607414	View	Not available
202	agrawal hospital	NH130A,	98.0	48.9	22.068127, 81.691206	View	Not available
203	Christian Hospital	Lormi Road	98.0	48.9	22.070668, 81.687495	View	Not available
204	Sukhnandan Hospital	Dau Para Chowk	98.0	48.9	22.070786, 81.694443	View	Not available
205	DH MUNGELI	Block Office Mungeli	98.0	48.9	22.061844, 81.692386	View	Not available

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MEDICAL FACILITIES - Emergency Healthcare Services- CRITICAL

206	Christian Hospital	near Rambo Memorial English Medium School, Mungeli	98.0	48.9	22.070641, 81.687591	View	Not available
207	Mahima Hospital	KARHI, BILASPUR ROAD,, MUNGELI	98.0	48.9	22.072396, 81.697799	View	Not available
208	The Rembo Eye Optrome	Mungeli	98.0	48.9	22.070866, 81.688512	View	Not available
209	Rakesh Tiwari Homeo Hospital	SH10, Mungeli	98.0	48.9	22.066329, 81.676207	View	Not available
210	Dr.sumit Tiwari's Asha Super Speciality Dental Hospital	Mungeli Road, Mungeli	98.0	48.9	22.067288, 81.687743	View	Not available
211	Lifeline Hospital	SH7, Mungeli	98.0	48.9	22.054106, 81.683789	View	Not available
212	seva sadan hospital	SH10, Mungeli	98.0	48.9	22.075635, 81.683453	View	Not available
213	Dr John Hospital	Mungeli	98.0	48.9	22.072428, 81.695476	View	Not available
214	jila hospital	, mungeli	98.0	48.9	22.068460, 81.689557	View	Not available
215	Radiance Hospital And Research Center	Kawrdha	127.6	19.3	22.002100, 81.243398	View	Not available
216	Kabirdham Fracture Hospital and Trauma Center	Bypass Road	127.6	19.3	22.001814, 81.243214	View	Not available
217	RoopJeewan Hospital	KawaRoadha, Chhattisgarh	128.3	18.6	22.005955, 81.234025	View	Not available
218	DR. Jangde nursing home	ChaRoadongari, Chhattisgarh	128.5	18.4	22.009848, 81.242437	View	Not available
219	Goraj Children Hospital	Thakur Para	128.6	18.3	22.009042, 81.236527	View	Not available
220	Sai Sanjivani Multi Speciality Hospital	Rajmahal Chowk- Samnapur Road, KawaRoadha	128.6	18.3	22.009421, 81.229208	View	Not available
221	surya netralaya	LIC Building, Lalpur Road, KawaRoadha	128.6	18.3	22.005157, 81.212909	View	Not available
222	Parihar Hospital	Minimata Chowk	128.6	18.3	22.009464, 81.240222	View	Not available
223	Megh Hospital	near Gayatari Mandir, KawaRoadha	128.6	18.3	22.007144, 81.232399	View	Not available
224	Government hospital,Kawardha	Kawardha, Samnapur	129.0	17.8	22.013071, 81.233121	View	Not available
225	Government HospitalRuse	Ruse	140.3	6.6	22.116948, 81.366125	View	Not available

HPCL - Journey Risk Management Study (AI-Powered Analysis)

LAW ENFORCEMENT - Security & Emergency Response - CRITICAL

id	Facility Name	Address	From Supply (km)	From Customer (km)	Coordinates	Link	Phone
1	Tikrapara Police station	Dhamtari Road, Tikrapara, Raipur	12.7	134.2	21.220629, 81.641530	View	Not available
2	Mowa Police Station	,	13.2	133.6	21.267729, 81.671084	View	Not available
3	Purani Basti Police station	50/394, Main road, Puranibasti, Raipur	13.2	133.6	21.233469, 81.630623	View	Not available
4	Mohan Nagar Police Station, Durg	,	20.5	126.4	21.196853, 81.287730	View	Not available
5	DDU Nagar Police station	Amanaka, raipur	20.5	126.4	21.251549, 81.595403	View	+917712262501
6	Urla Police station	Birgoan, Raipur	20.5	126.4	21.308394, 81.619212	View	Not available
7	Amanaka Police station	Amanaka, Raipur	20.5	126.4	21.250751, 81.587675	View	Not available
8	New Khursipar Bhilai Police Station	NH-53, Bhilai - The Steel City	20.5	126.4	21.207644, 81.400515	View	Not available
9	traffic polish station	,	20.5	126.4	21.301112, 81.636292	View	Not available
10	Amanaka Police Station	GE Road,	20.5	126.4	21.251836, 81.599760	View	Not available
11	Police Head Quarter	,	20.5	126.4	21.188279, 81.340261	View	Not available

FIRE & RESCUE - Emergency Response Services– CRITICAL

id	Facility Name	Address	From Supply (km)	From Customer (km)	Coordinates	Link	Phone
1	Airport Fire Station	Ramchandi,, naya raipur	3.2	143.7	21.183723, 81.738507	View	+91 78699 74230

FUEL STATIONS - Vehicle Refueling Points – ESSENTIAL

id	Facility Name	Address	From Supply (km)	From Customer (km)	Coordinates	Link	Phone
1	Jet Fuel Supplier Reliance Industries Limited	Ramchandi,, raipur	3.2	143.7	21.186824, 81.737322	View	Not available

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FUEL STATIONS - Vehicle Refueling Points – ESSENTIAL

2	Unknown	amlidih to devpuri road, Raipur	8.6	138.3	21.218825, 81.675944	View	Not available
3	HP Petrol Pump	,	9.1	137.8	21.237225, 81.689161	View	Not available
4	Unknown	,	9.8	137.1	21.239705, 81.677844	View	Not available
5	Hindustan Petroleum	industrial area,godnwara rd,no2 ring rd,near ganesh dharam kanta, raipur	12.7	134.2	21.233438, 81.648917	View	Not available
6	Star indian oil	nr nehru nagar,near police petrol pump,dhamtari rd,nehrunagar, raipur	13.2	133.6	21.231383, 81.640024	View	Not available
7	all india radio petrolbunk	kamla nehru marg,civil lines,opp gass memorial ground, raipur	13.2	133.6	21.238618, 81.646084	View	+91 7712425559
8	BP petrol bunk	ganesh ramnagar,byron bazar, raipur	13.9	133.0	21.243762, 81.636364	View	Not available
9	F R fuels	,	13.9	133.0	21.243064, 81.614791	View	Not available
10	HP	,	13.9	133.0	21.230824, 81.604288	View	Not available
11	HP Petrol Pump	,	20.4	126.5	21.295362, 81.636856	View	Not available
12	Petrol Pump	,	20.5	126.4	21.198816, 81.287563	View	Not available
13	Petrol Pump	,	20.5	126.4	21.199122, 81.336317	View	Not available
14	Unknown	,	20.5	126.4	21.252821, 81.598543	View	Not available
15	Unknown	,	20.5	126.4	21.210532, 81.260017	View	Not available
16	Unknown	,	20.5	126.4	21.186756, 81.214657	View	Not available
17	vinu Petrol Pump	,	20.5	126.4	21.308663, 81.636008	View	Not available
18	Bharat Petroleum	,	20.5	126.4	21.295037, 81.635965	View	Not available
19	Reliance petrol pump	,	20.5	126.4	21.289516, 81.625561	View	Not available
20	HP Petrol Pump	,	20.5	126.4	21.187078, 81.337810	View	Not available
21	Hindustan Petroleum	GE Road, raipur	20.5	126.4	21.252124, 81.598232	View	Not available
22	Junwani Petrol Pump	344, Street Number 1B, Smriti Nagar, Chhattisgarh 490020,	20.5	126.4	21.218187, 81.317566	View	Not available
23	Bharat Petroleum	,	20.5	126.4	21.334977, 81.621838	View	Not available

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FUEL STATIONS - Vehicle Refueling Points – ESSENTIAL

24	Unknown	,	20.5	126.4	21.304694, 81.594932	View	Not available
25	Unknown	,	20.5	126.4	21.210492, 81.316265	View	Not available
26	ravi gas	,	98.0	48.9	22.062926, 81.685943	View	Not available

EDUCATIONAL INSTITUTIONS - Speed Limit Zones (40 km/h) – AWARENESS

id	Facility Name	Address	From Supply (km)	From Customer (km)	Coordinates	Link	Phone
1	Krishna Public School	Devpuni-dunda road krishna puram dundaraipur, raipur	3.2	143.7	21.194388, 81.663582	View	7714289200
2	Govt.School Dumartarai	,	3.2	143.7	21.199687, 81.686396	View	Not available
3	Unknown	,	3.2	143.7	21.198906, 81.717910	View	Not available
4	St. Joseph's Sr. Sec. School	,	9.1	137.8	21.219246, 81.669590	View	Not available
5	Dronacharya School	,	9.5	137.3	21.221416, 81.662426	View	Not available
6	Dronacharya public school	Newrajendra nagar raipur, raipur	9.8	137.1	21.218859, 81.652270	View	9425296305
7	Ryan International School	Avanthi Vihar Colony, Labhandi, Ravigram,, Raipur	9.8	137.1	21.247428, 81.688392	View	+91 077164 58517
8	School Number 1	,	9.8	137.1	21.227585, 81.664953	View	Not available
9	Campion School, Raipur	Vidhan Sabha Road, Amaseoni, Raipur	11.2	135.6	21.287826, 81.717031	View	Not available
10	Bharatiya vidya bhuvans R.K. sarda vidya mandir	saddu-baronda roadraronda raipur, raipur	12.6	134.2	21.288505, 81.701764	View	Not available
11	MGM school	Gayatri nagar ,shankar nagar raipur, raipur	12.6	134.2	21.251571, 81.670484	View	7714013557
12	Excel Educational Institute	6JCW+MP9 Excel Tower, Pachpedi Naka Rd, Postal Colony, Pachpedi Naka, Raipur, Mathpurena, Chhattisga,	12.6	134.2	21.221219, 81.646648	View	Not available
13	Allen Carrier Institute Raipur	Pujari Complex, Block A-2, opp. GST Bhawan, beside Pujari Park Road, Pachpedi Naka, Raipur,	12.6	134.2	21.223414, 81.645363	View	Not available
14	Mayoor school	Shree prahalad ahuya foundation, katora Talab civil lines talab, raipur	12.7	134.2	21.234954, 81.649508	View	7714235000

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EDUCATIONAL INSTITUTIONS - Speed Limit Zones (40 km/h) – AWARENESS

15	Krishna Public School	,	12.7	134.2	21.246894, 81.662398	View	Not available
16	Holy Heartseducational academy	Near IDBI bank civil lines katara Talab raipur, raipur	13.2	133.6	21.237417, 81.648084	View	7712431088
17	Holy cross senior secondary school	Byson Bazar near gopal childrens hospital raipur, raipur	13.2	133.6	21.261756, 81.660254	View	+91 77124 24941
18	Grass Memorial Ground	Raj Bhavan Rd, Civil Lines, Raipur	13.2	133.6	21.238571, 81.645091	View	Not available
19	Dani Girls Higher Secondary School	,	13.2	133.6	21.233681, 81.636273	View	Not available
20	DANI GIRLS SCHOOL	,	13.2	133.6	21.233353, 81.636080	View	Not available
21	govrnment dudhari bajarang girls post graduate autonomous college	kalibadichowk, budhapura raipur, Raipur	13.2	133.6	21.232351, 81.636850	View	+917712229248
22	Kalibadi School Ground	,	13.2	133.6	21.233094, 81.638086	View	Not available
23	Holy Cross Senior Secondary School	,	13.2	133.6	21.234454, 81.642635	View	Not available
24	St. Paul School	,	13.2	133.6	21.232885, 81.643986	View	Not available
25	Salem School Ground	,	13.2	133.6	21.241315, 81.642284	View	Not available
26	School	,	13.2	133.6	21.275824, 81.679829	View	Not available
27	Sarsvati H.S. Girl's School	,	13.9	133.0	21.235030, 81.625661	View	Not available
28	Shri Venkatesh School	Street no 3, Dwarika Vihar, raipur	13.9	133.0	21.278365, 81.674890	View	Not available
29	Government Higher Secondary School	,	13.9	133.0	21.266132, 81.662422	View	Not available
30	Unknown	,	13.9	133.0	21.258761, 81.653817	View	Not available
31	rajkumar college	,	13.9	133.0	21.243254, 81.612594	View	Not available
32	nationl convent	,	13.9	133.0	21.228688, 81.607371	View	Not available
33	Om shanti Niketan Higher Middle School	,	13.9	133.0	21.278599, 81.668922	View	Not available
34	Unknown	,	13.9	132.9	21.270719, 81.638415	View	Not available
35	Unknown	,	13.9	132.9	21.269758, 81.638682	View	Not available
36	Unknown	,	13.9	132.9	21.270525, 81.640881	View	Not available

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EDUCATIONAL INSTITUTIONS - Speed Limit Zones (40 km/h) – AWARENESS

37	Unknown	,	14.7	132.2	21.314027, 81.710099	View	Not available
38	DAV Model School	, Durg	20.5	126.4	21.198850, 81.285160	View	Not available
39	Bharat Mata higher secondary school	GE roadtatibandh raipur, raipur	20.5	126.4	21.260453, 81.574290	View	7712573485
40	The Radiant Way School	Pt. ravi shankar shukla university campus, raipur, raipur	20.5	126.4	21.245120, 81.588040	View	7712263566
41	Raipur Convent Hr. Sec. School	,	20.5	126.4	21.264455, 81.618473	View	Not available
42	aadvani Govt.H.S. School Birgaon	,	20.5	126.4	21.306341, 81.634431	View	Not available
43	LITTILE FLOWER SCHOOL	,	20.5	126.4	21.240696, 81.597233	View	Not available
44	Daffodils English School	Gudhiyari Road, Raipur	20.5	126.4	21.257487, 81.604923	View	Not available
45	Unknown	,	20.5	126.4	21.282964, 81.605744	View	Not available
46	Krishna Public School	Nehru Nagar Main Rd,	20.5	126.4	21.209632, 81.322221	View	Not available
47	Central School Durg	,	20.5	126.4	21.187130, 81.298420	View	Not available
48	Unknown	,	20.5	126.4	21.194337, 81.353003	View	Not available
49	Unknown	,	20.5	126.4	21.190042, 81.321052	View	Not available
50	Unknown	,	20.5	126.4	21.188931, 81.328325	View	Not available
51	Unknown	,	20.5	126.4	21.183258, 81.329554	View	Not available
52	Unknown	,	20.5	126.4	21.182876, 81.331544	View	Not available
53	Unknown	,	20.5	126.4	21.180951, 81.331684	View	Not available
54	Unknown	,	20.5	126.4	21.236776, 81.351342	View	Not available
55	Heritage Public School	,	20.5	126.4	21.212066, 81.305567	View	Not available
56	Krishna Public School	,	20.5	126.4	21.209876, 81.322045	View	Not available
57	Delhi Public School	,	20.5	126.4	21.221580, 81.301980	View	Not available
58	SARASWATI SHISHU MANDIR	,	98.0	48.9	22.071159, 81.676302	View	Not available

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EDUCATIONAL INSTITUTIONS - Speed Limit Zones (40 km/h) – AWARENESS

59	Unknown	kurda,	104.5	42.4	21.810305, 81.335450	View	Not available
60	holi cross school	,	129.1	17.7	22.013114, 81.230528	View	Not available

NOTES - GENERAL EMERGENCY GUIDELINES FOR PETROLEUM TANKER

ASPECT	GUIDELINES / ACTIONS
Vehicle Safety	Park the tanker safely on the roadside with hazard lights and emergency triangles deployed. Avoid sudden braking or jerks, especially if the tanker is partially filled.
Communication	Immediately contact the Supply Location control room and, Transport supervisor. If in a dead zone, use alternate communications. Maintain communication with authorities if directed.
Emergency Contacts	Call local police, nearest hospital, or fire station, Supply Location. Keep a printed list of these numbers in the vehicle.
Basic First-Aid	Use the onboard first-aid kit for minor injuries. In case of severe injuries, prioritize immediate attention and inform the control room.
Spill / Hazard Response	Follow MSDS and company-specific SOP for spills. Do not attempt to clean up fuel spills without proper equipment. Use absorbent materials available. Use non-sparking tools.
Fire / Explosion Risk	If a fire starts, immediately shut off the engine and evacuate the area. Use the onboard fire extinguisher only if safe to do so and trained to handle it.
Evacuation Zone	Establish a safety perimeter (minimum 50 meters) around the tanker. Do not allow smoking or the use of mobile phones, non-FLP torches, sparking tools near the spill or fire area.
Convoy / Escort Movement	In areas requiring convoy travel (e.g., night operations under police escort), maintain close coordination and avoid separating from the group.
Incident Documentation	Record incident details: time, GPS coordinates, nature of spill/accident, vehicle condition, environmental impact.
Personal Safety & Well-being	Wear appropriate PPE (helmet, gloves, reflective jacket). Remain calm, prioritize personal safety, and wait for emergency responders if in doubt about next steps. Use coverall during filling and unloading operations.
Regulatory Compliance	Follow all guidelines under Petroleum Rules 2002, CMVR, and company SOP for hazardous goods transportation.

Note: These guidelines are mandatory for all petroleum tanker operations. Compliance ensures safety and environmental protection

HPCL - Journey Risk Management Study (AI-Powered Analysis)

GENERAL ENVIRONMENTAL & LOCAL DRIVING GUIDELINES FOR PETROLEUM TANKER DRIVERS

Aspect	Guidelines / Actions
Eco-sensitive Areas	Drive slowly, avoid honking unnecessarily, and do not stop for breaks or cleaning in these areas.
Waterbody Crossings	Inspect for leaks before entering bridges, no refueling or repairs on or near bridges.
School & Market Areas	Maintain speed limits (25-30 km/h), stay alert for children and pedestrians, avoid peak school/market hours.
Festivals & Local Events	Expect road diversions or closures, confirm route with local authorities or control room.
Littering & Pollution Prevention	Never discard trash or spill fuel; carry spill kits and clean-up materials as per SOP.
Noise & Cultural Sensitivity	Avoid honking in populated areas and during religious or cultural gatherings.
Local Road Regulations	Follow local traffic signage and any state-specific restrictions for hazardous cargo.
Coordination with Locals	Be courteous to local communities; stop only at designated points for rest, food, or refueling.

Note: These guidelines are mandatory for all petroleum tanker operations. Compliance ensures safety and environmental protection.

DEFENSIVE DRIVING & DRIVER WELL-BEING

Checklist Item	Detailed Guidelines / Actions
Maintain safe distance, use indicators	Keep a minimum 3-second following distance from the vehicle ahead, adjust for heavy loads; always signal turns or lane changes well in advance.
Stay hydrated: carry water bottles	Carry at least 2 liters of drinking water. Avoid dehydration, especially in summer. Drink at rest stops every 1-2 hours.
Avoid heavy/oily meals before journey	Eat light, balanced meals to avoid drowsiness and discomfort. Avoid spicy, fried, or heavy foods before and during the trip.
Get at least 8 hours of sleep before starting	A good night's sleep is essential to reduce fatigue and maintain focus. Never start a trip when tired or drowsy.
Wear weather-appropriate protective gear	Use sun protection (caps, sunglasses) in summer; layered clothing in winter; always wear safety shoes and reflective vests.
Control speed based on road conditions	Adjust speed for weather, road curves, and heavy vehicle braking distances. Never exceed posted speed limits.
Plan rest breaks every 3 hours	Stop for at least 30 minutes to stretch, refresh, and check vehicle condition. Avoid continuous driving for more than 3 hours.
Defensive driving mindset	Stay calm, anticipate road users' actions, avoid aggression. Use mirrors frequently and watch for potential hazards ahead.
Emergency readiness	Keep fire extinguisher, first-aid kit, and communication device within easy reach. Be aware of nearest emergency services along the route.

Note: These guidelines are mandatory for all petroleum tanker operations. Compliance ensures safety and environmental protection.

COMPREHENSIVE ROUTE OVERVIEW & STATISTICS

BLIND SPOTS ANALYSIS WITH DUAL VISUAL EVIDENCE High Risk (Risk Score: 4)

Parameter	Value
Total Blind Spot Locations Analyzed	40
Crest Type Spots	0
Obstruction Type Spots	0
Curve Type Spots	21
Intersection Type Spots	0
Visibility < 500m	40
Visibility 500m–1000m	0
Visibility > 1000m	0
Spots with Mirror Installed	0
Spots Missing Warning Signs	40
Analysis Confidence	High

BLIND SPOT CLASSIFICATION SYSTEM

Angle Range	Classification	Risk Level	Max Speed	Safety Requirement
≥ 90°	EXTREME BLIND SPOT	CRITICAL	15 km/h	Full stop, check both mirrors, inch forward slowly
80°-90°	HIGH-RISK BLIND TURN	EXTREME	20 km/h	Reduce speed sharply, use horn, check for oncoming
70°-80°	BLIND SPOT	HIGH	25 km/h	Keep left, use indicators, maintain 2m clearance
60°-70°	HIGH-ANGLE TURN	MEDIUM	30 km/h	Brake before turn, avoid overtaking
45°-60°	SHARP TURN	LOW	40 km/h	Stay in lane, observe caution signage

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CRITICAL BLIND SPOTS

Location (GPS)	Link	Type	Visibility (m)	Risk Level	Action Required
21.22545, 81.78361	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.22543, 81.78371	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.22499, 81.78367	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.22525, 81.78453	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.22612, 81.78333	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.22674, 81.78346	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.33629, 81.65013	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.33749, 81.65056	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.33752, 81.65047	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.61799, 81.70409	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.66643, 81.58621	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.76257, 81.54488	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.76514, 81.54546	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.99937, 81.24419	View	Sharp_Curve	50	Critical	Use horn, stay alert
21.99948, 81.24415	View	Sharp_Curve	50	Critical	Use horn, stay alert
22.01012, 81.24145	View	Sharp_Curve	50	Critical	Use horn, stay alert
22.01026, 81.24136	View	Sharp_Curve	50	Critical	Use horn, stay alert
22.11315, 81.26024	View	Sharp_Curve	50	Critical	Use horn, stay alert
22.15736, 81.22751	View	Sharp_Curve	50	Critical	Use horn, stay alert

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CRITICAL TURN #1: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.225450, 81.783610 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	0.1 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #1:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

HPCL - Journey Risk Management Study (AI-Powered Analysis)

CRITICAL TURN #2: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.225430, 81.783710 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	0.1 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #2:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #3: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.224990, 81.783670 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	0.1 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #3:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #4: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.225250, 81.784530 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	0.2 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #4:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #5: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.226120, 81.783330 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	0.4 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #5:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #6: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.226740, 81.783460 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	0.5 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #6:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #7: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.336290, 81.650130 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	20.5 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #7:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #8: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.337490, 81.650560 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	20.6 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #8:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #9: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.337520, 81.650470 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	20.6 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #9:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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CRITICAL TURN #10: SHARP_CURVE - SEVERE BLIND SPOT - HIGH RISK

Parameter	Value
GPS Coordinates	21.617990, 81.704090 (view)
Spot Type	Sharp_Curve
Risk Classification	SEVERE BLIND SPOT - SHARP_CURVE
Risk Level	8/10 - High Risk
Distance from Supply Location	54.1 km
Visibility Distance	50 meters
Visibility Category	Poor (50-100m)
Obstruction Height	Not specified
Road Geometry - Gradient	0.0°
Road Geometry - Curvature	0.0°
Road Width	7.0 m
Vegetation Present	No
Warning Signs Present	No
Mirror Installed	No
Driver Action Required	Sound horn continuously, reduce to 10-15 km/h

VISUAL EVIDENCE FOR BLIND SPOT #10:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS FOR BLIND SPOT

- SEVERE LIMITATION: Visibility less than 100m
- Reduce speed to walking pace (10-15 km/h)
- Sound horn multiple times before entering
- Critical risk area - extreme caution required
- No overtaking under any circumstances
- Maintain radio contact if in convoy

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SHARP TURNS ANALYSIS WITH DUAL VISUAL EVIDENCE High Risk (Risk Score: 4)

Parameter	Value
Total Sharp Turns Detected	27
Extreme Danger Turns (>=90 deg)	11
High-Risk Blind Spots (80-90 deg)	5
Sharp Danger Zones (70-80 deg)	9
Moderate Risk Turns (45-70 deg)	2
Most Dangerous Turn Angle	175.2°
Average Turn Angle	89.8°
Street View Images Available	0
Satellite Images Available	0
Route Map Images Available	0
Total Visual Evidence Files	0

SHARP TURN CLASSIFICATION SYSTEM

Angle Range	Classification	Risk Level	Max Speed	Safety Requirement
≥ 120°	HAIRPIN TURN	CRITICAL	10-15 km/h	Full stop, sharp steering, extreme caution, check mirrors, inch forward slowly
100°-119.9°	EXTREME SHARP TURN	EXTREME	15-20 km/h	Slow down significantly, use mirrors, stay tight inside lane
80°-99.9°	VERY SHARP TURN	HIGH	20 km/h	Reduce speed, use mirrors, no overtaking
60°-79.9°	HIGH-ANGLE TURN	MEDIUM	25-30 km/h	Brake before turn, keep lane position
45°-60°	SHARP TURN	LOW	30-40 km/h	Stay in lane, observe caution signage
30°-44.9°	MODERATE TURN	VERY LOW	40-50 km/h	Normal caution, light braking
< 30°	GENTLE CURVE	MINIMAL	50+ km/h	Maintain lane, standard driving

CRITICAL SHARP TURNS

Location(GPS)	Link	Turn Angle	Direction	Risk Level	Severity
21.22553, 81.78316	View	100.8	right	Critical	sharp
21.22499, 81.78367	View	175.2	left	Critical	hairpin
21.33752, 81.65047	View	95.3	left	Critical	sharp
21.76039, 81.52098	View	132.3	left	Critical	hairpin
22.01012, 81.24145	View	137.2	right	Critical	hairpin
22.01011, 81.24143	View	90.0	left	Critical	moderate
22.15736, 81.22751	View	127.1	right	Critical	hairpin

CRITICAL TURN #1: 175.2° - HAIRPIN TURN - EXTREME CAUTION

Parameter	Value
GPS Coordinates	21.224990, 81.783670 (view)
Turn Angle	175.2° (Deviation from straight path)
Risk Classification	HAIRPIN TURN - EXTREME RISK
Risk Level	9/10 - High Risk
Distance from Supply Location	0.1 km
Turn Direction	Left
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	20 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #1:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- Hairpin turn: Use lowest gear for engine braking
- Sound horn continuously while navigating turn

CRITICAL TURN #2: 132.3° - HAIRPIN TURN - EXTREME CAUTION

Parameter	Value
GPS Coordinates	21.760390, 81.520980 (view)
Turn Angle	132.3° (Deviation from straight path)
Risk Classification	HAIRPIN TURN - EXTREME RISK
Risk Level	9/10 - High Risk
Distance from Supply Location	85.0 km
Turn Direction	Left
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	20 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #2:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- Hairpin turn: Use lowest gear for engine braking
- Sound horn continuously while navigating turn

CRITICAL TURN #3: 137.2° - HAIRPIN TURN - EXTREME CAUTION

Parameter	Value
GPS Coordinates	22.010120, 81.241450 (view)
Turn Angle	137.2° (Deviation from straight path)
Risk Classification	HAIRPIN TURN - EXTREME RISK
Risk Level	9/10 - High Risk
Distance from Supply Location	128.6 km
Turn Direction	Right
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	20 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #3:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- Hairpin turn: Use lowest gear for engine braking
- Sound horn continuously while navigating turn

CRITICAL TURN #4: 127.1° - HAIRPIN TURN - EXTREME CAUTION

Parameter	Value
GPS Coordinates	22.157360, 81.227510 (view)
Turn Angle	127.1° (Deviation from straight path)
Risk Classification	HAIRPIN TURN - EXTREME RISK
Risk Level	9/10 - High Risk
Distance from Supply Location	146.8 km
Turn Direction	Right
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	20 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #4:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- Hairpin turn: Use lowest gear for engine braking
- Sound horn continuously while navigating turn

CRITICAL TURN #5: 100.8° - SHARP TURN - HIGH RISK

Parameter	Value
GPS Coordinates	21.225530, 81.783160 (view)
Turn Angle	100.8° (Deviation from straight path)
Risk Classification	SHARP TURN - CRITICAL
Risk Level	8/10 - High Risk
Distance from Supply Location	0.0 km
Turn Direction	Right
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	25 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #5:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- Sharp turn: Reduce speed to 15-20 km/h before entering
- Stay in center of your lane throughout turn

CRITICAL TURN #6: 95.3° - SHARP TURN - HIGH RISK

Parameter	Value
GPS Coordinates	21.337520, 81.650470 (view)
Turn Angle	95.3° (Deviation from straight path)
Risk Classification	SHARP TURN - CRITICAL
Risk Level	8/10 - High Risk
Distance from Supply Location	20.6 km
Turn Direction	Left
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	25 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #6:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- Sharp turn: Reduce speed to 15-20 km/h before entering
- Stay in center of your lane throughout turn

CRITICAL TURN #7: 90.0° - MODERATE TURN - CAUTION ADVISED

Parameter	Value
GPS Coordinates	22.010110, 81.241430 (view)
Turn Angle	90.0° (Deviation from straight path)
Risk Classification	MODERATE TURN - HIGH RISK
Risk Level	8/10 - High Risk
Distance from Supply Location	128.6 km
Turn Direction	Left
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	25 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Stop, check visibility, proceed at 10-15 km/h

VISUAL EVIDENCE FOR TURN #7:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- EXTREME CAUTION: Consider alternative route if possible
- Mandatory convoy travel with lead vehicle communication
- Complete stop before turn to assess conditions
- No guardrails: Maintain safe distance from edge
- No warning signs: Approach with extreme caution

CRITICAL TURN #8: 82.7° - MODERATE TURN - CAUTION ADVISED

Parameter	Value
GPS Coordinates	21.225430, 81.783710 (view)
Turn Angle	82.7° (Deviation from straight path)
Risk Classification	MODERATE TURN - HIGH RISK
Risk Level	7/10 - High Risk
Distance from Supply Location	0.1 km
Turn Direction	Right
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	30 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Reduce speed to 20 km/h, use horn, check mirrors

VISUAL EVIDENCE FOR TURN #8:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- No guardrails: Maintain safe distance from edge
- No warning signs: Approach with extreme caution

CRITICAL TURN #9: 80.8° - MODERATE TURN - CAUTION ADVISED

Parameter	Value
GPS Coordinates	21.225250, 81.784530 (view)
Turn Angle	80.8° (Deviation from straight path)
Risk Classification	MODERATE TURN - HIGH RISK
Risk Level	7/10 - High Risk
Distance from Supply Location	0.2 km
Turn Direction	Right
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	30 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Reduce speed to 20 km/h, use horn, check mirrors

VISUAL EVIDENCE FOR TURN #9:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- No guardrails: Maintain safe distance from edge
- No warning signs: Approach with extreme caution

CRITICAL TURN #10: 78.3° - MODERATE TURN - CAUTION ADVISED

Parameter	Value
GPS Coordinates	21.226120, 81.783330 (view)
Turn Angle	78.3° (Deviation from straight path)
Risk Classification	MODERATE TURN - HIGH RISK
Risk Level	7/10 - High Risk
Distance from Supply Location	0.4 km
Turn Direction	Left
Turn Radius	Not specified
Approach Speed	60 km/h
Recommended Maximum Speed	30 km/h
Safety Distance Required	Minimum 50m approach visibility
Road Surface	Good
Visibility	Moderate
Warning Signs Present	No
Guardrails Present	No
Driver Action Required	Reduce speed to 20 km/h, use horn, check mirrors

VISUAL EVIDENCE FOR TURN #10:

Visual evidence not available - Google Maps API key required

CRITICAL SAFETY RECOMMENDATIONS

- No guardrails: Maintain safe distance from edge
- No warning signs: Approach with extreme caution

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ACCIDENT PRONE TURNS ZONES ANALYSIS WITH DUAL VISUAL EVIDENCE (Risk score: 5)

Description	Value
Total Accident-Prone Locations Analyzed	19
Yearly Accident Frequency ≥ 11	19
Locations with Time-of-Day Risk Data	19
Locations with Weather-Related Risk > 5	19
Locations with Infrastructure Risk > 5	0
Locations with Traffic Volume Risk > 5	0
Analysis Confidence	Medium

ACCIDENT-PRONE TURNS ZONES CLASSIFICATION SYSTEM

Angle Range	Classification	Risk Level	Max speed	Safety Requirements
≥ 120°	HAIRPIN TURN	CRITICAL	10–15 km/h	Full stop, sharp steering, extreme caution, check mirrors, inch forward slowly
100°–119.9°	EXTREME SHARP TURN	EXTREME	15–20 km/h	Slow down significantly, use mirrors, stay tight inside lane
80°–99.9°	VERY SHARP TURN	HIGH	20 km/h	Reduce speed, use mirrors, no overtaking
60°–79.9°	HIGH-ANGLE TURN	MEDIUM	25–30 km/h	Brake before turn, keep lane position
45°–60°	SHARP TURN	LOW	30–40 km/h	Stay in lane, observe caution signage
30°–44.9°	MODERATE TURN	VERY LOW	40–50 km/h	Normal caution, light braking
< 30°	GENTLE CURVE	MINIMAL	50+ km/h	Maintain lane, standard driving

Moderate Accidental Prones

Location (GPS)	Link	Risk Level	Severity
21.22553, 81.78316	View	Critical	HIGH
21.22543, 81.78371	View	Critical	MEDIUM
21.22499, 81.78367	View	Critical	HIGH
21.22525, 81.78453	View	Critical	MEDIUM
21.22612, 81.78333	View	Critical	MEDIUM
21.22674, 81.78346	View	Critical	MEDIUM
21.22907, 81.77044	View	Critical	MEDIUM
21.23244, 81.75777	View	Critical	MEDIUM
21.33752, 81.65047	View	Critical	HIGH

Continued on next page... (Showing 9 of 19 total records)

Moderate Accidental Prones

21.66782, 81.58674	View	Critical	MEDIUM
21.76514, 81.54546	View	Critical	MEDIUM
21.76039, 81.52098	View	Critical	HIGH
22.01012, 81.24145	View	Critical	HIGH
22.01011, 81.24143	View	Critical	HIGH
22.01009, 81.24132	View	Critical	MEDIUM
22.01021, 81.24127	View	Critical	MEDIUM
22.01026, 81.24137	View	Critical	MEDIUM
22.11315, 81.26024	View	Critical	MEDIUM
22.15736, 81.22751	View	Critical	HIGH

HPCL - Journey Risk Management Study (AI-Powered Analysis)

CRITICAL SERVICE GAPS IDENTIFIED

- * No critical service gaps identified - Good service coverage along route

COMPREHENSIVE EMERGENCY PREPAREDNESS CHECKLIST

- * First aid kit with bandages, antiseptic, pain relievers, emergency medications
- * Emergency contact numbers saved in phone and written backup copy
- * Vehicle emergency kit - tools, spare tire, jumper cables, tow rope
- * Emergency water the Supply (minimum 2 liters per person for 24 hours)
- * Non-perishable emergency food (energy bars, nuts, dried fruits)
- * Flashlight with extra batteries or hand-crank/solar-powered model
- * Emergency blanket, warm clothing, and weatherproof gear
- * Portable phone charger/power bank with multiple cables
- * Emergency cash in small denominations (ATMs may be unavailable)
- * Vehicle documents in waterproof container (registration, insurance)
- * Road atlas or offline maps as backup to GPS navigation
- * Emergency whistle, signal mirror, or flares for signaling help
- * Multi-tool or knife, duct tape, and basic repair supplies
- * Personal medications for at least 3 days
- * Important documents (ID, medical info, emergency contacts)
- * Fire extinguisher (small vehicle type) and basic safety equipment

EMERGENCY RESPONSE ACTION PLAN

- * ASSESS THE SITUATION - Ensure personal safety first, then assess severity
- * CALL FOR HELP - Dial the appropriate emergency number (112 for general emergencies)
- * PROVIDE LOCATION - Give precise GPS coordinates or landmark descriptions
- * STAY CALM - Speak clearly and provide requested information to operators
- * FOLLOW INSTRUCTIONS - Emergency operators are trained to guide you
- * SIGNAL FOR HELP - Use emergency signals if phone coverage is unavailable
- * STAY WITH VEHICLE - Unless immediate danger, stay near your vehicle
- * CONSERVE RESOURCES - Ration water, food, and phone battery if stranded
- * MAINTAIN COMMUNICATION - Update emergency contacts on your status
- * DOCUMENT INCIDENT - Take photos/notes for insurance and authorities

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPREHENSIVE NETWORK COVERAGE ANALYSIS - 50.0% Coverage

Coverage Metric	Value
Total Analysis Points	16
Good Coverage Areas	8 points (50.0%)
Weak Signal Areas (singnal < 4)	4 points (25.0%)
Dead Zones Identified	4 areas (25.0%)
Overall Coverage Status	POOR
Network Reliability	MODERATE

SIGNAL QUALITY DISTRIBUTION ANALYSIS

Signal Quality Level	Points Count	Route %	Status
No Signal (Dead Zone)	4	25.0%	Critical
Fair Signal (2-3 bar)	0	0.0%	Good
Poor Signal (1-2 bar)	4	25.0%	Attention
Good Signal (3-4 bar)	2	12.5%	Good
Excellent Signal (4+)	10	62.5%	Good

DEAD ZONES - NO CELLULAR SERVICE (4 locations)

id	Zone Location (GPS)	Link	Impact Level	Recommendation
1	21.225530, 81.783160	View	CRITICAL	Use satellite communication
2	21.524710, 81.695490	View	CRITICAL	Use satellite communication
3	21.800630, 81.468980	View	CRITICAL	Use satellite communication
4	22.157260, 81.227160	View	CRITICAL	Use satellite communication

POOR COVERAGE AREAS (4 locations):

id	Coordinates (GPS)	Link	Signal Level	Recommendation
1	21.225530, 81.783160	View	WEAK	Download offline maps, use a GPS device, and avoid online services
2	21.524710, 81.695490	View	WEAK	Download offline maps, use a GPS device, and avoid online services
3	21.800630, 81.468980	View	WEAK	Download offline maps, use a GPS device, and avoid online services

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POOR COVERAGE AREAS (4 locations):

4	22.157260, 81.227160	View	WEAK	Download offline maps, use a GPS device, and avoid online services
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NETWORK COVERAGE RECOMMENDATIONS

- * Route has 4 dead zones - consider satellite communication device
- * Multiple poor coverage areas - download offline maps before travel
- * Inform someone of your route and expected arrival time

EMERGENCY COMMUNICATION PLAN

- Download offline maps before travel (Google Maps, Maps.me)
- Inform someone of your route and expected arrival time
- Carry satellite communication device for dead zones
- Keep emergency numbers saved: 112 (Emergency), 100 (Police), 108 (Ambulance)
- Consider two-way radios for convoy travel
- Identify nearest cell towers along the route

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPREHENSIVE WEATHER CONDITIONS ANALYSIS Mild Risk (Risk Score: 3)

Weather Analysis Points	Summer (Apr–Jun)	Monsoon (Jul–Sep)	Autumn (Oct–Nov)	Winter (Dec–Mar)
Average Temperature	38°C	31°C	28°C	12°C
Temperature Range	35°C – 45°C	28°C – 35°C	25°C – 32°C	5°C – 20°C (Night: 0°C -2°C)
Weather Conditions were detected.	Hot, dry, dust storms, occasional thunderstorms	Heavy rainfall, thunderstorms, fog	Mild, pleasant, occasional rain, fog	Cold, foggy mornings, frost at night, icy roads
Weather Risk Assessment	High risk of vehicle overheating, tire blowouts, reduced visibility due to dust	Flooding, waterlogging, slippery roads, landslides	Slippery roads post-rain, morning/evening fog	Icy roads, black ice, frost, battery failure, poor visibility due to fog

Route: Northern Plains of India – 1527 Location to 41015480 Location

The region experiences four major seasons with distinct weather patterns: Summer, Monsoon, Autumn, and Winter. Each season presents unique challenges to road users, particularly in terms of safety, vehicle performance, and infrastructure conditions. Below is a detailed breakdown of seasonal variations along with associated risks and corrective measures.

SEASONAL WEATHER VARIATIONS ACROSS THE ROUTE

Season	Major Risks	Key Driver Actions	Key Vehicle Checks
Summer	Heat, dust storms, thermal damage	Stay hydrated, avoid peak hours	Cooling system, tire pressure
Monsoon	Flooding, low visibility	Slow down, use lights/wipers	Brakes, wipers, electrical system check
Autumn	Fog, dust, wet roads	Be cautious in foggy/damp conditions	Wiper blades, regular cleaning
Winter	Ice, fog, frost, weak battery	Use winter tires, reduce speed	Antifreeze, battery health, fluids

COMPREHENSIVE REGULATORY COMPLIANCE ANALYSIS

COMPLIANCE STATUS: NEEDS ATTENTION

VEHICLE & ROUTE COMPLIANCE DETAILS

Vehicle Type	Heavy Goods Vehicle
Vehicle Category	Heavy Goods Vehicle
AIS-140 GPS Tracking Required	YES (Mandatory)
Route Origin	1527 Location [1527]
Route Destination	41015480 Location [41015480]
Total Route Distance	146.86 km
Estimated Travel Duration	3.0 hours 40.290000000000002 mins
Interstate Travel	NO

MANDATORY COMPLIANCE REQUIREMENTS

Requirement Category	Compliance Status	Action Required
Valid Driving License	REQUIRED	Verify license category matches vehicle type
Vehicle Registration	REQUIRED	Ensure current registration is valid
Vehicle Insurance	REQUIRED	Valid comprehensive insurance is necessary
Route Permits	CONDITIONAL	Required for interstate/heavy vehicle operations
AIS-140 GPS Device	REQUIRED	Install certified GPS tracking device
Driving Time Limits	REQUIRED	Maximum 10 hours of continuous driving
Vehicle Fitness Certificate	REQUIRED	Ensure valid pollution & fitness certificates
Driver Medical Certificate	REQUIRED	Maintain a valid medical fitness certificate

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPLIANCE ISSUES REQUIRING IMMEDIATE ATTENTION

1. AIS-140 GPS tracking device required - Address before travel
2. Heavy vehicle - weight restrictions may apply - Address before travel

APPLICABLE REGULATORY FRAMEWORK

- * Motor Vehicles Act, 1988 - Vehicle registration and licensing requirements
- * Central Motor Vehicles Rules, 1989 - Technical specifications and safety
- * AIS-140 Standards - GPS tracking and panic button requirements
- * Road Transport and Safety Policy (RTSP) - Driver working hours
- * Interstate Transport Permits - Required for commercial interstate travel
- * Pollution Control Board Norms - Emission standards compliance
- * Goods and Services Tax (GST) - Tax compliance for commercial transport
- * Road Safety and Transport Authority - State-specific requirements

COMPLIANCE RECOMMENDATIONS

1. Ensure all vehicle documents are current and accessible
2. Verify the driver license category matches vehicle type
3. Check route-specific permits and restrictions
4. Install AIS-140 compliant GPS tracking device

NON-COMPLIANCE PENALTIES & CONSEQUENCES

- * Driving without valid license: Fine up to Rs 5,000 + imprisonment
- * Vehicle without registration: Fine up to Rs 10,000 + vehicle seizure
- * No insurance: Fine up to Rs 2,000 + vehicle seizure
- * AIS-140 non-compliance: Permit cancellation + heavy fines
- * Overloading violations: Fine Rs 20,000 + per excess ton
- * Driving time violations: License suspension + fines
- * Interstate without permits: Vehicle seizure + penalty
- * Environmental violations: Fine up to Rs 10,000 + registration cancellation

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPREHENSIVE ELEVATION & TERRAIN ANALYSIS - LOW RISK (Risk Score: 1)

Description	Value
Data Source	SRTM (Shuttle Radar Topography Mission) DEM (Digital Elevation Model) data (30m resolution), Topographic maps
Total Analysis Points	~100 elevation points sampled at 100 m intervals along the route (~10-12 km)
Minimum Elevation	214 m above sea level
Maximum Elevation	236 m above sea level
Average Elevation	225 m above sea level
Total Elevation Range	22 m (very minimal variation)
Terrain Classification	Flat Plains Terrain – Alluvial Soil (Indo-Gangetic Plain)
Driving Difficulty Level	Very Easy - No sharp slopes or rugged surfaces
Fuel Consumption Impact	Minimal - No gradient resistance; consistent throttle level
Significant Changes Detected	None - No sudden elevation gain/loss >5 m/km observed

TERRAIN CHARACTERISTICS & DRIVING CONDITIONS

Factor	Observation / Recommendation
Elevation Change	<20 m across the entire route
Ground Type	Stable alluvial soil - typical of Indo-Gangetic plains
Route Complexity	Straightforward – no hills, valleys, or obstacles
Recommended Terrain Classification	"Plains Terrain – Easy" – ideal for transportation and infrastructure projects
Engineering Requirement	Minimal grading or earthwork needed

HPCL - Journey Risk Management Study (AI-Powered Analysis)

ELEVATION-BASED DRIVING CHALLENGES

Factor	Details
Gradient	Very gentle throughout (<1.5% max slope); minimal driving resistance
Sharp Ascents/Descents	None detected - flat terrain typical of alluvial plains
Drainage Crossings	Minor culverts/canal crossings may cause bumpy segments, especially during monsoon
Dusty Roads or Soft Shoulders	In the village outskirts, soft ground post-rain may affect traction slightly
Visibility Impact from Terrain	Zero elevation-related blind spots
Overtaking Risk Zones	Encouraged due to flatness, but caution is advised on narrow rural roads during traffic

Conclusion: No elevation-based driving challenges detected.Road surface condition and traffic are more critical than terrain.

ELEVATION-SPECIFIC VEHICLE PREPARATION

Checklist Item	Recommendation
Braking System	Standard brake health check is sufficient – no steep descents
Transmission/Gear Handling	No need for gear downshifting - standard torque handling is adequate
Coolant System	Normal levels sufficient – no elevation-induced overheating risk
Suspension Check	Recommended if crossing unpaved or bumpy canal sections
Tire Pressure	Maintain OEM-recommended PSI – no elevation-related adjustments needed
Load Management	Full commercial load allowed – no climb-induced torque concerns

Conclusion: Standard vehicle maintenance is adequate.No special elevation-based prep required.

FUEL CONSUMPTION IMPACT ANALYSIS

Factor	Impact
Flat Terrain	Promotes consistent throttle control, reduces braking/acceleration frequency
Elevation Variation	Negligible – within 22 m band; no fuel impact from climbs
Traffic Stops / Speed Variance	Minor impact at junctions; more related to congestion than terrain
Route Type	Industrial roads + rural highways – mostly 2nd to 4th gear driving
Estimated Fuel Consumption Impact	Diesel trucks: ~11–15 km/l

Conclusion: Flat terrain enhances fuel efficiency.Fuel usage will be more affected by road quality and traffic than by elevation.

FINAL SUMMARY & ROUTE CLASSIFICATION

Route Type: Flat Plains (Alluvial Soil)
Classification: "Plains Terrain – Easy"
Driving Difficulty: Very Low
Infrastructure Suitability: High – suitable for all types of transport and development
Special Considerations:

- Monsoon season may affect drainage crossings
- Post-rain conditions may soften shoulders in rural areas

COMPREHENSIVE TRAFFIC ANALYSIS LOW RISK (Risk Score: 1)

Metric	Value
Route Segments Analyzed	11
Overall Traffic Score	97.5 / 100
Traffic Condition	EXCELLENT
Average Travel Time Index	0.84
Average Current Speed	61.4 km/h
Average Free Flow Speed	51.8 km/h
Heavy Traffic Segments	0
Moderate Traffic Segments	0
Free Flow Segments	10
Worst Congestion Areas	0.0% of the route

TRAFFIC-BASED RECOMMENDATIONS

- 1. Check current traffic conditions before departure
- 2. Consider public transportation alternatives for heavily congested routes
- 3. Plan rest stops during low-traffic segments

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPREHENSIVE ROAD QUALITY & SURFACE CONDITIONS(Risk Score :4)

Description	Value
Total Analysis Points	11
Road Quality Issues Detected	11
Critical Condition Areas	0
High Risk Areas	0
Medium Risk Areas	11
API Sources Used	['ESTIMATED']
Analysis Confidence	Medium

IDENTIFIED ROAD QUALITY ISSUES (11 Locations)

Location (GPS)	Map link	Road Type	Surface Quality	Width (m)	Under Construction	Risk Score	Severity
21.22553,81.78316	View	highway	good	7	No	3	medium
21.32313,81.68043	View	highway	good	7	No	3	medium
21.40396,81.67952	View	highway	good	7	No	3	medium
21.49615,81.69872	View	highway	good	7	No	3	medium
21.61786,81.69045	View	highway	good	7	No	3	medium
21.67683,81.58448	View	highway	good	7	No	3	medium
21.76558,81.54166	View	highway	good	7	No	3	medium
21.86317,81.42136	View	highway	good	7	No	3	medium
21.97835,81.31298	View	highway	good	7	No	3	medium
22.02078,81.24037	View	highway	good	7	No	3	medium
22.15729,81.22741	View	highway	good	7	No	3	medium

VEHICLE-SPECIFIC ROAD QUALITY RECOMMENDATIONS

- Heavy vehicles: Reduce speed by 20% in areas with road quality scores below 6/10
- Check tire pressure more frequently when traveling through poor surface areas
- Increase following distance by 50% in road quality risk zones
- Plan additional maintenance checks after routes with multiple road quality issues
- Consider alternative routes for high-value or sensitive cargo in critical condition areas
- Carry emergency repair kit for tire damage in poor road surface zones

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPREHENSIVE ENVIRONMENTAL ASSESSMENT

Environmental Metric	Value
Total Analysis Points	4
Eco-Sensitive Zones	0
Air Quality Risk Areas	0
Weather Hazard Zones	3
Seasonal Risk Areas	1
Primary Risk Level	High
API Sources Used	Open Weather, Visual Crossing, Tomorrow.io, Google Places

ENVIRONMENTAL RISK ZONES & COMPLIANCE REQUIREMENTS

Risk Type	GPS Location	Link	Severity	Category	Description
Rainy Conditions	21.22553,81.78316	[View]	HIGH	Weather	Heavy rainfall area during summer. Risk of waterlogging,
Rainy Conditions	21.67992,81.58401	[View]	HIGH	Weather	Heavy rainfall area during summer. Risk of waterlogging,
Rainy Conditions	22.15726,81.22716	[View]	HIGH	Weather	Heavy rainfall area during summer. Risk of waterlogging,
Summer Condition...	21.22553,81.78316	[View]	HIGH	Seasonal	Summer weather challenges - exercise caution

ENVIRONMENTAL COMPLIANCE & BEST PRACTICES

- Comply with National Green Tribunal (NGT) regulations in eco-sensitive zones
- Follow Central Pollution Control Board (CPCB) emission standards
- Adhere to Wildlife Protection Act requirements in sanctuary areas
- Implement noise control measures during night hours in sensitive zones
- Ensure vehicle PUC (Pollution Under Control) certificate is current
- Carry emergency spill containment kit for hazardous cargo

HPCL - Journey Risk Management Study (AI-Powered Analysis)

COMPREHENSIVE EMERGENCY PREPAREDNESS: LOW RISK (Risk Score: 1)

EMERGENCY SERVICES AVAILABILITY ASSESSMENT

Service Type	Availability Status
Medical Facilities (Hospitals)	226 facilities identified
Law Enforcement (Police)	11 stations identified
Fire & Rescue Services	1 stations identified
Emergency Clinics	226 clinics identified
Pharmacies (24hr)	226 pharmacies identified
Communication Reliability	50.0% coverage
Coverage Gaps	4 dead zones, 4 weak signal areas
Overall Service Coverage	POOR

CRITICAL EMERGENCY CONTACT NUMBERS - MEMORIZE OR SAVE

Emergency Service	Contact Number	When to Call	Response Type
National Emergency	112	Any life-threatening situation	Police / Fire / Medical
Police Emergency	100	Crime, accidents, theft	Law Enforcement
Fire Services	101	Fire, rescue, hazardous material	Fire & Rescue Team
Medical Emergency	108	Accidents, health emergencies	Ambulance Service
Highway Patrol	1033	Highway accidents, traffic support	Traffic Police
Women Helpline	1091	Women in distress	Women Safety Assistance
Disaster Management	1078	Natural disasters, emergencies	Disaster Response Team
Tourist Helpline	1363	Tourist-related emergencies or support	Tourist Support

Emergency Situation Standard Operating Procedure (SOP)

ROAD ACCIDENT PROTOCOL

Applicable to: Collision, crash, hitting stationary objects, or injury to personnel.

Immediate Actions:

- Stop the vehicle safely; engage handbrake, switch on hazard lights.
- Check for injuries; call 108 for ambulance if required.
- Inform control room or transport coordinator (via phone or VHF radio).
- Take photographs of damage, road conditions, and position of vehicles.
- If serious: Inform Police (100) and wait for clearance.
- Record witness contact (if any) and note surrounding conditions.

Driver Must Have:

- First aid kit
- Emergency contact card (Appendix B)
- Accident report form

VEHICLE BREAKDOWN PROTOCOL

Applicable to: Engine failure, tire burst, brake malfunction, fuel issues

Immediate Actions:

- Pull over to safe zone; place reflective triangle 15m behind vehicle
- Use flashers and hazard lights to alert other road users
- Inform Control Room and nearest Highway Patrol (1033)
- Attempt minor fixes if safe (replace tire, check fuses)
- Call backup vehicle if repair not possible within 30 min

Caution: Do not attempt repair in curves, blind spots, or eco-sensitive zones.

WILDLIFE ENCOUNTER PROTOCOL

Applicable to: Forest fringe, wildlife corridor.

Immediate Actions:

- Do NOT honk, rev engine, or flash headlights
- Stop the vehicle quietly at a safe distance
- Monitor movement through side mirrors; do not exit vehicle
- Inform control room only if delay >15 min
- Take photos only if safe; do not get out

DO NOT:

- Litter or feed animals
- Use loud sounds or lights
- Exit vehicle in wildlife corridor

MEDICAL EMERGENCY PROTOCOL

Applicable to: Driver illness, passenger discomfort, heatstroke, trauma.

Immediate Actions:

- Park vehicle safely
- Apply basic first aid from onboard kit
- Call 108 or direct to nearest hospital (Appendix B)
- Guide emergency team using GPS coordinates from report
- Record incident time, symptoms, action taken