



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO BOHALI INDANE GRAMIN

Objective of the JRM Report

This JRM report is designed to ensure compliance with the Central Motor Vehicle Rules, 1989 (CMVR), AIS 140 standards, and the Road Transport Safety Policy (RTSP). It provides a comprehensive risk assessment for the transportation of hazardous materials along specified routes. By integrating these legal frameworks, the report offers a broad strategy for identifying and mitigating route-specific risks.

Regulatory Compliance

The report complies with the Central Motor Vehicles (Eleventh Amendment) Rules, 2022, mandating safe transportation practices for N2 and N3 category vehicles carrying hazardous materials. These rules require detailed route assessments, especially regarding road conditions, speed limits, and risk areas, to ensure safety compliance.

Risk Management Strategy

This report categorizes transportation routes into high-risk and medium-risk areas, with a focus on factors such as sharp turns, accident-prone regions, and elevation changes. The goal is to provide actionable

recommendations to minimize these risks, including speed regulations, driver warnings for hazardous zones, and the option of alternate routes.

Compliance with the Road Transport Safety Policy (RTSP)

The report integrates RTSP provisions, including mandatory driving hours, rest periods, and nighttime driving restrictions. It ensures that drivers follow official guidelines, such as taking prescribed rest breaks and avoiding dangerous road conditions like poor visibility, heavy crowds, or high-traffic areas during peak hours.

Emergency Preparedness and Response

The report highlights the significance of predetermined emergency stops for refueling, rest, and overnight stays. It includes protocols for safe responses to road hazards, alternative routes, and rerouting processes if roads are closed or severe weather arises. This aligns with the RTSP emphasis on driver safety and rapid emergency response.

Environmental Considerations

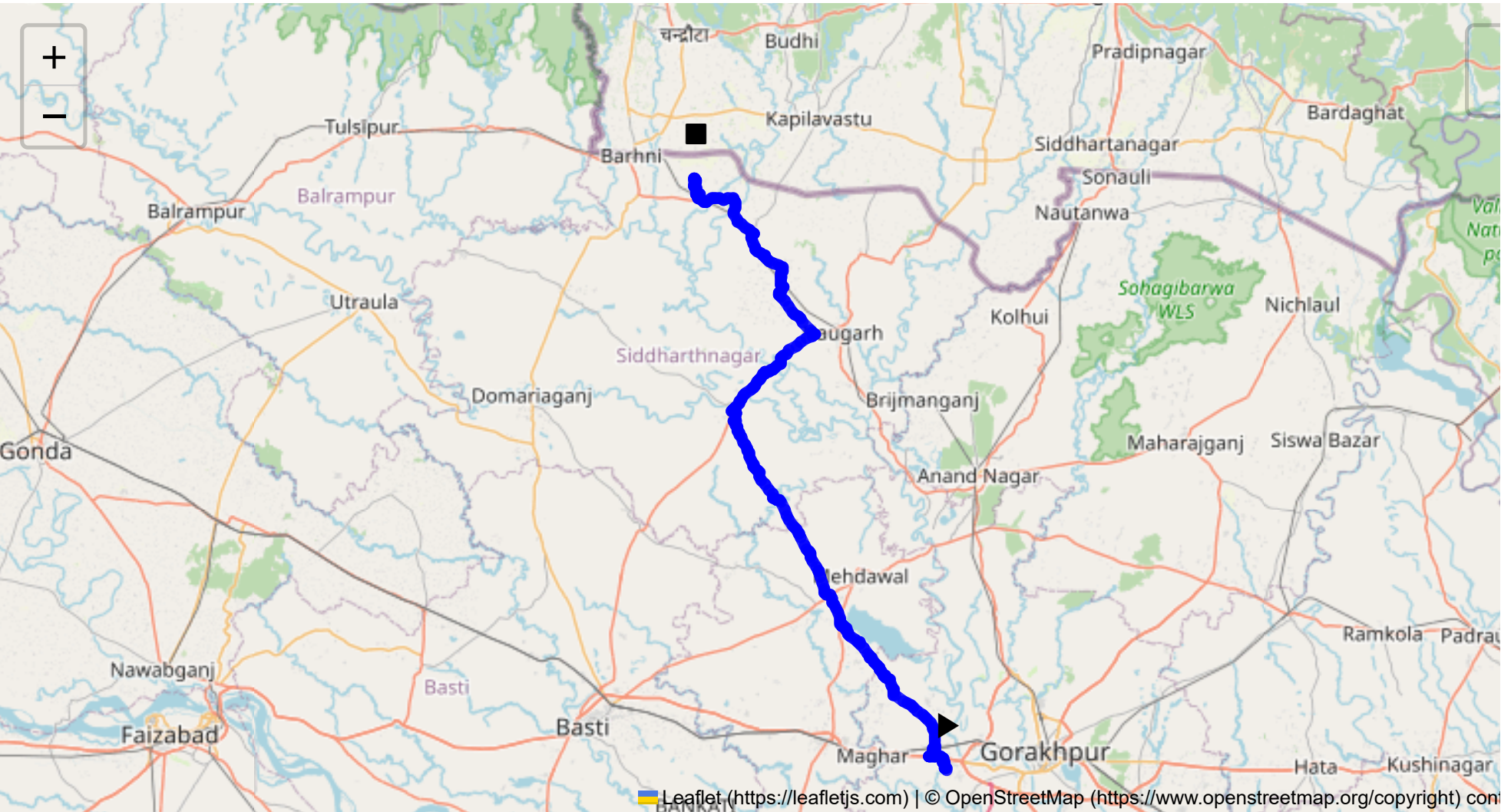
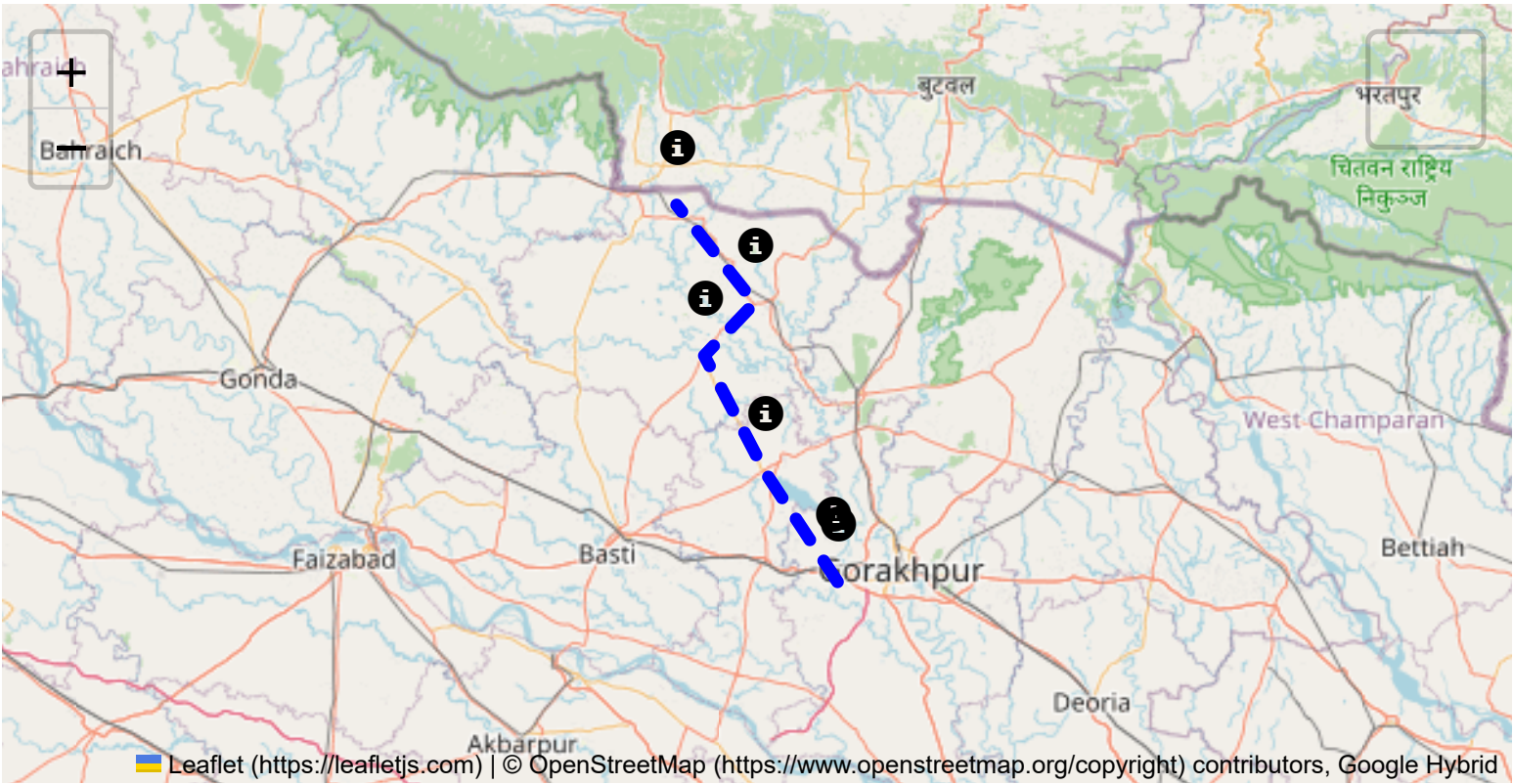
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental impacts during transport.

Journey Risk Mitigation

The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety norms.

Compliance with Government Directives

This report fully adheres to governmental directives regarding hazardous material transportation, implementing mandatory speed limits, nighttime driving restrictions, and comprehensive driver briefings and real-time alerts about route-related risks.



Route Summary:
Total Distance: 113.20 km
Estimated Duration: 3.1 hours
Adjusted Duration (Heavy Vehicle): 3.9 hours
Start: (26.735959, 83.229398)
End: (27.469232, 82.877346)

Welcome to the Journey Risk Management Study

Route Overview

The route from GIDA Industrial Area Phase 1 in Sahjanwa to Kharikaura, Uttar Pradesh, encompasses a distance of about 113.20 kilometers. The journey begins in an industrial zone and passes through several towns and rural areas, including Sahjanwa, Nandaur, Mahdewa, Bansi, and Sonawal. This varied terrain

includes urban streets, state highways, and rural roads, which may affect driving conditions and safety standards.

Weather Conditions and Hazards

- **Typical Weather:** Uttar Pradesh experiences extreme temperatures, with hot summers (April-June) and cold winters (December-January). The monsoon season (June-September) brings heavy rains, which can lead to flooding and reduced visibility.
- **Potential Hazards:** During monsoons, road conditions can worsen, with waterlogging and potential landslides in certain areas. Fog is common in winter, particularly in the early morning and late evening, reducing visibility.

Traffic Patterns

- **Peak Hours:** Congestion is most likely during morning (7:30 AM - 9:30 AM) and evening (5:00 PM - 7:00 PM) commutes, especially near urban centers like Sahjanwa and Bansi.
- **Congestion-Prone Areas:** Sahjanwa town center and intersections near busy marketplaces in Bansi could experience traffic snarls.

Road Quality and Infrastructure

- **Assessment:** The route includes well-maintained state highways but also significant stretches of rural roads with varying conditions. Potholes and poorly marked roads may pose hazards, especially for larger vehicles.
- **Infrastructure Issues:** There are likely to be narrow roads and bridges that can be challenging for heavy vehicles. Limited signage might increase the chances of navigation errors.

Suggestions for Alternative Routes

For emergencies, consider using regional roads bypassing congested towns. The NH-27 further south could offer a faster, more reliable alternative, though it might require detours.

Local Regulations for Hazardous Materials

Uttar Pradesh imposes restrictions on transporting hazardous materials through certain densely populated areas during peak hours. Regular compliance with safety permits and proper vehicle signage is mandatory. Follow specific routes designated for hazardous materials whenever possible.

Historical Incidents

There have been occasional incidents involving heavy vehicles, mostly due to overloading and poor maintenance. The monsoon season sees an increase in accidents due to slippery roads and reduced visibility.

Environmental Considerations

- **Sensitive Areas:** Parts of the route pass through environmentally sensitive zones, including small forests and agricultural fields where spills can have severe impacts.
- **Mitigation Strategies:** Be cautious of wildlife crossings in rural areas and respectful of agricultural zones by ensuring no contamination occurs from hazardous materials.

Communication Coverage

- **Potential Dead Zones:** Rural sections between Nandaur and Bansi may have spotty mobile network coverage. Reliable communication devices and alternative communication methods should be prepared before transit.

Emergency Response Times

- **Estimated Times:** Emergency services in Uttar Pradesh can have varied response times but generally range from 30 to 60 minutes for urban areas and up to 90 minutes in rural zones.
- **Strategic Locations:** Identify and note down the nearest hospitals and police stations along the route for quicker access in case of an emergency.

Overall Summary of Risk Assessment

The route presents moderate risks associated with weather conditions, road quality, and traffic congestion. These are manageable with proper planning and precautions. Key recommendations include maintaining updated weather forecasts, adhering to local regulations, ensuring regular vehicle maintenance, and having reliable communication tools. Continuous monitoring and adjustments to the route during travel can further mitigate risks. Overall, with the right preparation and adherence to safety protocols, the route can be traversed safely by trucks carrying hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
0	Turn	High	26.73746, 83.22938	15 KM/Hr	0.08 km
1	Turn	High	26.73788, 83.22642	15 KM/Hr	0.32 km
2	Turn	Medium	26.73812, 83.22630	30 KM/Hr	0.48 km
3	Turn	High	26.74524, 83.22746	15 KM/Hr	1.14 km
4	Turn	High	26.74679, 83.22391	15 KM/Hr	1.64 km
5	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.13 km
6	Blind Spot	Blind Spot	26.75377, 83.20465	10 KM/Hr	4.19 km
7	Blind Spot	Blind Spot	26.75378, 83.21338	10 KM/Hr	5.07 km
8	Turn	High	26.75640, 83.21275	15 KM/Hr	5.28 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
9	Blind Spot	Blind Spot	26.76132, 83.21435	10 KM/Hr	5.79 km
10	Turn	High	26.76131, 83.21143	15 KM/Hr	6.23 km
11	Turn	High	26.76382, 83.21122	15 KM/Hr	6.44 km
12	Turn	Medium	26.76555, 83.21385	30 KM/Hr	6.71 km
13	Turn	Medium	26.76593, 83.21408	30 KM/Hr	6.89 km
14	Turn	Medium	26.81740, 83.18022	30 KM/Hr	13.62 km
15	Turn	Medium	26.83008, 83.15664	30 KM/Hr	16.63 km
16	Turn	Medium	26.84954, 83.14869	30 KM/Hr	18.89 km
17	Turn	Medium	26.86197, 83.13749	30 KM/Hr	20.63 km
18	Turn	Medium	26.91348, 83.08869	30 KM/Hr	28.33 km
19	Turn	High	26.91597, 83.08449	15 KM/Hr	28.93 km
20	Blind Spot	Blind Spot	26.91433, 83.08351	10 KM/Hr	29.11 km
21	Turn	High	26.91843, 83.08101	15 KM/Hr	29.52 km
22	Turn	Medium	26.94451, 83.07172	30 KM/Hr	32.57 km
23	Turn	High	26.94829, 83.07156	15 KM/Hr	33.00 km
24	Turn	Medium	26.98317, 83.05063	30 KM/Hr	37.41 km
25	Turn	Medium	26.98353, 83.04986	30 KM/Hr	37.82 km
26	Turn	Medium	27.07125, 82.99577	30 KM/Hr	48.83 km
27	Turn	Medium	27.07137, 82.99515	30 KM/Hr	49.10 km
28	Turn	High	27.07059, 82.99365	15 KM/Hr	49.27 km
29	Turn	Medium	27.07376, 82.98855	30 KM/Hr	49.87 km
30	Turn	Medium	27.16959, 82.93442	30 KM/Hr	61.93 km
31	Turn	Medium	27.18005, 82.93461	30 KM/Hr	63.14 km
32	Turn	Medium	27.18156, 82.93170	30 KM/Hr	63.41 km
33	Turn	High	27.18212, 82.93129	15 KM/Hr	63.53 km
34	Turn	Medium	27.18395, 82.93294	30 KM/Hr	63.78 km
35	Turn	Medium	27.18426, 82.93547	30 KM/Hr	64.01 km
36	Turn	Medium	27.21951, 82.96897	30 KM/Hr	69.12 km
37	Turn	Medium	27.24002, 82.99826	30 KM/Hr	72.84 km
38	Turn	Medium	27.25086, 83.00192	30 KM/Hr	74.19 km
39	Blind Spot	Blind Spot	27.27614, 83.04693	10 KM/Hr	79.61 km
40	Turn	Medium	27.32773, 82.99694	30 KM/Hr	87.27 km
41	Turn	Medium	27.33497, 83.00070	30 KM/Hr	88.20 km
42	Turn	Medium	27.33562, 83.00038	30 KM/Hr	88.28 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
43	Turn	Medium	27.33686, 82.99840	30 KM/Hr	88.44 km
44	Turn	High	27.33769, 82.99798	15 KM/Hr	88.61 km
45	Turn	High	27.34360, 82.99984	15 KM/Hr	89.15 km
46	Turn	High	27.34495, 82.99869	15 KM/Hr	89.44 km
47	Turn	High	27.35999, 83.00084	15 KM/Hr	90.95 km
48	Turn	Medium	27.36840, 82.97921	30 KM/Hr	93.44 km
49	Turn	Medium	27.37345, 82.97618	30 KM/Hr	94.05 km
50	Turn	Medium	27.38314, 82.96290	30 KM/Hr	95.87 km
51	Turn	Medium	27.39591, 82.95739	30 KM/Hr	96.97 km
52	Blind Spot	Blind Spot	27.40183, 82.95968	10 KM/Hr	98.12 km
53	Turn	Medium	27.41587, 82.93971	30 KM/Hr	100.38 km
54	Turn	Medium	27.42746, 82.93331	30 KM/Hr	101.98 km
55	Turn	Medium	27.43505, 82.93596	30 KM/Hr	102.93 km
56	Turn	Medium	27.44297, 82.93392	30 KM/Hr	103.81 km
57	Turn	Medium	27.44361, 82.93323	30 KM/Hr	103.97 km
58	Turn	Medium	27.44609, 82.90892	30 KM/Hr	106.18 km
59	Turn	Medium	27.44018, 82.89425	30 KM/Hr	108.00 km
60	Blind Spot	Blind Spot	27.44414, 82.88325	10 KM/Hr	109.26 km
61	Turn	High	27.44868, 82.88519	15 KM/Hr	109.78 km
62	Turn	High	27.45043, 82.88122	15 KM/Hr	110.23 km
63	Turn	Medium	27.45322, 82.88182	30 KM/Hr	110.48 km
64	Turn	Medium	27.45744, 82.88014	30 KM/Hr	110.96 km
65	Turn	High	27.45804, 82.88019	15 KM/Hr	111.13 km
66	Turn	High	27.45886, 82.87845	15 KM/Hr	111.33 km
67	Turn	Medium	27.46057, 82.87892	30 KM/Hr	111.46 km
68	Turn	Medium	27.46113, 82.87877	30 KM/Hr	111.59 km
69	Turn	High	27.46659, 82.88051	15 KM/Hr	112.16 km
70	Turn	High	27.46681, 82.87948	15 KM/Hr	112.31 km
71	Turn	High	27.46739, 82.87958	15 KM/Hr	112.39 km
72	Turn	High	27.46897, 82.87749	15 KM/Hr	112.64 km

Route Photos of Risky Spots



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Distance from Start: 2.13 km
Coordinates: 26.75126, 83.22476



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Distance from Start: 4.19 km
Coordinates: 26.75377, 83.20465



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 5.07 km

Coordinates: 26.75378, 83.21338



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 5.28 km

Coordinates: 26.75640, 83.21275



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 5.79 km

Coordinates: 26.76132, 83.21435



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 6.23 km

Coordinates: 26.76131, 83.21143



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 6.44 km
Coordinates: 26.76382, 83.21122



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 6.71 km
Coordinates: 26.76555, 83.21385



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 6.89 km

Coordinates: 26.76593, 83.21408



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 13.62 km

Coordinates: 26.81740, 83.18022



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 16.63 km

Coordinates: 26.83008, 83.15664



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 18.89 km

Coordinates: 26.84954, 83.14869



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 20.63 km
Coordinates: 26.86197, 83.13749



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 28.33 km
Coordinates: 26.91348, 83.08869



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 28.93 km

Coordinates: 26.91597, 83.08449



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 29.11 km

Coordinates: 26.91433, 83.08351



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 29.52 km

Coordinates: 26.91843, 83.08101



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 32.57 km

Coordinates: 26.94451, 83.07172



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 33.00 km
Coordinates: 26.94829, 83.07156



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 37.41 km
Coordinates: 26.98317, 83.05063



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 37.82 km
Coordinates: 26.98353, 83.04986



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 48.83 km
Coordinates: 27.07125, 82.99577



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 49.10 km

Coordinates: 27.07137, 82.99515



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 49.27 km

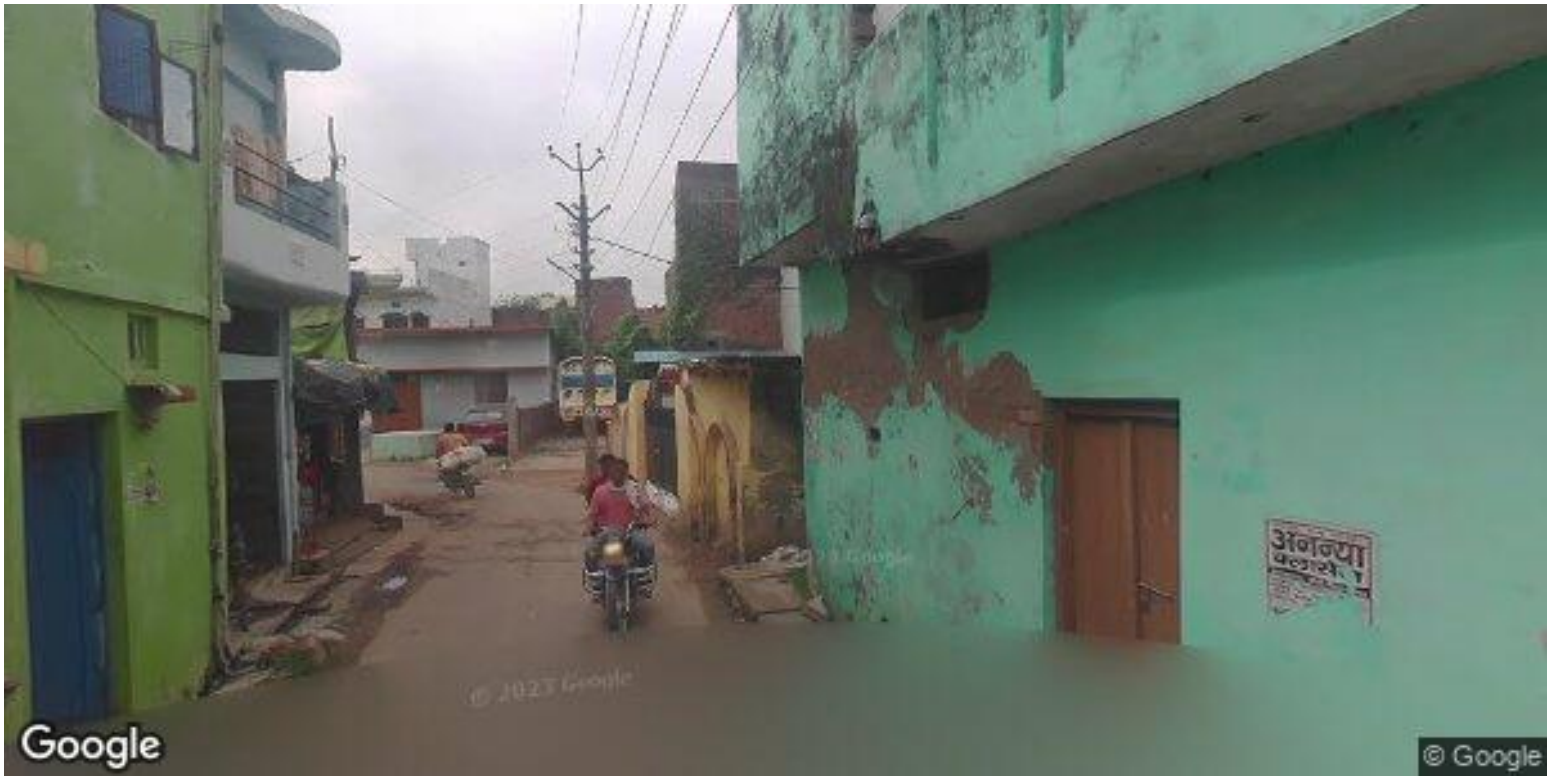
Coordinates: 27.07059, 82.99365



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 49.87 km
Coordinates: 27.07376, 82.98855



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 61.93 km
Coordinates: 27.16959, 82.93442



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 63.14 km
Coordinates: 27.18005, 82.93461



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 63.41 km
Coordinates: 27.18156, 82.93170



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 63.78 km
Coordinates: 27.18395, 82.93294



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 64.01 km
Coordinates: 27.18426, 82.93547



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 69.12 km
Coordinates: 27.21951, 82.96897



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 72.84 km
Coordinates: 27.24002, 82.99826



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 74.19 km
Coordinates: 27.25086, 83.00192



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Distance from Start: 79.61 km
Coordinates: 27.27614, 83.04693



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 87.27 km
Coordinates: 27.32773, 82.99694



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 88.20 km
Coordinates: 27.33497, 83.00070



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 88.28 km
Coordinates: 27.33562, 83.00038



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 88.44 km
Coordinates: 27.33686, 82.99840



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 88.61 km
Coordinates: 27.33769, 82.99798



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 89.15 km
Coordinates: 27.34360, 82.99984



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 89.44 km

Coordinates: 27.34495, 82.99869



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 90.95 km

Coordinates: 27.35999, 83.00084



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 93.44 km
Coordinates: 27.36840, 82.97921



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 95.87 km
Coordinates: 27.38314, 82.96290



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 96.97 km

Coordinates: 27.39591, 82.95739



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 98.12 km

Coordinates: 27.40183, 82.95968



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 100.38 km

Coordinates: 27.41587, 82.93971



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 101.98 km

Coordinates: 27.42746, 82.93331



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 102.93 km
Coordinates: 27.43505, 82.93596



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 103.81 km
Coordinates: 27.44297, 82.93392



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 103.97 km
Coordinates: 27.44361, 82.93323



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 106.18 km
Coordinates: 27.44609, 82.90892



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 108.00 km
Coordinates: 27.44018, 82.89425



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Distance from Start: 109.26 km
Coordinates: 27.44414, 82.88325



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 110.48 km
Coordinates: 27.45322, 82.88182



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 110.96 km
Coordinates: 27.45744, 82.88014



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 111.13 km

Coordinates: 27.45804, 82.88019



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 111.33 km

Coordinates: 27.45886, 82.87845



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 111.46 km

Coordinates: 27.46057, 82.87892



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 111.59 km

Coordinates: 27.46113, 82.87877



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 112.16 km
Coordinates: 27.46659, 82.88051



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 112.31 km
Coordinates: 27.46681, 82.87948



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 112.39 km
Coordinates: 27.46739, 82.87958



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 112.64 km
Coordinates: 27.46897, 82.87749

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