



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO ROARI 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

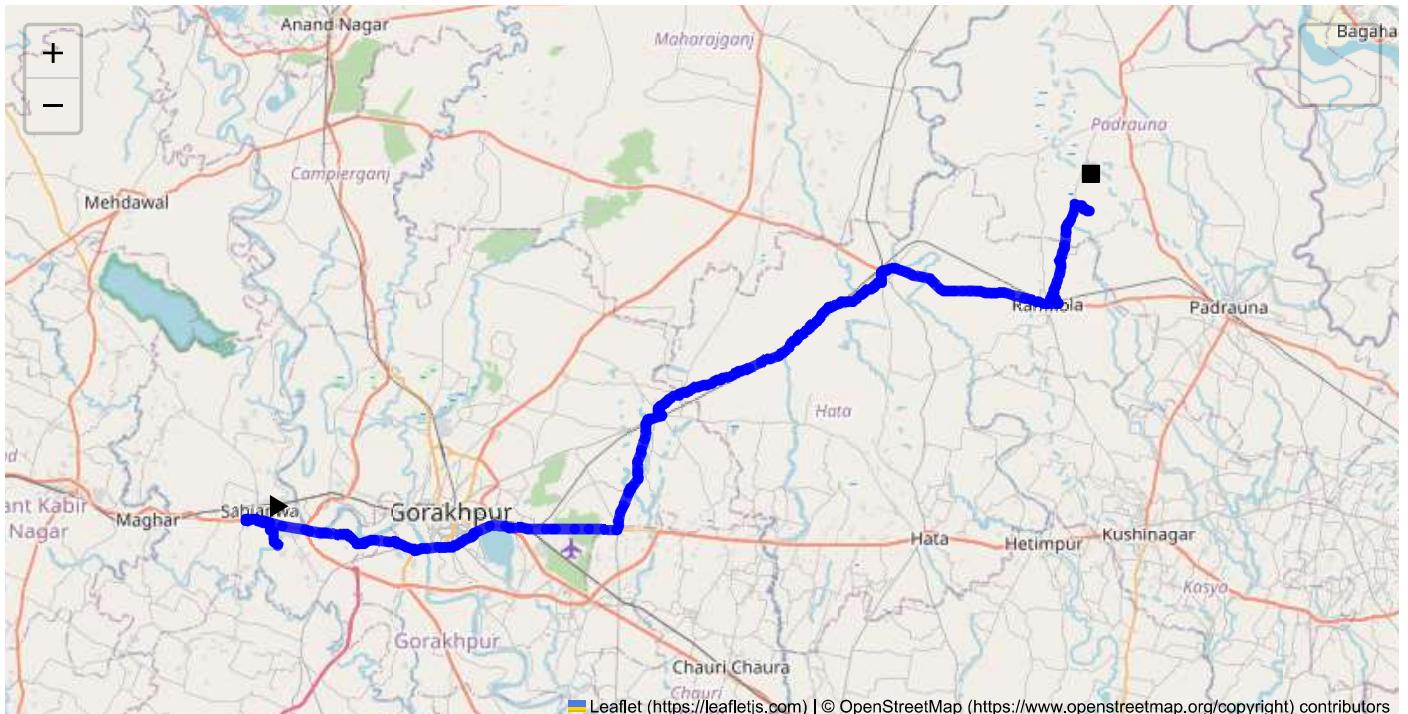
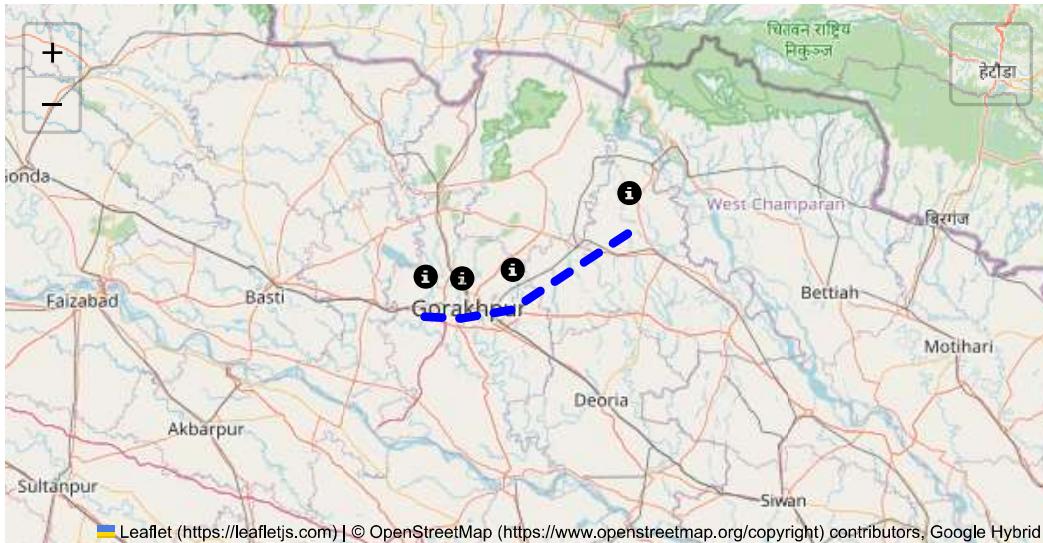
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 91.09 km
Estimated Duration: 2.5 hours
Adjusted Duration (Heavy Vehicle): 3.1 hours
Start: (26.735959, 83.229398)
End: (26.970368, 83.869611)

Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route from GIDA Industrial Area Phase 1 in Sahjanwa to Babhnauli, passing through Gorakhpur and Emilia Urf Bijahra, is approximately 91.09 kilometers. The journey begins in an industrial zone, proceeds

through urban and semi-urban settings, and finally reaches a rural endpoint. The route involves navigating major highways and smaller local roads.

2. Typical Weather Conditions and Potential Weather-related Hazards

Uttar Pradesh experiences a subtropical climate with extreme summers and cool winters. Monsoon brings heavy rainfall between June and September, which can cause flooding and poor road conditions. There are high chances of fog during winter months (December to January), contributing to reduced visibility.

3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic congestion is significant during morning (8:00 AM - 10:00 AM) and evening (5:00 PM - 8:00 PM) rush hours, particularly in Gorakhpur.
- **Congestion-prone Areas:** Areas around Gorakhpur are notably congested due to high urban traffic. Gorakhpur's junctions and key intersections can become bottlenecks.

4. Assessment of Road Quality and Infrastructure

The major roads are generally well-paved but several sections, especially local roads near rural areas, may have potholes or uneven surfaces. Signage may not be consistent across the route, posing a challenge for navigation, mainly after dark.

5. Suggestions for Alternative Routes for Emergencies

If the main route is obstructed, consider using NH24 and NH29 for bypassing active congestion areas, though these alternatives may extend travel time. The roads via small towns such as Pipraich or along river banks can be considered if primary routes are entirely inaccessible.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transporting hazardous materials requires adherence to specific state and national regulations, including securing necessary permits and ensuring that the vehicle is marked appropriately. Movement of such vehicles is often restricted during peak urban traffic hours for safety reasons.

7. Overview of Historical Incidents

There have been isolated incidents involving heavy vehicles in and around Gorakhpur due to congestion and poor visibility during winter. Historical records indicate a need for caution during peak pollution times, which correlate with the fog season, affecting both visibility and respiratory health.

8. Environmental Considerations and Sensitive Areas

The route crosses agricultural zones and some environmentally sensitive regions near water bodies. Spillage of hazardous material could pose significant risks to these ecosystems. It's crucial to follow environmental protection guidelines strictly.

9. Analysis of Communication Coverage

Generally, communication coverage is robust in urban areas like Gorakhpur but may be patchy in remote sections, particularly in rural regions near Babhnauli. It's advisable to check network provider maps for dead zones.

10. Estimated Emergency Response Times

- Urban Areas (Gorakhpur):** Emergency response times can range from 15 to 30 minutes due to heavy traffic.
- Rural Areas:** Response times may extend to 45 minutes or more, as emergency facilities and services are less frequent and roads may not be in optimal condition.

11. Overall Summary of Risk Assessment

The route presents moderate risks primarily due to traffic congestion, weather conditions, and sporadic road quality issues. Emergencies related to hazardous material transport require strict adherence to safety regulations and effective emergency preparedness due to potential delays in communications and response times in rural segments. Regular updates on weather forecasts and traffic conditions, as well as clearly defined contingency plans, remain crucial for managing risks effectively.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
2	Turn	High	26.73746, 83.22938	15 KM/Hr	0.14 km
3	Turn	High	26.73788, 83.22642	15 KM/Hr	0.32 km
4	Turn	Medium	26.73812, 83.22630	30 KM/Hr	0.48 km
5	Turn	High	26.74524, 83.22746	15 KM/Hr	1.14 km
6	Turn	High	26.74654, 83.22390	15 KM/Hr	1.63 km
7	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.15 km
8	Blind Spot	Blind Spot	26.75353, 83.20457	10 KM/Hr	4.21 km
9	Turn	High	26.75377, 83.20465	15 KM/Hr	4.26 km
0	Roundabout	High	26.74681, 83.25111	15 KM/Hr	8.12 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
1	Roundabout	High	26.74441, 83.38540	15 KM/Hr	23.14 km
10	Turn	Medium	26.74978, 83.39771	30 KM/Hr	23.98 km
11	Turn	High	26.74659, 83.49782	15 KM/Hr	34.44 km
12	Turn	Medium	26.78331, 83.51396	30 KM/Hr	38.85 km
13	Turn	Medium	26.82144, 83.52137	30 KM/Hr	43.18 km
14	Turn	Medium	26.82176, 83.52127	30 KM/Hr	43.26 km
15	Turn	High	26.82411, 83.52193	15 KM/Hr	43.50 km
16	Turn	Medium	26.82505, 83.52418	30 KM/Hr	43.77 km
17	Turn	Medium	26.82471, 83.52694	30 KM/Hr	44.00 km
18	Turn	Medium	26.82663, 83.53022	30 KM/Hr	44.27 km
19	Blind Spot	Blind Spot	26.82741, 83.53262	10 KM/Hr	44.69 km
20	Turn	High	26.82760, 83.53150	15 KM/Hr	44.81 km
21	Turn	High	26.83139, 83.52997	15 KM/Hr	45.27 km
22	Turn	Medium	26.85817, 83.59316	30 KM/Hr	52.31 km
23	Turn	Medium	26.88045, 83.63809	30 KM/Hr	57.44 km
24	Turn	Medium	26.88083, 83.63946	30 KM/Hr	57.69 km
25	Turn	Medium	26.90722, 83.67540	30 KM/Hr	62.40 km
26	Turn	Medium	26.90704, 83.67586	30 KM/Hr	62.45 km
27	Turn	Medium	26.90735, 83.68081	30 KM/Hr	62.94 km
28	Turn	Medium	26.91455, 83.69328	30 KM/Hr	64.44 km
29	Turn	High	26.92140, 83.70568	15 KM/Hr	65.94 km
30	Turn	High	26.92872, 83.70591	15 KM/Hr	66.68 km
31	Blind Spot	Blind Spot	26.90616, 83.84466	10 KM/Hr	81.18 km
32	Turn	Medium	26.90731, 83.84395	30 KM/Hr	81.32 km
33	Turn	Medium	26.90780, 83.84385	30 KM/Hr	81.37 km
34	Turn	High	26.90797, 83.84392	15 KM/Hr	81.41 km
35	Blind Spot	Blind Spot	26.90805, 83.84417	10 KM/Hr	81.43 km
36	Turn	High	26.90819, 83.84404	15 KM/Hr	81.45 km
37	Turn	High	26.90819, 83.84379	15 KM/Hr	81.48 km
38	Turn	High	26.90906, 83.84360	15 KM/Hr	81.54 km
39	Blind Spot	Blind Spot	26.90938, 83.83994	10 KM/Hr	81.87 km
40	Turn	Medium	26.93619, 83.84693	30 KM/Hr	84.93 km
41	Turn	Medium	26.95578, 83.85245	30 KM/Hr	86.89 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
42	Blind Spot	Blind Spot	26.97554, 83.85909	10 KM/Hr	89.60 km
43	Turn	Medium	26.97440, 83.86315	30 KM/Hr	90.10 km
44	Turn	Medium	26.97076, 83.86952	30 KM/Hr	90.83 km

Emergency Locations

Found: 10 hospital(s), 3 clinic(s)

	type	name	coordinates	speed_limit	risk_level	Distance from Start
5	hospital	Amrawati Hospital	26.7372636, 83.3626921	30 km/h	Medium	20.18 km
3	hospital	Sangam Eye Hospital	26.7343271, 83.3640482	30 km/h	Medium	20.60 km
0	hospital	Sanjay Fracture Clinic and Maternity Centre	26.7342168, 83.3665873	30 km/h	Medium	20.92 km
1	hospital	The Pride Hospital	26.734908, 83.3669987	30 km/h	Medium	20.92 km
7	hospital	Excel Ortho Care, Shri Hari Pathology	26.7310723, 83.3688339	30 km/h	Medium	21.06 km
2	hospital	Medispring Hospital & Research Centre	26.7327713, 83.3700866	30 km/h	Medium	21.18 km
4	clinic	Apollo Clinic	26.738647, 83.367827	30 km/h	Medium	21.18 km
6	hospital	Spectra Eye Centre	26.7366834, 83.3682564	30 km/h	Medium	21.18 km
9	hospital	Jagdish Hospital	26.7348828, 83.3712637	30 km/h	Medium	21.37 km
8	clinic	Ehsaas De-Addiction Cum Rehabilitation Centre	26.7398014, 83.3749512	30 km/h	Medium	21.65 km
11	hospital	Aryan Hospital	26.7386077, 83.3733599	30 km/h	Medium	21.65 km
10	clinic	Dularee Nursing Home	26.7416989, 83.3760304	30 km/h	Medium	22.12 km

	type	name	coordinates	speed_limit	risk_level	Distance from Start
12	hospital	Gastro Liver Hospital	26.7445088, 83.3811243	30 km/h	Medium	22.63 km

Crowded Spots

Route Photos of Risky Spots



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 2.15 km

Coordinates: 26.75126, 83.22476



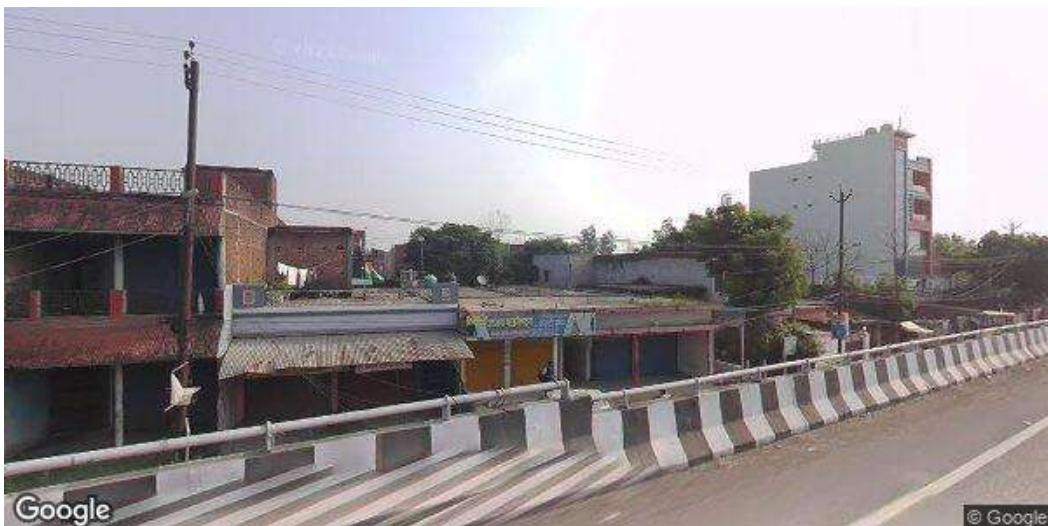
Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 4.21 km

Coordinates: 26.75353, 83.20457



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 4.26 km

Coordinates: 26.75377, 83.20465



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 8.12 km

Coordinates: 26.74681, 83.25111



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 23.14 km

Coordinates: 26.74441, 83.38540



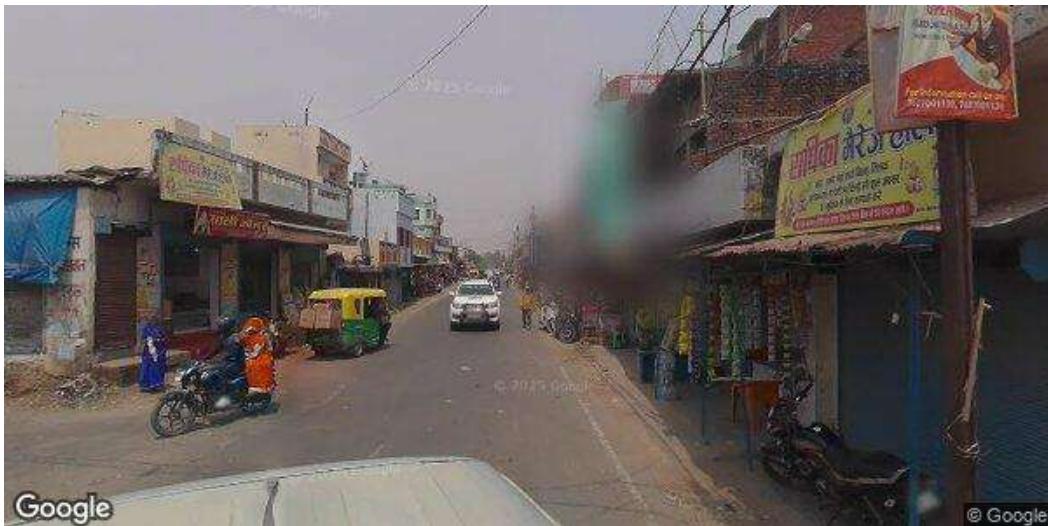
Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 23.98 km

Coordinates: 26.74978, 83.39771



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 34.44 km

Coordinates: 26.74659, 83.49782



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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 38.85 km**Coordinates:** 26.78331, 83.51396

Google

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 43.18 km**Coordinates:** 26.82144, 83.52137



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 43.26 km

Coordinates: 26.82176, 83.52127



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 43.50 km

Coordinates: 26.82411, 83.52193



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 43.77 km

Coordinates: 26.82505, 83.52418



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 44.00 km

Coordinates: 26.82471, 83.52694



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 44.27 km

Coordinates: 26.82663, 83.53022



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 44.69 km

Coordinates: 26.82741, 83.53262



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 44.81 km

Coordinates: 26.82760, 83.53150



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 45.27 km

Coordinates: 26.83139, 83.52997



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 62.40 km

Coordinates: 26.90722, 83.67540



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 62.45 km

Coordinates: 26.90704, 83.67586



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 62.94 km

Coordinates: 26.90735, 83.68081



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 64.44 km

Coordinates: 26.91455, 83.69328



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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 65.94 km**Coordinates:** 26.92140, 83.70568

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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 66.68 km**Coordinates:** 26.92872, 83.70591



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Distance from Start: 81.18 km
Coordinates: 26.90616, 83.84466



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 81.37 km
Coordinates: 26.90780, 83.84385



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 81.41 km

Coordinates: 26.90797, 83.84392



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 81.43 km

Coordinates: 26.90805, 83.84417



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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 81.45 km**Coordinates:** 26.90819, 83.84404

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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 81.48 km**Coordinates:** 26.90819, 83.84379



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 81.54 km

Coordinates: 26.90906, 83.84360



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 81.87 km

Coordinates: 26.90938, 83.83994



Google

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 84.93 km**Coordinates:** 26.93619, 83.84693

Google

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 86.89 km**Coordinates:** 26.95578, 83.85245



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Risk Type: Blind Spot**Risk Level:** Blind Spot**Speed Limit:** 10 KM/Hr**Distance from Start:** 89.60 km**Coordinates:** 26.97554, 83.85909

Google

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 90.10 km**Coordinates:** 26.97440, 83.86315



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 90.83 km

Coordinates: 26.97076, 83.86952

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