



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO ADITYA SHANKAR INDAN

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

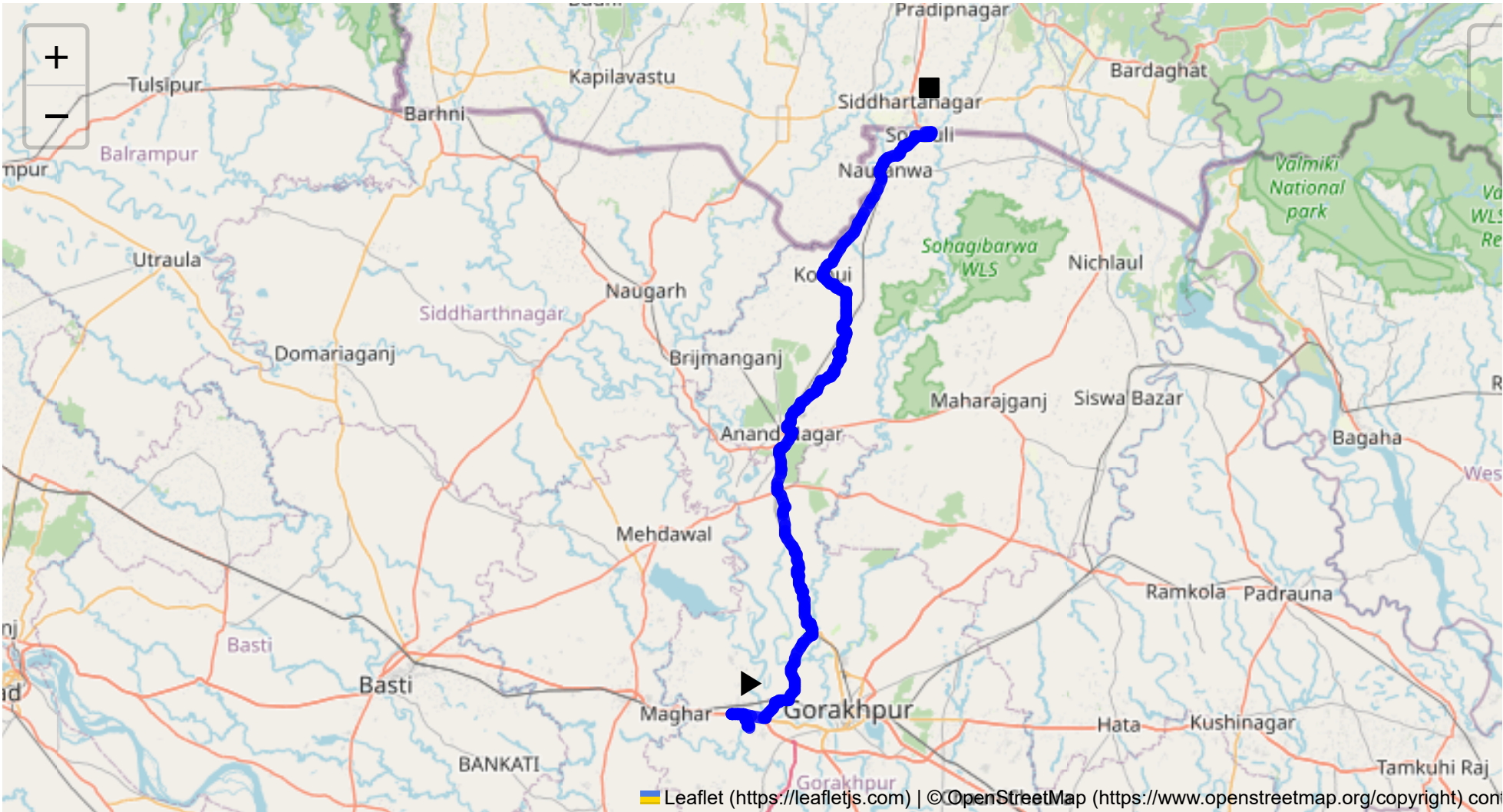
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 108.77 km
Estimated Duration: 2.7 hours
Adjusted Duration (Heavy Vehicle): 3.4 hours
Start: (26.735959, 83.229398)
End: (27.47347, 83.47559)

Welcome to the Journey Risk Management Study

1. Overview of the Route Map:

The route extends approximately 108.77 kilometers and begins at the GIDA Industrial Area in Sahjanwa, Uttar Pradesh, passing through Sahjanwa town itself, continuing on NH27 and intersecting with the Pharenda-Maharajganj Road. The journey culminates in Sonauli, a town near the India-Nepal border. This

route can be visualized as a straight northward trajectory with key junctions at Sahjanwa and Pharenda, and terminates near the Sonauli border post.

2. Typical Weather Conditions and Potential Weather-Related Hazards:

The region experiences a humid subtropical climate, with hot summers (March to June), a monsoon season (July to September), and a cooler winter (November to February). During the monsoon, heavy rains can lead to waterlogging and reduced visibility, increasing the risk of accidents. Winter can bring fog, which significantly impairs visibility, especially in the early morning and late evening.

3. Analysis of Traffic Patterns:

Traffic congestion is typically observed in the mornings from 8 AM to 10 AM and evenings from 5 PM to 8 PM, especially near urban centers such as Sahjanwa and Pharenda. The Sahjanwa junction is particularly prone to congestion due to local business activities and mixed land use. Sonauli, being a border town, experiences delays due to customs processing, which can affect traffic flow.

4. Assessment of Road Quality and Infrastructure:

The overall road quality varies throughout the route. NH27 is generally well-maintained but may have potholes and uneven surfaces in some segments. Infrastructure such as signage and lighting can be sparse, especially near rural stretches. The Pharenda-Maharajganj Road may have segments of narrower lanes, affecting heavy vehicle maneuverability.

5. Suggestions for Alternative Routes for Emergencies:

In case of emergencies, an alternative is to use NH28 passing through Gorakhpur, which, while longer, might offer better facilities and faster emergency response times. Local routes connecting small towns like Swami Parmanand Marg can serve as temporary detours if primary roads are blocked.

6. Summary of Local Regulations Affecting Hazardous Material Transport:

Transport of hazardous materials in Uttar Pradesh requires adherence to state and national safety guidelines, including proper labeling and documentation. Vehicles must comply with the Central Motor Vehicles Rules, 1989, focusing on the transport of dangerous or hazardous goods.

7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials:

While specific historic data might not be publicly available, the route has been subject to reported accidents due to road quality and weather conditions, with incidents involving overturned trucks due to narrow and sharp turns in some areas. Safety protocols for hazardous material transport are crucial in these zones.

8. Environmental Considerations and Sensitive Areas:

The region includes agricultural lands and areas of natural beauty sensitive to spills and emissions from heavy vehicles. Preservation of local flora and fauna should be a priority. Avoid unnecessary stopovers that could lead to contamination.

9. Analysis of Communication Coverage, Noting Potential Dead Zones:

Mobile network coverage is generally reliable but might be weak in some rural areas between Sahjanwa and Pharenda and near the border areas of Sonauli. Dead zones could pose challenges for real-time communication.

10. Estimated Emergency Response Times for Different Route Segments:

Emergency response times can vary, ranging from 15 to 45 minutes in urban centers like Sahjanwa to potentially over an hour in rural stretches towards Sonauli. Proximity to Gorakhpur can be an advantage in accessing emergency services quickly.

11. An Overall Summary of Risk Assessment:

The route poses moderate risk due to weather-related challenges, intermittent road quality issues, and communication dead zones. Proper preparation, awareness of local regulations, and alternative routing for emergencies are critical for managing the transport of hazardous materials. Implementing safety measures such as pre-journey inspections, driver training focused on route familiarity, and maintaining open communication with logistics coordination centers can mitigate some of these 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	0.08 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	26.74679, 83.22391	15 KM/Hr	1.64 km
7	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.13 km
8	Blind Spot	Blind Spot	26.75353, 83.20457	10 KM/Hr	4.19 km
9	Turn	High	26.75377, 83.20465	15 KM/Hr	4.25 km
10	Turn	Medium	26.75378, 83.21338	30 KM/Hr	5.11 km
11	Turn	High	26.75386, 83.21352	15 KM/Hr	5.14 km
12	Turn	High	26.74700, 83.25085	15 KM/Hr	8.86 km
13	Turn	Medium	26.85120, 83.31623	30 KM/Hr	23.50 km
0	Roundabout	High	26.86209, 83.31517	15 KM/Hr	24.82 km
14	Turn	Medium	26.86464, 83.31361	30 KM/Hr	25.08 km
15	Turn	Medium	26.86641, 83.31020	30 KM/Hr	25.45 km
16	Turn	Medium	26.92500, 83.29848	30 KM/Hr	32.16 km
17	Turn	Medium	26.92818, 83.29627	30 KM/Hr	32.51 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
18	Turn	Medium	26.93184, 83.29589	30 KM/Hr	33.00 km
19	Turn	Medium	26.93544, 83.29787	30 KM/Hr	33.45 km
20	Turn	Medium	27.00993, 83.27853	30 KM/Hr	42.07 km
21	Turn	High	27.08052, 83.27125	15 KM/Hr	50.41 km
22	Blind Spot	Blind Spot	27.10269, 83.28820	10 KM/Hr	53.50 km
24	Turn	Medium	27.10271, 83.28856	30 KM/Hr	53.54 km
23	Blind Spot	Blind Spot	27.10277, 83.28936	10 KM/Hr	53.59 km
25	Turn	High	27.10288, 83.28818	15 KM/Hr	53.73 km
26	Turn	Medium	27.11070, 83.28282	30 KM/Hr	54.73 km
27	Turn	Medium	27.17766, 83.34689	30 KM/Hr	64.95 km
28	Turn	Medium	27.19292, 83.35509	30 KM/Hr	66.84 km
29	Turn	Medium	27.20070, 83.35416	30 KM/Hr	67.76 km
30	Turn	Medium	27.20391, 83.35772	30 KM/Hr	68.16 km
31	Turn	Medium	27.22623, 83.36428	30 KM/Hr	70.83 km
32	Turn	Medium	27.22753, 83.36364	30 KM/Hr	71.02 km
33	Turn	Medium	27.23089, 83.35900	30 KM/Hr	71.56 km
34	Turn	Medium	27.23284, 83.35817	30 KM/Hr	71.81 km
35	Turn	Medium	27.23503, 83.35884	30 KM/Hr	72.05 km
36	Turn	Medium	27.27394, 83.36411	30 KM/Hr	76.72 km
37	Turn	Medium	27.28667, 83.34120	30 KM/Hr	79.24 km
38	Turn	High	27.29876, 83.32998	15 KM/Hr	81.22 km
39	Turn	Medium	27.44660, 83.43707	30 KM/Hr	101.52 km
1	U-Turn	High	27.4687995, 83.4609923	10 KM/Hr	105.04 km
40	Blind Spot	Blind Spot	27.46880, 83.46099	10 KM/Hr	105.04 km
41	Blind Spot	Blind Spot	27.46838, 83.46089	10 KM/Hr	105.16 km
42	Turn	High	27.46873, 83.48034	15 KM/Hr	107.02 km
43	Turn	High	27.47408, 83.48177	15 KM/Hr	107.66 km

Emergency Locations

Found: 2 clinic(s), 1 hospital(s), 1 police(s), 1 pharmacy(s)

	type	name	coordinates	speed_limit	risk_level	Distance from Start
1	hospital	Government Hospital Babupaisiya	27.3655301, 83.3844656	30 km/h	Medium	90.18 km
2	police	Immigration Check Post, Sonauli	27.4719594, 83.4656038	30 km/h	Medium	105.62 km
5	clinic	Ziya Health Care and Diagnostic Center Polyclinic Pathology and Shahjan Pharmacy	27.4765565, 83.471672	30 km/h	Medium	108.29 km
6	pharmacy	Kandu Pharmacy	27.4763385, 83.4719172	30 km/h	Medium	108.29 km
7	clinic	Aarogya Pharmacy and Chaudhary Medical	27.4767723, 83.4706774	30 km/h	Medium	108.29 km

Crowded Spots

Found: 2 marketplace(s), 1 school(s)

	type	name	coordinates	speed_limit	risk_level	Distance from Start
0	school	Nav Jeevan Mission School	27.1125489, 83.2814738	30 km/h	Medium	54.87 km
3	marketplace	Laxmi Market	27.4770288, 83.4704315	30 km/h	Medium	108.29 km
4	marketplace	Laxmi Market	27.4769378, 83.4706565	30 km/h	Medium	108.29 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: 26.75353, 83.20457



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 4.25 km

Coordinates: 26.75377, 83.20465



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 5.11 km

Coordinates: 26.75378, 83.21338



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 5.14 km

Coordinates: 26.75386, 83.21352



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 8.86 km

Coordinates: 26.74700, 83.25085



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 23.50 km
Coordinates: 26.85120, 83.31623



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 24.82 km
Coordinates: 26.86209, 83.31517



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 25.08 km
Coordinates: 26.86464, 83.31361



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 25.45 km
Coordinates: 26.86641, 83.31020



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 32.16 km
Coordinates: 26.92500, 83.29848



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 32.51 km
Coordinates: 26.92818, 83.29627



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 33.00 km

Coordinates: 26.93184, 83.29589



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 33.45 km

Coordinates: 26.93544, 83.29787



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 50.41 km
Coordinates: 27.08052, 83.27125



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Distance from Start: 53.50 km
Coordinates: 27.10269, 83.28820



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 53.54 km

Coordinates: 27.10271, 83.28856



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 53.59 km

Coordinates: 27.10277, 83.28936



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 53.73 km
Coordinates: 27.10288, 83.28818



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 54.73 km
Coordinates: 27.11070, 83.28282



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 64.95 km

Coordinates: 27.17766, 83.34689



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 66.84 km

Coordinates: 27.19292, 83.35509



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 67.76 km
Coordinates: 27.20070, 83.35416



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 68.16 km
Coordinates: 27.20391, 83.35772



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 70.83 km
Coordinates: 27.22623, 83.36428



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 71.02 km
Coordinates: 27.22753, 83.36364



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 71.56 km

Coordinates: 27.23089, 83.35900



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 71.81 km

Coordinates: 27.23284, 83.35817



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 76.72 km
Coordinates: 27.27394, 83.36411



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 79.24 km
Coordinates: 27.28667, 83.34120



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Distance from Start: 81.22 km
Coordinates: 27.29876, 83.32998



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 101.52 km
Coordinates: 27.44660, 83.43707

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