JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP to HIMANSHU GAS SERVICE

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

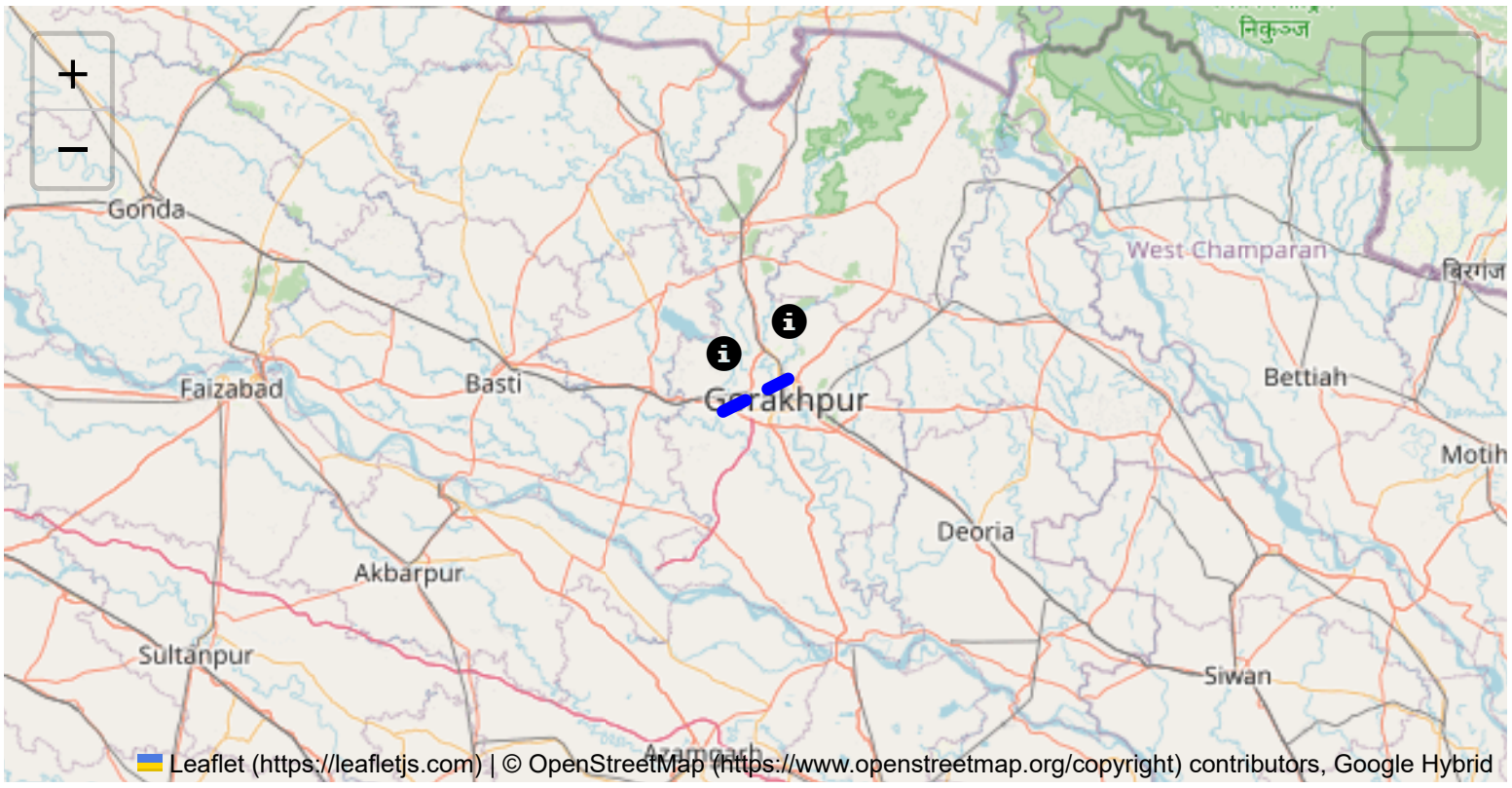
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 35.95 km
Estimated Duration: 0.9 hours
Adjusted Duration (Heavy Vehicle): 1.2 hours
Start: (26.735959, 83.229398)
End: (26.80142, 83.36802)

Welcome to the Journey Risk Management Study

1. Overview of the Route Map

- The route extends approximately 35.95 kilometers, starting from the GIDA Industrial Area Phase 1 in Sahjanwa and concluding at Sports College Rd, Phase 1, Raptinagar, Anand Vihar in Gorakhpur, Uttar Pradesh. The journey primarily uses major regional roads, likely requiring traversal through urban and semi-urban areas with moderate to potentially heavy traffic at intersections and junctions.

2. Typical Weather Conditions and Potential Weather-Related Hazards

- **Weather Conditions:** Generally, Uttar Pradesh experiences a subtropical climate. Summers (March to June) have high temperatures, while the monsoon season (July to September) brings heavy rains. Winters (December to February) are cooler but foggy.
- **Hazards:** In the monsoon season, severe rainfall can lead to waterlogging and reduced visibility, increasing the risk of accidents. During winter, fog can significantly impair visibility, particularly in the early morning and late evening.

3. Analysis of Traffic Patterns

- **Peak Hours:** Typically, peak traffic hours in urban areas like Gorakhpur are between 8:00-10:00 AM and 5:00-7:00 PM on weekdays. This can lead to congestion, particularly near commercial hubs and intersections.
- **Congestion-Prone Areas:** Traffic may be particularly dense around major junctions or near markets and bazaars. It is advisable to anticipate delays when approaching urban centers like Gorakhpur or around Sahjanwa.

4. Assessment of Road Quality and Infrastructure

- **Road Quality:** The road network in this region can vary. While the main highways are generally well-maintained, rural or connecting roads might have potholes or uneven surfaces. Infrastructure may vary, with potential narrow stretches not ideal for large vehicles.
- **Infrastructure:** Limited street lighting in rural zones and insufficient signage in some areas can pose challenges, especially during night travel.

5. Suggestions for Alternative Routes for Emergencies

- An alternative route may involve using NH27 interchangeably for sections that coincide with regional roads, allowing for quick detours if faced with traffic jams or road blocks. Monitoring local traffic updates can aid in effective route adjustments.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- **Regulations:** In India, transport of hazardous materials is governed by strict regulations under the Motor Vehicles Act. Time restrictions often apply, with movements typically discouraged during peak urban hours for safety. Ensuring compliance with safety certifications and documentation for hazardous goods is necessary.

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

- While specific incidents on this route are not well-documented, in general, accidents involving heavy vehicles in Uttar Pradesh often stem from overloading, driver error, or adverse weather. Past reports emphasize the importance of adhering to load limits and driving cautiously.

8. Environmental Considerations and Sensitive Areas

- Be mindful of traversing close to agricultural fields, water bodies, and residential zones to avoid spills and environmental contamination. Areas close to schools or hospitals will also require added vigilance.

9. Analysis of Communication Coverage

- **Coverage:** While cellphone network coverage tends to be robust along major roads and urban centers, expect potential dead zones in rural stretches or under forest cover. Carrying a GPS device or offline navigation tool strengthens communication reliability.

10. Estimated Emergency Response Times for Different Route Segments

- **Urban Areas (e.g., Gorakhpur):** Emergency response times can range from 10 to 20 minutes due to proximity to hospitals and emergency services.
- **Rural Areas:** The response times can extend to 20-40 minutes due to fewer facilities and longer travel distances for emergency services.

11. Overall Summary of Risk Assessment

- **Risk Level:** This route presents a moderate level of risk for transporting hazardous materials. The risks primarily arise from traffic congestion, variable road conditions, and weather-related challenges.
- **Recommendations:** Adopting precautionary measures, such as scheduling trips outside peak hours, monitoring traffic and weather conditions, and upholding regulatory compliance, will mitigate risks. Regular vehicle maintenance and driver training focused on managing adverse conditions are also crucial for safe transit.

By following these guidelines, truck drivers transporting hazardous materials can navigate this route efficiently and safely.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
1	Turn	High	26.73690, 83.22947	15 KM/Hr	0.05 km
2	Turn	High	26.73697, 83.22939	15 KM/Hr	0.11 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
3	Turn	High	26.73746, 83.22938	15 KM/Hr	0.15 km
4	Blind Spot	Blind Spot	26.73791, 83.22625	10 KM/Hr	0.48 km
5	Turn	Medium	26.74524, 83.22746	30 KM/Hr	1.30 km
6	Turn	Medium	26.74532, 83.22740	30 KM/Hr	1.32 km
7	Turn	High	26.74654, 83.22390	15 KM/Hr	1.65 km
8	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.17 km
9	Blind Spot	Blind Spot	26.75353, 83.20457	10 KM/Hr	4.23 km
10	Turn	High	26.75381, 83.20466	15 KM/Hr	4.30 km
11	Turn	Medium	26.74709, 83.24930	30 KM/Hr	8.79 km
12	Turn	Medium	26.74703, 83.25096	30 KM/Hr	8.97 km
13	Turn	Medium	26.74767, 83.25139	30 KM/Hr	9.05 km
14	Turn	High	26.74769, 83.25146	15 KM/Hr	9.07 km
0	Roundabout	High	26.86209, 83.31517	15 KM/Hr	24.87 km
15	Blind Spot	Blind Spot	26.80409, 83.35261	10 KM/Hr	33.12 km
16	Turn	Medium	26.80687, 83.36038	30 KM/Hr	33.94 km
17	Blind Spot	Blind Spot	26.80943, 83.35981	10 KM/Hr	34.24 km
18	Turn	Medium	26.80937, 83.35977	30 KM/Hr	34.28 km
19	Turn	High	26.80716, 83.36014	15 KM/Hr	34.51 km
20	Turn	Medium	26.80705, 83.36039	30 KM/Hr	34.55 km
21	Turn	Medium	26.80687, 83.36055	30 KM/Hr	34.57 km
22	Turn	Medium	26.80680, 83.36056	30 KM/Hr	34.59 km
23	Turn	Medium	26.80649, 83.36042	30 KM/Hr	34.62 km
24	Turn	Medium	26.80646, 83.36043	30 KM/Hr	34.63 km
25	Turn	Medium	26.80619, 83.36090	30 KM/Hr	34.68 km
26	Turn	High	26.80378, 83.36588	15 KM/Hr	35.21 km
27	Turn	High	26.80040, 83.36589	15 KM/Hr	35.64 km
28	Turn	Medium	26.80035, 83.36597	30 KM/Hr	35.66 km
29	Turn	High	26.80065, 83.36783	15 KM/Hr	35.82 km

Emergency Locations

Found: 2 hospital(s)

	type	name	coordinates	speed_limit	risk_level	Distance from Start
0	hospital	Kanha Hospital	26.8035, 83.352362	30 km/h	Medium	33.12 km
1	hospital	Khetan Hospital	26.799969, 83.3540976	30 km/h	Medium	33.12 km

Crowded Spots

Route Photos of Risky Spots

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 2.17 km

Coordinates: 26.75126, 83.22476

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 4.23 km

Coordinates: 26.75353, 83.20457

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 4.30 km

Coordinates: 26.75381, 83.20466

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 8.79 km

Coordinates: 26.74709, 83.24930

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 8.97 km

Coordinates: 26.74703, 83.25096

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 9.05 km

Coordinates: 26.74767, 83.25139

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 9.07 km

Coordinates: 26.74769, 83.25146

Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 24.87 km

Coordinates: 26.86209, 83.31517

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 33.12 km

Coordinates: 26.80409, 83.35261

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 33.94 km

Coordinates: 26.80687, 83.36038

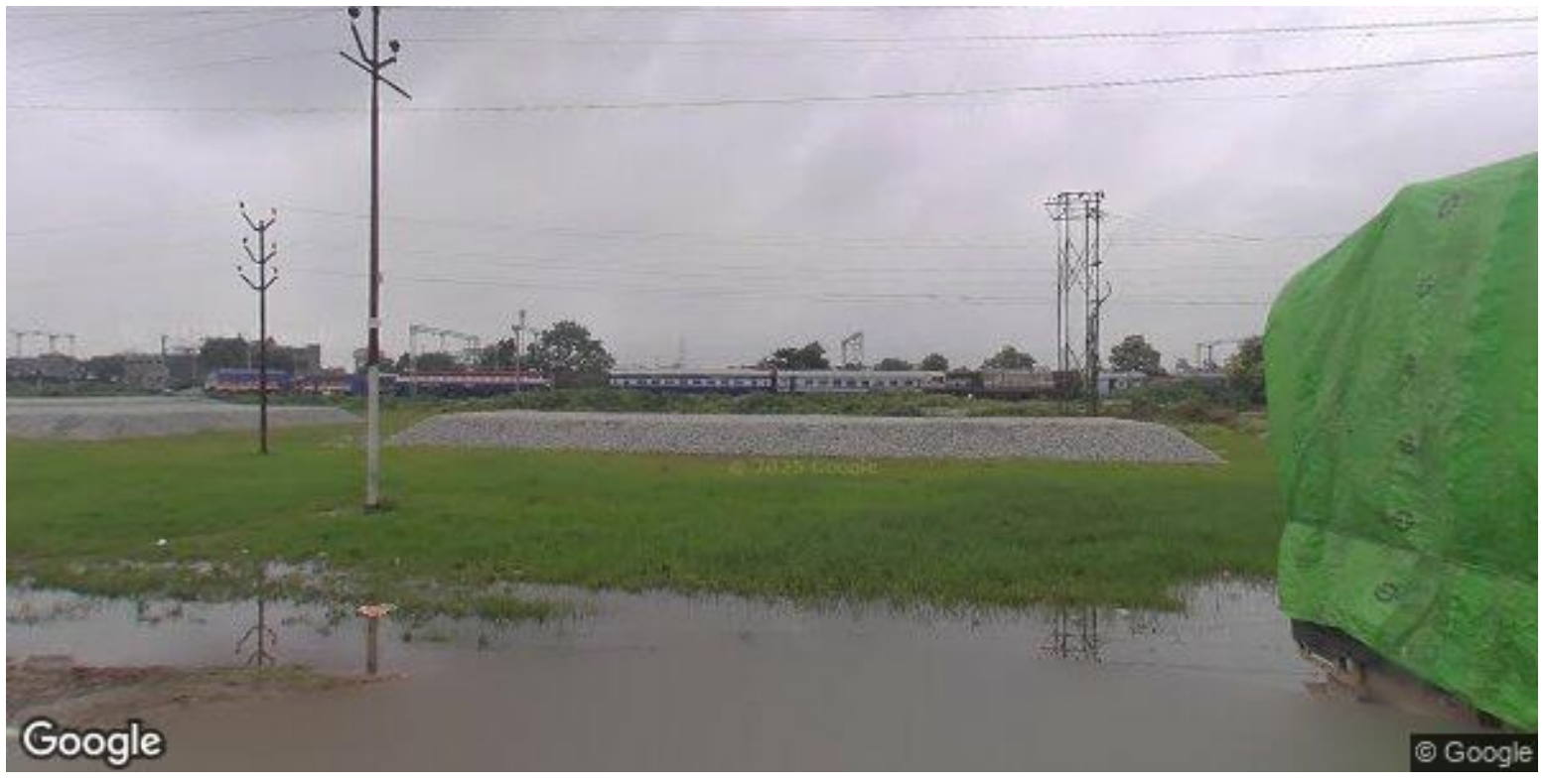
Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 34.24 km

Coordinates: 26.80943, 83.35981



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.28 km

Coordinates: 26.80937, 83.35977

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 34.51 km

Coordinates: 26.80716, 83.36014

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.55 km

Coordinates: 26.80705, 83.36039

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.57 km

Coordinates: 26.80687, 83.36055

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.59 km

Coordinates: 26.80680, 83.36056

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.62 km

Coordinates: 26.80649, 83.36042

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.63 km

Coordinates: 26.80646, 83.36043

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 34.68 km

Coordinates: 26.80619, 83.36090

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 35.21 km

Coordinates: 26.80378, 83.36588

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 35.64 km

Coordinates: 26.80040, 83.36589

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 35.66 km

Coordinates: 26.80035, 83.36597

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 35.82 km

Coordinates: 26.80065, 83.36783

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