JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO SONMATI INDANE GRAMI

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

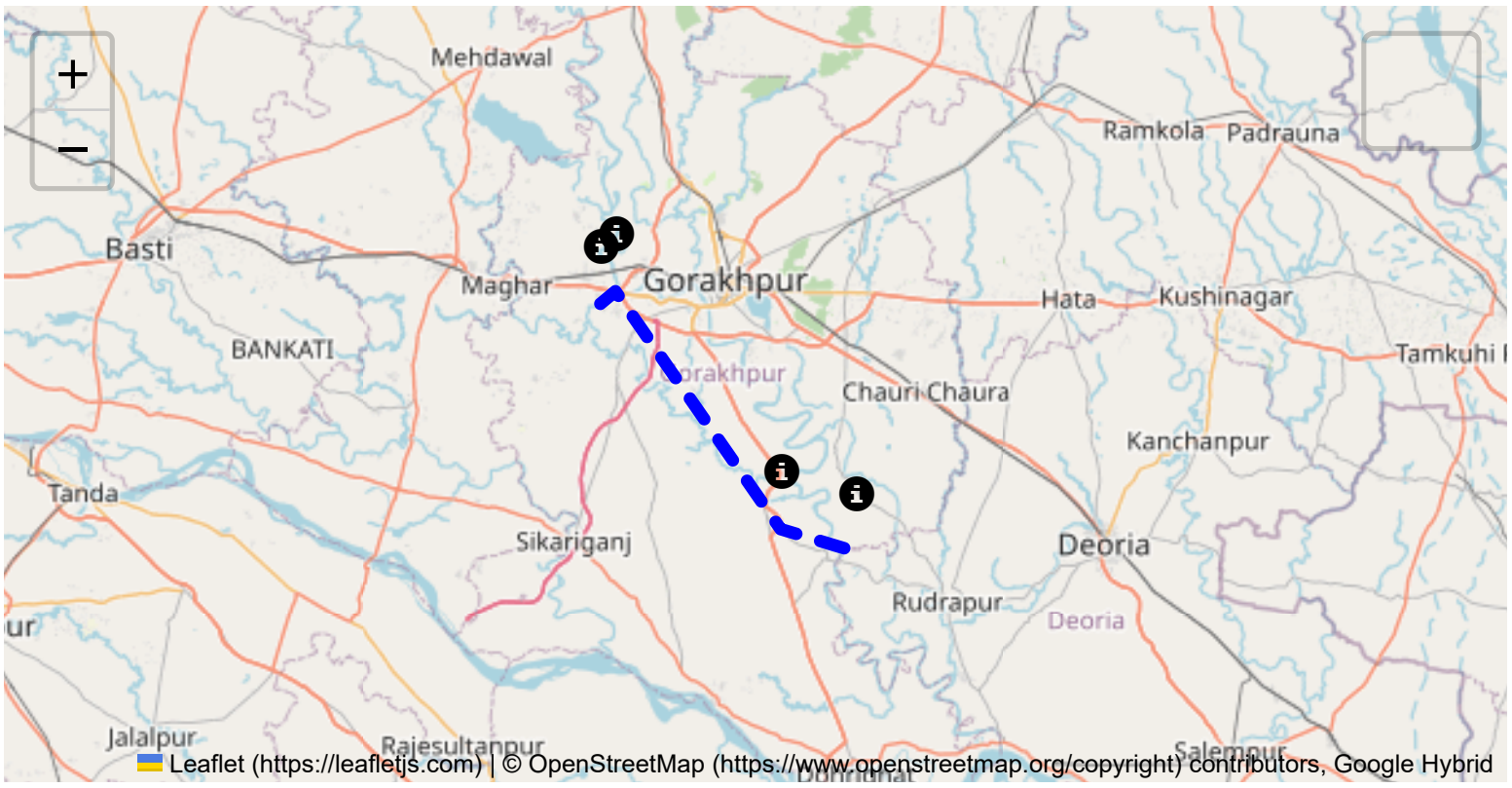
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

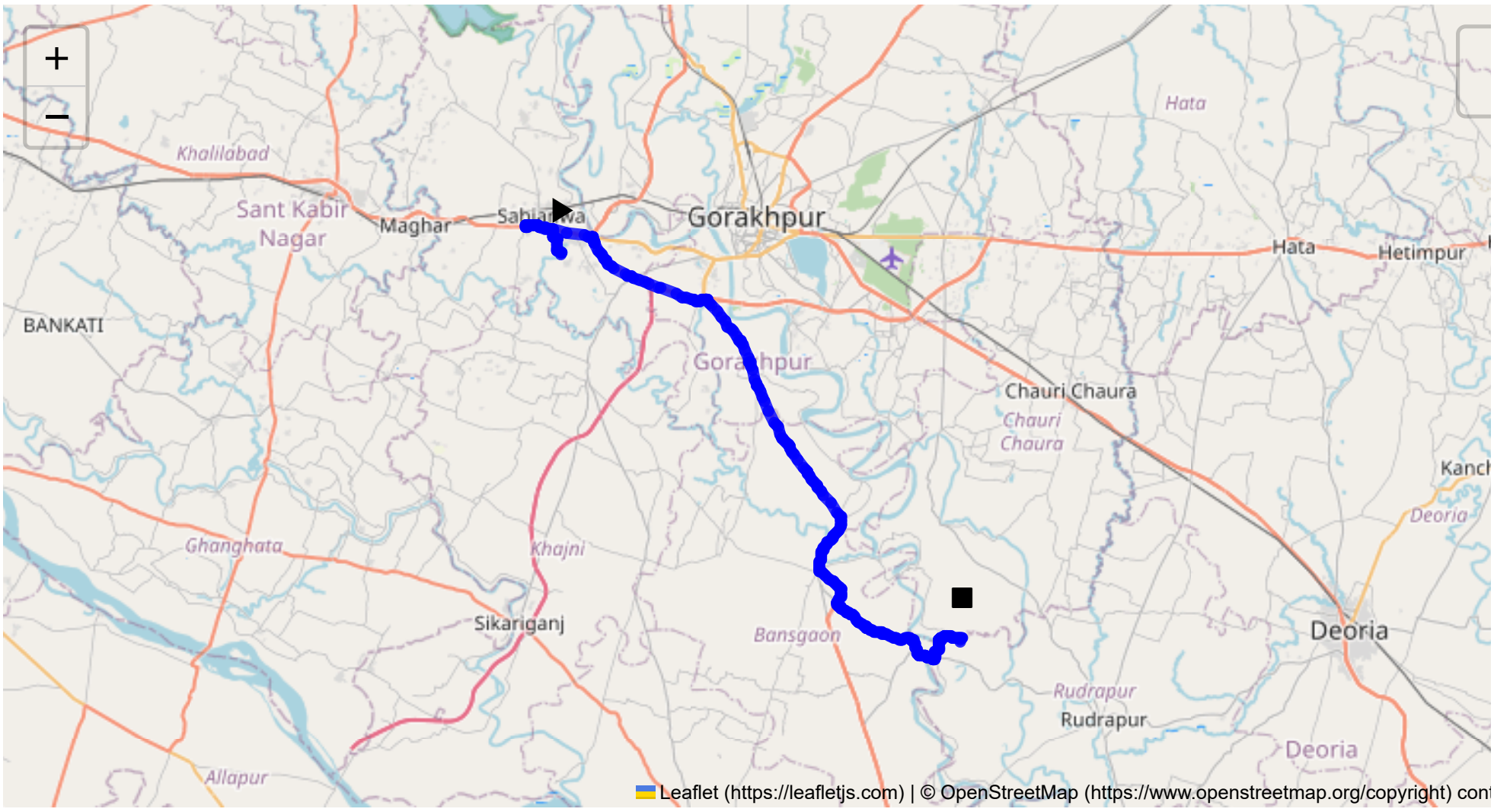
Journey Risk Mitigation

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: 55.97 km
Estimated Duration: 1.3 hours
Adjusted Duration (Heavy Vehicle): 1.7 hours
Start: (26.735959, 83.229398)
End: (26.49254, 83.50927)

Welcome to the Journey Risk Management Study

Route Analysis Report: GIDA Industrial Area Phase 1, Sahjanwa to Tighra Khairwa

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1. Overview of the Route Map

The route from P6PH+9Q GIDA Industrial Area Phase 1, Sahjanwa to FGR5+R5, Tighra Khairwa passes through a mix of urban and rural landscapes over approximately 55.97 kilometers, with major transit points at Zero Point, Kaalesar, and Pandeypar. Key highways include NH28 and SH1. The route is mostly straightforward, with a few changes in direction at major intersections.

2. Typical Weather Conditions and Potential Weather-Related Hazards

- **Weather Conditions:** The region experiences a subtropical climate. Summers (April-June) can be extremely hot, with temperatures exceeding 40°C, while winters (December-February) are cooler, averaging around 10°C.
- **Monsoon Season:** Heavy rainfall from June to September may lead to waterlogging, especially in low-lying areas, increasing the risk of hydroplaning and reduced visibility.

3. Analysis of Traffic Patterns

- **Peak Hours:** Morning (8:00-10:00 AM) and evening (5:00-7:00 PM) are peak traffic hours, particularly near urban areas and marketplaces.
- **Congestion-Prone Areas:** Traffic congestion is typically observed near 01 Zero Point, Kaalesar, especially during weekdays. The intersection at GC7G+CJP, Pandeypar, can also experience slow movement due to local traffic and market activity.

4. Assessment of Road Quality and Infrastructure

- **Road Quality:** Varies from well-maintained highways to less robust roads in rural areas. Potholes and uneven surfaces are common, particularly on feeder roads connecting to main highways.
- **Infrastructure:** Frequent repair works might cause temporary diversions. Highway NH28 is generally in better condition compared to the smaller roads leading to Tighra Khairwa.

5. Suggestions for Alternative Routes

- In case of road blockages or emergency, an alternative route via NH28 to Gorakhpur, then taking local roads towards Tighra Khairwa can be considered, although it may extend the travel time.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- **Local Permit Requirements:** Compliance with local transport regulations is mandatory, including proper documentation and vehicle compliance checks.
- **Safety Measures:** Adherence to hazardous material transport guidelines, including specific signages and spill containment protocols, is enforced.

7. Overview of Historical Incidents Involving Heavy Vehicles

- Past incidents often involved weather-related accidents during monsoons and vehicle breakdowns due to poor road conditions. Accidents involving hazardous materials have raised concerns about environmental and health impacts, leading to stricter regulations.

8. Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** Proximity to densely populated regions and agricultural lands necessitates careful driving and spill prevention measures. Areas around rivers and water bodies require vigilance to prevent contamination.
- **Wildlife Crossings:** Awareness of potential animal crossings in rural stretches is essential.

9. Analysis of Communication Coverage

- **Coverage:** Mobile network coverage is generally adequate along NH28 and in urban areas. However, rural segments, particularly closer to Tighra Khairwa, may experience network dead zones.
- **Recommendation:** Equipping vehicles with GPS systems and satellite phones is advised for continuous communication.

10. Estimated Emergency Response Times

- **Urban Areas Near Gorakhpur:** Approximately 20-30 minutes due to better infrastructure and services.
- **Rural Segments:** Response times can extend up to 40 minutes to an hour due to accessibility issues and limited local facilities.

11. Overall Summary of Risk Assessment

- **Risk Level:** Moderate, with primary concerns revolving around weather conditions, road quality, and congestion.
- **Mitigation Measures:** Route familiarization, adherence to local transport regulations, maintaining optimal speed, and contingency planning for alternate routes are crucial.
- **Emergency Preparedness:** Ensuring all safety equipment and communication systems are in place will enhance the overall safety of transporting hazardous materials along this route.

The route analysis underlines the importance of pre-travel checks, continuous monitoring of weather and road conditions, and strategic planning for efficient and safe transport operations.

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	1.16 km
6	Turn	Medium	26.74532, 83.22740	30 KM/Hr	1.31 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	26.75377, 83.20465	15 KM/Hr	4.28 km
0	Roundabout	High	26.74681, 83.25111	15 KM/Hr	8.90 km
11	Turn	Medium	26.74658, 83.25155	30 KM/Hr	9.04 km
12	Turn	High	26.70798, 83.33175	15 KM/Hr	18.62 km
13	Turn	High	26.51679, 83.42326	15 KM/Hr	43.93 km
14	Turn	Medium	26.49533, 83.47376	30 KM/Hr	49.83 km
15	Turn	Medium	26.49451, 83.47509	30 KM/Hr	49.98 km
16	Turn	High	26.49401, 83.47522	15 KM/Hr	50.06 km
17	Turn	Medium	26.48447, 83.48064	30 KM/Hr	51.24 km
18	Turn	Medium	26.48411, 83.48134	30 KM/Hr	51.39 km
19	Turn	High	26.48301, 83.49206	15 KM/Hr	52.55 km
20	Turn	Medium	26.48536, 83.49168	30 KM/Hr	52.82 km
21	Turn	Medium	26.49252, 83.49505	30 KM/Hr	53.75 km
22	Turn	Medium	26.49278, 83.49469	30 KM/Hr	53.78 km
23	Turn	Medium	26.49316, 83.49454	30 KM/Hr	53.83 km
24	Turn	High	26.49343, 83.49459	15 KM/Hr	53.86 km
25	Turn	Medium	26.49434, 83.49618	30 KM/Hr	54.06 km
26	Turn	Medium	26.49445, 83.49625	30 KM/Hr	54.08 km
27	Turn	Medium	26.49663, 83.49948	30 KM/Hr	54.49 km
28	Turn	Medium	26.49530, 83.50807	30 KM/Hr	55.35 km
29	Blind Spot	Blind Spot	26.49464, 83.51064	10 KM/Hr	55.61 km

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: 4.28 km

Coordinates: 26.75377, 83.20465

Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 8.90 km

Coordinates: 26.74681, 83.25111

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 9.04 km

Coordinates: 26.74658, 83.25155

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 18.62 km

Coordinates: 26.70798, 83.33175

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 43.93 km

Coordinates: 26.51679, 83.42326

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 49.83 km

Coordinates: 26.49533, 83.47376

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 49.98 km

Coordinates: 26.49451, 83.47509

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 50.06 km

Coordinates: 26.49401, 83.47522

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 51.24 km

Coordinates: 26.48447, 83.48064

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 52.55 km

Coordinates: 26.48301, 83.49206

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 52.82 km

Coordinates: 26.48536, 83.49168

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 54.49 km

Coordinates: 26.49663, 83.49948

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