JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO VASUPRADA INDANE SER

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

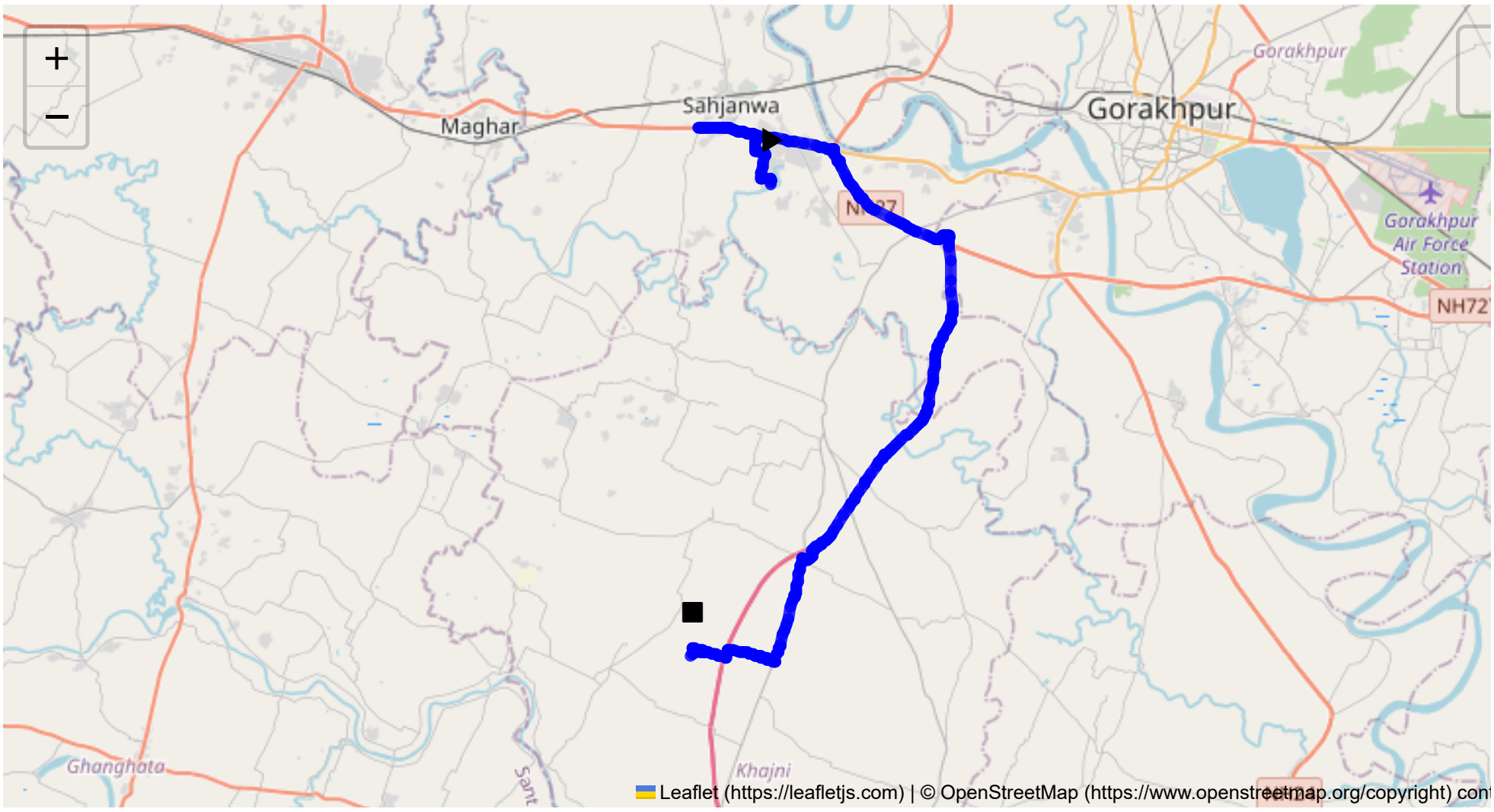
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 35.03 km
Estimated Duration: 0.9 hours
Adjusted Duration (Heavy Vehicle): 1.1 hours
Start: (26.735959, 83.229398)
End: (26.58764, 83.20171)

Welcome to the Journey Risk Management Study

Route Safety Analysis Report

1. Overview of the Route Map

The journey from GIDA Industrial Area Phase 1 to Chakrajpur, via Zero Point, Kaalesar and Harnahi, spans approximately 35.03 kilometers. The route covers a mix of industrial zones, rural areas, and small

townships. This mix influences traffic patterns, road conditions, and potential hazards.

2. Typical Weather Conditions and Potential Weather-Related Hazards

The region experiences a humid subtropical climate. Summers can be extremely hot, with temperatures often exceeding 40°C, which may lead to road surface issues such as melting asphalt or deformations. Monsoon brings heavy rains, leading to waterlogged roads and potential flooding in low-lying regions. Fog is a common issue in winters, severely reducing visibility, especially in rural stretches.

3. Analysis of Traffic Patterns

- **Peak Hours**: Major congestion occurs during morning (8:00-10:00 AM) and evening (5:00-7:00 PM) peak hours, particularly near industrial junctions and market areas.
- **Congestion-Prone Areas**: The industrial area and near Zero Point in Kaalesar experience significant congestion due to the high volume of trucks and local traffic.

4. Assessment of Road Quality and Infrastructure

- **Road Conditions**: The roads vary from well-maintained highways to smaller, potholed rural roads. Regular maintenance might be less consistent in the more rural sections, leading to potential hazards.
- **Infrastructure**: Adequate signage in urban areas, but might be lacking in rural areas. Lighting conditions are adequate but reduce significantly in remote stretches.

5. Suggestions for Alternative Routes for Emergencies

- **Alternative Route**: Use the NH28 as a main highway bypassing local township congestion. This alternative can be beneficial during heavy rains or when the primary route has blockages.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- **Regulations**: Strict regulations govern the movement of hazardous materials, especially during night hours. Drivers must ensure they carry all necessary permits and follow defined routes where restrictions are in place.

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

- There have been instances of road mishaps involving heavy vehicles, mainly due to overloading and poor vehicle conditions. Reports of incidents involving hazardous materials are relatively low but require drivers to adhere strictly to safety protocols.

8. Environmental Considerations and Sensitive Areas

- Several segments run close to agricultural fields and small water bodies. Spillage or accidents in these areas could have severe environmental impacts, highlighting the need for cautious driving and adherence to environmental safety norms.

9. Analysis of Communication Coverage

- **Coverage**: Good communication coverage in urban and industrial segments; rural areas might have weak signals at times, which could impede timely coordination during emergencies.

10. Estimated Emergency Response Times

- **Urban Segments**: Approximately 20-30 minutes for emergency response.
- **Rural Segments**: Response times can vary from 45 to 60 minutes due to distance and road conditions.

11. Overall Summary of Risk Assessment

The route presents medium risks for transporting hazardous materials. Key risks involve weather-related challenges, especially during monsoons, and in rural and less maintained sections. Strategic planning, adhering to local regulations, and maintaining communication with local authorities are essential to ensure safety.

In conclusion, a truck driver should be prepared for varying traffic conditions, comply with strict regulations for hazardous material transport, and have contingency plans for weather changes and emergencies. Regular updates on road conditions and weather forecasts can aid in mitigating potential risks.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
1	Turn	High	26.73690, 83.22947	15 KM/Hr	0.07 km
2	Turn	High	26.73697, 83.22939	15 KM/Hr	0.11 km
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	Medium	26.74654, 83.22390	30 KM/Hr	1.69 km
8	Turn	Medium	26.74661, 83.22388	30 KM/Hr	1.70 km
9	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.17 km
10	Blind Spot	Blind Spot	26.75353, 83.20457	10 KM/Hr	4.23 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
11	Turn	High	26.75381, 83.20466	15 KM/Hr	4.30 km
0	Roundabout	High	26.74681, 83.25111	15 KM/Hr	8.99 km
12	Turn	Medium	26.74644, 83.25150	30 KM/Hr	9.07 km
13	Turn	Medium	26.74310, 83.25343	30 KM/Hr	9.49 km
14	Turn	Medium	26.74298, 83.25343	30 KM/Hr	9.51 km
15	Turn	Medium	26.62232, 83.24609	30 KM/Hr	26.89 km
16	Turn	Medium	26.61952, 83.24420	30 KM/Hr	27.28 km
17	Turn	Medium	26.61947, 83.24413	30 KM/Hr	27.29 km
18	Blind Spot	Blind Spot	26.61852, 83.24070	10 KM/Hr	27.70 km
19	Blind Spot	Blind Spot	26.58601, 83.23080	10 KM/Hr	31.46 km
20	Turn	Medium	26.58717, 83.22770	30 KM/Hr	31.78 km
21	Turn	High	26.58996, 83.21468	15 KM/Hr	33.15 km
22	Turn	Medium	26.58755, 83.21366	30 KM/Hr	33.44 km
23	Turn	Medium	26.58753, 83.21360	30 KM/Hr	33.44 km
24	Turn	Medium	26.58912, 83.20718	30 KM/Hr	34.10 km
25	Turn	Medium	26.58950, 83.20574	30 KM/Hr	34.26 km
26	Turn	Medium	26.58928, 83.20538	30 KM/Hr	34.31 km
27	Turn	High	26.58944, 83.20458	15 KM/Hr	34.39 km
28	Turn	Medium	26.58965, 83.20455	30 KM/Hr	34.42 km
29	Turn	Medium	26.58977, 83.20450	30 KM/Hr	34.44 km
30	Turn	Medium	26.58984, 83.20444	30 KM/Hr	34.44 km
31	Blind Spot	Blind Spot	26.59038, 83.20220	10 KM/Hr	34.64 km
32	Turn	High	26.59008, 83.20213	15 KM/Hr	34.70 km
33	Turn	High	26.58983, 83.20258	15 KM/Hr	34.74 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: 4.30 km

Coordinates: 26.75381, 83.20466

Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 8.99 km

Coordinates: 26.74681, 83.25111

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 9.07 km

Coordinates: 26.74644, 83.25150

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 9.49 km

Coordinates: 26.74310, 83.25343

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 9.51 km

Coordinates: 26.74298, 83.25343

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 27.70 km

Coordinates: 26.61852, 83.24070

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 31.46 km

Coordinates: 26.58601, 83.23080

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