JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO SHAHEED JITENDRA IND

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

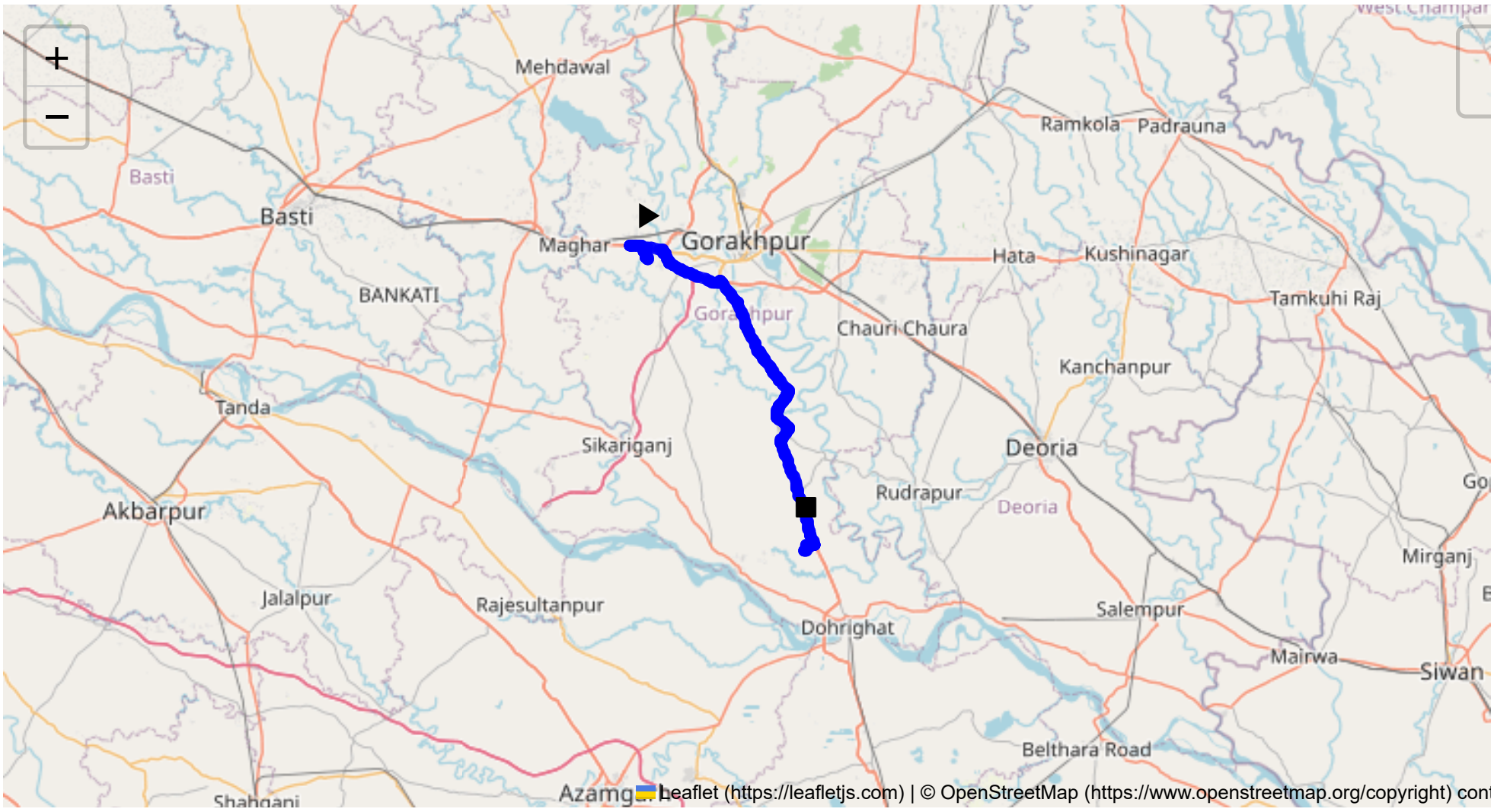
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 63.26 km

Estimated Duration: 1.4 hours

Adjusted Duration (Heavy Vehicle): 1.7 hours

Start: (26.735959, 83.229398)

End: (26.369922, 83.449478)

Welcome to the Journey Risk Management Study

1. **Overview of the Route Map:** The route begins in the GIDA Industrial Area Phase 1, Sahjanwa and traverses towards Manjharia, with waypoints at 01 Zero Point, Kaalesar, and R.B.M. Adarsh Career School near NH-29, Chawariya Khurd. This approximately 63.26 km stretch primarily follows NH-29 before branching off onto local roads. The route passes through both rural and semi-urban areas, encompassing a mix of industrial, agricultural, and residential zones.

2. **Typical Weather Conditions and Potential Weather-Related Hazards:** The region experiences a humid subtropical climate with hot summers (March to June), monsoon rains (June to September), and cool winters (November to February). The monsoon season can cause heavy rainfall, leading to potential flooding and waterlogging on roads, which may result in decreased visibility and traction. Fog is also common in winter, impacting visibility.

3. **Analysis of Traffic Patterns:** NH-29 experiences significant traffic, especially during peak hours (8:00 - 10:00 AM and 5:00 - 7:00 PM). The areas near industrial zones and school vicinities (such as near the R.B.M Adarsh Career School) can experience congestion during start and end of school timings. High traffic volume is usually present during festival seasons with increased local commuting.

4. **Assessment of Road Quality and Infrastructure:** NH-29 is generally a well-maintained highway, but local roads may vary in quality, with some sections being narrow or having potholes and uneven surfaces. Signage and road markings may be inadequate in places, especially on rural roads. Street lighting can be inconsistent, affecting nighttime driving safety.

5. **Suggestions for Alternative Routes for Emergencies:** In case of obstructions on NH-29, consider taking local roads parallel to NH-24 or other secondary roads that reconnect further along the route. Familiarity with alternative paths in these regions can be beneficial as backup options during emergencies or severe congestion.

6. **Summary of Local Regulations Affecting Hazardous Material Transport:** Transport of hazardous materials is subject to strict regulations involving securing permits and adhering to designated routes. Certain areas may have restrictions during particular hours, and it is crucial to maintain updated documentation and marking of vehicles carrying hazardous goods.

7. **Overview of Historical Incidents:** The region has a history of traffic accidents involving heavy vehicles, especially at poorly lit or congested intersections. While there are not many reports of incidents specifically involving hazardous materials, the general risk is heightened by road congestion and local driving practices.

8. **Environmental Considerations and Sensitive Areas:** This route passes through agricultural lands which might be sensitive to spillages. Specific zones may be environmentally protected and fragile; hence, utmost care should be taken to avoid environmental damage due to accidental spillage or leakage.

9. **Analysis of Communication Coverage:** Mobile coverage is generally reliable on NH-29. However, there may be dead zones in rural stretches, particularly on local roads away from major urban centers. It is advisable to have contact numbers for local emergency services noted down in case of a communication blackout.

10. **Estimated Emergency Response Times:** Emergency response times can vary significantly. On NH-29, response times are typically faster due to better accessibility, generally ranging from 15 to 30 minutes. In more rural or isolated sections, response times could extend to 45 minutes or more due to distance and navigation challenges.

11. **An Overall Summary of Risk Assessment:** The route presents moderate risk levels for truck drivers transporting hazardous materials due to weather impacts, road conditions, and traffic congestion. High priority should be given to continuous weather monitoring, adherence to transportation

regulations, and identification of alternate routes. Drivers should exercise caution, maintain communication with dispatch, and follow safety protocols diligently to minimize potential hazards.

This comprehensive analysis provides essential information to ensure safe travel along this route, emphasizing the need for vigilance and preparation in managing 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	0.05 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	1.28 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	Medium	26.74646, 83.25151	30 KM/Hr	9.06 km
13	Turn	High	26.70798, 83.33175	15 KM/Hr	18.62 km
14	Blind Spot	Blind Spot	26.37663, 83.46437	10 KM/Hr	60.49 km
15	Turn	Medium	26.37654, 83.46415	30 KM/Hr	60.51 km
16	Turn	High	26.37621, 83.46392	15 KM/Hr	60.55 km
17	Turn	High	26.37726, 83.45994	15 KM/Hr	60.97 km
18	Turn	High	26.37646, 83.45955	15 KM/Hr	61.04 km
19	Turn	High	26.37651, 83.45871	15 KM/Hr	61.15 km
20	Turn	High	26.37551, 83.45821	15 KM/Hr	61.25 km
21	Turn	High	26.37607, 83.45642	15 KM/Hr	61.44 km
22	Turn	Medium	26.37614, 83.45640	30 KM/Hr	61.47 km
23	Turn	High	26.37656, 83.45653	15 KM/Hr	61.50 km
24	Turn	Medium	26.37676, 83.45633	30 KM/Hr	61.55 km
25	Turn	Medium	26.37722, 83.45509	30 KM/Hr	61.69 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
26	Turn	High	26.37716, 83.45446	15 KM/Hr	61.74 km
27	Turn	High	26.37599, 83.45369	15 KM/Hr	61.90 km
28	Turn	High	26.37608, 83.45348	15 KM/Hr	61.92 km
29	Blind Spot	Blind Spot	26.37551, 83.45314	10 KM/Hr	61.99 km
30	Blind Spot	Blind Spot	26.37497, 83.45484	10 KM/Hr	62.12 km
31	Turn	Medium	26.37138, 83.45348	30 KM/Hr	62.39 km
32	Turn	High	26.37133, 83.45338	15 KM/Hr	62.61 km
33	Turn	High	26.37174, 83.45218	15 KM/Hr	62.68 km
34	Turn	High	26.36917, 83.45113	15 KM/Hr	62.97 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: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 9.06 km

Coordinates: 26.74646, 83.25151

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 18.62 km

Coordinates: 26.70798, 83.33175

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 60.49 km

Coordinates: 26.37663, 83.46437

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 60.51 km

Coordinates: 26.37654, 83.46415

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 60.55 km

Coordinates: 26.37621, 83.46392

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 60.97 km

Coordinates: 26.37726, 83.45994

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 61.04 km

Coordinates: 26.37646, 83.45955

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 61.15 km

Coordinates: 26.37651, 83.45871

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 61.25 km

Coordinates: 26.37551, 83.45821

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 61.99 km

Coordinates: 26.37551, 83.45314

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 62.12 km

Coordinates: 26.37497, 83.45484

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 62.39 km

Coordinates: 26.37138, 83.45348

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 62.61 km

Coordinates: 26.37133, 83.45338

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 62.68 km

Coordinates: 26.37174, 83.45218

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 62.97 km

Coordinates: 26.36917, 83.45113

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