



## **JOURNEY RISK MANAGEMENT (JRM) STUDY**

### **Gorakhpur LPG BP TO GOVIND INDANE GAS SE**

#### **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**

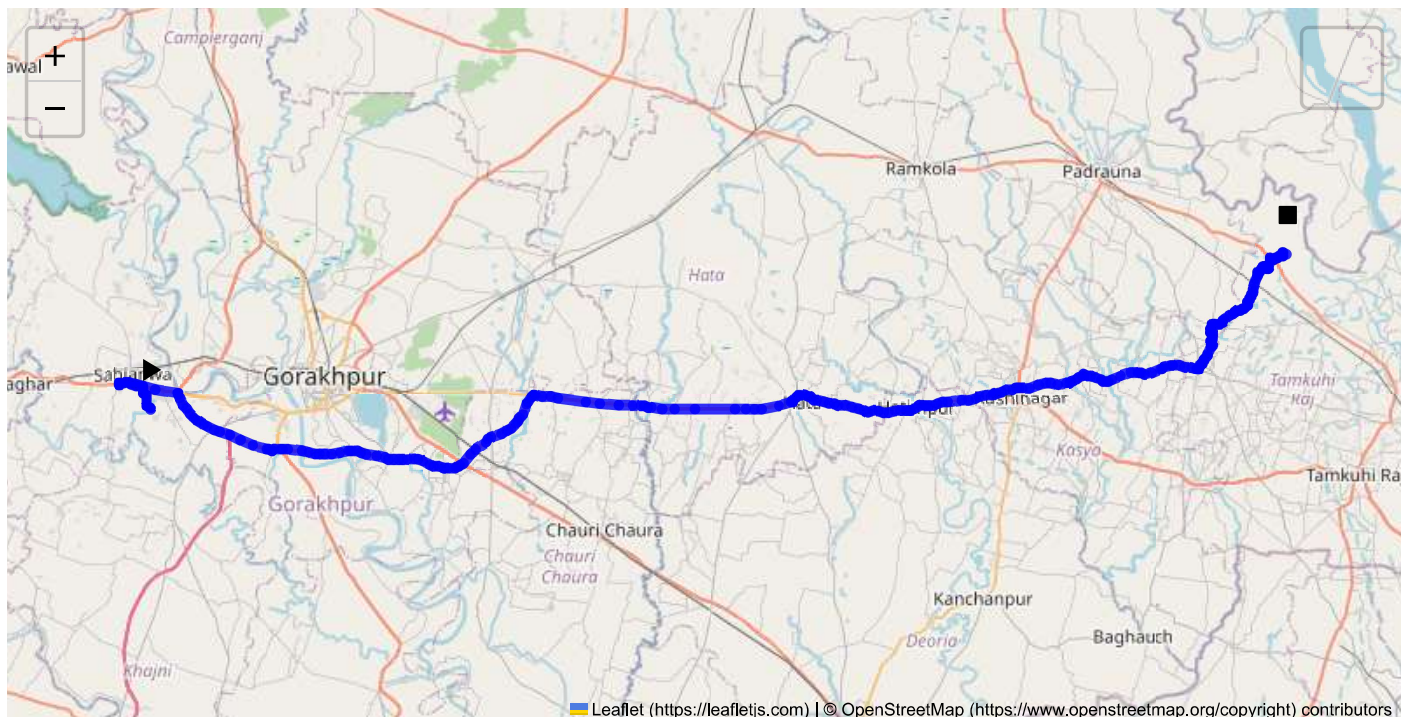
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 108.46 km**

**Estimated Duration: 2.6 hours**

**Adjusted Duration (Heavy Vehicle): 3.2 hours**

**Start: (26.735959, 83.229398)**

**End: (26.845384, 84.125242)**

## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map

The route from GIDA Industrial Area, Sahjanwa to Mathiya Mafi via Kasia - Gorakhpur Road spans approximately 108.46 kilometers. The journey takes you primarily through NH-28 and other regional

roads. The route moves eastward from Sahjanwa to Kushinagar and then southeastward towards Mathiya Mafi.

## 2. Typical Weather Conditions and Potential Weather-related Hazards

- **Weather Overview:** The region experiences a tropical climate. Summers (March to June) can be extremely hot, with temperatures sometimes exceeding 40°C. Monsoon (July to September) brings heavy rainfall, and winters (December to February) can be chilly, with temperatures dropping to around 5°C.
- **Weather Hazards:**
  - *Monsoon Season:* The route could face waterlogging and flooding, especially on lower-lying roads.
  - *Winter Season:* Fog is a frequent problem, reducing visibility significantly and making driving hazardous.

## 3. Analysis of Traffic Patterns

- **Peak Hours:** Congestion is typically observed during morning (7:00 AM - 9:00 AM) and evening (5:00 PM - 8:00 PM) hours, especially near urban centers like Gorakhpur and Kasia Bazaar.
- **Congestion-prone Areas:** Significant delays are likely around Gorakhpur city limits and Kasia Bazaar due to high-density traffic and local market activities.

## 4. Assessment of Road Quality and Infrastructure

- **Road Quality:** NH-28 is generally in good condition, but side roads and some rural sections may have poor pavement, potholes, and insufficient signage. Recent construction activities might lead to temporary roadblocks and detours.
- **Infrastructure:** Facilities like rest stops and fuel stations are available primarily near major towns but may be scarce in rural areas.

## 5. Suggestions for Alternative Routes for Emergencies

- An alternative route involves using smaller local roads via Rudrapur, bypassing Kushinagar. However, this route may extend travel time due to lower speed limits and inferior road conditions.

## 6. Summary of Local Regulations Affecting Hazardous Material Transport

- **Regulations:** Strict adherence to transport regulations for hazardous materials is crucial. This includes appropriate vehicle signage, load securing, and pre-determined rest stops. Night driving for hazardous materials might have additional restrictions in place.

## 7. Overview of Historical Incidents

- Historical incidents mostly involve highway accidents due to driver fatigue, poor visibility, and inadequate vehicle maintenance. Major incidents with hazardous materials are not frequently reported but underline the need for vigilance.

## 8. Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** The route crosses near agricultural lands and small villages. Care should be taken to avoid spills that could affect these areas.
- **Wildlife:** No major wildlife crossings noted, but vigilance is necessary to prevent animal accidents, especially in rural areas.

## 9. Analysis of Communication Coverage

- **Coverage Gaps:** Generally good coverage near urban centers. Potential dead zones might occur in rural stretches, particularly between Kushinagar and Mathiya Mafi.

## 10. Estimated Emergency Response Times

- **Urban Areas:** Emergency response times are relatively quick (15-30 minutes).
- **Rural Stretches:** Expect longer response times (up to 1 hour) due to distance and road conditions.

## 12. Overall Summary of Risk Assessment

- **Overall Risk:** The route presents moderate risk due to weather variability, varying road quality, and traffic congestion. Risks can be mitigated through proper vehicle maintenance, driver training, and adherence to regulations regarding speed limits and driving hours.
- **Key Recommendations:** Ensure all drivers are trained in defensive driving, especially for handling emergencies involving hazardous materials. Regularly update awareness about weather conditions and road disruptions through reliable channels.

By considering these factors, the safety and efficiency of hazardous material transport along this route can be optimized, helping drivers to manage both expected and unexpected challenges.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
1	Turn	High	26.73746, 83.22938	15 KM/Hr	0.14 km



	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
2	Turn	High	26.73788, 83.22642	15 KM/Hr	0.32 km
3	Turn	Medium	26.73812, 83.22630	30 KM/Hr	0.48 km
4	Turn	High	26.74524, 83.22746	15 KM/Hr	1.14 km
5	Turn	High	26.74654, 83.22390	15 KM/Hr	1.63 km
6	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.15 km
7	Blind Spot	Blind Spot	26.75353, 83.20457	10 KM/Hr	4.21 km
8	Turn	High	26.75377, 83.20465	15 KM/Hr	4.26 km
0	Roundabout	High	26.74681, 83.25111	15 KM/Hr	8.12 km
9	Turn	Medium	26.74205, 83.75226	30 KM/Hr	63.36 km
10	Turn	Medium	26.73382, 83.79538	30 KM/Hr	67.76 km
11	Turn	Medium	26.75974, 83.96633	30 KM/Hr	85.33 km
12	Turn	Medium	26.76067, 84.01366	30 KM/Hr	90.14 km
13	Turn	Medium	26.76688, 84.03610	30 KM/Hr	92.55 km
14	Turn	Medium	26.76369, 84.05616	30 KM/Hr	94.55 km
15	Turn	Medium	26.76387, 84.05643	30 KM/Hr	94.64 km
16	Turn	High	26.76706, 84.05830	15 KM/Hr	95.01 km
17	Turn	High	26.76734, 84.05822	15 KM/Hr	95.09 km
18	Blind Spot	Blind Spot	26.78116, 84.06720	10 KM/Hr	96.79 km
19	Turn	High	26.78177, 84.06592	15 KM/Hr	97.03 km
20	Turn	Medium	26.78320, 84.06606	30 KM/Hr	97.18 km
21	Turn	High	26.78817, 84.06765	15 KM/Hr	97.75 km
22	Turn	Medium	26.79134, 84.06670	30 KM/Hr	98.11 km
23	Turn	Medium	26.79211, 84.06626	30 KM/Hr	98.23 km
24	Turn	High	26.79633, 84.06772	15 KM/Hr	98.74 km
25	Turn	Medium	26.79566, 84.06918	30 KM/Hr	98.91 km
26	Turn	High	26.80610, 84.08684	15 KM/Hr	100.99 km
27	Turn	Medium	26.80591, 84.08934	30 KM/Hr	101.27 km
28	Turn	Medium	26.80934, 84.09475	30 KM/Hr	101.98 km
29	Turn	Medium	26.81409, 84.09676	30 KM/Hr	102.54 km
30	Turn	Medium	26.83240, 84.10369	30 KM/Hr	104.72 km
31	Turn	Medium	26.83467, 84.10578	30 KM/Hr	104.97 km
32	Turn	Medium	26.83504, 84.10661	30 KM/Hr	105.12 km
33	Turn	Medium	26.83609, 84.10727	30 KM/Hr	105.23 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
34	Turn	High	26.83680, 84.10878	15 KM/Hr	105.42 km
35	Turn	Medium	26.83549, 84.11108	30 KM/Hr	105.70 km
36	Turn	High	26.83556, 84.11153	15 KM/Hr	105.76 km
37	Blind Spot	Blind Spot	26.84280, 84.11292	10 KM/Hr	106.54 km
38	Turn	Medium	26.84268, 84.11819	30 KM/Hr	107.18 km
39	Turn	Medium	26.84283, 84.11876	30 KM/Hr	107.24 km
40	Turn	High	26.84403, 84.11926	15 KM/Hr	107.36 km
41	Turn	Medium	26.84393, 84.12187	30 KM/Hr	107.61 km
42	Turn	Medium	26.84411, 84.12213	30 KM/Hr	107.69 km
43	Turn	Medium	26.84594, 84.12233	30 KM/Hr	107.84 km
44	Turn	High	26.84629, 84.12262	15 KM/Hr	107.94 km

## Emergency Locations

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

	type	name	coordinates	speed_limit	risk_level	Distance from Start
0	hospital	Prakash Hospital	26.6957341, 83.4807387	30 km/h	Medium	33.19 km
1	hospital	Gautam Budha National Hospital	26.744396, 83.9016042	30 km/h	Medium	78.39 km
2	clinic	Qazi Poly Clinic	26.7503799, 83.9126991	30 km/h	Medium	79.81 km

## Crowded Spots

Found: 1 school(s)

	type	name	coordinates	speed_limit	risk_level	Distance from Start
3	school	Nav Jeevan Mission School	26.7533108, 83.9374379	30 km/h	Medium	81.87 km

## Route Photos of Risky Spots



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Distance from Start:** 2.15 km

**Coordinates:** 26.75126, 83.22476



**Risk Type:** Blind Spot

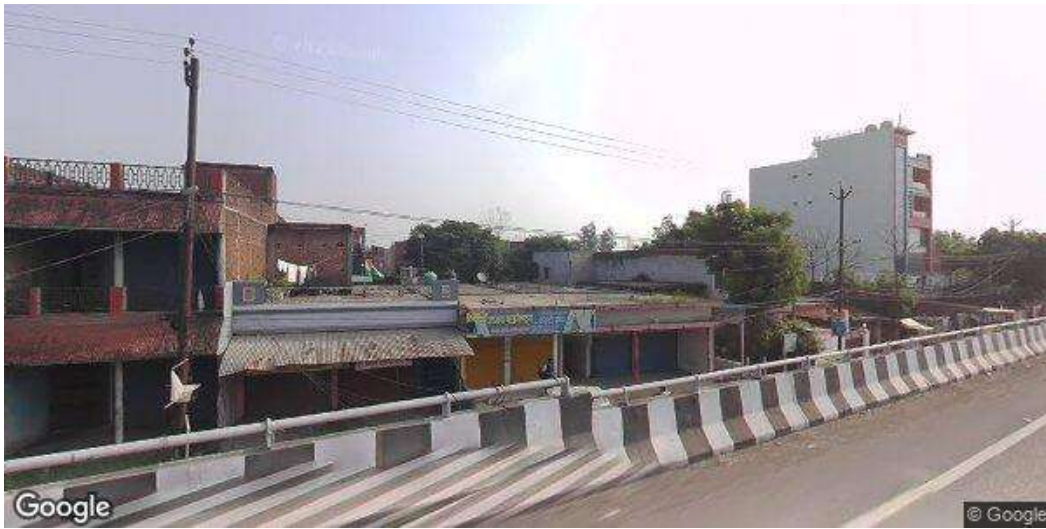
**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Distance from Start:** 4.21 km

**Coordinates:** 26.75353, 83.20457





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 4.26 km

**Coordinates:** 26.75377, 83.20465



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 8.12 km

**Coordinates:** 26.74681, 83.25111



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Distance from Start: 63.36 km**

**Coordinates: 26.74205, 83.75226**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Distance from Start: 67.76 km**

**Coordinates: 26.73382, 83.79538**



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 85.33 km

**Coordinates:** 26.75974, 83.96633



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 90.14 km

**Coordinates:** 26.76067, 84.01366





**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Distance from Start: 92.55 km**

**Coordinates: 26.76688, 84.03610**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 95.01 km**

**Coordinates: 26.76706, 84.05830**



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 95.09 km

**Coordinates:** 26.76734, 84.05822



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 97.18 km

**Coordinates:** 26.78320, 84.06606





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 97.75 km

**Coordinates:** 26.78817, 84.06765



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 98.11 km

**Coordinates:** 26.79134, 84.06670



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Distance from Start: 98.23 km**

**Coordinates: 26.79211, 84.06626**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 98.74 km**

**Coordinates: 26.79633, 84.06772**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 98.91 km

**Coordinates:** 26.79566, 84.06918



**Risk Type:** Blind Spot


**Risk Level:** Blind Spot


**Speed Limit:** 10 KM/Hr

**Distance from Start:** 106.54 km

**Coordinates:** 26.84280, 84.11292

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