# JOURNEY RISK MANAGEMENT (JRM) STUDY

## Gorakhpur LPG BP TO KARMUA INDNAE GRAMIN

### 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

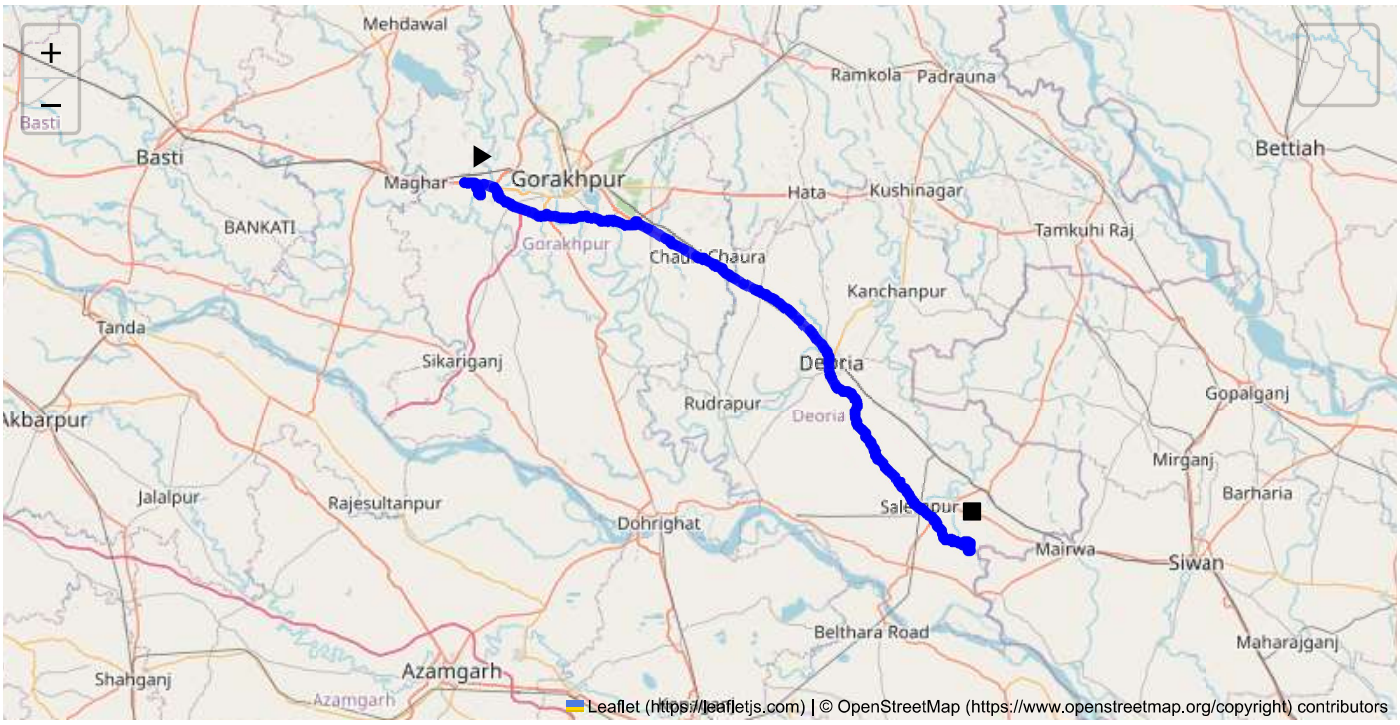
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 113.17 km**
**Estimated Duration: 2.6 hours**
**Adjusted Duration (Heavy Vehicle): 3.3 hours**
**Start: (26.735959, 83.229398)**
**End: (26.234108, 84.002212)**

## Welcome to the Journey Risk Management Study

To provide a comprehensive analysis of the route from P6PH+9Q GIDA Industrial Area Phase 1, Sahjanwa, Uttar Pradesh, India to 62M2+HVR, Karmua, Uttar Pradesh 274506, India, let's examine each aspect listed to assess safety and potential hazards effectively.

1. **Overview of the Route Map**:
    - This route spans approximately 113.17 kilometers and traverses through a mix of industrial, urban, and rural areas. The route typically involves traveling on state highways, which are generally conventionally well-maintained but may have specific sections that require careful navigation, particularly near construction zones and towns.
2. **Typical Weather Conditions and Potential Weather-related Hazards**:
    - Weather in Uttar Pradesh varies seasonally. The route may experience extreme temperatures during summer months, with possibilities of heatwaves. During the monsoon season (June to September), heavy rainfall can result in waterlogged roads and decreased visibility. Winter may bring fog, especially in early mornings, impacting visibility.
3. **Traffic Patterns**:
    - Peak traffic hours typically align with morning (8 AM - 10 AM) and evening (5 PM - 8 PM) commute times. Congestion is more likely near urban centers such as Gorakhpur and Sahjanwa, and at major intersections. Areas around markets and industrial facilities may also experience increased traffic, particularly due to loading and unloading activities.
4. **Assessment of Road Quality and Infrastructure**:
    - While state highways in Uttar Pradesh are generally maintained by the state government, potholes, uneven surfaces, and sudden narrowings can pose hazards. There may be ongoing roadworks or construction projects; thus, updated information and caution are necessary.
5. **Suggestions for Alternative Routes**:
    - For emergencies, alternate routes via NH27 and SH51 may provide viable detours. However, these alternatives may extend travel time.
6. **Local Regulations for Hazardous Material Transport**:
    - Transporting hazardous materials in Uttar Pradesh requires adherence to strict state and national regulations, including proper documentation, signage, and specific transit permits. Disallowed routes for hazardous materials are typically marked; drivers must follow designated lanes on certain stretches.
7. **Overview of Historical Incidents**:
    - There have been incidents involving heavy vehicles where factors such as vehicular breakdowns, poor visibility, and human error have contributed. Historical data suggests that it is critical to monitor vehicle conditions and road hazards diligently.
8. **Environmental Considerations and Sensitive Areas**:
    - The route passes through agricultural regions where any spillage could adversely affect the environment. Driver awareness is crucial, especially in areas near water bodies, to prevent contamination.
9. **Communication Coverage**:

- Cellular network coverage is generally reliable along major highways and near urban centers. However, rural stretches may experience intermittent service. Equipped with a satellite-based device is advisable for regions with known communication blackouts.

10. **Estimated Emergency Response Times**:
    - Urban areas typically have faster emergency response due to proximity to hospitals and services, whereas response times could extend in more remote areas. Generally, expect 30-60 minutes in rural segments, faster in cities.
11. **Overall Summary of Risk Assessment**:
    - The primary risks involve potential weather-related disruptions (fog, rain), road quality issues, and traffic congestion. Ensuring compliance with hazardous material regulations and monitoring environmental impacts are vital. Pre-trip vehicle checks, route familiarity, and emergency preparedness will mitigate many risks on this route.

In summary, this route requires well-preparedness for weather impacts, adherence to regulations, strategic navigation through congested areas, and proactive communication planning to ensure safe and efficient transport of hazardous materials.

## Risk Assessment - Turns

| | Risk Type | Risk Level | Coordinates | Speed Limit | Distance from Start |
|---|---|---|---|---|---|
| 2 | Turn | High | 26.73746, 83.22938 | 15 KM/Hr | 0.14 km |
| 3 | Blind Spot | Blind Spot | 26.73791, 83.22625 | 10 KM/Hr | 0.47 km |
| 4 | Turn | High | 26.74524, 83.22746 | 15 KM/Hr | 1.16 km |
| 5 | Turn | High | 26.74654, 83.22390 | 15 KM/Hr | 1.65 km |
| 6 | Blind Spot | Blind Spot | 26.75126, 83.22476 | 10 KM/Hr | 2.16 km |
| 7 | Blind Spot | Blind Spot | 26.75353, 83.20457 | 10 KM/Hr | 4.22 km |
| 8 | Turn | High | 26.75377, 83.20465 | 15 KM/Hr | 4.27 km |
| 0 | Roundabout | High | 26.74681, 83.25111 | 15 KM/Hr | 8.13 km |
| 9 | Turn | Medium | 26.69741, 83.47552 | 30 KM/Hr | 33.24 km |
| 1 | U-Turn | High | 26.698439, 83.4747268 | 10 KM/Hr | 33.40 km |
| 10 | Blind Spot | Blind Spot | 26.69857, 83.47481 | 10 KM/Hr | 33.40 km |
| 11 | Turn | Medium | 26.63752, 83.59723 | 30 KM/Hr | 47.38 km |
| 12 | Turn | Medium | 26.63761, 83.59795 | 30 KM/Hr | 47.44 km |
| 13 | Turn | Medium | 26.29409, 83.92225 | 30 KM/Hr | 100.10 km |

| | Risk Type | Risk Level | Coordinates | Speed Limit | Distance from Start |
|---|---|---|---|---|---|
| 14 | Turn | Medium | 26.29365, 83.92376 | 30 KM/Hr | 100.35 km |
| 15 | Turn | High | 26.24874, 83.96185 | 15 KM/Hr | 106.72 km |
| 16 | Turn | High | 26.24815, 83.96568 | 15 KM/Hr | 107.15 km |
| 17 | Turn | High | 26.24857, 83.96583 | 15 KM/Hr | 107.30 km |
| 18 | Turn | Medium | 26.24781, 83.97296 | 30 KM/Hr | 107.98 km |
| 19 | Turn | Medium | 26.24794, 83.97320 | 30 KM/Hr | 108.06 km |
| 20 | Turn | High | 26.24789, 83.97405 | 15 KM/Hr | 108.12 km |
| 21 | Turn | High | 26.24810, 83.97417 | 15 KM/Hr | 108.18 km |
| 22 | Turn | High | 26.24719, 83.97929 | 15 KM/Hr | 108.67 km |
| 23 | Turn | High | 26.24777, 83.97979 | 15 KM/Hr | 108.76 km |
| 24 | Turn | High | 26.24285, 83.99124 | 15 KM/Hr | 110.05 km |
| 25 | Turn | High | 26.24736, 83.99347 | 15 KM/Hr | 110.58 km |
| 26 | Turn | Medium | 26.24742, 83.99388 | 30 KM/Hr | 110.65 km |
| 27 | Turn | High | 26.24386, 84.00221 | 15 KM/Hr | 111.53 km |
| 28 | Turn | High | 26.23604, 83.99894 | 15 KM/Hr | 112.49 km |
| 29 | Turn | High | 26.23490, 83.99915 | 15 KM/Hr | 112.60 km |
| 30 | Blind Spot | Blind Spot | 26.23488, 84.00177 | 10 KM/Hr | 112.88 km |

## Emergency Locations

Found: 1 hospital(s)

| | type | name | coordinates | speed_limit | risk_level | Distance from Start |
|---|---|---|---|---|---|---|
| 0 | hospital | Prakash Hospital | 26.6957341, 83.4807387 | 30 km/h | Medium | 33.97 km |

## Crowded Spots

Found: 1 college(s), 1 school(s)

| | type | name | coordinates | speed_limit | risk_level | Distance from Start |
|---|---|---|---|---|---|---|
| 1 | college | BRD PG college | 26.5161416, 83.7720277 | 30 km/h | Medium | 69.25 km |
| 2 | school | SKP SAINIK PUBLIC SCHOOL | 26.3237671, 83.8958075 | 30 km/h | Medium | 95.70 km |

## Route Photos of Risky Spots


**Risk Type:** Blind Spot
**Risk Level:** Blind Spot
**Speed Limit:** 10 KM/Hr
**Distance from Start:** 2.16 km
**Coordinates:** 26.75126, 83.22476


**Risk Type:** Blind Spot
**Risk Level:** Blind Spot
**Speed Limit:** 10 KM/Hr

**Distance from Start:** 4.22 km

**Coordinates:** 26.75353, 83.20457


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 4.27 km

**Coordinates:** 26.75377, 83.20465


**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 8.13 km

**Coordinates:** 26.74681, 83.25111


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 33.24 km

**Coordinates:** 26.69741, 83.47552


**Risk Type:** U-Turn

**Risk Level:** High

**Speed Limit:** 10 KM/Hr

**Distance from Start:** 33.40 km

**Coordinates:** 26.698439, 83.4747268


**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Distance from Start:** 33.40 km

**Coordinates:** 26.69857, 83.47481


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 47.38 km

**Coordinates:** 26.63752, 83.59723


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 47.44 km

**Coordinates:** 26.63761, 83.59795


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 100.10 km

**Coordinates:** 26.29409, 83.92225


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 100.35 km

**Coordinates:** 26.29365, 83.92376


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 106.72 km

**Coordinates:** 26.24874, 83.96185


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 110.05 km

**Coordinates:** 26.24285, 83.99124


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 110.58 km

**Coordinates:** 26.24736, 83.99347


**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 110.65 km

**Coordinates:** 26.24742, 83.99388


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 111.53 km

**Coordinates:** 26.24386, 84.00221

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