JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO Unnati Indane

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

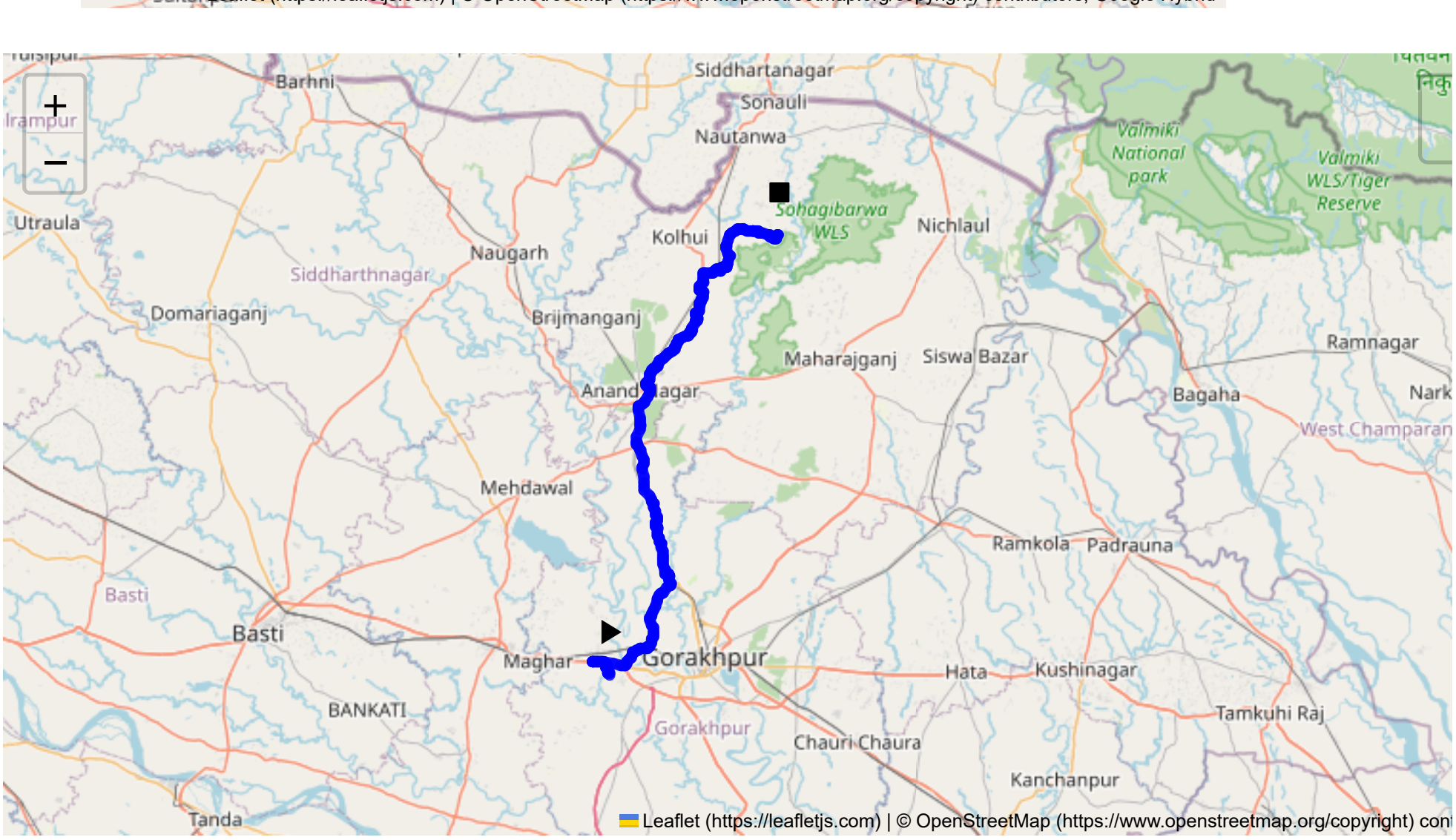
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 91.70 km
Estimated Duration: 2.4 hours
Adjusted Duration (Heavy Vehicle): 3.0 hours
Start: (26.735959, 83.229398)
End: (27.301432, 83.47162)

Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route spans approximately 91.70 kilometers, starting from the GIDA Industrial Area Phase 1, passing through Zero Point Kaalesar, Pharenda Range, and Purandrapur Sonbarsa, and ending at Jungal Gulahariya. The journey mainly consists of regional highways and local roads, which are winding and may have limited signage.

2. Typical Weather Conditions and Potential Hazards

Uttar Pradesh generally experiences hot summers and cold winters, with monsoon rains from July to September. Be cautious of potential flooding and reduced visibility during monsoons, which can lead to slippery roads and waterlogging. Fog is common in winter, especially in the early morning and evening, which requires careful navigation.

3. Traffic Patterns

Traffic congestion is common on highways near urban areas, especially during peak hours (8-10 AM and 5-7 PM). Areas around Zero Point Kaalesar and the entry/exit points of industrial zones tend to have higher traffic volumes. Expect slowdowns near major intersections and towns.

4. Assessment of Road Quality and Infrastructure

The quality of roads varies. Major highways are generally well-maintained, while local roads may have potholes and uneven surfaces. Narrow roads in rural segments could pose challenges for heavy vehicles. Road signage may be inconsistent, especially in rural areas.

5. Suggestions for Alternative Routes

In case of emergencies, consider bypassing congested urban centers by taking detours via larger, less traveled highways or expressways if available. Ensure detailed maps and GPS systems are updated to find viable alternatives quickly.

6. Summary of Local Regulations

Transporting hazardous materials in Uttar Pradesh requires adherence to strict guidelines, including obtaining appropriate permits and displaying clear hazard signage on vehicles. Ensure compliance with all local laws and regulations to avoid penalties.

7. Historical Incidents

Historical data suggests occasional incidents involving heavy vehicles due to road conditions and unpredictable driving behaviors. Reported incidents often involve overturned trucks due to poor road quality or driver error. Limited data on accidents specific to hazardous material transport.

8. Environmental Considerations

Sensitive areas include agricultural zones, which require careful handling of hazardous materials to prevent contamination. Awareness of proximity to water bodies is crucial to avoid environmental hazards in case of a spill.

9. Communication Coverage

Cell coverage along the route is generally reliable except in more rural or forested regions like the Pharenda Range, where there may be occasional dead zones. Equip drivers with communication tools

that support offline maps and emergency signaling.

10. Estimated Emergency Response Times

Emergency response times vary: urban areas may see responses in 15-30 minutes, while rural segments may take 45 minutes or more due to distance from emergency services. Ensure vehicles are equipped with first-aid kits and drivers are trained in basic emergency management.

12. Overall Risk Assessment Summary

The route contains moderate risks primarily due to varying road conditions, weather-related hazards, and patchy communication coverage. Compliance with local regulations and awareness of environmental and traffic conditions are critical. Prepare for potential emergencies with alternative routes and equipped vehicles. Enhanced driver training on navigation and emergency procedures will reduce potential hazards during the journey.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
1	Turn	High	26.73746, 83.22938	15 KM/Hr	0.08 km
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
9	Turn	High	26.74707, 83.25103	15 KM/Hr	8.89 km
0	Roundabout	High	26.86209, 83.31517	15 KM/Hr	24.78 km
10	Turn	Medium	26.91482, 83.29822	30 KM/Hr	30.94 km
11	Turn	Medium	26.92527, 83.29842	30 KM/Hr	32.23 km
12	Turn	Medium	26.93461, 83.29771	30 KM/Hr	33.30 km
13	Turn	Medium	27.01029, 83.27850	30 KM/Hr	42.27 km
14	Turn	Medium	27.08029, 83.27113	30 KM/Hr	50.37 km
15	Turn	Medium	27.08069, 83.27132	30 KM/Hr	50.48 km
16	Turn	Medium	27.17797, 83.34725	30 KM/Hr	64.89 km
17	Turn	Medium	27.17810, 83.34782	30 KM/Hr	64.95 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
18	Turn	Medium	27.20065, 83.35413	30 KM/Hr	67.61 km
19	Turn	Medium	27.20376, 83.35759	30 KM/Hr	67.99 km
20	Turn	Medium	27.21629, 83.36037	30 KM/Hr	69.47 km
21	Turn	Medium	27.22621, 83.36433	30 KM/Hr	70.63 km
22	Blind Spot	Blind Spot	27.25146, 83.36360	10 KM/Hr	73.93 km
23	Turn	Medium	27.25195, 83.37649	30 KM/Hr	74.95 km
24	Turn	High	27.25125, 83.37784	15 KM/Hr	75.45 km
25	Turn	High	27.25473, 83.38057	15 KM/Hr	75.93 km
26	Turn	High	27.25464, 83.38088	15 KM/Hr	76.02 km
27	Turn	High	27.25758, 83.38366	15 KM/Hr	76.35 km
28	Turn	High	27.25552, 83.38976	15 KM/Hr	77.04 km
29	Turn	Medium	27.25874, 83.39063	30 KM/Hr	77.30 km
30	Turn	High	27.25892, 83.39079	15 KM/Hr	77.49 km
31	Turn	High	27.25870, 83.39224	15 KM/Hr	77.58 km
32	Turn	High	27.25997, 83.39253	15 KM/Hr	77.72 km
33	Turn	High	27.25916, 83.39653	15 KM/Hr	78.19 km
34	Turn	High	27.26015, 83.39684	15 KM/Hr	78.26 km
35	Blind Spot	Blind Spot	27.26018, 83.39745	10 KM/Hr	78.35 km
36	Turn	Medium	27.26073, 83.39735	30 KM/Hr	78.41 km
37	Turn	High	27.26158, 83.39771	15 KM/Hr	78.49 km
38	Turn	High	27.26150, 83.39812	15 KM/Hr	78.56 km
39	Turn	Medium	27.27463, 83.40200	30 KM/Hr	80.02 km
40	Turn	Medium	27.30121, 83.40368	30 KM/Hr	83.18 km
41	Turn	Medium	27.30939, 83.41544	30 KM/Hr	84.68 km
42	Turn	Medium	27.30753, 83.42281	30 KM/Hr	85.45 km
43	Turn	High	27.30716, 83.42303	15 KM/Hr	85.50 km
44	Turn	High	27.30516, 83.43529	15 KM/Hr	86.75 km
45	Turn	High	27.30633, 83.43561	15 KM/Hr	86.89 km
46	Turn	Medium	27.30473, 83.44375	30 KM/Hr	87.66 km
47	Turn	High	27.30055, 83.45979	15 KM/Hr	89.35 km
48	Blind Spot	Blind Spot	27.29888, 83.45920	10 KM/Hr	89.51 km
49	Turn	High	27.29526, 83.46841	15 KM/Hr	90.58 km
50	Blind Spot	Blind Spot	27.30154, 83.47122	10 KM/Hr	91.32 km

Emergency Locations

Crowded Spots

Found: 1 school(s)

	type	name	coordinates	speed_limit	risk_level	Distance from Start
0	school	Nav Jeevan Mission School	27.1125489, 83.2814738	30 km/h	Medium	54.71 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: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 8.89 km

Coordinates: 26.74707, 83.25103

Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 24.78 km

Coordinates: 26.86209, 83.31517

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 30.94 km

Coordinates: 26.91482, 83.29822

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 32.23 km

Coordinates: 26.92527, 83.29842

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 33.30 km

Coordinates: 26.93461, 83.29771

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 50.37 km

Coordinates: 27.08029, 83.27113

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 50.48 km

Coordinates: 27.08069, 83.27132

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 64.89 km

Coordinates: 27.17797, 83.34725

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 64.95 km

Coordinates: 27.17810, 83.34782

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 67.61 km

Coordinates: 27.20065, 83.35413

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 67.99 km

Coordinates: 27.20376, 83.35759

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 69.47 km

Coordinates: 27.21629, 83.36037

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 70.63 km

Coordinates: 27.22621, 83.36433

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 73.93 km

Coordinates: 27.25146, 83.36360

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 74.95 km

Coordinates: 27.25195, 83.37649

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 75.45 km

Coordinates: 27.25125, 83.37784

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 75.93 km

Coordinates: 27.25473, 83.38057

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 76.02 km

Coordinates: 27.25464, 83.38088

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 76.35 km

Coordinates: 27.25758, 83.38366

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 77.04 km

Coordinates: 27.25552, 83.38976

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 77.30 km

Coordinates: 27.25874, 83.39063

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 77.49 km

Coordinates: 27.25892, 83.39079

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 77.58 km

Coordinates: 27.25870, 83.39224

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 77.72 km

Coordinates: 27.25997, 83.39253

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 78.19 km

Coordinates: 27.25916, 83.39653

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 78.26 km

Coordinates: 27.26015, 83.39684

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 78.35 km

Coordinates: 27.26018, 83.39745

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 78.41 km

Coordinates: 27.26073, 83.39735

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 78.49 km

Coordinates: 27.26158, 83.39771

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 80.02 km

Coordinates: 27.27463, 83.40200

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 83.18 km

Coordinates: 27.30121, 83.40368

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 84.68 km

Coordinates: 27.30939, 83.41544

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