



## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Gorakhpur LPG BP TO JIYUPUR INDANE GRAMI

#### 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

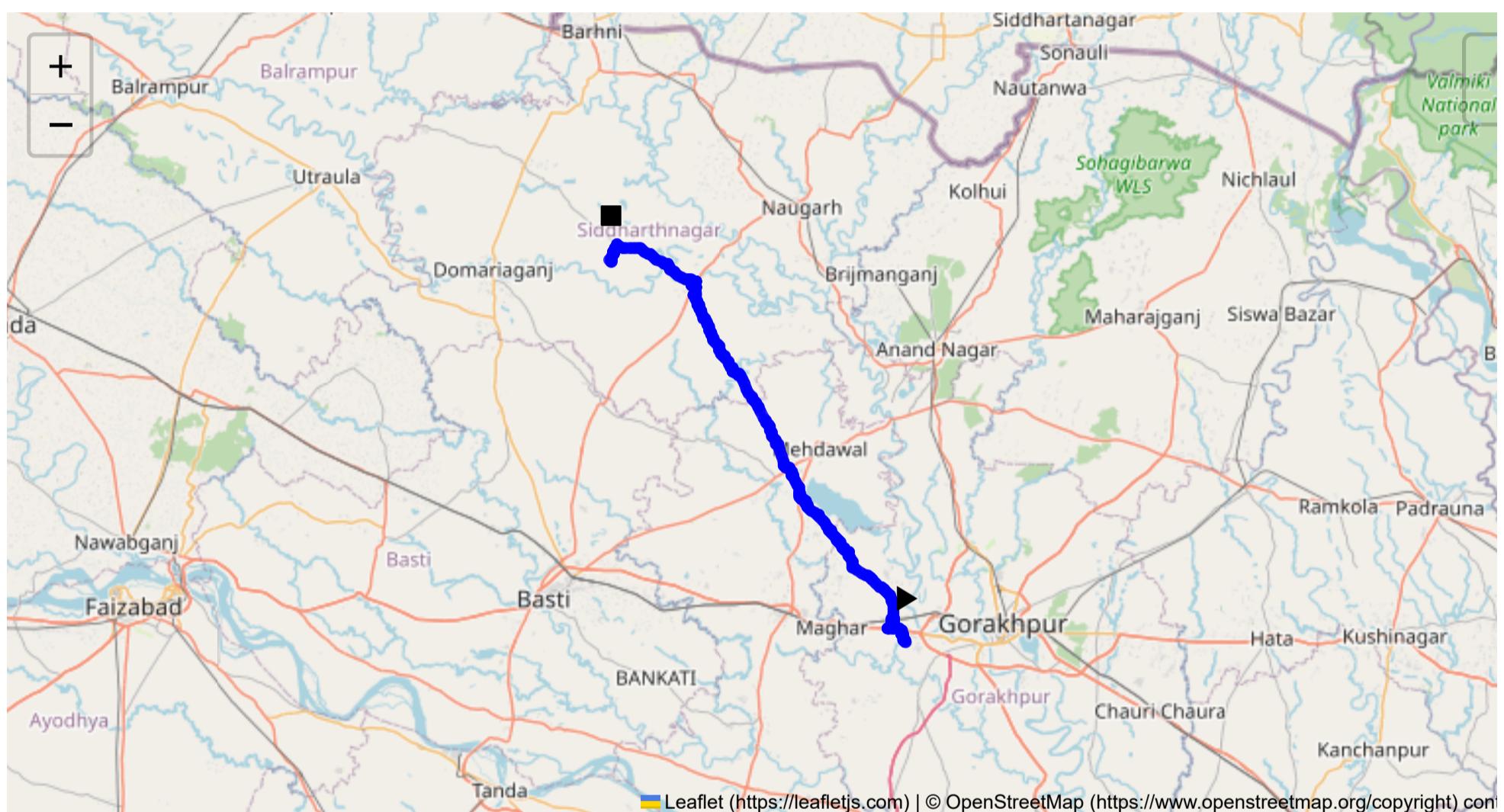
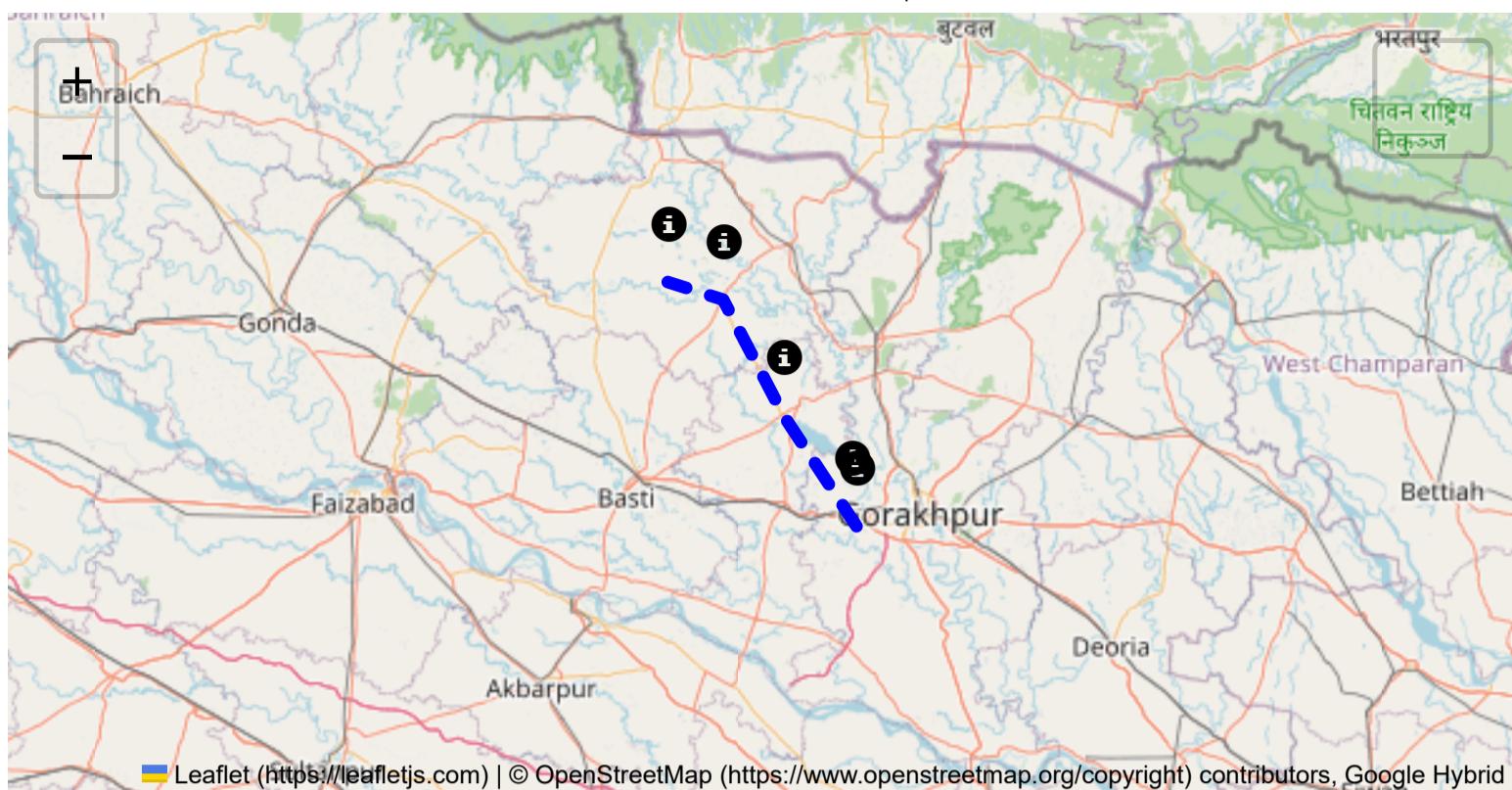
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 79.95 km**  
**Estimated Duration: 2.2 hours**  
**Adjusted Duration (Heavy Vehicle): 2.8 hours**  
**Start: (26.735959, 83.229398)**  
**End: (27.212118, 82.8158)**

## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map

The route from the GIDA Industrial Area to Jiwpur spans approximately 80 kilometers, starting in Sahjanwa and passing through Nandaur, Mahdewa, and Bansi before reaching the final destination. This route is predominantly a mix of local roads and small highways, serving both industrial and rural areas.

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

- **Seasonal Variability:** The region experiences a monsoon season from June to September, which can cause flooding and road washouts. Summers are hot and dry, while winters are mild.
- **Weather-Related Hazards:** During the monsoon, reduced visibility and slippery roads can pose significant hazards. There's also a risk of fog in winter, particularly in the early mornings.

## 3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic tends to be heavier during morning (8:00 AM - 10:00 AM) and evening (5:00 PM - 7:00 PM) rush hours. Additional congestion may occur around school start and end times.
- **Congestion Prone Areas:** Expect bottlenecks particularly near market areas and village entries/exits on the route due to narrow roads and local traffic (bicycles, animal carts).

## 4. Assessment of Road Quality and Infrastructure

- **Road Conditions:** The road quality varies, with sections in industrial and urban areas generally well-maintained, while rural stretches may have potholes, uneven surfaces, or lack proper signage.
- **Infrastructure:** The infrastructure is basic, with limited rest areas and sparse street lighting in rural stretches.

## 5. Suggestions for Alternative Routes

In emergencies, consider taking the National Highway that runs parallel. Although this may require additional travel time, it's better maintained and quicker for emergency services to access.

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

- **Permits Required:** Transporting hazardous materials requires specific permits from local authorities.
- **Time Restrictions:** Certain areas may have restrictions during daytime hours or in densely populated areas.

## 7. Overview of Historical Incidents

- **Heavy Vehicle Incidents:** There have been reports of overturned trucks during monsoons due to slippery roads.
- **Hazardous Material Incidents:** Limited historical data, though minor spills have been reported due to poor road conditions.

## 8. Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** Include proximity to water bodies and agricultural fields where spills could have significant environmental impacts.

- **Conservation Efforts:** Minimal, though any incidents affecting waterways or land could have long-term repercussions.

## 9. Analysis of Communication Coverage

- **Coverage:** Mobile communication is generally reliable in urban areas but can be patchy or non-existent in rural stretches, creating potential dead zones.
- **Emergency Contact:** Drivers should have backup communication plans in place.

## 10. Estimated Emergency Response Times

- **Urban Areas:** Emergency response (police, fire, medical) likely within 30 minutes.
- **Rural Areas:** Could take 1-2 hours due to sparse resources and challenging road conditions.

## 11. Overall Summary of Risk Assessment

The route presents moderate-to-high risk for transporting hazardous materials. Key concerns include poor road quality in rural areas, potential for severe weather impact, and limited rapid emergency response capability. Ensuring rigorous adherence to local transport regulations, being prepared for weather-related challenges, and maintaining constant communication will help mitigate risks.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
0	Turn	High	26.73746, 83.22938	15 KM/Hr	0.14 km
1	Turn	High	26.73788, 83.22642	15 KM/Hr	0.32 km
2	Turn	Medium	26.73812, 83.22630	30 KM/Hr	0.48 km
3	Turn	High	26.74524, 83.22746	15 KM/Hr	1.14 km
4	Turn	High	26.74654, 83.22390	15 KM/Hr	1.63 km
5	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.15 km
6	Blind Spot	Blind Spot	26.75353, 83.20457	10 KM/Hr	4.21 km
7	Turn	High	26.75377, 83.20465	15 KM/Hr	4.26 km
8	Turn	Medium	26.75378, 83.21338	30 KM/Hr	5.12 km
9	Turn	High	26.75386, 83.21352	15 KM/Hr	5.15 km
10	Turn	Medium	26.75640, 83.21275	30 KM/Hr	5.42 km
11	Blind Spot	Blind Spot	26.76132, 83.21435	10 KM/Hr	5.93 km
12	Turn	High	26.76131, 83.21143	15 KM/Hr	6.29 km
13	Turn	Medium	26.76403, 83.21129	30 KM/Hr	6.62 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
14	Turn	Medium	26.76555, 83.21385	30 KM/Hr	6.86 km
15	Turn	Medium	26.76593, 83.21408	30 KM/Hr	6.96 km
16	Turn	Medium	26.83008, 83.15664	30 KM/Hr	16.69 km
17	Turn	High	26.91597, 83.08449	15 KM/Hr	29.01 km
18	Blind Spot	Blind Spot	26.91433, 83.08351	10 KM/Hr	29.19 km
19	Turn	Medium	26.91843, 83.08101	30 KM/Hr	29.61 km
20	Turn	Medium	26.92258, 83.08191	30 KM/Hr	30.19 km
21	Turn	Medium	26.94829, 83.07156	30 KM/Hr	33.23 km
22	Turn	Medium	26.98317, 83.05063	30 KM/Hr	37.50 km
23	Turn	Medium	27.07125, 82.99577	30 KM/Hr	49.06 km
24	Turn	Medium	27.07137, 82.99515	30 KM/Hr	49.20 km
25	Turn	High	27.07059, 82.99365	15 KM/Hr	49.37 km
26	Turn	High	27.16975, 82.93429	15 KM/Hr	62.10 km
27	Turn	High	27.17966, 82.93498	15 KM/Hr	63.20 km
28	Turn	Medium	27.17992, 82.93461	30 KM/Hr	63.27 km
29	Turn	High	27.18005, 82.93461	15 KM/Hr	63.29 km
30	Turn	High	27.18194, 82.93124	15 KM/Hr	63.66 km
31	Turn	Medium	27.18212, 82.93129	30 KM/Hr	63.70 km
32	Turn	Medium	27.18395, 82.93294	30 KM/Hr	63.93 km
33	Turn	High	27.18423, 82.93398	15 KM/Hr	64.07 km
34	Turn	Medium	27.18658, 82.93553	30 KM/Hr	64.34 km
35	Turn	High	27.18690, 82.93552	15 KM/Hr	64.40 km
36	Turn	Medium	27.18968, 82.92508	30 KM/Hr	65.44 km
37	Blind Spot	Blind Spot	27.23180, 82.82583	10 KM/Hr	76.75 km
38	Turn	High	27.22697, 82.82400	15 KM/Hr	77.35 km
39	Turn	High	27.22716, 82.82322	15 KM/Hr	77.44 km
40	Turn	High	27.22385, 82.82169	15 KM/Hr	77.82 km
41	Turn	High	27.22390, 82.82141	15 KM/Hr	77.88 km
42	Blind Spot	Blind Spot	27.22180, 82.81945	10 KM/Hr	78.17 km
43	Turn	High	27.22150, 82.81987	15 KM/Hr	78.22 km
44	Turn	Medium	27.22121, 82.81989	30 KM/Hr	78.27 km
45	Blind Spot	Blind Spot	27.22084, 82.81969	10 KM/Hr	78.30 km
46	Turn	High	27.22029, 82.82103	15 KM/Hr	78.43 km
47	Turn	High	27.21418, 82.81833	15 KM/Hr	79.13 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
48	Turn	High	27.21391, 82.81879	15 KM/Hr	79.23 km
49	Turn	High	27.21141, 82.81772	15 KM/Hr	79.48 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:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 5.12 km

**Coordinates:** 26.75378, 83.21338



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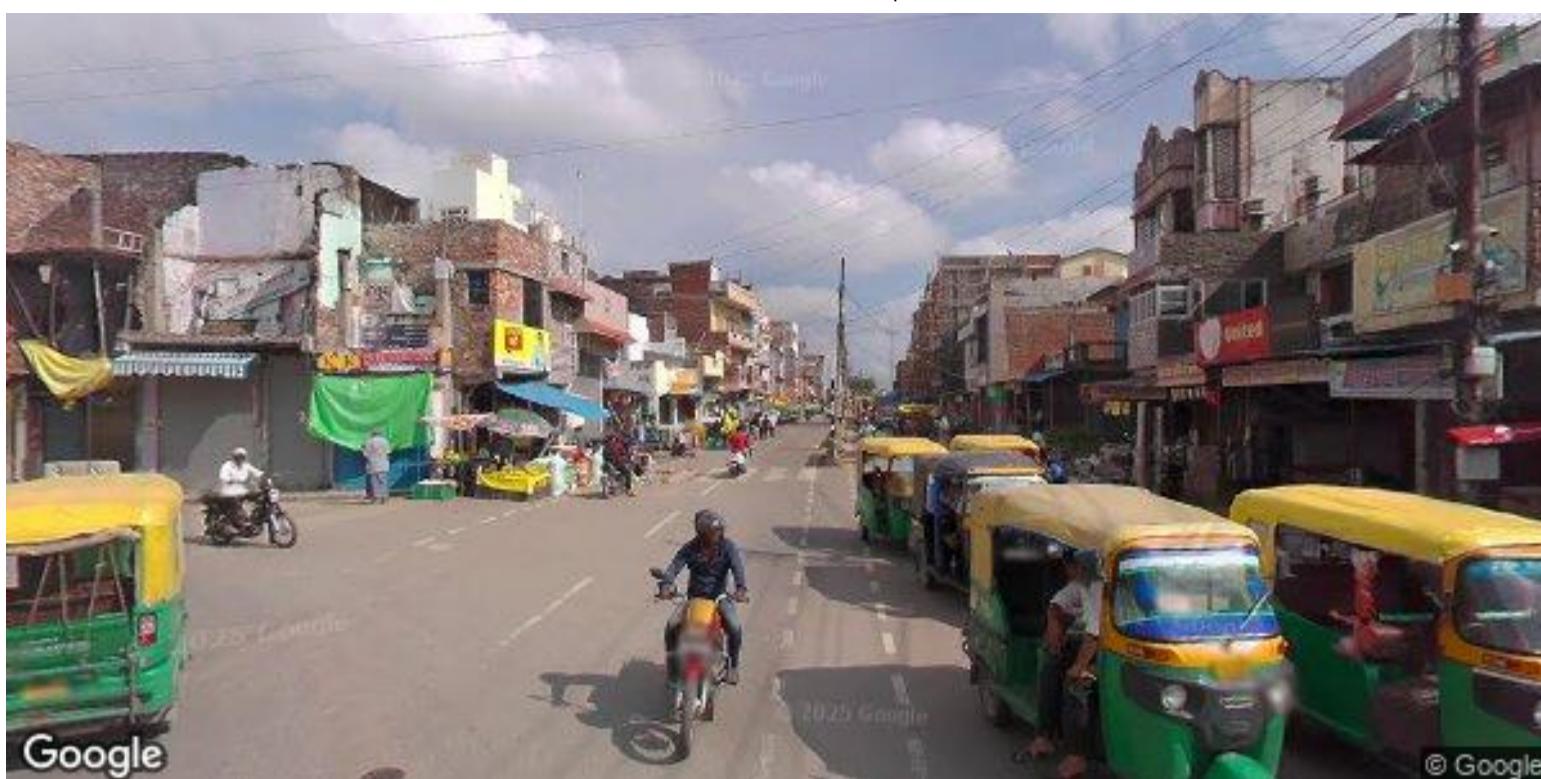
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**Risk Type: Turn****Risk Level: High****Speed Limit: 15 KM/Hr****Distance from Start: 5.15 km****Coordinates: 26.75386, 83.21352**

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**Risk Type: Turn****Risk Level: Medium****Speed Limit: 30 KM/Hr****Distance from Start: 5.42 km****Coordinates: 26.75640, 83.21275**



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Distance from Start:** 5.93 km

**Coordinates:** 26.76132, 83.21435



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 6.29 km

**Coordinates:** 26.76131, 83.21143



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 6.62 km

**Coordinates:** 26.76403, 83.21129



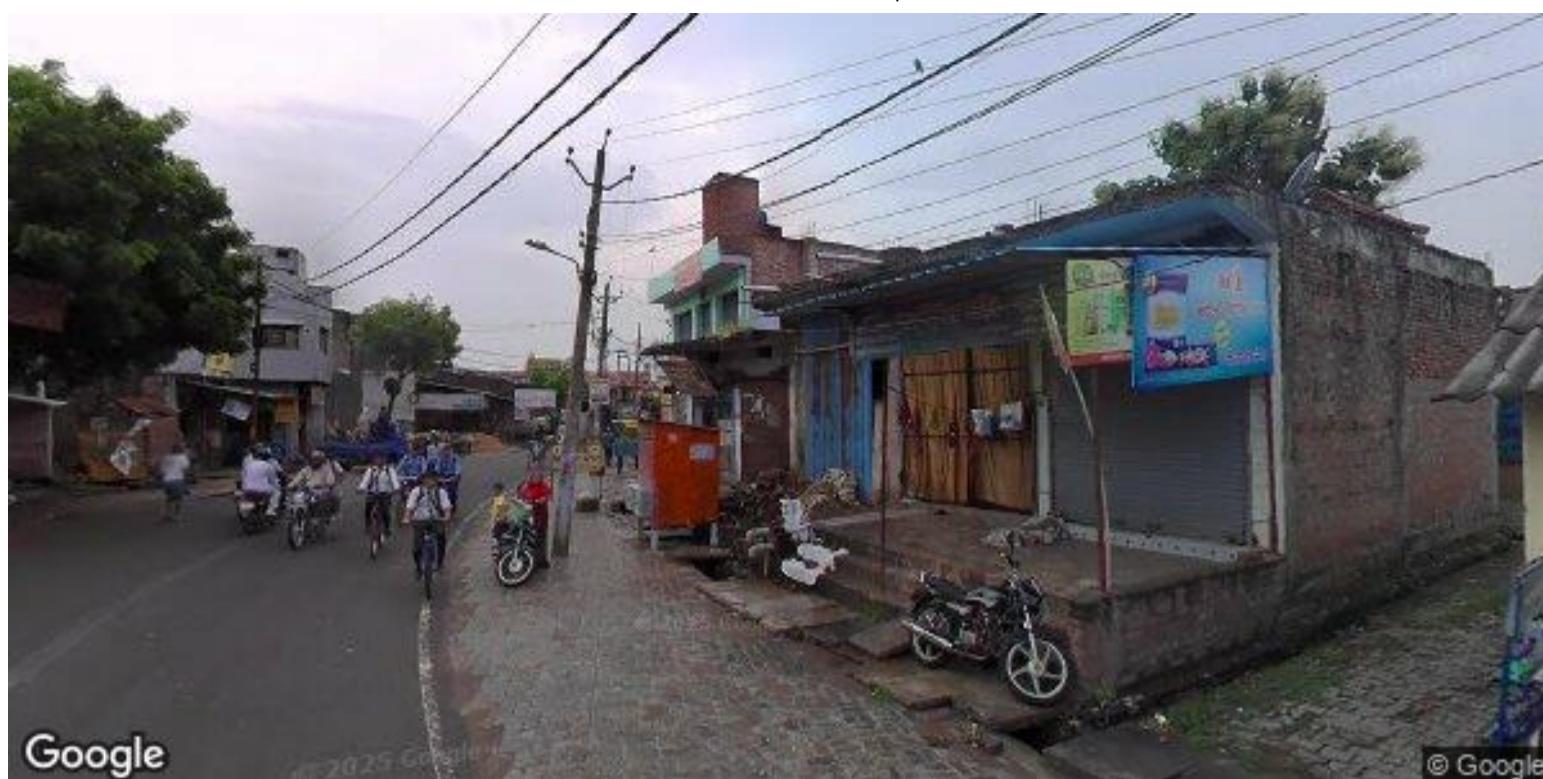
**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 6.86 km

**Coordinates:** 26.76555, 83.21385



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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 6.96 km**Coordinates:** 26.76593, 83.21408

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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 16.69 km**Coordinates:** 26.83008, 83.15664



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**Risk Type:** Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 29.01 km**Coordinates:** 26.91597, 83.08449

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**Risk Type:** Blind Spot**Risk Level:** Blind Spot**Speed Limit:** 10 KM/Hr**Distance from Start:** 29.19 km**Coordinates:** 26.91433, 83.08351



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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 29.61 km**Coordinates:** 26.91843, 83.08101

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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 30.19 km**Coordinates:** 26.92258, 83.08191



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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 33.23 km**Coordinates:** 26.94829, 83.07156

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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 37.50 km**Coordinates:** 26.98317, 83.05063



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 49.06 km

**Coordinates:** 27.07125, 82.99577



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 49.20 km

**Coordinates:** 27.07137, 82.99515



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 49.37 km

**Coordinates:** 27.07059, 82.99365



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 62.10 km

**Coordinates:** 27.16975, 82.93429



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**Risk Type: Turn****Risk Level: High****Speed Limit: 15 KM/Hr****Distance from Start: 63.20 km****Coordinates: 27.17966, 82.93498**

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**Risk Type: Turn****Risk Level: Medium****Speed Limit: 30 KM/Hr****Distance from Start: 63.27 km****Coordinates: 27.17992, 82.93461**



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**Risk Type:** Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 63.29 km**Coordinates:** 27.18005, 82.93461

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**Risk Type:** Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 63.66 km**Coordinates:** 27.18194, 82.93124



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**Risk Type:** Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 63.93 km**Coordinates:** 27.18395, 82.93294

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**Risk Type:** Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 64.07 km**Coordinates:** 27.18423, 82.93398



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Distance from Start:** 65.44 km

**Coordinates:** 27.18968, 82.92508



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Distance from Start:** 76.75 km

**Coordinates:** 27.23180, 82.82583



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**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 77.35 km

**Coordinates:** 27.22697, 82.82400



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**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 77.44 km

**Coordinates:** 27.22716, 82.82322



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**Risk Type: Turn****Risk Level: High****Speed Limit: 15 KM/Hr****Distance from Start: 77.82 km****Coordinates: 27.22385, 82.82169**

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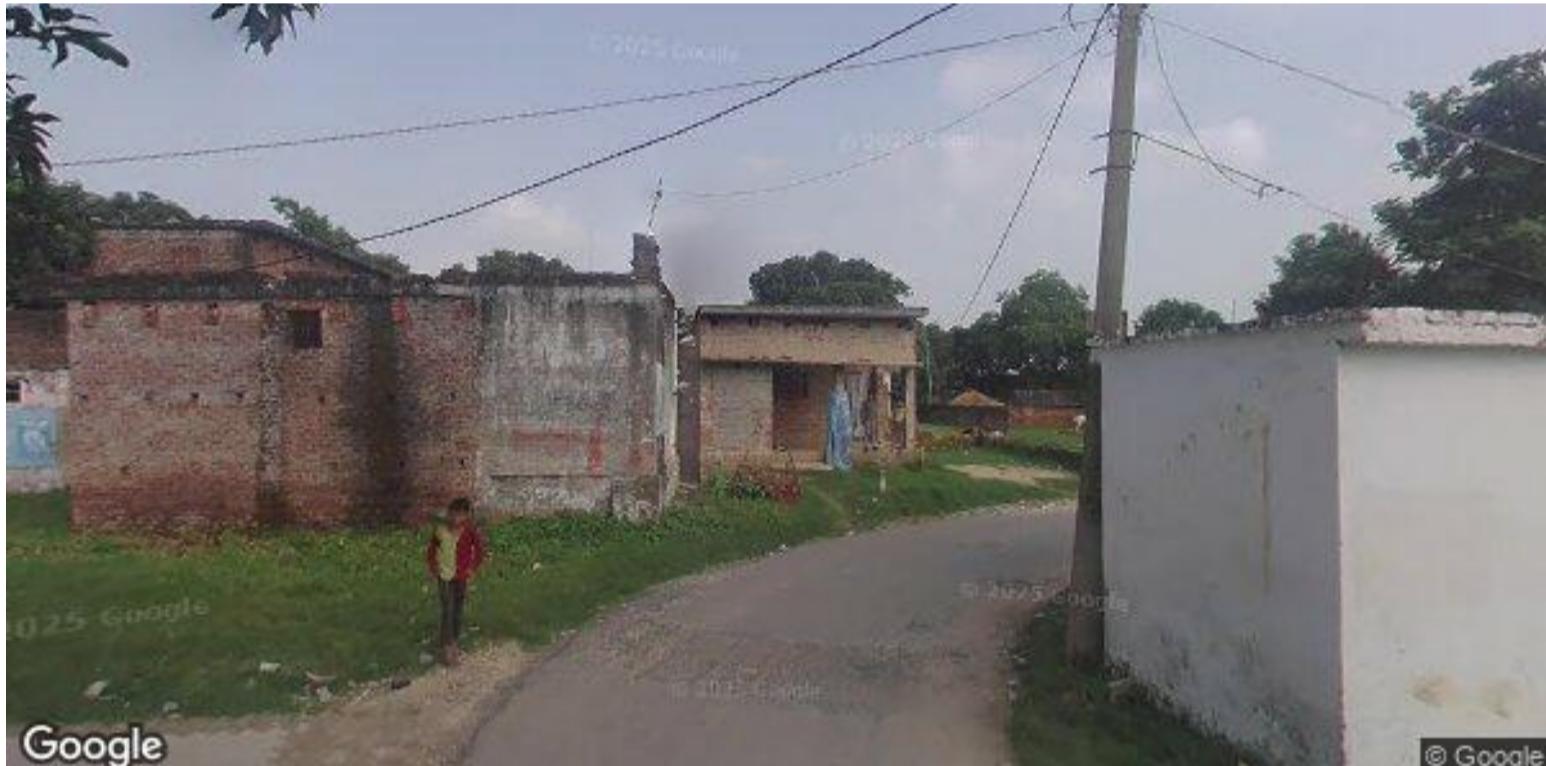
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**Risk Type: Turn****Risk Level: High****Speed Limit: 15 KM/Hr****Distance from Start: 77.88 km****Coordinates: 27.22390, 82.82141**



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**Risk Type:** Blind Spot**Risk Level:** Blind Spot**Speed Limit:** 10 KM/Hr**Distance from Start:** 78.17 km**Coordinates:** 27.22180, 82.81945

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**Risk Type:** Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 78.22 km**Coordinates:** 27.22150, 82.81987

**Google****© Google****Risk Type: Turn****Risk Level: Medium****Speed Limit: 30 KM/Hr****Distance from Start: 78.27 km****Coordinates: 27.22121, 82.81989****Google****© Google****Risk Type: Blind Spot****Risk Level: Blind Spot****Speed Limit: 10 KM/Hr****Distance from Start: 78.30 km****Coordinates: 27.22084, 82.81969**



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**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 78.43 km

**Coordinates:** 27.22029, 82.82103



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**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 79.23 km

**Coordinates:** 27.21391, 82.81879



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 79.48 km

**Coordinates:** 27.21141, 82.81772

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