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JOURNEY RISK MANAGEMENT (JRM) STUDY

Gorakhpur LPG BP TO KATYAYNI INDANE GRAM

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

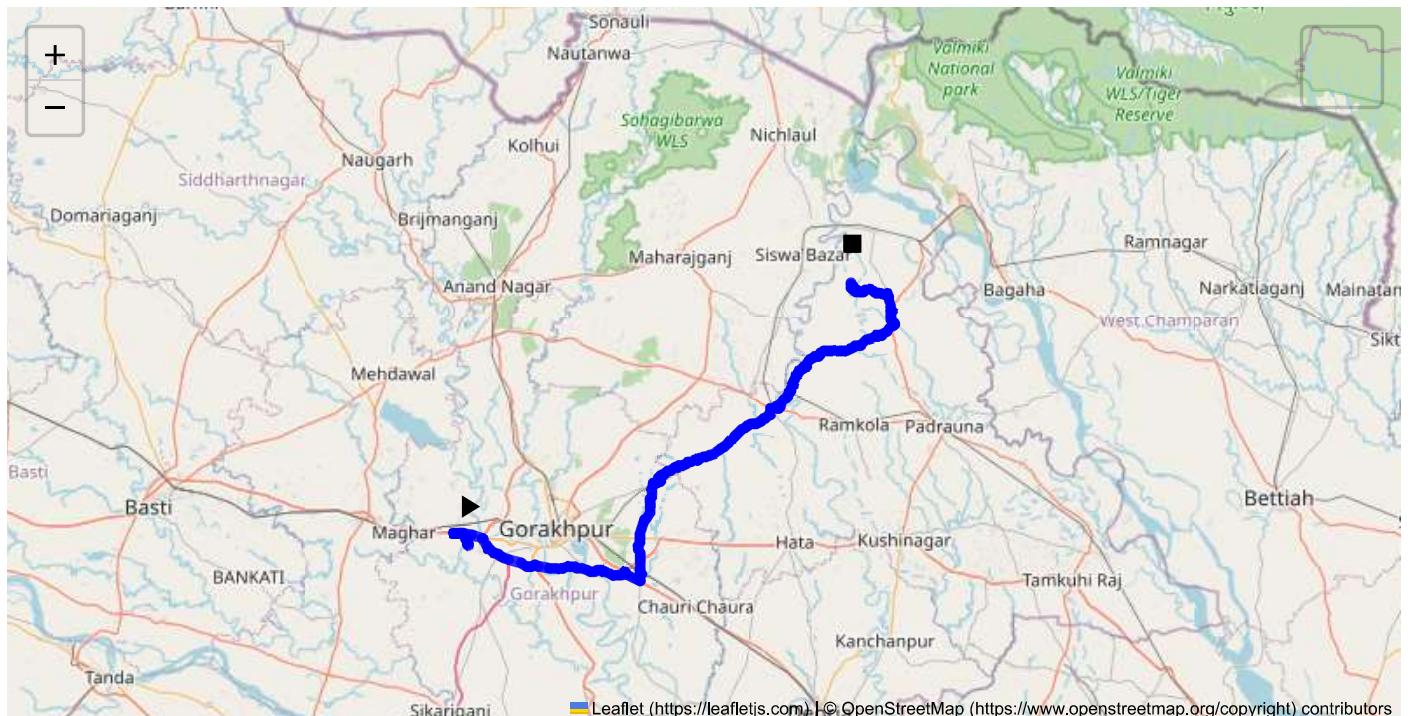
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 113.86 km
Estimated Duration: 2.9 hours
Adjusted Duration (Heavy Vehicle): 3.6 hours
Start: (26.735959, 83.229398)
End: (27.104603, 83.831902)

Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route from GIDA Industrial Area, Sahjanwa to Barwa Ratanpur covers approximately 113.86 kilometers, primarily traversing through rural Uttar Pradesh via key locations: Gorakhpur - Deoria

Highway, Pipraich Kushmahi Road, and Nebua Raiganj - Ekwanhi Road. This route offers a combination of highways and smaller roads, culminating in a journey of about 2.92 hours for heavy vehicles.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Uttar Pradesh experiences a humid subtropical climate. The monsoon season (June to September) presents a high risk of heavy rainfall, leading to potential flooding and waterlogged roads, particularly on smaller roads. Summers can be extremely hot, which may cause road surface issues such as melting tar. Winters may bring fog, especially in rural and agricultural areas, reducing visibility.

3. Traffic Patterns

- Peak Hours:** Typically, morning (8:00-10:00 AM) and evening (5:00-7:00 PM) hours see increased traffic volumes, particularly near more urban and semi-urban areas like Gorakhpur.
- Congestion-Prone Areas:** Motiram Adda and segments of the Gorakhpur - Deoria Highway may experience congestion due to local traffic and market activities.

4. Road Quality and Infrastructure

- Highways:** The Gorakhpur - Deoria Highway generally offers good road conditions with proper signage, though occasional maintenance issues may lead to temporary disruptions.
- Smaller Roads:** Pipraich Kushmahi Road and Nebua Raiganj - Ekwanhi Road may have uneven surfaces and narrower sections, presenting challenges for heavy vehicles, especially during adverse weather.

5. Alternative Routes for Emergencies

In cases of major blockages or emergencies, consider rerouting through:

- NH27:** Although it adds distance, it provides a more consistent infrastructure.
- NH24:** Another potential alternative, particularly if you need to avoid congestion in Gorakhpur.

6. Local Regulations Affecting Hazardous Material Transport

Transport of hazardous materials is regulated by the Motor Vehicles Act, requiring specific permits and compliance with safety norms, including proper vehicle signage and secure containment. Restrictions may apply in densely populated areas or near sensitive zones such as schools.

7. Historical Incidents Involving Heavy Vehicles or Hazardous Materials

The region has had occasional reports of road accidents involving heavy vehicles, especially during dense fog conditions or monsoon flooding. Hazmat incidents are rare but historically have occurred due to

spillage resulting from inadequate containment.

8. Environmental Considerations and Sensitive Areas

- Agricultural Zones:** Many segments are near farming areas, necessitating caution to avoid contamination.
- Water Bodies:** Proximity to local rivers and ponds requires awareness to prevent ecological impact from spills or accidents.

9. Analysis of Communication Coverage

- Urban Areas:** Good mobile network coverage is typically available in and around Gorakhpur.
- Rural Areas:** Some pockets, especially along Nebua Raiganj - Ekwanhi Road, may experience reduced connectivity or network dead zones.

10. Estimated Emergency Response Times

- Urban Segment Response Time:** Approximately 30-45 minutes due to better infrastructure and proximity to emergency services.
- Rural Segment Response Time:** Approximately 60-90 minutes, as distance from major towns can delay response.

11. Overall Summary of Risk Assessment

The route offers a viable path for transporting hazardous materials, with key risks stemming from seasonal weather impacts, traffic congestion near urban centers, and potential communication dead zones. Recommended precautions include close monitoring of weather forecasts, maintaining communication devices, ensuring compliance with local regulations, and preparing contingency routes. Environmental and safety strategies should focus on avoiding water body contamination and respecting local agricultural activities. Overall, effective planning and vigilance can mitigate most risks associated with this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
2	Turn	High	26.73746, 83.22938	15 KM/Hr	0.08 km
3	Turn	High	26.73788, 83.22642	15 KM/Hr	0.32 km
4	Turn	Medium	26.73812, 83.22630	30 KM/Hr	0.48 km
5	Turn	High	26.74524, 83.22746	15 KM/Hr	1.14 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
6	Turn	High	26.74679, 83.22391	15 KM/Hr	1.64 km
7	Blind Spot	Blind Spot	26.75126, 83.22476	10 KM/Hr	2.13 km
8	Blind Spot	Blind Spot	26.75377, 83.20465	10 KM/Hr	4.19 km
0	Roundabout	High	26.74681, 83.25111	15 KM/Hr	8.07 km
9	Turn	Medium	26.69652, 83.47508	30 KM/Hr	33.05 km
10	Turn	High	26.69741, 83.47552	15 KM/Hr	33.14 km
1	U-Turn	High	26.698439, 83.4747268	10 KM/Hr	33.33 km
11	Blind Spot	Blind Spot	26.69857, 83.47481	10 KM/Hr	33.33 km
12	Blind Spot	Blind Spot	26.68620, 83.49880	10 KM/Hr	35.79 km
13	Turn	Medium	26.69511, 83.49893	30 KM/Hr	36.97 km
14	Turn	High	26.69722, 83.50035	15 KM/Hr	37.31 km
15	Turn	Medium	26.69873, 83.49920	30 KM/Hr	37.46 km
16	Blind Spot	Blind Spot	26.74662, 83.49914	10 KM/Hr	42.87 km
17	Blind Spot	Blind Spot	26.74659, 83.49782	10 KM/Hr	42.98 km
18	Turn	Medium	26.78331, 83.51396	30 KM/Hr	46.98 km
19	Turn	High	26.82411, 83.52193	15 KM/Hr	52.05 km
20	Turn	Medium	26.82476, 83.52706	30 KM/Hr	52.49 km
21	Blind Spot	Blind Spot	26.82741, 83.53262	10 KM/Hr	53.24 km
22	Turn	Medium	26.82752, 83.53199	30 KM/Hr	53.29 km
23	Turn	High	26.83139, 83.52997	15 KM/Hr	53.78 km
24	Turn	Medium	26.88048, 83.63813	30 KM/Hr	65.75 km
25	Turn	Medium	26.88064, 83.63915	30 KM/Hr	66.14 km
26	Turn	Medium	26.90784, 83.67807	30 KM/Hr	71.10 km
27	Turn	High	26.92140, 83.70568	15 KM/Hr	74.34 km
28	Turn	Medium	26.92843, 83.70590	30 KM/Hr	75.17 km
29	Turn	Medium	26.92870, 83.70611	30 KM/Hr	75.24 km
30	Turn	High	26.92977, 83.71938	15 KM/Hr	76.52 km
31	Turn	Medium	26.98333, 83.75128	30 KM/Hr	83.41 km
32	Turn	Medium	26.98806, 83.76186	30 KM/Hr	84.65 km
33	Turn	Medium	27.00402, 83.78183	30 KM/Hr	87.49 km
34	Turn	Medium	27.01112, 83.79199	30 KM/Hr	88.77 km
35	Turn	Medium	27.03263, 83.87969	30 KM/Hr	98.19 km
36	Turn	High	27.04355, 83.89521	15 KM/Hr	100.10 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
37	Turn	High	27.04344, 83.89802	15 KM/Hr	100.45 km
38	Turn	Medium	27.04958, 83.89848	30 KM/Hr	101.17 km
41	Blind Spot	Blind Spot	27.06715, 83.89414	10 KM/Hr	103.24 km
39	Turn	High	27.06715, 83.89414	15 KM/Hr	103.24 km
40	Blind Spot	Blind Spot	27.06736, 83.89601	10 KM/Hr	103.40 km
42	Turn	High	27.08980, 83.88938	15 KM/Hr	106.21 km
43	Turn	Medium	27.09491, 83.86126	30 KM/Hr	108.88 km
44	Turn	Medium	27.09453, 83.84764	30 KM/Hr	110.39 km
45	Turn	Medium	27.09405, 83.84660	30 KM/Hr	110.62 km
46	Turn	Medium	27.09431, 83.84490	30 KM/Hr	110.79 km
47	Turn	High	27.09380, 83.84438	15 KM/Hr	110.86 km
48	Turn	High	27.09585, 83.83556	15 KM/Hr	111.71 km
49	Turn	High	27.09585, 83.83342	15 KM/Hr	112.01 km
50	Turn	High	27.09798, 83.83338	15 KM/Hr	112.24 km
51	Blind Spot	Blind Spot	27.09842, 83.83233	10 KM/Hr	112.34 km
52	Turn	High	27.10044, 83.83385	15 KM/Hr	112.53 km
53	Turn	High	27.10094, 83.83362	15 KM/Hr	112.70 km
54	Blind Spot	Blind Spot	27.10142, 83.83388	10 KM/Hr	112.76 km
55	Turn	High	27.10208, 83.83175	15 KM/Hr	112.94 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	33.90 km

Crowded Spots

Route Photos of Risky Spots



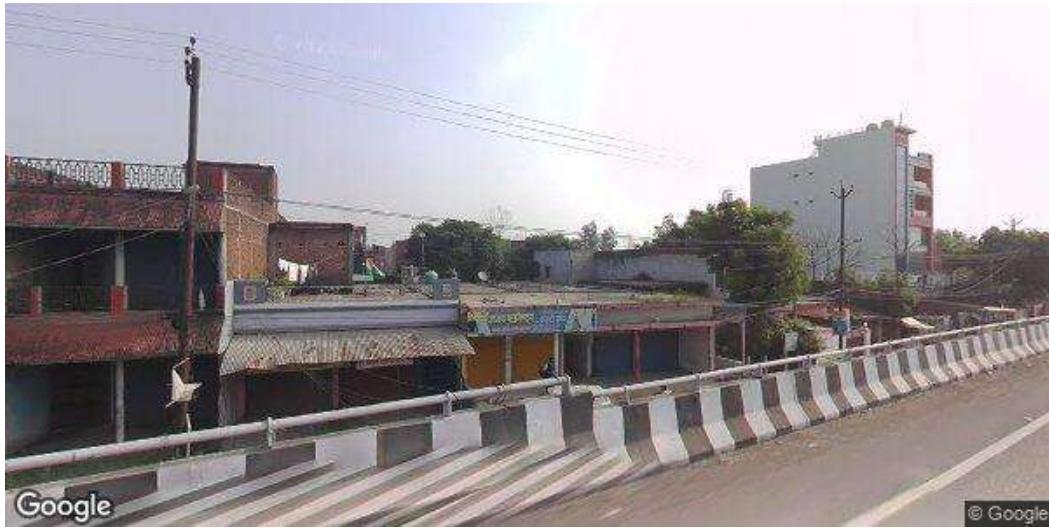
Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 2.13 km

Coordinates: 26.75126, 83.22476



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 4.19 km

Coordinates: 26.75377, 83.20465



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 8.07 km

Coordinates: 26.74681, 83.25111



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 33.05 km

Coordinates: 26.69652, 83.47508



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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 33.14 km**Coordinates:** 26.69741, 83.47552

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Risk Type: U-Turn**Risk Level:** High**Speed Limit:** 10 KM/Hr**Distance from Start:** 33.33 km**Coordinates:** 26.698439, 83.4747268



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Risk Type: Blind Spot**Risk Level:** Blind Spot**Speed Limit:** 10 KM/Hr**Distance from Start:** 33.33 km**Coordinates:** 26.69857, 83.47481

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Risk Type: Blind Spot**Risk Level:** Blind Spot**Speed Limit:** 10 KM/Hr**Distance from Start:** 35.79 km**Coordinates:** 26.68620, 83.49880



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 36.97 km

Coordinates: 26.69511, 83.49893



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 37.31 km

Coordinates: 26.69722, 83.50035



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 37.46 km

Coordinates: 26.69873, 83.49920



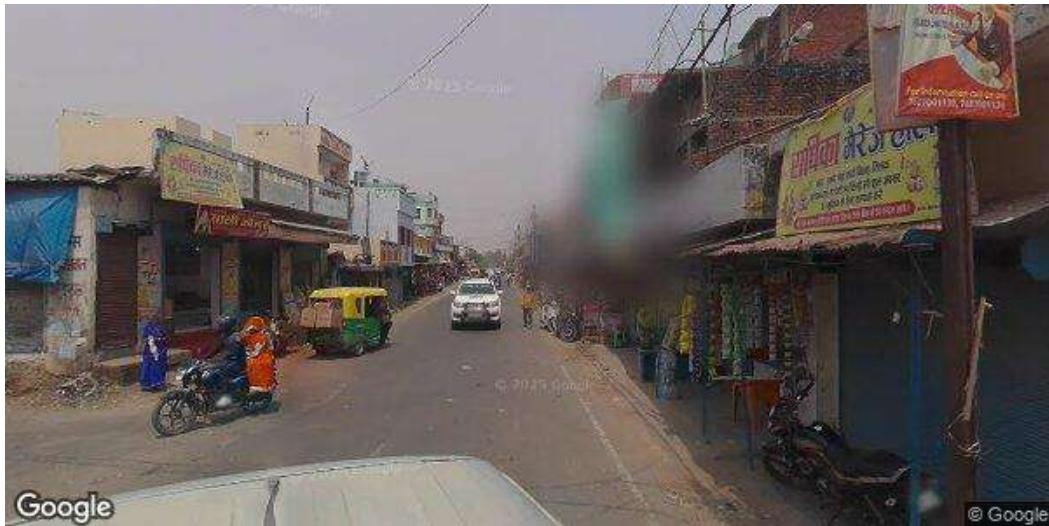
Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 42.87 km

Coordinates: 26.74662, 83.49914



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Risk Type: Blind Spot**Risk Level:** Blind Spot**Speed Limit:** 10 KM/Hr**Distance from Start:** 42.98 km**Coordinates:** 26.74659, 83.49782

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 46.98 km**Coordinates:** 26.78331, 83.51396



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57.2023,-83.560916

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Risk Type: Turn**Risk Level: High****Speed Limit: 15 KM/Hr****Distance from Start: 52.05 km****Coordinates: 26.82411, 83.52193**

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Risk Type: Turn**Risk Level: Medium****Speed Limit: 30 KM/Hr****Distance from Start: 52.49 km****Coordinates: 26.82476, 83.52706**



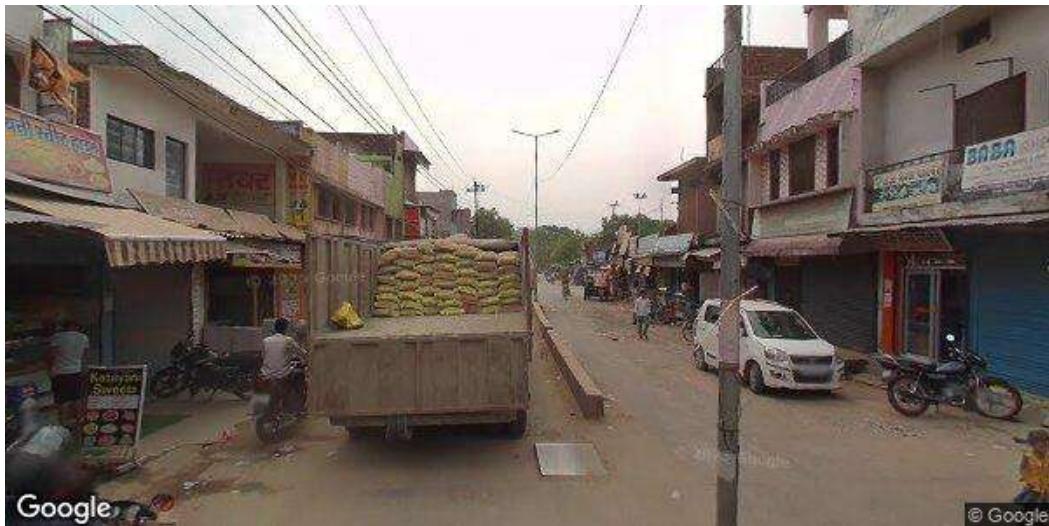
Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 53.24 km

Coordinates: 26.82741, 83.53262



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 53.29 km

Coordinates: 26.82752, 83.53199



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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 53.78 km**Coordinates:** 26.83139, 83.52997

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 71.10 km**Coordinates:** 26.90784, 83.67807



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Risk Type: Turn**Risk Level:** High**Speed Limit:** 15 KM/Hr**Distance from Start:** 74.34 km**Coordinates:** 26.92140, 83.70568

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 75.17 km**Coordinates:** 26.92843, 83.70590



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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 75.24 km**Coordinates:** 26.92870, 83.70611

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 84.65 km**Coordinates:** 26.98806, 83.76186



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 87.49 km

Coordinates: 27.00402, 83.78183



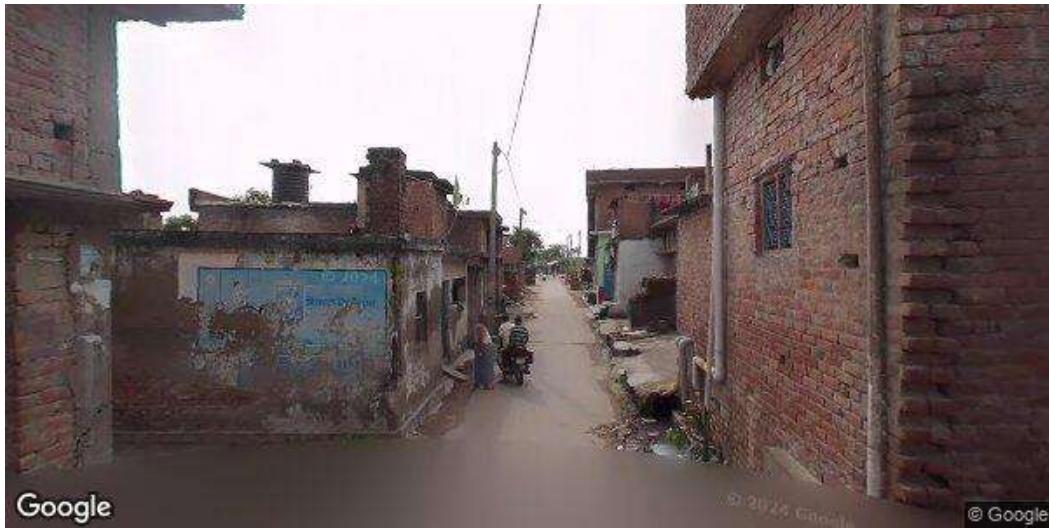
Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 88.77 km

Coordinates: 27.01112, 83.79199



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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 110.39 km**Coordinates:** 27.09453, 83.84764

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Risk Type: Turn**Risk Level:** Medium**Speed Limit:** 30 KM/Hr**Distance from Start:** 110.62 km**Coordinates:** 27.09405, 83.84660



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 110.79 km

Coordinates: 27.09431, 83.84490



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 110.86 km

Coordinates: 27.09380, 83.84438



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 111.71 km

Coordinates: 27.09585, 83.83556



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 112.01 km

Coordinates: 27.09585, 83.83342



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 112.24 km

Coordinates: 27.09798, 83.83338



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 112.34 km

Coordinates: 27.09842, 83.83233



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 112.53 km

Coordinates: 27.10044, 83.83385



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 112.70 km

Coordinates: 27.10094, 83.83362

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