



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL LPG BP Motihari to IOCL LPG BP Gorakhpur

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

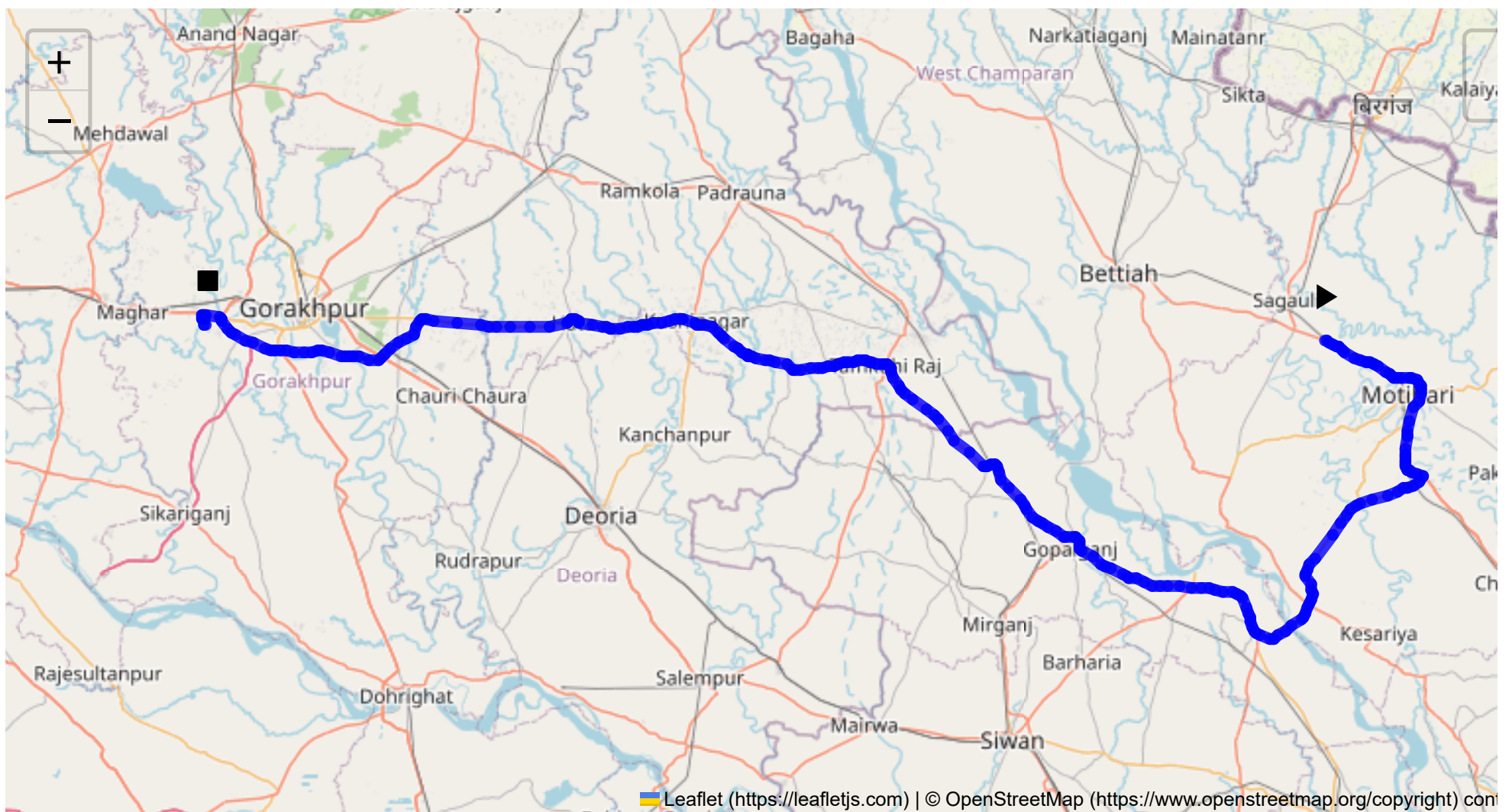
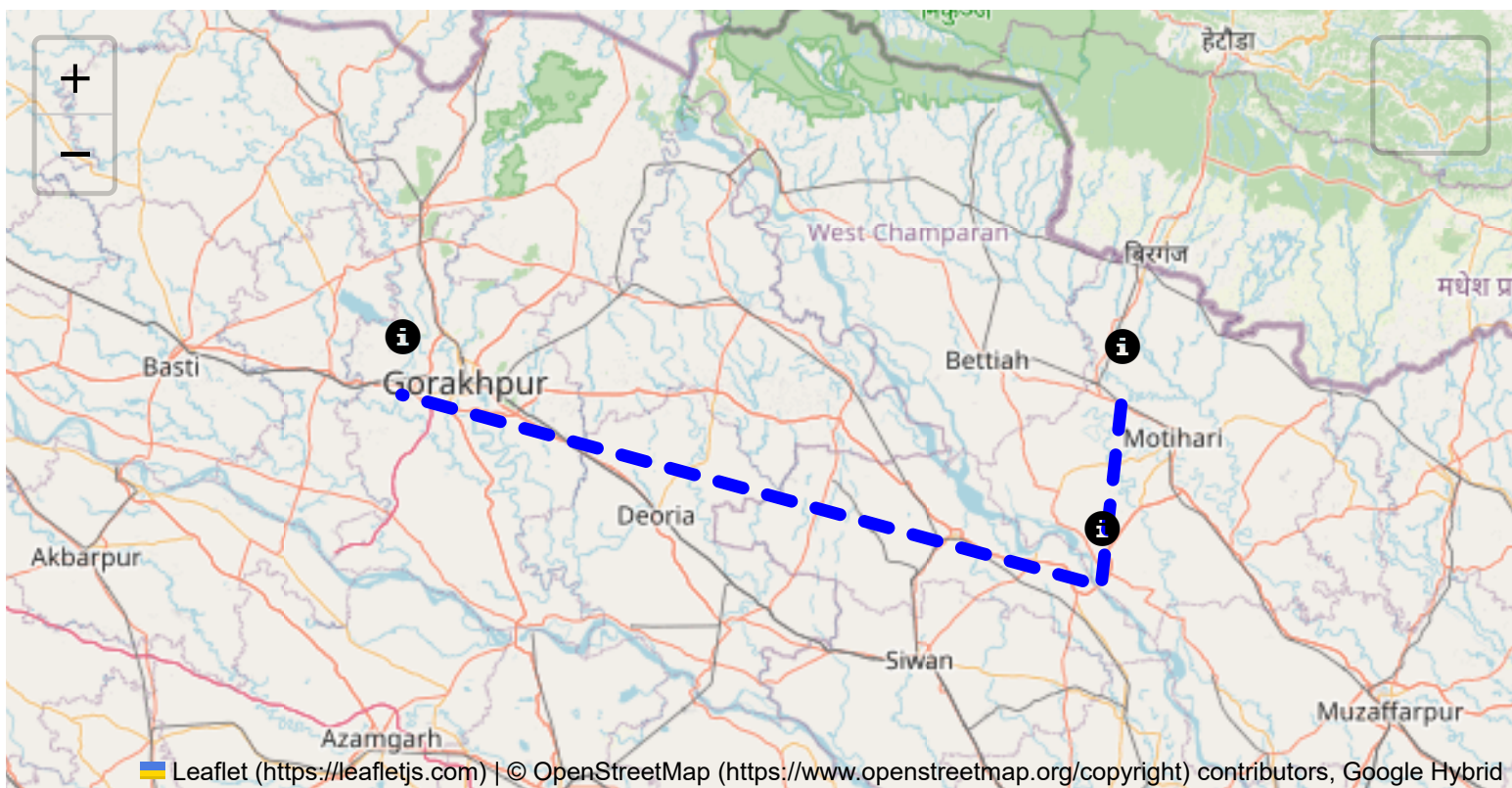
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 240.83 km
Estimated Duration: 4.7 hours
Adjusted Duration (Heavy Vehicle): 5.9 hours
Start: (26.718348690336008, 84.79606802403612)
End: (26.7373, 83.2295)

Welcome to the Journey Risk Management Study

Route Safety Analysis Report

1. Overview of the Route Map

The route begins at PQ9W+G2, Chhapara Basas North in Bihar and ends at 01 01, GIDA Industrial Area Phase 1 in Uttar Pradesh. Key waypoints include the Dumaria Bridge, Bagaha Dhala Road, and Hussaini,

primarily rural and semi-urban regions. The route spans approximately 240.83 kilometers.

2. Typical Weather Conditions and Potential Weather-Related Hazards

- **Monsoon Season (June to September):** Heavy rainfall can lead to flooding, especially near rivers and low-lying areas along the route.
- **Summer (March to May):** High temperatures, sometimes exceeding 40°C, could affect vehicle performance.
- **Winter (December to February):** Fog and reduced visibility could be a concern during early morning and late evening hours.

3. Traffic Patterns and Congestion

- **Peak Hours:** Typically in the morning (7-10 AM) and evening (4-7 PM), especially around urban areas and market towns.
- **Congestion-Prone Areas:** Entry and exit points of Bagaha and intersections with major highways can experience congestion, affecting travel times.

4. Road Quality and Infrastructure Assessment

- **Rural Roads:** Many sections have narrow lanes, prone to potholes and requiring cautious driving, especially for large trucks.
- **Bridge Infrastructure:** Dumaria Bridge is a critical passage; check for any weight restrictions as it can impact the transport of heavy goods.

5. Suggestions for Alternative Routes for Emergencies

- **Alternative Routes:** In case of roadblocks or severe weather, consider using NH27 which is a major highway running parallel in some sections.
- **Bypasses:** Local knowledge of smaller bypasses around towns can be beneficial during peak congestion times.

6. Local Regulations Affecting Hazardous Material Transport

- **Permits:** Ensure necessary transport permits for hazardous materials are acquired.
- **Timings:** Some areas may have restricted timings for the movement of large trucks due to local ordinances.

7. Historical Incidents Involving Heavy Vehicles or Hazardous Materials

- **Recorded Incidents:** Review local transport authority records for incidents, particularly around Dumaria Bridge and major town intersections.

- **Common Issues:** Overloading and inadequate securing of loads are common practices leading to incidents.

8. Environmental Considerations and Sensitive Areas

- **Protected Areas:** The route may traverse or border environmentally sensitive zones, including agricultural lands and wildlife sanctuaries.
- **Pollution Concerns:** Be mindful of emissions and potential spills impacting these areas.

9. Communication Coverage and Potential Dead Zones

- **Network Coverage:** Generally good in urban areas but spotty in rural stretches.
- **Dead Zones:** Anticipate poor connectivity near dense forests and remote sections between Bagaha and GIDA.

10. Estimated Emergency Response Times

- **Urban Areas:** Approximately 30-45 minutes.
- **Rural Areas:** Could extend to 1-2 hours depending on location and accessibility.

11. Overall Summary of Risk Assessment

The route presents a moderate level of risk for transporting hazardous materials, primarily due to variable road quality, seasonal weather effects, and potential traffic congestion. Strict adherence to safety protocols, close monitoring of weather forecasts, and understanding of local regulations are critical. Emergency preparedness, including knowledge of alternative routes and communication methods, is advised to mitigate risks effectively. Overall, significant proactive planning and real-time adjustments will be essential to ensure safe and efficient transport along this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
0	Turn	Medium	26.67121, 84.89236	30 KM/Hr	10.85 km
1	Turn	Medium	26.66871, 84.92324	30 KM/Hr	13.92 km
2	Turn	Medium	26.65698, 84.93035	30 KM/Hr	15.50 km
3	Turn	Medium	26.64235, 84.92677	30 KM/Hr	16.82 km
4	Turn	Medium	26.63520, 84.91949	30 KM/Hr	17.94 km
5	Turn	Medium	26.56786, 84.90899	30 KM/Hr	25.81 km
6	Turn	Medium	26.56563, 84.90783	30 KM/Hr	26.25 km
7	Blind Spot	Blind Spot	26.54841, 84.93334	10 KM/Hr	29.41 km

	Risk Type	Risk Level	Coordinates	Speed Limit	Distance from Start
8	Turn	Medium	26.42715, 84.76780	30 KM/Hr	51.83 km
9	Turn	Medium	26.37691, 84.76877	30 KM/Hr	57.67 km
10	Turn	Medium	26.35486, 84.69617	30 KM/Hr	66.55 km
11	Turn	Medium	26.39957, 84.67831	30 KM/Hr	71.82 km
12	Turn	Medium	26.42244, 84.52127	30 KM/Hr	87.64 km
13	Turn	Medium	26.42443, 84.51915	30 KM/Hr	88.27 km
14	Turn	Medium	26.45532, 84.45341	30 KM/Hr	94.90 km
15	Turn	Medium	26.45786, 84.45187	30 KM/Hr	96.01 km
16	Turn	Medium	26.46826, 84.45151	30 KM/Hr	97.22 km
17	Turn	Medium	26.47200, 84.44729	30 KM/Hr	97.64 km
18	Turn	Medium	26.47264, 84.42872	30 KM/Hr	99.57 km
19	Turn	Medium	26.50660, 84.37772	30 KM/Hr	105.53 km
20	Turn	Medium	26.51189, 84.37592	30 KM/Hr	106.49 km
21	Turn	Medium	26.56221, 84.33563	30 KM/Hr	113.31 km
22	Turn	Medium	26.56408, 84.33331	30 KM/Hr	113.96 km
23	Turn	Medium	26.56440, 84.32879	30 KM/Hr	114.34 km
24	Turn	Medium	26.56104, 84.31960	30 KM/Hr	115.39 km
25	Turn	Medium	26.68651, 84.18653	30 KM/Hr	134.98 km
26	Turn	Medium	26.68842, 84.18334	30 KM/Hr	135.35 km
27	Turn	Medium	26.69045, 84.13533	30 KM/Hr	140.20 km
28	Turn	Medium	26.69843, 83.99048	30 KM/Hr	155.21 km
29	Turn	Medium	26.74178, 83.75263	30 KM/Hr	179.97 km
30	Turn	Medium	26.74544, 83.74129	30 KM/Hr	181.91 km
31	Turn	Medium	26.74034, 83.73470	30 KM/Hr	182.77 km
32	Turn	Medium	26.74505, 83.53160	30 KM/Hr	203.07 km
33	Turn	Medium	26.74392, 83.52999	30 KM/Hr	203.43 km
34	Turn	Medium	26.74638, 83.25051	30 KM/Hr	235.21 km
35	Turn	High	26.75114, 83.22541	15 KM/Hr	237.95 km
36	Turn	Medium	26.75019, 83.22461	30 KM/Hr	238.06 km
37	Turn	High	26.74644, 83.22411	15 KM/Hr	238.51 km
38	Turn	High	26.74536, 83.22731	15 KM/Hr	238.71 km
39	Turn	High	26.73791, 83.22625	15 KM/Hr	239.34 km

Emergency Locations

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

	type	name	coordinates	speed_limit	risk_level	Distance from Start
0	hospital	M.G. Hospital	26.659045, 84.9253213	30 km/h	Medium	14.98 km
3	clinic	Ayush Poly Clinic	26.5776254, 84.9088695	30 km/h	Medium	24.74 km
4	hospital	Sadar Hospital, Gopalganj	26.4607585, 84.447083	30 km/h	Medium	96.45 km

Crowded Spots

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

	type	name	coordinates	speed_limit	risk_level	Distance from Start
1	university	Mahatma Gandhi Central University	26.613663, 84.913021	30 km/h	Medium	19.55 km
2	school	CSDAV School	26.6152767, 84.9084643	30 km/h	Medium	19.55 km

Route Photos of Risky Spots



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 10.85 km
Coordinates: 26.67121, 84.89236



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 13.92 km
Coordinates: 26.66871, 84.92324



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Distance from Start: 15.50 km
Coordinates: 26.65698, 84.93035



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 16.82 km

Coordinates: 26.64235, 84.92677



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 17.94 km

Coordinates: 26.63520, 84.91949



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 25.81 km

Coordinates: 26.56786, 84.90899



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 26.25 km

Coordinates: 26.56563, 84.90783



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Distance from Start: 29.41 km

Coordinates: 26.54841, 84.93334



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 51.83 km

Coordinates: 26.42715, 84.76780



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 57.67 km

Coordinates: 26.37691, 84.76877



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 66.55 km

Coordinates: 26.35486, 84.69617



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 71.82 km

Coordinates: 26.39957, 84.67831



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 87.64 km

Coordinates: 26.42244, 84.52127



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 88.27 km

Coordinates: 26.42443, 84.51915



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 94.90 km

Coordinates: 26.45532, 84.45341



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 96.01 km

Coordinates: 26.45786, 84.45187



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 97.22 km

Coordinates: 26.46826, 84.45151



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 97.64 km

Coordinates: 26.47200, 84.44729



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 99.57 km

Coordinates: 26.47264, 84.42872



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 105.53 km

Coordinates: 26.50660, 84.37772



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 106.49 km

Coordinates: 26.51189, 84.37592



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 113.31 km

Coordinates: 26.56221, 84.33563



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 113.96 km

Coordinates: 26.56408, 84.33331



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 114.34 km

Coordinates: 26.56440, 84.32879



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 115.39 km

Coordinates: 26.56104, 84.31960



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 134.98 km

Coordinates: 26.68651, 84.18653



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 135.35 km

Coordinates: 26.68842, 84.18334



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 155.21 km

Coordinates: 26.69843, 83.99048



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 179.97 km

Coordinates: 26.74178, 83.75263



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 181.91 km

Coordinates: 26.74544, 83.74129



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 182.77 km

Coordinates: 26.74034, 83.73470



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 203.07 km

Coordinates: 26.74505, 83.53160



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 203.43 km

Coordinates: 26.74392, 83.52999



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 235.21 km

Coordinates: 26.74638, 83.25051



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Distance from Start: 237.95 km

Coordinates: 26.75114, 83.22541



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Distance from Start: 238.06 km

Coordinates: 26.75019, 83.22461

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