



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal TO SUMEDHA PRANAV FUELS

#### 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.

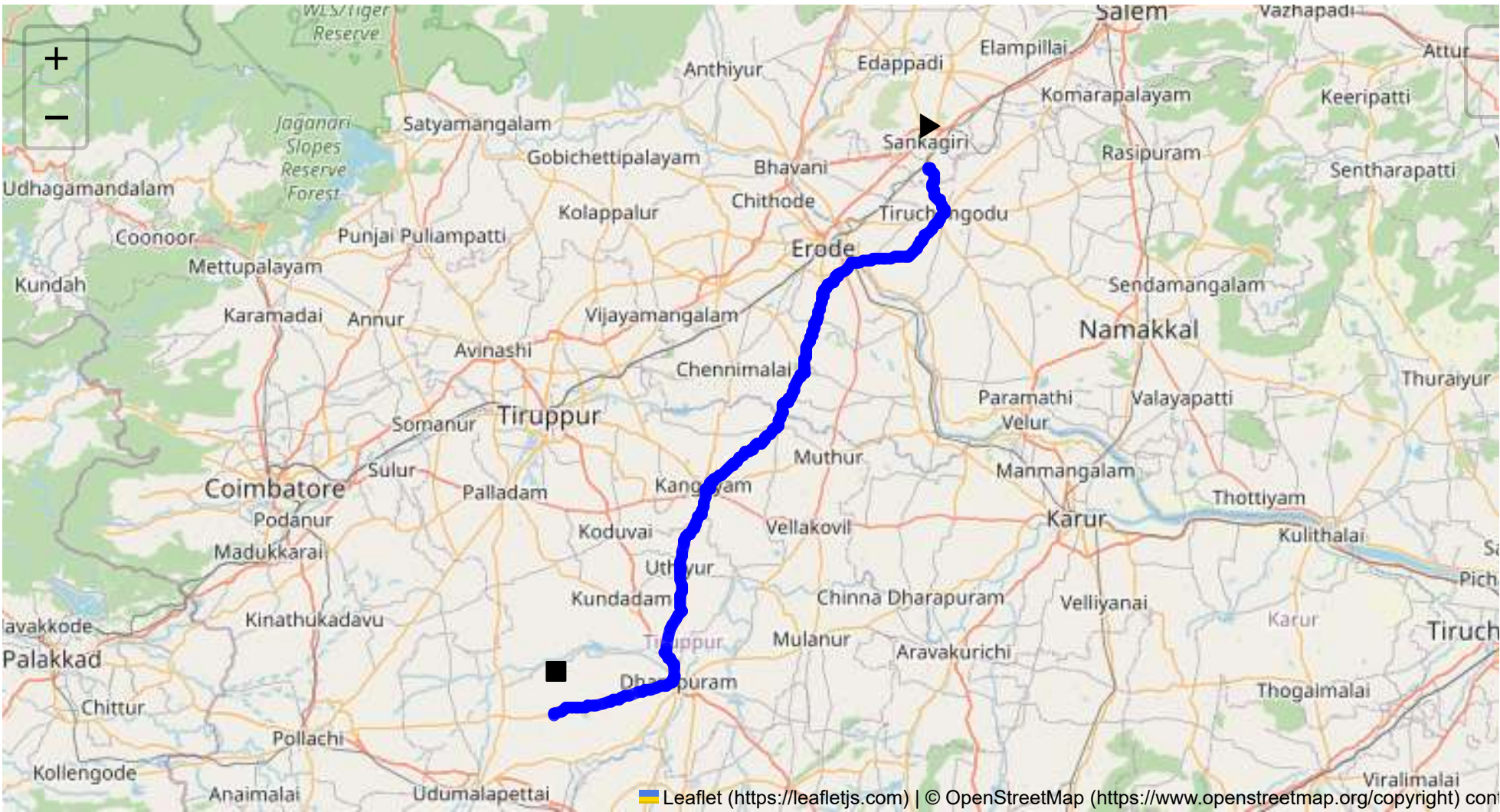
## **Compliance with Government Directives**

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: 121.40 km**  
**Estimated Duration: 2.7 hours**  
**Adjusted Duration (Heavy Vehicle): 3.4 hours**  
**Start: (11.4381, 77.8734)**  
**End: (10.691588, 77.353157)**



**Risk Spots**

	RiskSpotType	Coordinates	Speed Limit	Distance from Start
2	Turn	11.43961, 77.87341	15 KM/Hr	0.08 km
3	Turn	11.44029, 77.87544	15 KM/Hr	0.28 km
4	Turn	11.43111, 77.88170	15 KM/Hr	1.51 km



	RiskSpotType	Coordinates	Speed Limit	Distance from Start
5	Turn	11.39983, 77.88377	15 KM/Hr	5.05 km
6	Turn	11.39706, 77.88825	15 KM/Hr	5.62 km
0	Roundabout	11.38395, 77.89480	15 KM/Hr	7.41 km
7	Turn	11.37868, 77.89498	15 KM/Hr	7.78 km
8	Turn	11.36602, 77.88875	15 KM/Hr	9.44 km
9	Turn	11.33882, 77.86218	15 KM/Hr	13.68 km
10	Turn	11.31747, 77.84240	15 KM/Hr	17.12 km
11	Turn	11.30951, 77.77608	15 KM/Hr	24.37 km
12	Turn	11.31118, 77.77139	15 KM/Hr	24.98 km
13	Turn	11.29473, 77.74685	15 KM/Hr	28.37 km
14	Turn	11.29133, 77.74660	15 KM/Hr	28.73 km
15	Turn	11.28890, 77.74349	15 KM/Hr	29.16 km
16	Turn	11.28558, 77.74271	15 KM/Hr	29.57 km
17	Turn	11.27314, 77.72962	15 KM/Hr	31.59 km
18	Blind Spot	11.27330, 77.72711	10 KM/Hr	31.86 km
19	Turn	11.23090, 77.71808	15 KM/Hr	36.70 km
20	Turn	11.22378, 77.71384	15 KM/Hr	37.46 km
21	Turn	11.15952, 77.70067	15 KM/Hr	45.05 km
22	Turn	11.11943, 77.67799	15 KM/Hr	50.16 km
23	Turn	11.11733, 77.67191	15 KM/Hr	50.95 km
24	Turn	11.10471, 77.67058	15 KM/Hr	52.32 km
25	Turn	11.09508, 77.66612	15 KM/Hr	53.52 km
26	Turn	11.08722, 77.66431	15 KM/Hr	54.36 km
27	Turn	11.08274, 77.65832	15 KM/Hr	55.09 km
28	Turn	11.06187, 77.63939	15 KM/Hr	58.44 km
29	Turn	11.06173, 77.63591	15 KM/Hr	58.73 km
30	Turn	11.00847, 77.56981	15 KM/Hr	68.21 km
31	Blind Spot	11.00058, 77.56882	10 KM/Hr	69.24 km
1	Roundabout	11.00172, 77.56268	15 KM/Hr	69.90 km
32	Turn	10.94900, 77.54681	15 KM/Hr	76.11 km
33	Turn	10.94764, 77.54709	15 KM/Hr	76.37 km
34	Turn	10.93853, 77.53921	15 KM/Hr	77.69 km
35	Turn	10.93703, 77.53642	15 KM/Hr	78.05 km
36	Turn	10.93006, 77.53262	15 KM/Hr	78.91 km

	RiskSpotType	Coordinates	Speed Limit	Distance from Start
37	Turn	10.89465, 77.52809	15 KM/Hr	82.91 km
38	Turn	10.89185, 77.52641	15 KM/Hr	83.30 km
39	Turn	10.83431, 77.52934	15 KM/Hr	89.53 km
40	Turn	10.77602, 77.50716	15 KM/Hr	96.86 km
41	Turn	10.75794, 77.51938	15 KM/Hr	99.21 km
42	Turn	10.73541, 77.51760	15 KM/Hr	101.77 km
43	Turn	10.70325, 77.39803	15 KM/Hr	115.39 km
44	Blind Spot	10.69267, 77.35243	10 KM/Hr	120.69 km

## Emergency Services

	type	name	coordinates	side_of_road
0	hospital	Tiruchengode, Goverment Hospital	11.3903328, 77.8920627	Opposite Side
1	hospital	SPM Medical Centre,Tiruchengode	11.3881331, 77.8931963	Opposite Side
2	clinic	Kongu Nursing Home	11.3783065, 77.8961134	Driver's Side
3	hospital	T.C.A Hospital Tiruchengode	11.3791885, 77.8965774	Driver's Side
4	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	Opposite Side
5	hospital	Tiruchengode Government Hospital	11.37645, 77.89426	Opposite Side
7	hospital	Krishna Hospital, Namakkal	11.3754811, 77.8931817	Opposite Side
8	hospital	Government Hospital	11.2343326, 77.719226	Driver's Side
10	police	Kangeyam Police Station	11.0011411, 77.562688	Opposite Side
13	hospital	J K Hospital	11.0042298, 77.5603345	Opposite Side
15	hospital	Sri Balaji Surya Hospital	10.735518, 77.5185388	Driver's Side
16	hospital	Ramana Hospital, Dharapuram	10.7351092, 77.517107	Driver's Side

## Rest Stops

	type	name	coordinates	side_of_road
6	restaurant	Lijo	11.3805115, 77.8946385	Opposite Side
9	fuel	Hindustan Petroleum	11.001711, 77.565054	Opposite Side
11	restaurant	Hotel Surya Pure Veg	11.0016663, 77.5638487	Opposite Side
12	fuel	Bharat Petroleum	11.0017719, 77.5629134	Driver's Side
14	fuel	Bharat Petroleum	10.9903599, 77.5638924	Opposite Side

	type	name	coordinates	side_of_road
17	restaurant	Amaravathi Lodge	10.7341612, 77.5177641	Driver's Side

## Welcome to the Journey Risk Management Study

### Route Overview

The route spans approximately 121.40 kilometers and navigates through various towns and rural areas in Tamil Nadu. Starting from Sangagiri, the journey proceeds via major points including Puthur, Tiruchengode, Erode, Kangeyam, and Uthiyur, before reaching Munduvelampatti.

### Typical Weather Conditions and Potential Hazards

- Weather Conditions:** Tamil Nadu generally experiences three main seasons: summer (March to May), monsoon (June to September), and winter (October to February). Summers can be extremely hot, while the monsoon season might bring heavy rainfall.
- Potential Hazards:** Heavy rains could cause water-logging and slippery roads, particularly in rural areas. High temperatures during summer may also affect vehicle tire pressure and road conditions.

### Traffic Patterns and Congestion

- Peak Hours:** Typically, traffic congestion peaks during morning (8 AM - 10 AM) and evening (5 PM - 7 PM) as people travel to and from work.
- Congestion-Prone Areas:** Tiruchengode and Erode are likely to experience higher traffic volumes. Market areas and sections near schools might also have slow-moving traffic.

### Road Quality and Infrastructure

- Road Conditions:** The journey involves a mix of highways and rural roads. While national and state highways are generally well-maintained, rural roads may have potholes and uneven surfaces.
- Infrastructure Concerns:** Limited street lighting and lack of proper signage in rural segments could pose a risk, especially during nighttime.

### Alternative Routes

In case of emergencies or obstructions, consider alternative routes through less congested rural roads or by avoiding major town centers. However, these detours may involve longer travel times and more rural road challenges.

### Local Regulations on Hazardous Material Transport

- Transport of hazardous materials is subject to specific regulations in India, including permits and adherence to safety norms.
- Regular checks on permits, documentation, and the condition of the vehicle are crucial to avoid legal issues.

## Historical Incidents

While specific historical data for the route is not readily available, routes passing through rural areas with numerous curves and narrow roads have previously seen incidents involving heavy vehicles, primarily due to overloading or mechanical failures.

## Environmental Considerations and Sensitive Areas

The route passes through some environmentally sensitive rural zones:

- Frequent wildlife crossings in forested areas.
- Agricultural zones require cautious driving to avoid accidents and disturbances, especially during harvest seasons.

## Communication Coverage

- Most urban and highway stretches have adequate mobile coverage.
- Potential communication dead zones in remote rural stretches or in areas with dense vegetation.

## Emergency Response Times

- **Urban stretches:** Reasonably quick emergency response, approximately 20-30 minutes.
- **Rural stretches:** Longer response times, possibly upwards of 45 minutes to an hour, due to limited medical and fire station availability.

## Overall Risk Assessment Summary

- **High-Risk Factors:** Monsoon weather, rural road conditions, and communication dead zones.
- **Medium-Risk Factors:** Urban congestion, adherence to local regulations.
- **Mitigations:** Regular vehicle maintenance, communication planning for dead zones, and careful adherence to driving schedules to avoid peak traffic times.

This risk assessment encourages careful planning and adherence to safety norms to mitigate identified risks effectively when transporting hazardous materials on this route. Regular review and updates of route conditions will also prove beneficial in maintaining the safety of the transport venture.

## Route Photos of Risky Spots





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 0.28 km**

**Coordinates: 11.44029, 77.87544**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 1.51 km**

**Coordinates: 11.43111, 77.88170**





**Risk Type:** Turn  
**Speed Limit:** 15 KM/Hr  
**Distance from Start:** 5.05 km  
**Coordinates:** 11.39983, 77.88377



**Risk Type:** Turn  
**Speed Limit:** 15 KM/Hr  
**Distance from Start:** 5.62 km  
**Coordinates:** 11.39706, 77.88825



**Risk Type:** Roundabout  
**Speed Limit:** 15 KM/Hr  
**Distance from Start:** 7.41 km  
**Coordinates:** 11.38395, 77.89480





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 7.78 km**

**Coordinates: 11.37868, 77.89498**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 9.44 km**

**Coordinates: 11.36602, 77.88875**





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 13.68 km**

**Coordinates: 11.33882, 77.86218**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 17.12 km**

**Coordinates: 11.31747, 77.84240**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 24.37 km**

**Coordinates: 11.30951, 77.77608**





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 24.98 km**

**Coordinates: 11.31118, 77.77139**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 28.37 km**

**Coordinates: 11.29473, 77.74685**





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 28.73 km**

**Coordinates: 11.29133, 77.74660**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 29.16 km**

**Coordinates: 11.28890, 77.74349**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 29.57 km**

**Coordinates: 11.28558, 77.74271**





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 31.59 km**

**Coordinates: 11.27314, 77.72962**



**Risk Type: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Distance from Start: 31.86 km**

**Coordinates: 11.27330, 77.72711**





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 36.70 km**

**Coordinates: 11.23090, 77.71808**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 37.46 km**

**Coordinates: 11.22378, 77.71384**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 45.05 km**

**Coordinates: 11.15952, 77.70067**





**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 50.16 km

**Coordinates:** 11.11943, 77.67799



**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 50.95 km

**Coordinates:** 11.11733, 77.67191





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 52.32 km**

**Coordinates: 11.10471, 77.67058**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 53.52 km**

**Coordinates: 11.09508, 77.66612**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 54.36 km**

**Coordinates: 11.08722, 77.66431**





**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 55.09 km

**Coordinates:** 11.08274, 77.65832



**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 58.44 km

**Coordinates:** 11.06187, 77.63939





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 58.73 km**

**Coordinates: 11.06173, 77.63591**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 68.21 km**

**Coordinates: 11.00847, 77.56981**



**Risk Type: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Distance from Start: 69.24 km**

**Coordinates: 11.00058, 77.56882**





**Risk Type:** Roundabout

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 69.90 km

**Coordinates:** 11.00172, 77.56268



**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 76.11 km

**Coordinates:** 10.94900, 77.54681





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 76.37 km**

**Coordinates: 10.94764, 77.54709**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 77.69 km**

**Coordinates: 10.93853, 77.53921**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 78.05 km**

**Coordinates: 10.93703, 77.53642**





**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 78.91 km

**Coordinates:** 10.93006, 77.53262



**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 82.91 km

**Coordinates:** 10.89465, 77.52809





**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 83.30 km

**Coordinates:** 10.89185, 77.52641



**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 89.53 km

**Coordinates:** 10.83431, 77.52934



**Risk Type:** Turn

**Speed Limit:** 15 KM/Hr

**Distance from Start:** 96.86 km

**Coordinates:** 10.77602, 77.50716





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 99.21 km**

**Coordinates: 10.75794, 77.51938**



**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 101.77 km**

**Coordinates: 10.73541, 77.51760**





**Risk Type: Turn**

**Speed Limit: 15 KM/Hr**

**Distance from Start: 115.39 km**

**Coordinates: 10.70325, 77.39803**



**Risk Type: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Distance from Start: 120.69 km**

**Coordinates: 10.69267, 77.35243**

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