



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal TO S S N AGENCIES

#### 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.

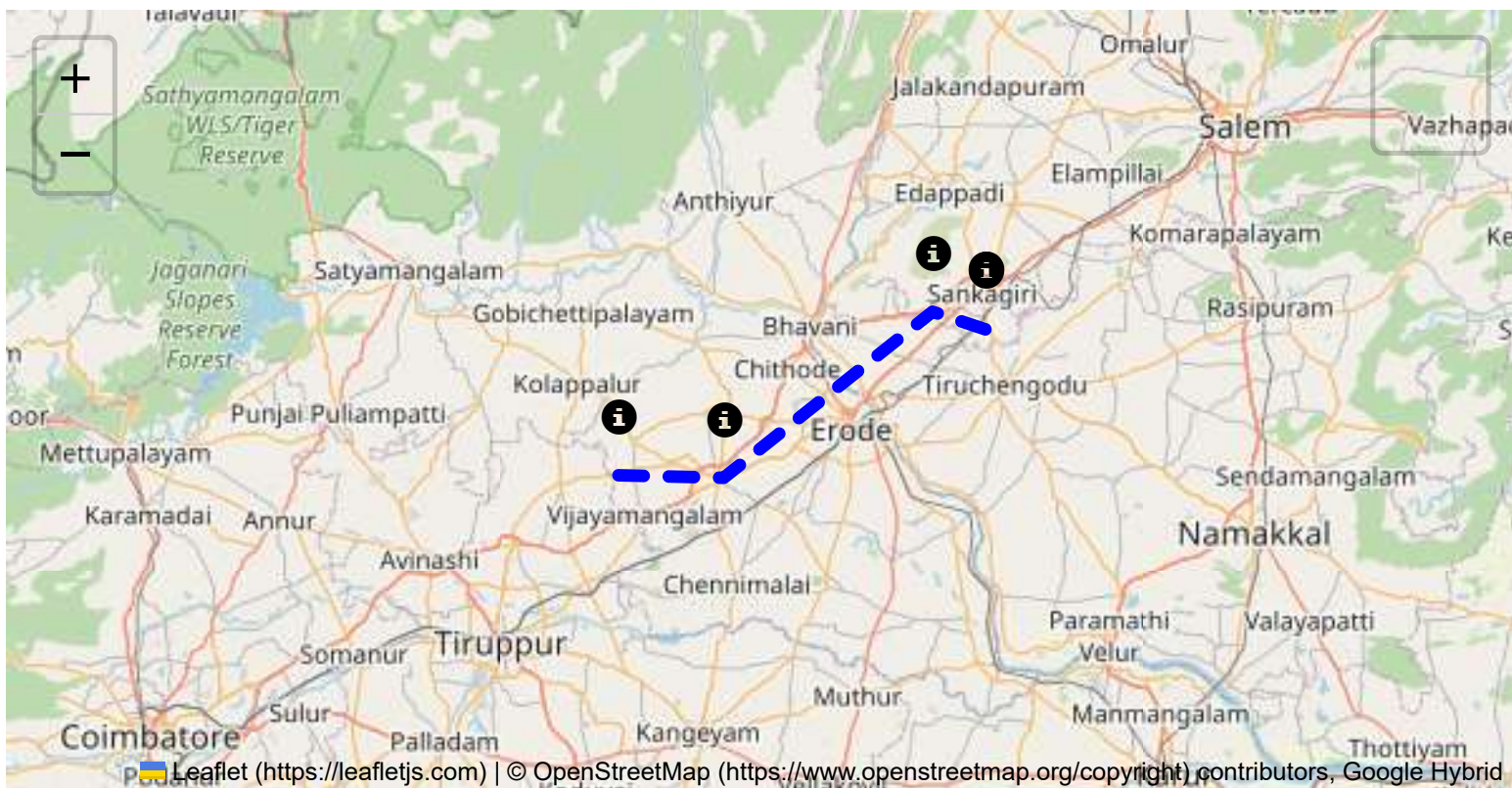
## **Journey Risk Mitigation**

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.

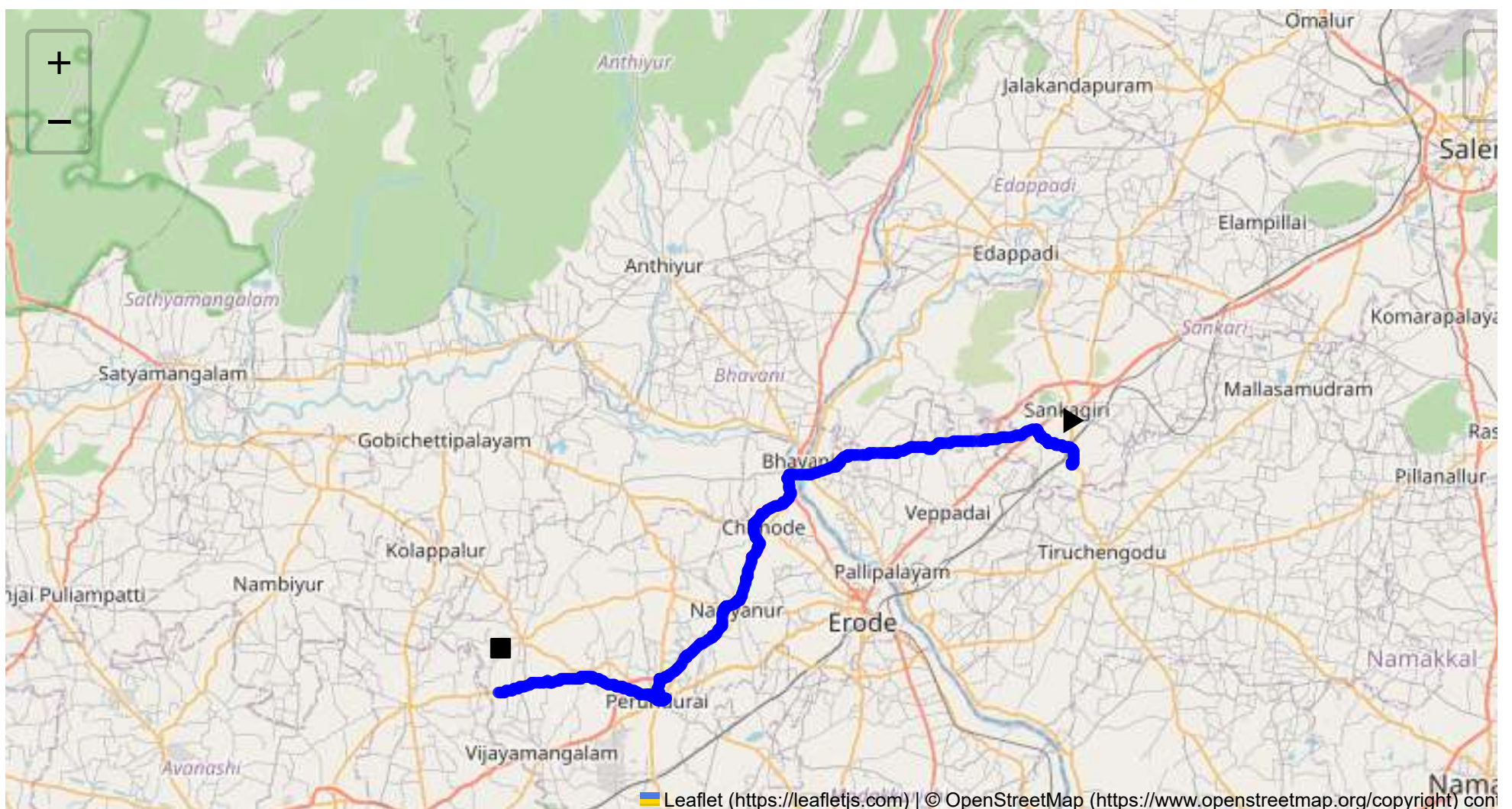
## **Compliance with Government Directives**

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: 60.77 km**  
**Estimated Duration: 1.3 hours**  
**Adjusted Duration (Heavy Vehicle): 1.6 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.28176, 77.472608)**



## Welcome to the Journey Risk Management Study

### Route Safety Analysis

#### 1. Overview of the Route Map

The route from Sangagiri to Perundurai via Puthur and Padaiveedu covers approximately 60.77 kilometers. The primary roads include various state highways and local roads traversing through small



towns and rural areas, which can affect transit times, especially for heavy vehicles.

## 2. Weather Conditions and Potential Hazards

Typical weather in Tamil Nadu consists of a tropical climate with significant rainfall during the monsoon seasons (around June to September and October to December). Potential hazards include heavy rains leading to slippery roads and reduced visibility. Flooding may occur in low-lying areas during peak monsoon times.

## 3. Traffic Patterns

Traffic tends to be heavier on weekdays during morning hours (7:00 AM to 10:00 AM) and late afternoons (5:00 PM to 8:00 PM). Key congestion points include town centers and junctions near Sangagiri and Perundurai. Smaller roads between towns may experience delays due to agricultural machinery or local traffic.

## 4. Road Quality and Infrastructure

Road quality varies, with some well-maintained highways interspersed with narrower, less maintained rural roads. Periodic potholes and uneven surfaces should be expected, particularly after monsoon seasons. Road signage might be sparse in smaller towns, necessitating use of GPS for navigation.

## 5. Alternative Routes for Emergencies

In case of roadblocks, detours via NH544 (Salem-Kochi Highway) are possible, but this may increase travel time significantly. Local routes through surrounding areas can provide alternate paths but may be narrower and less suited for heavy vehicles.

## 6. Local Regulations

Tamil Nadu follows strict regulations on the transport of hazardous materials, including designated transport hours and specific routes for trucks. Compliance with safety standards and acquiring necessary permits is crucial for legal transport.

## 7. Historical Incidents

There have been occasional reports of accidents involving heavy vehicles in the region, often due to speeding, driver fatigue, or mechanical failure rather than hazardous materials themselves. Potholes and narrow roads have been contributing factors.

## 8. Environmental Considerations

Proximity to agricultural land and water bodies necessitates caution to avoid spillage or contamination. Conservation areas are minimal, but local flora and fauna should be preserved by adhering to regulated pathways.

## 9. Communication Coverage

Cellular network coverage is generally good along the route, with potential weak points in rural segments between towns where signal loss might occur.

## 10. Emergency Response Times

Emergency services in urban areas like Perundurai are relatively quick, approximately 20-30 minutes. However, response times in rural settings could extend to 45 minutes or more due to distance and road conditions.

## 11. Overall Summary of Risk Assessment

This route, while traversable for heavy vehicles, poses moderate risks due to weather conditions, road quality, and periodic congestion. Proper planning, adherence to regulations, and remaining updated on weather and traffic conditions will help mitigate these risks significantly. Emergency planning and communication are advisable to ensure safety and compliance for hazardous material transport.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.27925, 77.58494	15 KM/Hr
1	Roundabout	High	11.27732, 77.58658	15 KM/Hr
2	Roundabout	High	11.27718, 77.58674	15 KM/Hr
3	U-Turn	High	11.278222, 77.5896496	10 KM/Hr
4	Turn	Medium	11.43822, 77.87348	30 KM/Hr
5	Turn	High	11.43961, 77.87341	15 KM/Hr
6	Turn	High	11.44029, 77.87544	15 KM/Hr
7	Turn	Medium	11.44893, 77.87413	30 KM/Hr
8	Turn	Medium	11.45127, 77.86734	30 KM/Hr
9	Turn	Medium	11.45354, 77.85798	30 KM/Hr
10	Turn	High	11.45350, 77.85700	15 KM/Hr
11	Turn	Medium	11.45845, 77.85141	30 KM/Hr
12	Turn	Medium	11.46303, 77.84945	30 KM/Hr
13	Turn	Medium	11.46311, 77.84934	30 KM/Hr
14	Turn	High	11.45542, 77.81725	15 KM/Hr
15	Blind Spot	Blind Spot	11.45634, 77.81673	10 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
16	Blind Spot	Blind Spot	11.45543, 77.81740	10 KM/Hr
17	Turn	Medium	11.29288, 77.59030	30 KM/Hr
18	Turn	High	11.29164, 77.58609	15 KM/Hr
19	Blind Spot	Blind Spot	11.27735, 77.58485	10 KM/Hr
20	Blind Spot	Blind Spot	11.27822, 77.58965	10 KM/Hr
21	Turn	Medium	11.27811, 77.58960	30 KM/Hr
22	Turn	Medium	11.29283, 77.53812	30 KM/Hr
23	Turn	Medium	11.29250, 77.53034	30 KM/Hr
24	Turn	Medium	11.29190, 77.52987	30 KM/Hr
25	Turn	Medium	11.28315, 77.48041	30 KM/Hr

## Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Government Hospital	11.4525596, 77.7749426	30 km/h	Medium
4	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium
5	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
6	hospital	J.K.K. Trust Hospital	11.4445841, 77.7307962	30 km/h	Medium
7	hospital	Shri Sathyanarayana Hospital	11.4291297, 77.6913408	30 km/h	Medium
9	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
10	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
11	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
12	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
13	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
14	hospital	Marutham Hospital	11.2796906, 77.5864262	30 km/h	Medium
15	hospital	KMCH Hospital	11.2788797, 77.5848796	30 km/h	Medium
16	hospital	Sakthi Dental Hospital	11.2788566, 77.5849413	30 km/h	Medium
17	clinic	VP Medical Centre & Eye Foundation	11.2784922, 77.5836374	30 km/h	Medium
18	hospital	Santhi Hospital	11.2787879, 77.5872993	30 km/h	Medium
19	pharmacy	Nathan Medicals	11.2773384, 77.5829441	30 km/h	Medium
20	police	Police Station	11.277733, 77.5865812	30 km/h	Medium
21	clinic	Logeshwaran Homeo Clinic	11.277675, 77.583065	30 km/h	Medium
22	hospital	N V Nursing Home	11.2780408, 77.5848735	30 km/h	Medium
23	clinic	Ravi Clinic	11.2768201, 77.5836969	30 km/h	Medium
24	hospital	Sivakumar Hospital	11.2770302, 77.5852952	30 km/h	Medium
25	clinic	Dass Homoeo Clinic	11.2771706, 77.5841177	30 km/h	Medium
26	hospital	Anu Child Care	11.2765928, 77.5848408	30 km/h	Medium
27	clinic	Thulasi Clinic	11.2766687, 77.5869752	30 km/h	Medium
28	clinic	Avm Physiotherapy Clinic	11.2766435, 77.5842715	30 km/h	Medium
29	clinic	Gks Child Clinic	11.2759154, 77.5832766	30 km/h	Medium
30	hospital	Government Hospital, Perundurai	11.2760337, 77.5874483	30 km/h	Medium
31	hospital	Priya Hospital	11.2761, 77.584773	30 km/h	Medium
32	clinic	Sri Amman Clinic	11.275952, 77.5868085	30 km/h	Medium
33	clinic	Sri Clinic	11.27555, 77.586134	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
34	clinic	Sridar Clinic	11.2755095, 77.5861442	30 km/h	Medium
35	clinic	Baby Dental and Poly Clinic	11.2753902, 77.5829593	30 km/h	Medium
36	hospital	Sree Shanthi Hospital	11.2778297, 77.5885653	30 km/h	Medium
37	hospital	Kongu Hospital	11.280273, 77.587989	30 km/h	Medium
38	clinic	Shri Devi Clinic	11.279437, 77.58024	30 km/h	Medium
39	clinic	MNP Nursing Home	11.281438, 77.5739526	30 km/h	Medium
40	hospital	KMCH Hospital	11.2814725, 77.5739302	30 km/h	Medium
41	hospital	Rama Prasad Multispeciality Hospital	11.2794959, 77.5723401	30 km/h	Medium
42	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
43	hospital	IRT Ramalingam Tuberculosis Hospital	11.2828419, 77.5628621	30 km/h	Medium
44	hospital	Sanitorium Hospital	11.2828041, 77.5629626	30 km/h	Medium

### Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	school	KRP Matric. Hr. Sec School	11.4546193, 77.8142445	30 km/h	Medium
1	college	Vivekanandha Engineering College	11.4589312, 77.7899284	30 km/h	Medium
2	marketplace	Monday market	11.452863, 77.775989	30 km/h	Medium
8	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium

### Route Photos of Risky Spots





**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.27925, 77.58494



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.27732, 77.58658





**Risk Type:** Roundabout  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.27718, 77.58674



**Risk Type:** U-Turn  
**Risk Level:** High  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.278222, 77.5896496



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.44029, 77.87544





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.44893, 77.87413



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45127, 77.86734





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45354, 77.85798



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45350, 77.85700



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45845, 77.85141





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.46303, 77.84945



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.46311, 77.84934





**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.45542, 77.81725**



**Risk Type: Blind Spot**

**Risk Level: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Coordinates: 11.45634, 77.81673**



**Risk Type: Blind Spot**

**Risk Level: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Coordinates: 11.45543, 77.81740**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29288, 77.59030



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.29164, 77.58609





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.27735, 77.58485



**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.27822, 77.58965



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.27811, 77.58960





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29283, 77.53812



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29250, 77.53034





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29190, 77.52987



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.28315, 77.48041

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