



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal to SRI SENTHIL MURUGAN AGENCY

#### 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.

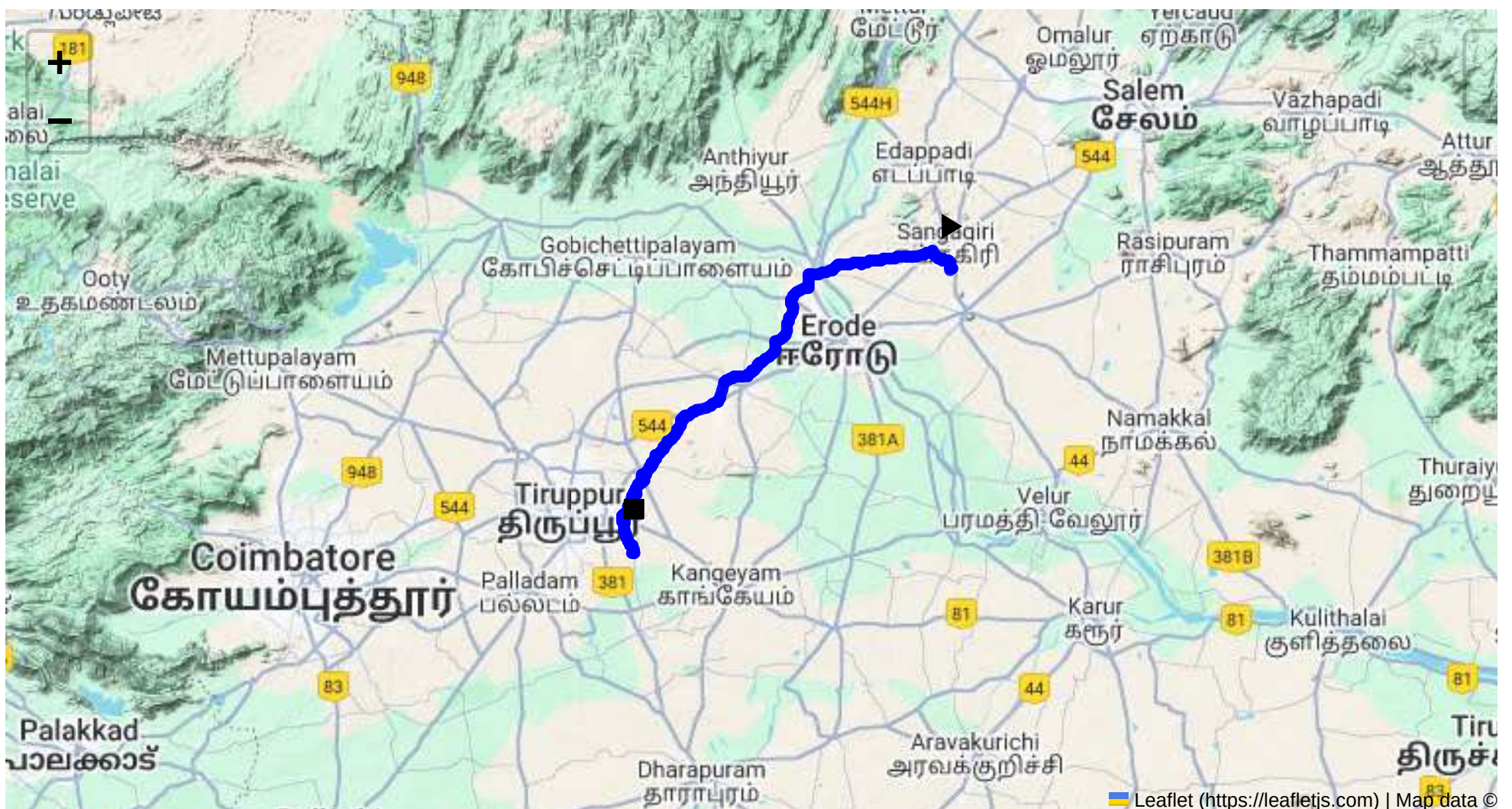
## **Compliance with Government Directives**

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: 83.77 km**  
**Estimated Duration: 1.8 hours**  
**Adjusted Duration (Heavy Vehicle): 2.2 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.0488, 77.429764)**



## Welcome to the Journey Risk Management Study

### Route Overview

The route from CVQF+23W, Sangagiri to 2CXH+GVQ, Koundampalayam generally follows state highways and local roads, covering approximately 83.77 kilometers. This journey typically takes around 1.79 hours for heavy vehicles transporting hazardous materials. Key towns and landmarks along the way include Erode and Tiruppur, where roads may narrow or become congested.



## Weather Conditions

Tamil Nadu generally experiences a tropical climate, with hot summers and heavy rains during the monsoon season (June to September). Hazards include slippery roads during monsoons and reduced visibility during heavy rains. Intense heat in summer months can also affect tire pressure and vehicle performance.

## Traffic Patterns

Traffic tends to be heavier during morning (8-10 AM) and evening (5-8 PM) peak hours, especially around urban areas like Erode and Tiruppur. Congestion is expected near city centers and junctions, particularly on market days or local festivals. Real-time traffic updates should be monitored to avoid delays.

## Road Quality and Infrastructure

The quality of roads varies along the route, with state highways offering better conditions than smaller roads, which may have potholes and uneven surfaces. Road signage is generally adequate, but rural sections may lack sufficient lighting. Regular maintenance can cause occasional lane closures or detours.

## Alternative Routes

In case of emergencies, detouring through NH544 (Salem-Kochi highway) can offer a more direct approach albeit with potentially increased traffic. Consulting local guidance or GPS systems for real-time updates on road conditions is advisable before switching routes.

## Regulations on Hazardous Materials Transport

Local regulations require specific permits for transporting hazardous materials, adherence to safety standards, and clearly marking vehicles. Avoid residential areas and crowded market streets where possible.

## Historical Incidents

While specific historical incidents in the exact route may not be readily available, regional data suggests that road accidents involving heavy vehicles predominantly occur due to overspeeding or inadequate vehicle maintenance. Awareness campaigns and training for drivers help mitigate risks.

## Environmental Considerations

Areas near the Kaveri River and surrounding agricultural lands require cautious navigation to prevent environmental contamination. Avoid spills and ensure all transport containers are secure.

## Communication Coverage

Mobile network coverage along the route is generally strong, except in certain rural sections between major towns where occasional dead zones may occur. Preemptively saving emergency contact numbers and having a GPS with preloaded maps can help bridge communication gaps.

# Emergency Response Times

Response times can range from 20-40 minutes in urban areas to over an hour in rural sections due to road accessibility and traffic conditions. Having a well-documented emergency response plan is crucial for managing incidents effectively.

## Overall Risk Assessment Summary

The route from Sangagiri to Peruntholuvu has variable risks primarily associated with traffic congestion, weather impacts, and inconsistent road quality. Observing traffic rules, monitoring weather conditions, ensuring compliance with local regulations for hazardous material transport, and maintaining open communication are key to reducing potential hazards. Regular training and adherence to safety protocols will significantly aid in minimizing risks along this route.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43968, 77.87345	15 KM/Hr
1	Turn	High	11.44024, 77.87528	15 KM/Hr
2	Turn	High	11.44898, 77.87410	15 KM/Hr
3	Turn	High	11.45352, 77.85698	15 KM/Hr
4	Turn	Medium	11.45847, 77.85140	30 KM/Hr
5	Turn	Medium	11.45898, 77.85135	30 KM/Hr
6	Turn	High	11.46303, 77.84945	15 KM/Hr
7	Turn	Medium	11.45509, 77.81383	30 KM/Hr
8	Turn	Medium	11.44965, 77.77565	30 KM/Hr
9	Turn	Medium	11.44953, 77.77344	30 KM/Hr
10	Turn	Medium	11.45085, 77.77020	30 KM/Hr
11	Turn	Medium	11.43165, 77.67734	30 KM/Hr
12	Turn	Medium	11.23724, 77.50686	30 KM/Hr
13	Turn	High	11.23704, 77.50676	15 KM/Hr
14	Blind Spot	Blind Spot	11.23686, 77.50216	10 KM/Hr
15	Turn	Medium	11.23649, 77.50219	30 KM/Hr
16	Turn	High	11.23396, 77.50105	15 KM/Hr
17	Turn	Medium	11.23287, 77.49934	30 KM/Hr
18	Turn	Medium	11.17851, 77.46169	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
19	Turn	Medium	11.17521, 77.45978	30 KM/Hr
20	Turn	Medium	11.17368, 77.45730	30 KM/Hr
21	Turn	High	11.17082, 77.45520	15 KM/Hr
22	Turn	Medium	11.17048, 77.45544	30 KM/Hr
23	Turn	Medium	11.16706, 77.45494	30 KM/Hr
24	Turn	High	11.15693, 77.44742	15 KM/Hr
25	Turn	High	11.15727, 77.44546	15 KM/Hr
26	Turn	Medium	11.15581, 77.44486	30 KM/Hr
27	Turn	High	11.15553, 77.44454	15 KM/Hr
28	Blind Spot	Blind Spot	11.15600, 77.44208	10 KM/Hr
29	Turn	Medium	11.15034, 77.44341	30 KM/Hr
30	Turn	Medium	11.15010, 77.44365	30 KM/Hr
31	Turn	Medium	11.14996, 77.44489	30 KM/Hr
32	Turn	High	11.14957, 77.44526	15 KM/Hr
33	Turn	High	11.14479, 77.44350	15 KM/Hr
34	Turn	High	11.14514, 77.44111	15 KM/Hr
35	Turn	High	11.14492, 77.44057	15 KM/Hr
36	Turn	High	11.14525, 77.43906	15 KM/Hr
37	Turn	Medium	11.13230, 77.43321	30 KM/Hr
38	Turn	High	11.13163, 77.43254	15 KM/Hr
39	Blind Spot	Blind Spot	11.13022, 77.43358	10 KM/Hr
40	Turn	Medium	11.12977, 77.43230	30 KM/Hr
41	Turn	High	11.12744, 77.43053	15 KM/Hr
42	Turn	High	11.12731, 77.42945	15 KM/Hr
43	Turn	High	11.12638, 77.42910	15 KM/Hr
44	Blind Spot	Blind Spot	11.12638, 77.42801	10 KM/Hr
45	Turn	Medium	11.11413, 77.42446	30 KM/Hr
46	Turn	High	11.10417, 77.42302	15 KM/Hr
47	Turn	Medium	11.10331, 77.41739	30 KM/Hr
48	Turn	High	11.09170, 77.41652	15 KM/Hr
49	Turn	Medium	11.09123, 77.41698	30 KM/Hr
50	Turn	High	11.04942, 77.43192	15 KM/Hr
51	Turn	High	11.04907, 77.42981	15 KM/Hr

## Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium
4	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
5	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
8	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
9	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
10	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
11	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
12	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
14	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
16	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
17	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
19	hospital	Aravind Eye Care Hospital	11.1729469, 77.4574467	30 km/h	Medium
20	clinic	Sri Maha Annai Clinic	11.1707162, 77.4536498	30 km/h	Medium
21	hospital	Ram Doctor Hospital	11.1709391, 77.4532808	30 km/h	Medium
22	clinic	Vasumathi Health Care	11.1576405, 77.4436732	30 km/h	Medium
23	clinic	Jeeva Health Care	11.155934, 77.444441	30 km/h	Medium
24	clinic	Sri Kumaran Clinic	11.155488, 77.443657	30 km/h	Medium
25	clinic	Shobana Clinic	11.1523012, 77.4439668	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
6	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
13	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
15	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
18	college	Sasurie Engineering College	11.2171482, 77.4898552	30 km/h	Medium
26	school	Government Higher Secondary School	11.0462146, 77.4314193	30 km/h	Medium

## Route Photos of Risky Spots



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.44024, 77.87528





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.44898, 77.87410



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.45352, 77.85698





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45847, 77.85140



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45898, 77.85135



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.46303, 77.84945





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45509, 77.81383



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.44965, 77.77565





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.44953, 77.77344



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45085, 77.77020



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.43165, 77.67734





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.23724, 77.50686



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.23704, 77.50676





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.23686, 77.50216



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.23649, 77.50219



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.23396, 77.50105





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.23287, 77.49934



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.17851, 77.46169





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.17521, 77.45978



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.17368, 77.45730



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.17082, 77.45520





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.17048, 77.45544



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.16706, 77.45494





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.15693, 77.44742



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.15727, 77.44546



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.15581, 77.44486





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.15553, 77.44454



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Coordinates:** 11.15600, 77.44208





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.15034, 77.44341



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.15010, 77.44365



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.14996, 77.44489





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.14957, 77.44526



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.14479, 77.44350





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.14525, 77.43906



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.13230, 77.43321



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.13163, 77.43254





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.13022, 77.43358



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.12977, 77.43230





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.12744, 77.43053



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.12731, 77.42945



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.12638, 77.42910





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.12638, 77.42801



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.10417, 77.42302





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.10331, 77.41739



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.09170, 77.41652



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.09123, 77.41698





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.04942, 77.43192



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.04907, 77.42981

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