



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal TO LAKSSHMI OIL 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.

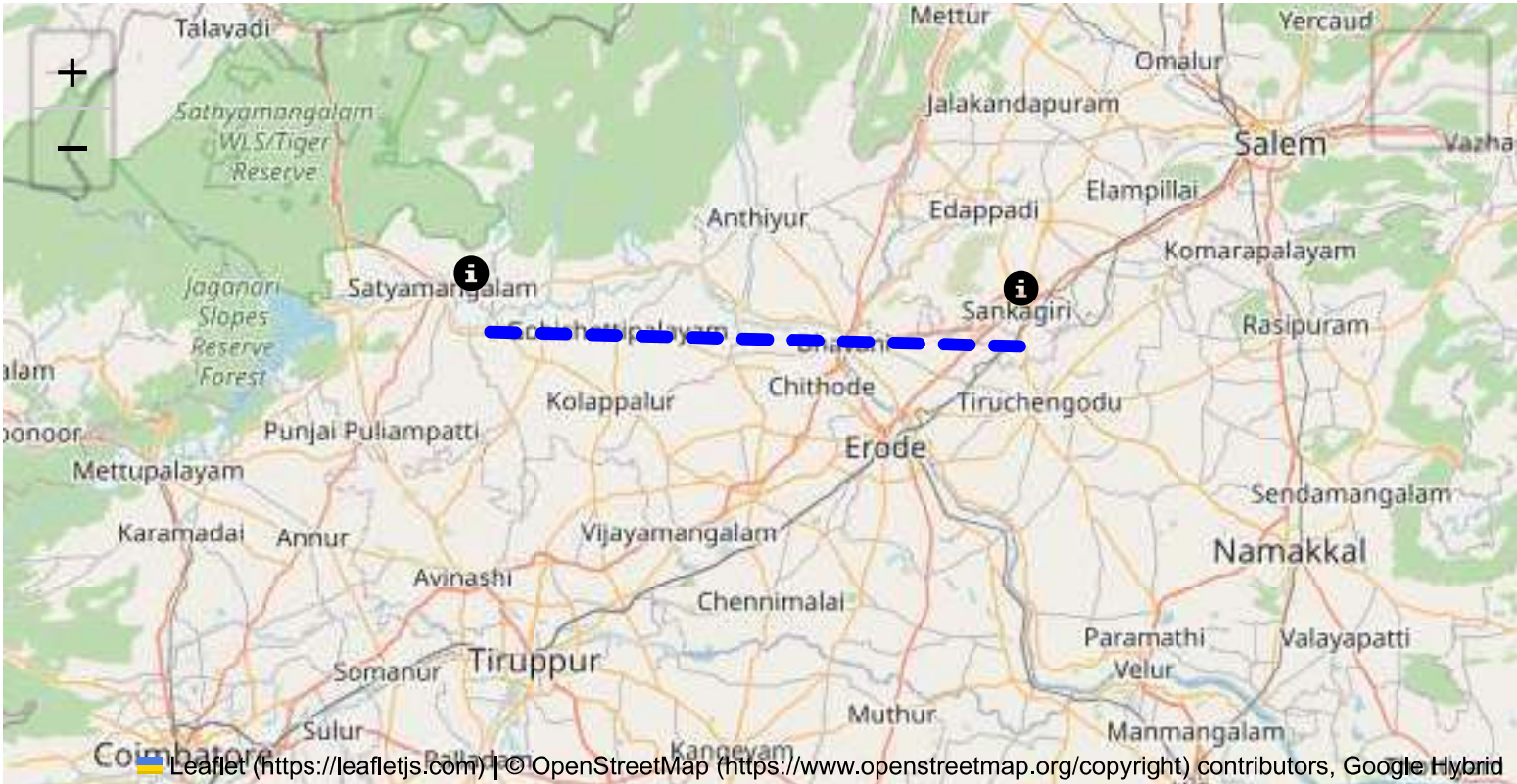
## Journey Risk Mitigation

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.

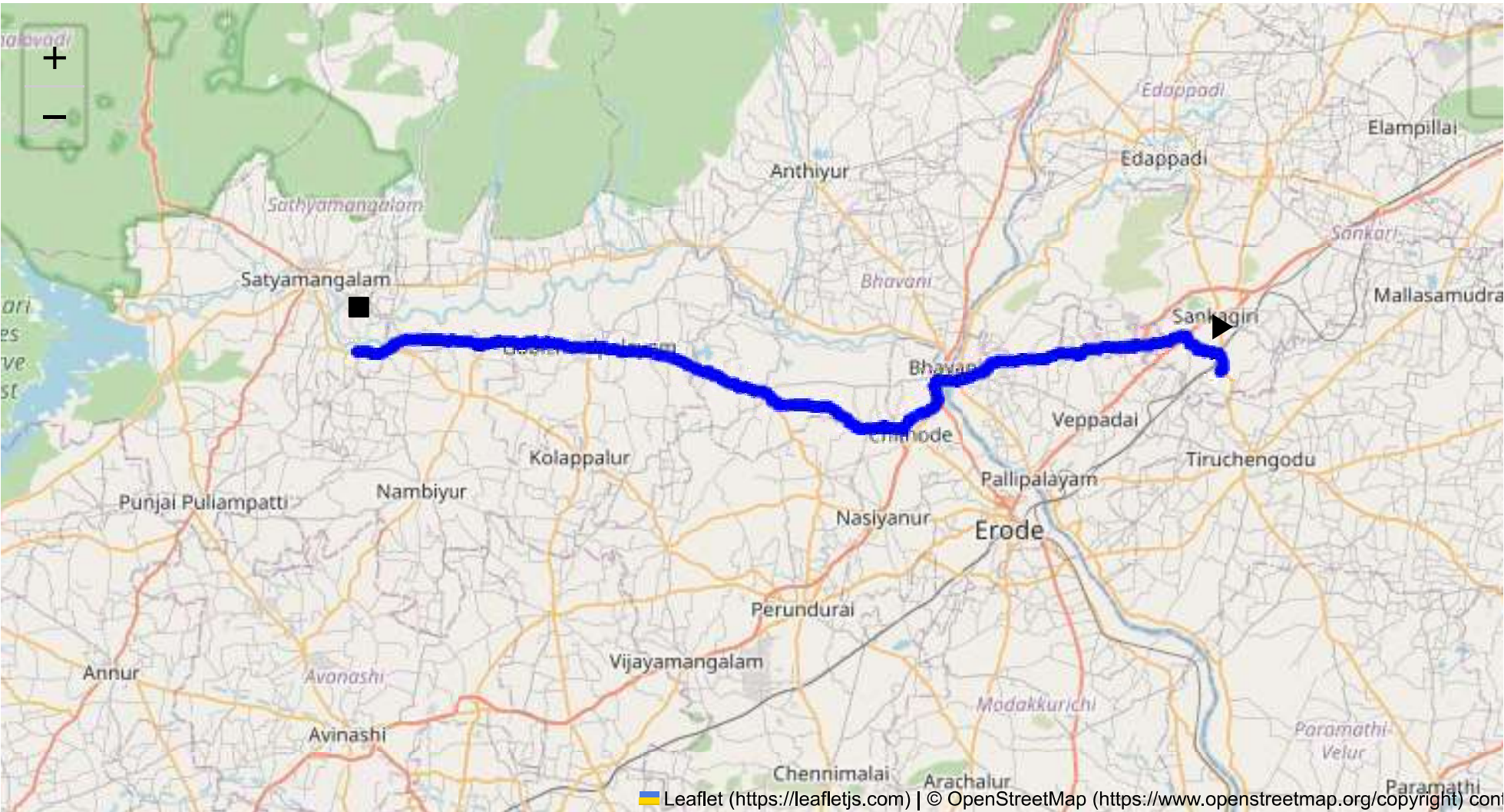
## Compliance with Government Directives

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: 73.07 km**  
**Estimated Duration: 1.5 hours**  
**Adjusted Duration (Heavy Vehicle): 1.8 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.452017, 77.274179)**



Welcome to the Journey Risk Management Study

Route Overview

The route from CVQF+23W, Sangagiri to F72G+V44, Arasur covers about 73.07 kilometers, primarily through SH 15. This highway connects small towns and rural areas, which are common in Tamil Nadu.



# Typical Weather Conditions

Tamil Nadu enjoys a tropical climate:

- **Summer (March to May):** Hot and humid, temperatures can soar above 40°C. Risk of heat-related conditions.
- **Monsoon (June to September):** Heavy rainfall can cause flooding and landslides, affecting road conditions.
- **Winter (November to February):** Mild and relatively dry. Generally favorable for travel.

Potential weather-related hazards include reduced visibility during heavy rains and slippery road surfaces after rainfall.

# Traffic Patterns

- **Peak Hours:** Generally occurs in the morning (7 AM - 10 AM) and evening (5 PM - 8 PM), especially near urban areas.
- **Congestion-Prone Areas:** Traffic tends to build around the outskirts of larger towns. Town centers can also be congested due to narrow roads and market activity.

# Road Quality and Infrastructure

- **Highways (SH 15):** Generally well-maintained but expect occasional potholes and wear in rural sections.
- **Secondary Roads:** Vary in quality. Smaller roads leading into villages might be narrow and have poor signage.

# Alternative Routes for Emergencies

Should SH 15 be unusable, consider:

- Local roads paralleling SH 15 that connect through neighboring villages.
- Consult local traffic advice for open alternative routes during monsoon or roadworks.

# Local Regulations Affecting Hazardous Material Transport

- **Permits Required:** Ensure all transportation permits are secured and current.
- **Vehicle Restrictions:** Adhere to local restrictions on transporting certain hazardous materials through populated areas and during peak hours.
- **Speed Limits:** Follow local signage; typically lower speeds in towns and village entries.

# Historical Incidents

- Historical data on road mishaps involving heavy vehicles in Tamil Nadu suggest that most incidents occur due to speeding, slick roads during monsoons, and driver fatigue.

## Environmental Considerations

- Sensitive Areas:** Be mindful when passing through farming regions and near water bodies, ensuring no contamination arises from spillage.

## Communication Coverage

- Generally good near towns, potential dead zones in remote rural stretches. Satellite phones or RF devices might be required in remote segments.

## Estimated Emergency Response Times

- Urban Centers:** Prompt response, typically within 15-30 minutes.
- Rural Areas:** Longer times, potentially 30-60 minutes, dependent on terrain and road conditions.

## Overall Summary of Risk Assessment

The route poses moderate risks due to weather conditions, potential traffic congestion, and diverse road quality. Transporting hazardous materials adds complexity, requiring adherence to regulations and contingency planning for emergencies. Proper preparation, understanding local conditions, and effective communication are crucial to manage risks along this route.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	Medium	11.43822, 77.87348	30 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44029, 77.87544	15 KM/Hr
3	Turn	High	11.44898, 77.87410	15 KM/Hr
4	Turn	Medium	11.45357, 77.85789	30 KM/Hr
5	Turn	High	11.45352, 77.85698	15 KM/Hr
6	Turn	Medium	11.45847, 77.85140	30 KM/Hr
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46314, 77.84928	30 KM/Hr
9	Turn	Medium	11.45509, 77.81383	30 KM/Hr
10	Turn	High	11.40046, 77.65371	15 KM/Hr
11	Turn	High	11.40035, 77.65383	15 KM/Hr
12	Turn	High	11.39829, 77.65233	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
13	Turn	Medium	11.42079, 77.56127	30 KM/Hr
14	Turn	Medium	11.45748, 77.36608	30 KM/Hr
15	Turn	High	11.45745, 77.36605	15 KM/Hr
16	Turn	High	11.45745, 77.36598	15 KM/Hr
17	Turn	Medium	11.45747, 77.36596	30 KM/Hr
18	Turn	Medium	11.45763, 77.36309	30 KM/Hr
19	Turn	Medium	11.45750, 77.35617	30 KM/Hr
20	Turn	Medium	11.45039, 77.28947	30 KM/Hr
21	Blind Spot	Blind Spot	11.45157, 77.27391	10 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
8	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	hospital	Naarayani Hospital	11.4157401, 77.5773087	30 km/h	Medium
14	hospital	P K Hospital	11.4175923, 77.5640962	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
15	hospital	Dharun Hospital	11.4223638, 77.5597735	30 km/h	Medium
16	hospital	Dr. Ramaswamy Hospital	11.4249065, 77.5535658	30 km/h	Medium
17	hospital	Dakshin Trauma Centre	11.454593, 77.4461819	30 km/h	Medium
18	hospital	Dakshin Hospital	11.4546301, 77.445905	30 km/h	Medium
19	hospital	Sri Varahi Herbal Research Centre and Hospital	11.4539333, 77.4427438	30 km/h	Medium
20	clinic	Germen Homeopathy Clinic	11.4536305, 77.4394692	30 km/h	Medium
21	hospital	JP Hospital	11.454765, 77.438257	30 km/h	Medium
22	hospital	KKS Hospital	11.4551792, 77.4392927	30 km/h	Medium
24	hospital	Kumaran Hospital	11.4533971, 77.4349621	30 km/h	Medium
25	hospital	Siranjeeve Hospitals	11.453132, 77.4344382	30 km/h	Medium
26	clinic	Anandhan Clinic	11.4548037, 77.4349074	30 km/h	Medium
27	hospital	Ramachandran Hospital	11.452242, 77.434641	30 km/h	Medium
28	hospital	Dr. Rathinasamy Hospital	11.457562, 77.4327752	30 km/h	Medium
29	hospital	Gobi Neuro Mind Care	11.4548344, 77.434649	30 km/h	Medium
30	hospital	Hariharan Hospital	11.4523578, 77.4299287	30 km/h	Medium
31	hospital	Vasanth Hospital	11.4526864, 77.4292173	30 km/h	Medium
32	clinic	Jeeva Nursing Home	11.4533031, 77.4294145	30 km/h	Medium
33	hospital	Sathya Hospital	11.4561856, 77.4298694	30 km/h	Medium
34	hospital	S K Hospital	11.4540106, 77.430108	30 km/h	Medium
35	hospital	Sivakami Hospital	11.4531846, 77.4299288	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
36	clinic	Sri Sudha Physiotherapy Clinic	11.4559915, 77.4300217	30 km/h	Medium
37	hospital	Best Hospital	11.4543558, 77.4263617	30 km/h	Medium
38	clinic	Anand Nursing Home	11.4553169, 77.4296248	30 km/h	Medium
39	clinic	Kanmani Child Care Clinic	11.4545273, 77.428668	30 km/h	Medium
40	hospital	Rajasekaran Hospital	11.454463, 77.4262	30 km/h	Medium
41	hospital	Samuel Hospital	11.4542555, 77.4271194	30 km/h	Medium
42	hospital	Sivasakthi Hospital	11.4544711, 77.4297229	30 km/h	Medium
43	hospital	SS Children's Hospital	11.4555386, 77.4296357	30 km/h	Medium
44	clinic	Sri Dhanvantari Siddha Clinic	11.4561216, 77.4295797	30 km/h	Medium
45	hospital	Neha Hospital	11.4560138, 77.4270219	30 km/h	Medium
46	hospital	M.S Children's Hospital	11.4556012, 77.4301006	30 km/h	Medium
47	hospital	Gobi Diabetic Hospital	11.455394, 77.4301181	30 km/h	Medium
48	clinic	Dr. Ramesh Babu Clinic	11.4560871, 77.4296353	30 km/h	Medium
49	hospital	Sankareswari Eye Hospital	11.4572997, 77.428765	30 km/h	Medium
50	hospital	Arun Hospital	11.4548852, 77.4250314	30 km/h	Medium
53	hospital	Government Hospital	11.4565126, 77.4288768	30 km/h	Medium
54	hospital	Sri Chakra Hospital	11.4544464, 77.4228363	30 km/h	Medium
55	hospital	U M Hospital	11.4544151, 77.4240386	30 km/h	Medium
56	hospital	Dr. Gopal Hospital	11.455258, 77.422901	30 km/h	Medium
57	clinic	VG Ortho Centre	11.4550504, 77.4225102	30 km/h	Medium



	type	name	coordinates	speed_limit	risk_level
58	clinic	Palaniappa Clinic	11.4555925, 77.4202828	30 km/h	Medium
59	hospital	Abi SK Hospital	11.457163, 77.412487	30 km/h	Medium
60	clinic	Nalam Vazh S.K Siddha and Varma Clinic	11.457576, 77.412164	30 km/h	Medium
62	clinic	Singiripalayam Natarajan Siddha Ortho Care	11.4603252, 77.3183801	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
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
23	school	Shree Vidyalaya Matric Higher Secondary School	11.4536114, 77.4383163	30 km/h	Medium
51	school	Diamond Jubliee Higher Secondary School	11.4529541, 77.4280306	30 km/h	Medium
52	school	CKK Palaniammal School	11.4569211, 77.4276828	30 km/h	Medium
61	school	Saratha Techno School	11.4544819, 77.379986	30 km/h	Medium
63	school	Saratha International School	11.4541471, 77.3032962	30 km/h	Medium

## Route Photos of Risky Spots





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



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.44898, 77.87410





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45357, 77.85789



**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:** 11.46303, 77.84945



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.46314, 77.84928





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45509, 77.81383



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.40046, 77.65371



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.40035, 77.65383





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.39829, 77.65233



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.42079, 77.56127





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45748, 77.36608



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45745, 77.36605



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45745, 77.36598





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45747, 77.36596



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45763, 77.36309





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45750, 77.35617



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45039, 77.28947



**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.45157, 77.27391



