



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

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#### 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.

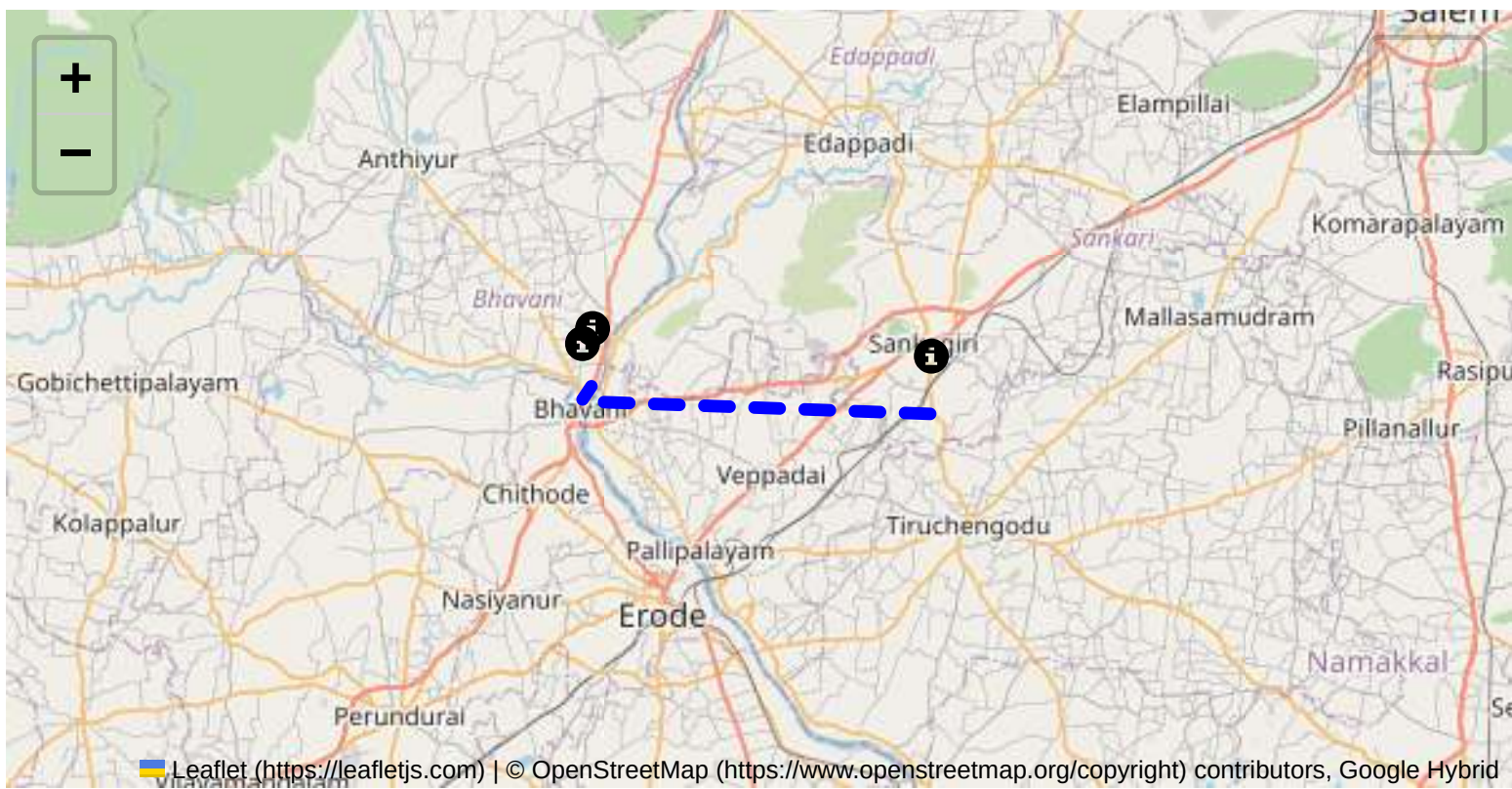
## **Journey Risk Mitigation**

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.

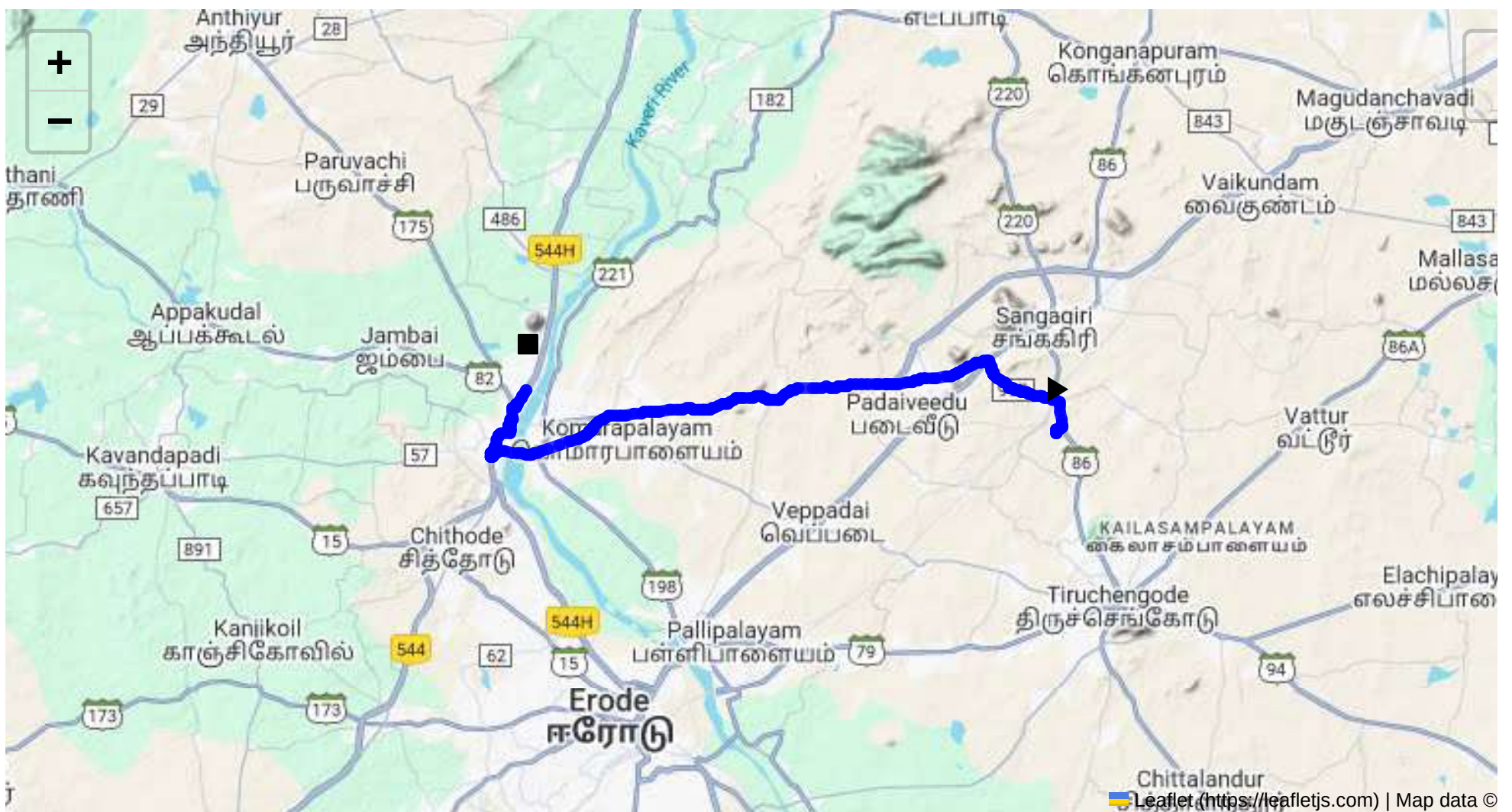
## **Compliance with Government Directives**

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: 28.02 km**  
**Estimated Duration: 0.6 hours**  
**Adjusted Duration (Heavy Vehicle): 0.8 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.453451, 77.687914)**



## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map

The route begins at CVQF+23W, Sangagiri, and proceeds towards Varanapuram in Bhavani, Tamil Nadu, passing through Palanipuram. The journey covers approximately 28.02 kilometers and typically requires around 38 minutes for heavy vehicles carrying hazardous materials. The path mostly follows local and



regional roads, transitioning through different terrains, from semi-urban environments in Sangagiri to more rural settings as it approaches Bhavani.

## 2. Typical Weather Conditions and Potential Weather-Related Hazards

The region experiences a tropical climate. The summer months (April to June) are hot, with temperatures reaching up to 40°C, which can impact road surfaces and increase engine stress. Monsoon season (July to September) brings heavy rainfall, possibly leading to waterlogged roads and reduced visibility. Winter (November to February) is mild, but there can still be early morning fog affecting visibility.

## 3. Analysis of Traffic Patterns

Peak traffic hours are typically from 8:00 AM to 10:00 AM and 5:00 PM to 7:00 PM. Sangagiri and the Bhavani town center may experience congestion during these periods due to local commuters. Agricultural traffic can also increase unpredictably.

## 4. Assessment of Road Quality and Infrastructure

The roads are generally in fair condition, with some segments that may have potholes, particularly after the monsoon. Street lighting is inconsistent, and adequate caution is advised during night travel. Signage clarity is moderate but should be improved, especially in rural areas.

## 5. Suggestions for Alternative Routes for Emergencies

In case of emergencies, consider using alternative routes such as navigating through SH 20 or NH 544, both providing more direct access to emergency services. However, these alternatives might extend travel time and distance.

## 6. Summary of Local Regulations Affecting Hazardous Material Transport

Transport of hazardous materials requires adherence to both state and national transportation guidelines. This includes labeling requirements, speed restrictions, and specific vehicle certifications. Restrictive times for transport, typically excluding peak hours, must be observed.

## 7. Overview of Historical Incidents

While there is limited documentation, reports of vehicular accidents in this area mainly occur due to poor road conditions and visibility issues during monsoon. Past incidents mostly involve local commuter traffic rather than heavy vehicles.

## 8. Environmental Considerations and Sensitive Areas

The route passes near agricultural zones which may involve the presence of slow-moving farm vehicles. Care should be taken to avoid any spillage, especially near water bodies and cultivable lands.

## 9. Analysis of Communication Coverage

The region generally has adequate mobile network coverage, with possible dead zones occurring in more rural stretches, particularly between Palanipuram and Bhavani.

## 10. Estimated Emergency Response Times

Emergency response in urban stretches like Sangagiri and Bhavani is quicker, around 15-20 minutes. In rural stretches between these towns, response times can extend beyond 30 minutes, depending on local availability.

## 12. An Overall Summary of Risk Assessment

The route presents a moderate risk for heavy vehicles transporting hazardous materials, primarily due to variable road quality and weather-related issues. Traffic congestion at certain points adds to the risk, as do potential communication dead zones. Adhering to safety protocols and keeping informed of local weather and traffic updates can significantly mitigate these risks.

Overall, with proper planning and real-time monitoring, this route can be navigated safely by heavy vehicles carrying hazardous materials. Caution should be exercised during the monsoon season, and alternative routes should be planned for potential emergencies.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43811, 77.87348	15 KM/Hr
1	Turn	Medium	11.43956, 77.87340	30 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.44898, 77.87410	30 KM/Hr
5	Turn	Medium	11.45348, 77.85706	30 KM/Hr
6	Turn	Medium	11.45352, 77.85698	30 KM/Hr
7	Turn	Medium	11.46318, 77.84913	30 KM/Hr
8	Turn	Medium	11.45697, 77.82719	30 KM/Hr
9	Turn	High	11.45516, 77.81346	15 KM/Hr
10	Turn	High	11.45521, 77.81343	15 KM/Hr
11	Turn	Medium	11.43994, 77.71111	30 KM/Hr
12	Turn	Medium	11.43982, 77.71084	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
13	Turn	High	11.43001, 77.67575	15 KM/Hr
14	Turn	High	11.43026, 77.67525	15 KM/Hr
15	Turn	Medium	11.43865, 77.68226	30 KM/Hr
16	Turn	Medium	11.43965, 77.68224	30 KM/Hr
17	Turn	High	11.44105, 77.68187	15 KM/Hr
18	Turn	Medium	11.44122, 77.68219	30 KM/Hr
19	Turn	Medium	11.44291, 77.68256	30 KM/Hr
20	Turn	High	11.44300, 77.68275	15 KM/Hr
21	Turn	High	11.44715, 77.68304	15 KM/Hr
22	Turn	Medium	11.44710, 77.68396	30 KM/Hr
23	Turn	Medium	11.44725, 77.68412	30 KM/Hr
24	Turn	Medium	11.44763, 77.68434	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	hospital	Sutha Hospital	11.4365526, 77.6796472	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
14	clinic	Velavan Homoeo Clinic	11.4367087, 77.6761472	30 km/h	Medium
15	hospital	Maha Hospital	11.4372003, 77.6781345	30 km/h	Medium
16	hospital	Jothikumar Hospital	11.43687, 77.678407	30 km/h	Medium
17	hospital	SKMH Hospital	11.4379787, 77.6780268	30 km/h	Medium
18	clinic	Sri Dharshan Diabetes Care	11.437649, 77.6778126	30 km/h	Medium
19	hospital	Kavin Hospital	11.4399114, 77.6838194	30 km/h	Medium
20	clinic	Thangam Acupuncture	11.4418816, 77.6832318	30 km/h	Medium
21	hospital	Sumangali Hospital	11.4427668, 77.6827131	30 km/h	Medium
22	hospital	Annusiya Hospital	11.4432777, 77.6813562	30 km/h	Medium
23	hospital	Kandasamy Hospital	11.4450062, 77.6832304	30 km/h	Medium
24	hospital	Ashok Krishna Hospital	11.4483344, 77.6856579	30 km/h	Medium
25	hospital	Senthil Hospital	11.4475854, 77.6844482	30 km/h	Medium
26	hospital	S.N.A. Siddha Hospital	11.44704, 77.682877	30 km/h	Medium
27	hospital	Shri Mani Hospital	11.44771, 77.6838471	30 km/h	Medium
28	clinic	Sri Hari Clinic	11.4483503, 77.6850963	30 km/h	Medium
29	hospital	Immiaditya Hospital	11.4501276, 77.6836088	30 km/h	Medium
30	hospital	Sri Saravana Hospital	11.4506202, 77.6829676	30 km/h	Medium
31	hospital	Vijay Hospital	11.45091, 77.682019	30 km/h	Medium
32	hospital	Anbe Sivam Hospital	11.4508139, 77.6854947	30 km/h	Medium
33	clinic	JK Skin Clinic	11.4508168, 77.6865545	30 km/h	Medium
34	hospital	Government Hospital	11.45112, 77.682149	30 km/h	Medium
35	hospital	PGR Hospital	11.4512002, 77.687185	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
36	hospital	Ramya Hospital	11.4512773, 77.6870043	30 km/h	Medium
37	clinic	V.S Eye and Dental Care	11.4512557, 77.686801	30 km/h	Medium
38	hospital	Kharthik Hospital	11.4516542, 77.6871221	30 km/h	Medium
39	hospital	Vignesh Hospital	11.4513898, 77.6879679	30 km/h	Medium
40	hospital	Gopikrishnan Eye Hospital	11.451813, 77.687171	30 km/h	Medium
41	clinic	KS Homeo Clinic	11.451398, 77.687344	30 km/h	Medium
42	hospital	Karunya Hospital	11.451637, 77.687949	30 km/h	Medium
43	clinic	Suriyaraja Siddha Health Care	11.45133, 77.686898	30 km/h	Medium
44	hospital	Jaswanth Arun Hospital	11.451794, 77.687216	30 km/h	Medium
45	hospital	Balakrishna Hospital	11.4514522, 77.688074	30 km/h	Medium
46	clinic	Soorya Hospital Maternity and Child Care	11.4517604, 77.6871956	30 km/h	Medium
47	hospital	Adithya Hospital	11.4515977, 77.6864105	30 km/h	Medium
48	hospital	Saraswathi Siddha Hospital	11.451769, 77.6865838	30 km/h	Medium
49	hospital	Sri Balaji Womens Centre	11.4531821, 77.6875979	30 km/h	Medium
50	hospital	Mahaswaran Hospital	11.4519883, 77.6882952	30 km/h	Medium
51	hospital	Lrk Hospital	11.4544553, 77.6889783	30 km/h	Medium
52	hospital	Dr Loganathan Orthopaedic Hospital	11.4554834, 77.6903362	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



	type	name	coordinates	speed_limit	risk_level
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:** 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:** 11.44898, 77.87410





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45348, 77.85706



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.45352, 77.85698





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.46318, 77.84913



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45697, 77.82719



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45516, 77.81346





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.45521, 77.81343



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.43994, 77.71111





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.43982, 77.71084



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.43001, 77.67575



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.43026, 77.67525





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.43865, 77.68226



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.43965, 77.68224





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.44105, 77.68187



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.44122, 77.68219



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.44291, 77.68256





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.44300, 77.68275



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.44715, 77.68304





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.44710, 77.68396



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.44725, 77.68412

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