



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO KARTHIK FUELS IOC DEALER

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

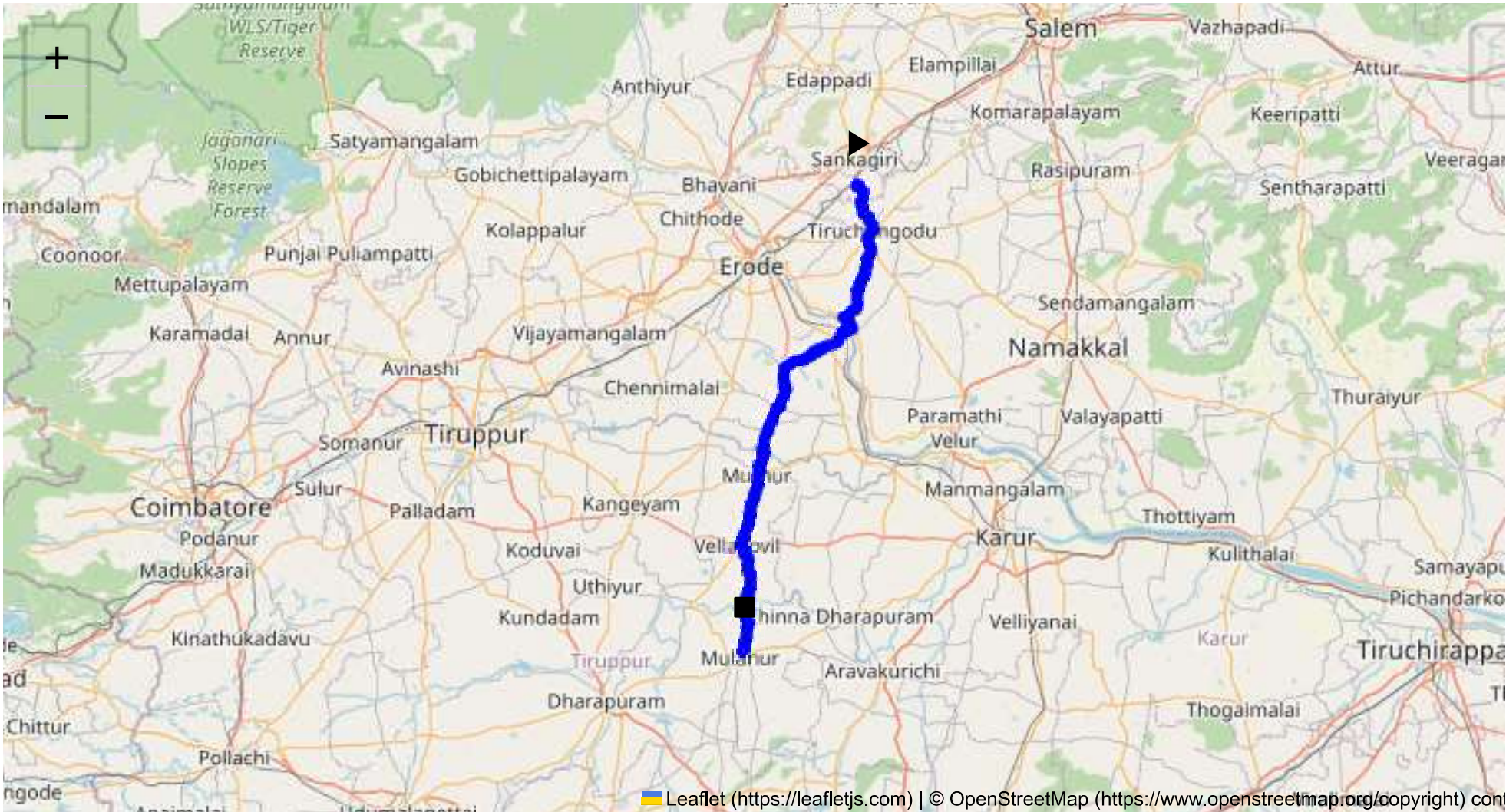
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 84.31 km
Estimated Duration: 2.0 hours
Adjusted Duration (Heavy Vehicle): 2.5 hours
Start: (11.4381, 77.8734)
End: (10.802807, 77.714481)



Welcome to the Journey Risk Management Study

Here's a comprehensive analysis of the route from CVQF+23W, Sangagiri, Tamil Nadu 637301, India to RP37+5X2, Tamil Nadu 638106, India for potential hazards, with considerations for a truck driver transporting hazardous materials:

1. Overview of the Route Map:

- The route stretches approximately 84.31 kilometers and traverses several districts in Tamil Nadu. The journey mainly follows well-maintained highways and local roads, connecting Sangagiri and the designated endpoint with multiple small towns and rural areas in between.

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

- Tamil Nadu, particularly this area, experiences a tropical climate. The primary weather concerns include monsoon rains between October and December, which can lead to waterlogging and flooding, especially on less-developed road sections. During summer months, extreme heat can affect road surfaces.

3. Analysis of Traffic Patterns:

- Traffic tends to be heavier in the morning (7:30 AM to 9:30 AM) and late afternoon (5:00 PM to 7:00 PM) on weekdays, particularly near urban centers and industrial areas. Roads around agricultural zones see increased activity during harvesting season due to tractor and machinery movement.

4. Assessment of Road Quality and Infrastructure:

- Highways in Tamil Nadu are generally well-maintained, but some local roads may have potholes and uneven surfaces. Pay attention to transitions from highways to local roads where the infrastructure quality can abruptly change.

5. Suggestions for Alternative Routes for Emergencies:

- In case of road blockages or emergencies, consider using NH44 as an alternative highway. Also, having a clear understanding of connecting local roads running parallel to the main route could help circumvent congestion or hazards.

6. Summary of Local Regulations Affecting Hazardous Material Transport:

- Transport of hazardous materials is strictly regulated. Ensure compliance with legal load limits and necessary placards. Restricted movement during peak traffic hours is often advised, and specific routes may be designated for certain hazardous materials, requiring special permits.

7. Overview of Historical Incidents:

- Historical data indicates sporadic incidents involving heavy vehicles, mostly attributed to speeding or weather-affected road conditions. There's relatively low incidence of hazardous material accidents, but vigilance and adherence to guidelines remain critical.

8. Environmental Considerations and Sensitive Areas:

- The route passes close to agricultural lands and small water bodies. Protection areas like wildlife sanctuaries might be nearby—strict adherence to environmental regulations is mandatory to prevent contamination from material spills.

9. Analysis of Communication Coverage:

- Generally, the route enjoys good cellular network coverage. However, certain rural or densely vegetated patches might present temporary signal loss. It's important to inform dispatch before entering such zones.

10. Estimated Emergency Response Times:

- In urban or semi-urban segments, emergency services can arrive within approximately 30-45 minutes. In more rural sections, response times may increase to 60 minutes or more due to

distances from service centers.

11. Overall Summary of Risk Assessment:

- This route presents moderate risks primarily via weather conditions and spotty road quality in sections. Adequate preparation and adherence to rules can mitigate most hazards. Maintaining communication and regular vehicle checks, especially concerning brakes and tire conditions, are necessary. Continuous monitoring of weather forecasts and traffic updates will also provide real-time advantages in preventing incidents.

In conclusion, this journey is generally safe with appropriate precautions, yet demands high attention to road and weather conditions, alongside strict adherence to local transport regulations for hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Roundabout	High	11.04637, 77.73761	15 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44022, 77.87546	15 KM/Hr
4	Turn	Medium	11.39976, 77.88382	30 KM/Hr
5	Turn	Medium	11.39690, 77.88852	30 KM/Hr
6	Turn	High	11.33268, 77.88827	15 KM/Hr
7	Turn	Medium	11.33165, 77.88697	30 KM/Hr
8	Turn	High	11.32130, 77.88484	15 KM/Hr
9	Turn	Medium	11.32102, 77.88435	30 KM/Hr
10	Turn	Medium	11.31183, 77.88094	30 KM/Hr
11	Turn	Medium	11.31151, 77.88008	30 KM/Hr
12	Turn	Medium	11.30805, 77.87934	30 KM/Hr
13	Turn	Medium	11.30625, 77.87776	30 KM/Hr
14	Turn	High	11.29763, 77.87710	15 KM/Hr
15	Turn	High	11.29668, 77.87515	15 KM/Hr
16	Turn	Medium	11.29620, 77.87503	30 KM/Hr
17	Turn	High	11.29585, 77.87457	15 KM/Hr
18	Turn	High	11.29549, 77.87464	15 KM/Hr
19	Turn	Medium	11.29417, 77.87309	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
20	Turn	Medium	11.27096, 77.87034	30 KM/Hr
21	Turn	Medium	11.27057, 77.86827	30 KM/Hr
22	Turn	High	11.26028, 77.85633	15 KM/Hr
23	Turn	High	11.25791, 77.85522	15 KM/Hr
24	Turn	Medium	11.25287, 77.86220	30 KM/Hr
25	Turn	Medium	11.24410, 77.86671	30 KM/Hr
26	Turn	High	11.24365, 77.86668	15 KM/Hr
27	Turn	High	11.24100, 77.86030	15 KM/Hr
28	Turn	Medium	11.24196, 77.85902	30 KM/Hr
29	Turn	Medium	11.24193, 77.85850	30 KM/Hr
30	Turn	Medium	11.22478, 77.84241	30 KM/Hr
31	Turn	Medium	11.20949, 77.81173	30 KM/Hr
32	Turn	Medium	11.18875, 77.77206	30 KM/Hr
33	Blind Spot	Blind Spot	11.18861, 77.77108	10 KM/Hr
34	Turn	Medium	11.16466, 77.77354	30 KM/Hr
35	Turn	Medium	11.16321, 77.77438	30 KM/Hr
36	Turn	Medium	11.13693, 77.76539	30 KM/Hr
37	Turn	High	11.04545, 77.73638	15 KM/Hr
38	Turn	High	10.99038, 77.72518	15 KM/Hr
39	Turn	High	10.98970, 77.72385	15 KM/Hr
40	Turn	Medium	10.96614, 77.71685	30 KM/Hr
41	Turn	High	10.94597, 77.71319	15 KM/Hr
42	Turn	High	10.94563, 77.71574	15 KM/Hr
43	Turn	Medium	10.92228, 77.72392	30 KM/Hr
44	Turn	Medium	10.86278, 77.72143	30 KM/Hr
45	Turn	Medium	10.86222, 77.72089	30 KM/Hr
46	Turn	High	10.86158, 77.71764	15 KM/Hr
47	Turn	Medium	10.86061, 77.71708	30 KM/Hr
48	Turn	Medium	10.85657, 77.71762	30 KM/Hr
49	Turn	Medium	10.85577, 77.71832	30 KM/Hr
50	Turn	Medium	10.85507, 77.72021	30 KM/Hr
51	Turn	Medium	10.85412, 77.72083	30 KM/Hr
52	Turn	Medium	10.85112, 77.72068	30 KM/Hr
53	Turn	Medium	10.82112, 77.71888	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
54	Turn	Medium	10.80306, 77.71465	30 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Tiruchengode, Goverment Hospital	11.3903328, 77.8920627	30 km/h	Medium
1	hospital	SPM Medical Centre,Tiruchengode	11.3881331, 77.8931963	30 km/h	Medium
5	clinic	Kongu Nursing Home	11.3783065, 77.8961134	30 km/h	Medium
6	hospital	T.C.A Hospital Tiruchengode	11.3791885, 77.8965774	30 km/h	Medium
7	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	30 km/h	Medium
8	hospital	Tiruchengode Government Hospital	11.37645, 77.89426	30 km/h	Medium
9	hospital	Tirukumaran Hospitals	11.3782118, 77.8914933	30 km/h	Medium
10	hospital	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
13	police	கரட்டுப்பாளையம் காவல் நிலையம்	11.357586, 77.8922539	30 km/h	Medium
14	hospital	Government Hospital, Elumathur	11.18533, 77.772496	30 km/h	Medium
15	hospital	Malar Hospital, Muthur	11.0438049, 77.7361156	30 km/h	Medium
16	hospital	SIBI Hospital, Vellakoil	10.9569141, 77.7160216	30 km/h	Medium
17	hospital	KG Hospital, Vellakoil	10.9511, 77.714116	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	school	அரசு ஆண்கள் மேல்நிலைப் பள்ளி	11.3850439, 77.8948279	30 km/h	Medium
3	school	அரசு பெண்கள் மேல்நிலைப் பள்ளி	11.3844247, 77.8949053	30 km/h	Medium
4	marketplace	திருச்செங்கோடு தினசரி காய்கறி சந்தை	11.3833608, 77.8970145	30 km/h	Medium
11	school	KSR Educational institution	11.3772013, 77.8908807	30 km/h	Medium
12	school	MDV School	11.3719843, 77.8915244	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.38395, 77.89480



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.04637, 77.73761



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44022, 77.87546



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.39976, 77.88382



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.39690, 77.88852



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.33268, 77.88827



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.33165, 77.88697



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.32130, 77.88484



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.32102, 77.88435



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.31183, 77.88094



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.31151, 77.88008



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.30805, 77.87934



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.30625, 77.87776



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.29763, 77.87710



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.27096, 77.87034



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.27057, 77.86827



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.26028, 77.85633



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.25791, 77.85522



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.25287, 77.86220



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.24410, 77.86671



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.24365, 77.86668



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.24100, 77.86030



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.24196, 77.85902



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.24193, 77.85850



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.22478, 77.84241



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20949, 77.81173



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18875, 77.77206



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.18861, 77.77108



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.16466, 77.77354



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.16321, 77.77438



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.13693, 77.76539



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.04545, 77.73638



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.99038, 77.72518



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.98970, 77.72385



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.96614, 77.71685



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.94597, 77.71319



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.94563, 77.71574



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.92228, 77.72392



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.86278, 77.72143



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.86222, 77.72089



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.86158, 77.71764



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.86061, 77.71708



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.85657, 77.71762



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.85577, 77.71832



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.85507, 77.72021



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.85412, 77.72083



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.85112, 77.72068



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.82112, 77.71888



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.80306, 77.71465

