



## **JOURNEY RISK MANAGEMENT (JRM) STUDY**

### **Salem Terminal To SREE PERIYANAYAH AMMAN & CO**

#### **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.

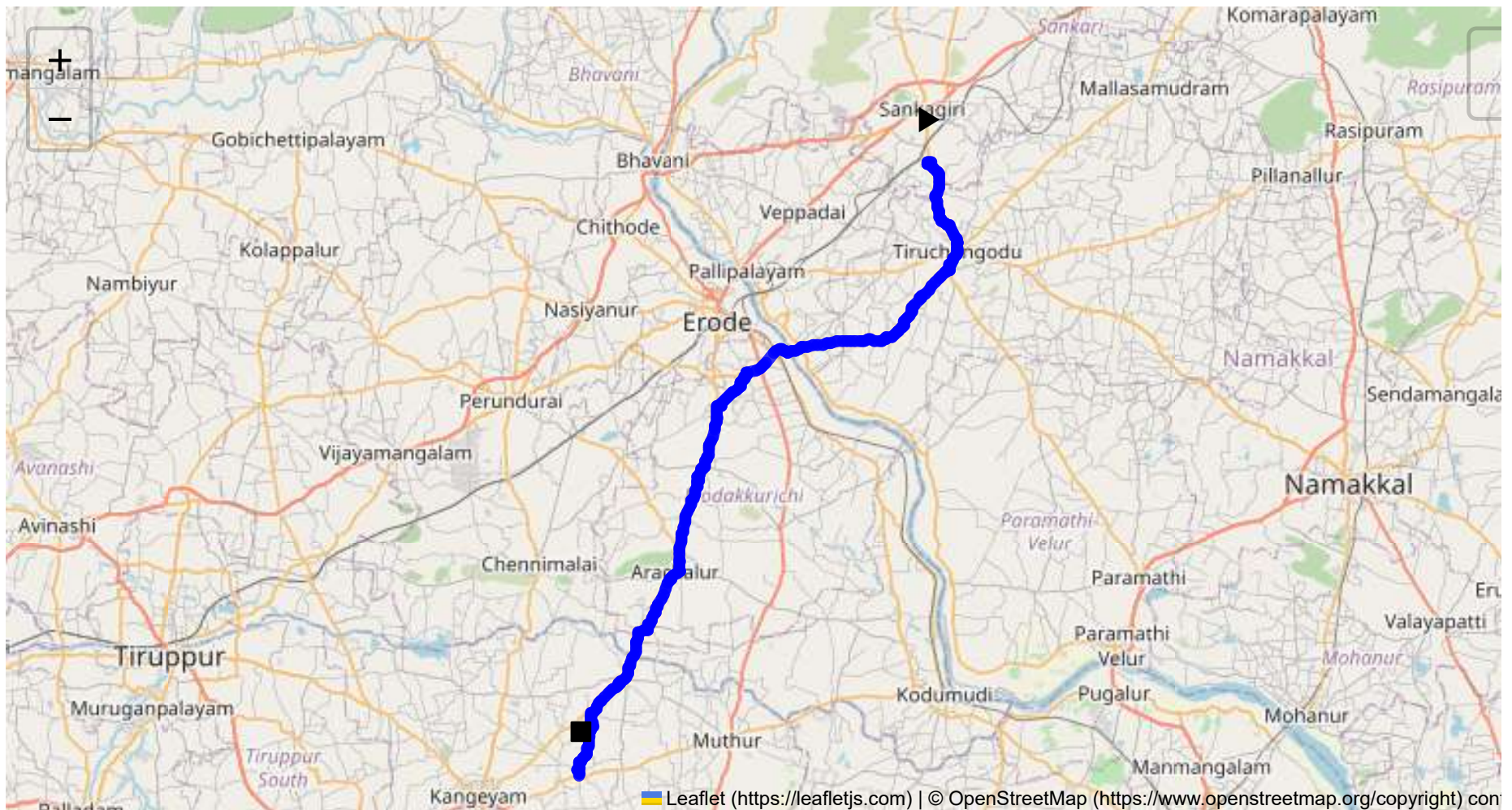
## Compliance with Government Directives

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: 64.13 km**  
**Estimated Duration: 1.6 hours**  
**Adjusted Duration (Heavy Vehicle): 2.0 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.018993, 77.63052)**



## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map:

- The route begins at Sangagiri in Tamil Nadu and passes through Tiruchengode - Paramathi - Velur Road and Valaraigate before reaching Kaspapettai. It ends at the Kangeyam - Muthur Road in Pappini. The total distance is approximately 64.13 kilometers, generally taking about 1.59 hours for heavy vehicles transporting hazardous materials.

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

- Tamil Nadu experiences a tropical climate. From June to September, the monsoon season may bring heavy rains, leading to potential flooding and reduced visibility. Thus, it is important to prepare for slippery roads and potential road closures during the monsoon. Late summer months may see high temperatures, affecting driving conditions due to heat-related vehicle stress.

### 3. Analysis of Traffic Patterns:

- Common areas for congestion include town centers and junctions, particularly during morning (8 AM - 10 AM) and evening (5 PM - 7 PM) peak hours. The road near Tiruchengode and intersections on major roads are particularly prone to traffic bottlenecks.

### 4. Assessment of Road Quality and Infrastructure:

- The primary roads along the route are generally well-paved, but some sections, especially rural stretches, can have potholes or uneven surfaces. Bridges and overpasses are structurally sound but may not accommodate wide loads comfortably.

5. **Suggestions for Alternative Routes for Emergencies:**
  - In case of emergencies, detouring through adjacent state highways or interior roads towards Erode or Salem may provide alternatives. However, these roads can be narrower and less maintained.
6. **Summary of Local Regulations Affecting Hazardous Material Transport:**
  - Transporting hazardous materials is subject to permissions from local transport authorities. Strict adherence to designated timing and routes, usually avoiding peak hours, is crucial. Updated regulatory compliance ensures safety and reduces legal complications.
7. **Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials:**
  - Historical data points to occasional incidents with heavy vehicles due to brake failures on steep roads near Tiruchengode. There are no significant instances of hazardous material-related accidents reported on this specific route.
8. **Environmental Considerations and Sensitive Areas:**
  - Agricultural regions along the route may require minimizing noise and emission levels. Areas near Tiruchengode have water bodies that should be protected from hazardous substances, reinforcing the need for a secure load.
9. **Analysis of Communication Coverage:**
  - Most of the route typically has good mobile network coverage; however, certain rural segments might experience brief dead zones. Communication is reliable near major towns like Tiruchengode.
10. **Estimated Emergency Response Times:**
  - Emergency services in urban centers like Tiruchengode can respond quickly (within 20-30 minutes). In rural and more isolated areas, response times can extend to 45-60 minutes due to challenging accessibility.
11. **Overall Summary of Risk Assessment:**
  - The route is generally safe but influenced by weather and peak traffic conditions. Preparedness for extreme weather, avoiding peak traffic, ensuring vehicle maintenance, and securing loads are critical for safe transit. Alternatives exist but may extend travel time. Effective communication with local transport authorities for emergency situations is paramount to navigate potential hazards efficiently.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Turn	Medium	11.43822, 77.87348	30 KM/Hr
2	Turn	High	11.43961, 77.87341	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
4	Turn	Medium	11.39671, 77.88878	30 KM/Hr
5	Turn	High	11.37862, 77.89488	15 KM/Hr
6	Turn	High	11.37850, 77.89453	15 KM/Hr
7	Turn	Medium	11.36616, 77.88885	30 KM/Hr
8	Turn	Medium	11.36602, 77.88875	30 KM/Hr
9	Turn	Medium	11.34065, 77.86345	30 KM/Hr
10	Turn	Medium	11.33894, 77.86224	30 KM/Hr
11	Turn	Medium	11.33794, 77.86235	30 KM/Hr
12	Turn	Medium	11.31749, 77.84251	30 KM/Hr
13	Turn	Medium	11.30952, 77.77617	30 KM/Hr
14	Turn	Medium	11.31116, 77.77158	30 KM/Hr
15	Turn	Medium	11.30949, 77.76682	30 KM/Hr
16	Turn	High	11.29490, 77.74685	15 KM/Hr
17	Turn	High	11.29133, 77.74660	15 KM/Hr
18	Turn	Medium	11.28844, 77.74319	30 KM/Hr
19	Turn	Medium	11.28558, 77.74271	30 KM/Hr
20	Turn	Medium	11.27326, 77.72991	30 KM/Hr
21	Blind Spot	Blind Spot	11.27330, 77.72711	10 KM/Hr
22	Turn	Medium	11.23054, 77.71796	30 KM/Hr
23	Turn	Medium	11.22387, 77.71385	30 KM/Hr
24	Turn	Medium	11.16078, 77.70122	30 KM/Hr
25	Turn	Medium	11.15953, 77.70067	30 KM/Hr
26	Turn	High	11.15944, 77.70068	15 KM/Hr
27	Turn	Medium	11.11918, 77.67766	30 KM/Hr
28	Turn	Medium	11.11740, 77.67198	30 KM/Hr
29	Turn	Medium	11.10481, 77.67060	30 KM/Hr
30	Turn	Medium	11.09509, 77.66612	30 KM/Hr
31	Turn	Medium	11.08730, 77.66436	30 KM/Hr
32	Turn	Medium	11.08282, 77.65837	30 KM/Hr
33	Turn	Medium	11.06189, 77.63943	30 KM/Hr
34	Turn	High	11.05548, 77.63958	15 KM/Hr
35	Turn	Medium	11.05489, 77.64018	30 KM/Hr
36	Turn	High	11.05269, 77.63996	15 KM/Hr
37	Turn	Medium	11.05274, 77.63875	30 KM/Hr
38	Turn	High	11.05258, 77.63843	15 KM/Hr
39	Turn	Medium	11.05049, 77.63786	30 KM/Hr



	Risk Type	Risk Level	Coordinates	Speed Limit
40	Turn	High	11.05006, 77.63789	15 KM/Hr
41	Turn	High	11.04987, 77.63833	15 KM/Hr
42	Turn	Medium	11.04105, 77.63756	30 KM/Hr
43	Turn	Medium	11.03556, 77.63633	30 KM/Hr
44	Turn	Medium	11.02828, 77.63144	30 KM/Hr
45	Turn	Medium	11.02455, 77.63084	30 KM/Hr
46	Turn	High	11.02361, 77.62995	15 KM/Hr
47	Turn	Medium	11.02185, 77.63044	30 KM/Hr
48	Turn	Medium	11.02140, 77.63028	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	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
10	hospital	Tirukumaran Hospitals	11.3782118, 77.8914933	30 km/h	Medium
13	hospital	Government Hospital	11.2343326, 77.719226	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

	type	name	coordinates	speed_limit	risk_level
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:** 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:** 11.39671, 77.88878



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.37862, 77.89488



**Risk Type:** Turn

**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.37850, 77.89453**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.36616, 77.88885**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.36602, 77.88875**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.34065, 77.86345



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.33894, 77.86224



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.33794, 77.86235**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.31749, 77.84251**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.30952, 77.77617**





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.31116, 77.77158



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.30949, 77.76682



**Risk Type:** Turn  
**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.29490, 77.74685**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.29133, 77.74660**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.28844, 77.74319**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.28558, 77.74271



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.27326, 77.72991



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot



Speed Limit: 10 KM/Hr

Coordinates: 11.27330, 77.72711



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23054, 77.71796



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22387, 77.71385





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.16078, 77.70122



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.15953, 77.70067



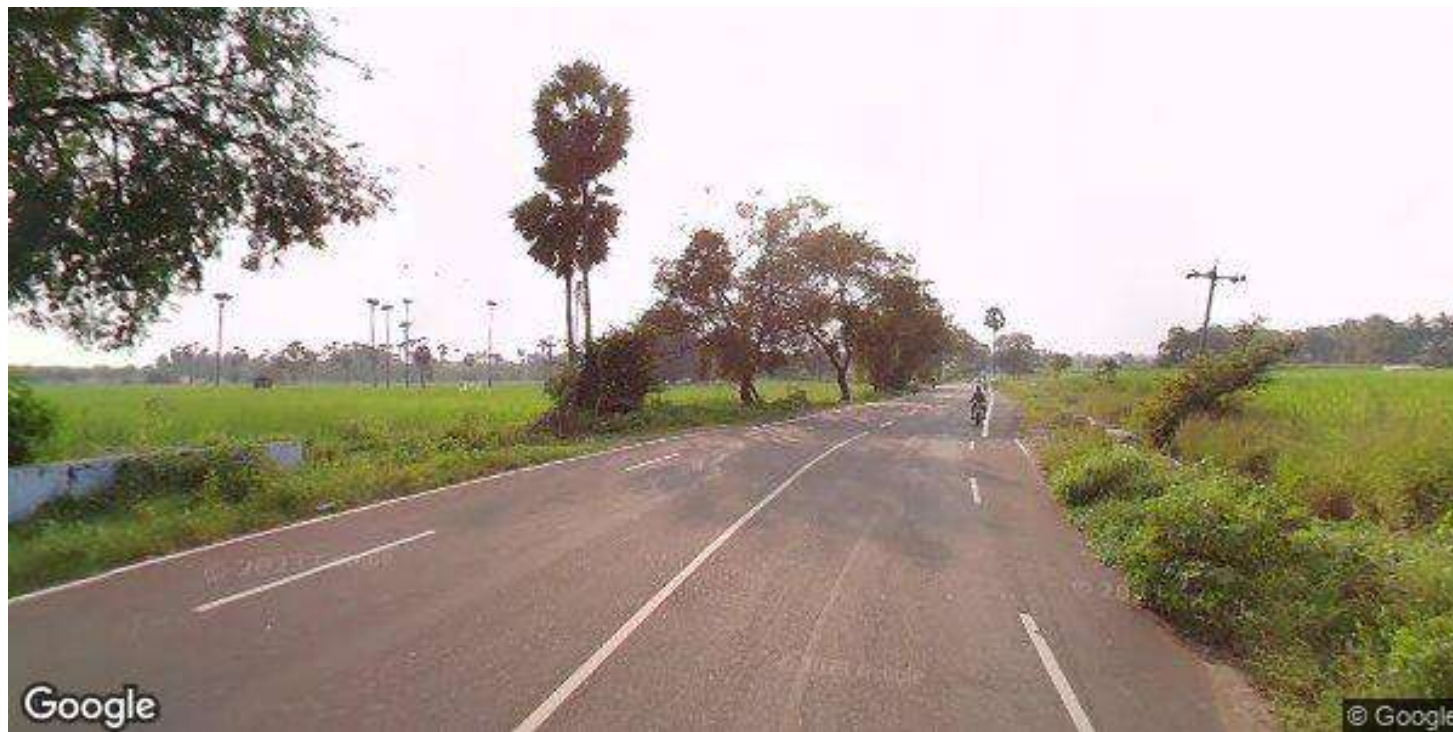
**Risk Type:** Turn

**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.15944, 77.70068**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.11918, 77.67766**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.11740, 77.67198**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.10481, 77.67060



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.09509, 77.66612



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.08730, 77.66436**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.08282, 77.65837**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.06189, 77.63943**





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.05548, 77.63958

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