



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

### **Salem Terminal To SOLIYAMMAN FUELS**

#### **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: 89.36 km**  
**Estimated Duration: 2.2 hours**  
**Adjusted Duration (Heavy Vehicle): 2.8 hours**  
**Start: (11.4381, 77.8734)**  
**End: (10.829768, 77.672957)**



## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map

The route begins at Sangagiri, Tamil Nadu, and proceeds through Morur, Thokkavadi, Anna Nagar, Vendipallayam, and Lakkumanaickenpatti, before reaching the destination at Sky Medi Equipments in Thurambadi. The journey spans approximately 89.36 kilometers along major State Highways and local roads.

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

Tamil Nadu generally experiences tropical weather with hot summers, monsoon rains, and mild winters. The most significant hazards are during the monsoon season (June to September), when heavy rainfall can lead to flooding and reduced visibility. Flash floods might affect low-lying areas along the route, and the risk of slippery roads increases.

### 3. Analysis of Traffic Patterns

- **Peak Hours:** Typically, peak traffic occurs between 8:00 - 10:00 AM and 5:00 - 7:00 PM.
- **Congestion-Prone Areas:**
  - Sangagiri has congestion at local markets and intersections.
  - Erode city area near Vendipallayam is another hot spot.

## 4. Assessment of Road Quality and Infrastructure

The majority of the route consists of State Highways with decent road quality, though certain segments, particularly local roads, may have potholes and require maintenance. Watch for abrupt speed bumps in rural areas, and be cautious around construction zones near urban centers.

## 5. Suggestions for Alternative Routes for Emergencies

- If the primary route is blocked, consider State Highway 20 (SH-20) as an alternative, which runs parallel for part of the route but requires more detailed mapping around major towns to merge back to SH 197.
- Local roads may connect you back to State Highways if detours are needed around smaller towns.

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

Transporting hazardous materials requires adherence to the regulations specified by the Tamil Nadu Pollution Control Board, including proper labeling, following designated timings, and routes for transport. Night travel with hazardous material typically faces stricter scrutiny.

## 7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials

While specific historical data for this route isn't readily available, Tamil Nadu has seen incidents due to poor weather, overloading, and vehicle breakdowns. Pay attention to traffic advisories about known accident-prone areas.

## 8. Environmental Considerations and Sensitive Areas

The route passes close to agricultural fields that require careful navigation to avoid contamination from spills. Be mindful of wildlife crossings near areas with vegetation, especially around Erode.

## 9. Analysis of Communication Coverage

Mobile network coverage is generally robust along State Highways and in urban areas like Erode. However, rural stretches, particularly between Thokkavadi and Lakkumanaickenpatti, may experience coverage gaps. Ensure communication preparedness in these areas.

## 10. Estimated Emergency Response Times for Different Route Segments

- **Urban Areas (e.g., Erode):** Emergency services within 10-15 minutes.
- **Rural Roads:** Emergency response time might extend to 30-45 minutes due to distance.

## 12. Overall Summary of Risk Assessment

The route requires diligence in several areas:

- **Weather:** Monsoon rains and resultant road conditions are major concerns.
- **Traffic:** Anticipate congestion around urban centers, necessitating careful time management.
- **Road Quality:** Varying conditions from highways to rural roads require adaptive speed and alertness.
- **Communication:** Be prepared for potential network gaps. Planning for alternate routes and being aware of local regulations will contribute to safer transport of hazardous materials. Regular updates on weather and traffic conditions should be monitored closely.

## Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.32363, 77.74925	15 KM/Hr
1	Roundabout	High	11.32077, 77.75128	15 KM/Hr
2	Roundabout	High	11.04637, 77.73761	15 KM/Hr
3	U-Turn	High	11.3654832, 77.841826	10 KM/Hr
4	Turn	High	11.43961, 77.87341	15 KM/Hr
5	Turn	High	11.44029, 77.87544	15 KM/Hr
6	Turn	High	11.41981, 77.88078	15 KM/Hr
7	Turn	Medium	11.42122, 77.87674	30 KM/Hr
8	Turn	High	11.42259, 77.87640	15 KM/Hr
9	Turn	High	11.42328, 77.87404	15 KM/Hr
10	Turn	High	11.42140, 77.87364	15 KM/Hr
11	Turn	Medium	11.41916, 77.87116	30 KM/Hr
12	Turn	High	11.41917, 77.87022	15 KM/Hr
13	Turn	Medium	11.41614, 77.86675	30 KM/Hr
14	Turn	High	11.39370, 77.85502	15 KM/Hr
15	Turn	Medium	11.39323, 77.85539	30 KM/Hr
16	Turn	High	11.39049, 77.85504	15 KM/Hr
17	Turn	High	11.39076, 77.85379	15 KM/Hr
18	Turn	Medium	11.38652, 77.85255	30 KM/Hr
19	Turn	Medium	11.38591, 77.85279	30 KM/Hr
20	Turn	High	11.38243, 77.85180	15 KM/Hr
21	Turn	High	11.38195, 77.85225	15 KM/Hr
22	Turn	Medium	11.37389, 77.84760	30 KM/Hr
23	Turn	High	11.37017, 77.84376	15 KM/Hr
24	Turn	High	11.36564, 77.84272	15 KM/Hr
25	Blind Spot	Blind Spot	11.36548, 77.84183	10 KM/Hr



	Risk Type	Risk Level	Coordinates	Speed Limit
26	Turn	Medium	11.36564, 77.84200	30 KM/Hr
27	Blind Spot	Blind Spot	11.36523, 77.84580	10 KM/Hr
28	Turn	High	11.36582, 77.84588	15 KM/Hr
29	Turn	High	11.36595, 77.84553	15 KM/Hr
30	Turn	High	11.36633, 77.84536	15 KM/Hr
31	Blind Spot	Blind Spot	11.36687, 77.84313	10 KM/Hr
32	Turn	High	11.36564, 77.84272	15 KM/Hr
33	Turn	High	11.35069, 77.76238	15 KM/Hr
34	Turn	Medium	11.34808, 77.76247	30 KM/Hr
35	Turn	High	11.34620, 77.75861	15 KM/Hr
36	Turn	Medium	11.34539, 77.75863	30 KM/Hr
37	Turn	High	11.33521, 77.76227	15 KM/Hr
38	Turn	Medium	11.32602, 77.75052	30 KM/Hr
39	Turn	Medium	11.32674, 77.74837	30 KM/Hr
40	Turn	High	11.32647, 77.74742	15 KM/Hr
41	Turn	High	11.32609, 77.74727	15 KM/Hr
42	Turn	Medium	11.18935, 77.77078	30 KM/Hr
43	Turn	Medium	11.16417, 77.77367	30 KM/Hr
44	Turn	High	11.16362, 77.77432	15 KM/Hr
45	Turn	Medium	11.13693, 77.76539	30 KM/Hr
46	Turn	Medium	11.04712, 77.73743	30 KM/Hr
47	Turn	Medium	11.04598, 77.73682	30 KM/Hr
48	Turn	Medium	11.04545, 77.73638	30 KM/Hr
49	Turn	High	10.99038, 77.72518	15 KM/Hr
50	Turn	High	10.98970, 77.72385	15 KM/Hr
51	Turn	Medium	10.96614, 77.71685	30 KM/Hr
52	Turn	High	10.94597, 77.71319	15 KM/Hr
53	Turn	High	10.94582, 77.71257	15 KM/Hr
54	Turn	High	10.93834, 77.70347	15 KM/Hr
55	Turn	High	10.87243, 77.64972	15 KM/Hr
56	Turn	High	10.87207, 77.64474	15 KM/Hr
57	Turn	Medium	10.87110, 77.64415	30 KM/Hr
58	Turn	High	10.86208, 77.64439	15 KM/Hr
59	Turn	Medium	10.86267, 77.64846	30 KM/Hr
60	Turn	Medium	10.86249, 77.64934	30 KM/Hr
61	Turn	Medium	10.85889, 77.65976	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
62	Turn	Medium	10.85766, 77.66133	30 KM/Hr
63	Turn	Medium	10.85239, 77.66340	30 KM/Hr
64	Turn	Medium	10.85059, 77.66579	30 KM/Hr
65	Turn	Medium	10.84610, 77.66596	30 KM/Hr

## Emergency Locations

	type	name	coordinates	speed_limit	risk_level
1	hospital	Government Hospital Kadachanallur	11.36702, 77.804315	30 km/h	Medium
2	hospital	Keerthana Hospital	11.2365339, 77.7772287	30 km/h	Medium
3	hospital	Nataraj Nursing Home	11.2351682, 77.7785956	30 km/h	Medium
4	hospital	Government Hospital, Elumathur	11.18533, 77.772496	30 km/h	Medium
5	hospital	Malar Hospital, Muthur	11.0438049, 77.7361156	30 km/h	Medium
6	hospital	SIBI Hospital, Vellakoil	10.9569141, 77.7160216	30 km/h	Medium
7	hospital	KG Hospital, Vellakoil	10.9511, 77.714116	30 km/h	Medium
8	hospital	Vellakoil Government Hospital	10.9410661, 77.7110372	30 km/h	Medium

## Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	college	K. S. Rangasamy College of Technology	11.3587246, 77.8278764	30 km/h	Medium

## Route Photos of Risky Spots





**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.32363, 77.74925



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.32077, 77.75128



**Risk Type:** Roundabout

**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.04637, 77.73761**



**Risk Type: U-Turn**

**Risk Level: High**

**Speed Limit: 10 KM/Hr**

**Coordinates: 11.3654832, 77.841826**



**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:** 11.41981, 77.88078



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.42328, 77.87404



**Risk Type:** Turn

**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.41917, 77.87022**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.41614, 77.86675**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.39370, 77.85502**





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.39323, 77.85539



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.39049, 77.85504



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



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.39076, 77.85379**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.38652, 77.85255**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.38591, 77.85279**





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.38243, 77.85180



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.38195, 77.85225



**Risk Type:** Turn  
**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.37389, 77.84760**

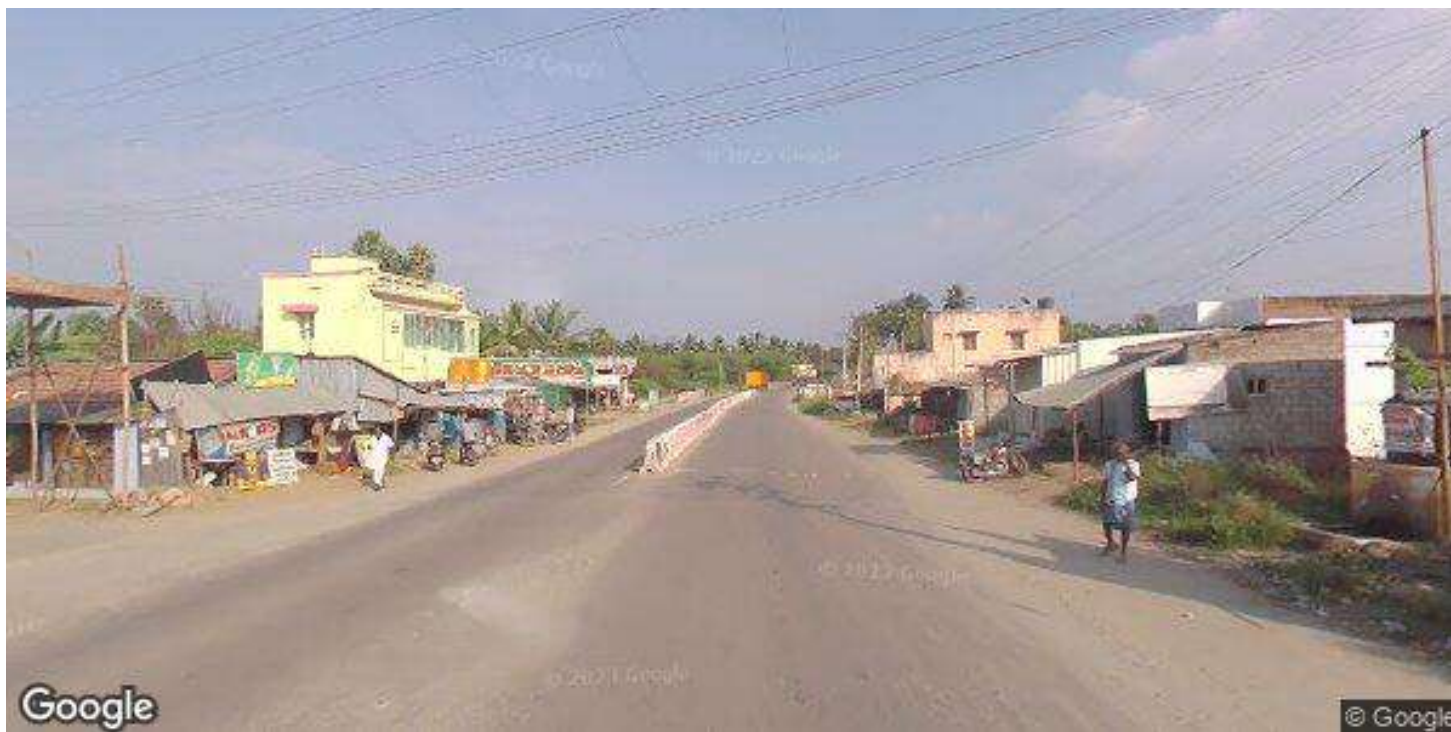


**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.37017, 77.84376**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.36564, 77.84272**





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.36548, 77.84183



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.36564, 77.84200



**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot



**Speed Limit: 10 KM/Hr**

**Coordinates: 11.36523, 77.84580**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.36582, 77.84588**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.36595, 77.84553**





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.36633, 77.84536



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Coordinates:** 11.36687, 77.84313



**Risk Type:** Turn

**Risk Level:** High



Speed Limit: 15 KM/Hr

Coordinates: 11.36564, 77.84272



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.35069, 77.76238



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34808, 77.76247





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.34620, 77.75861



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.34539, 77.75863



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



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.33521, 77.76227**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.32602, 77.75052**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.32674, 77.74837**



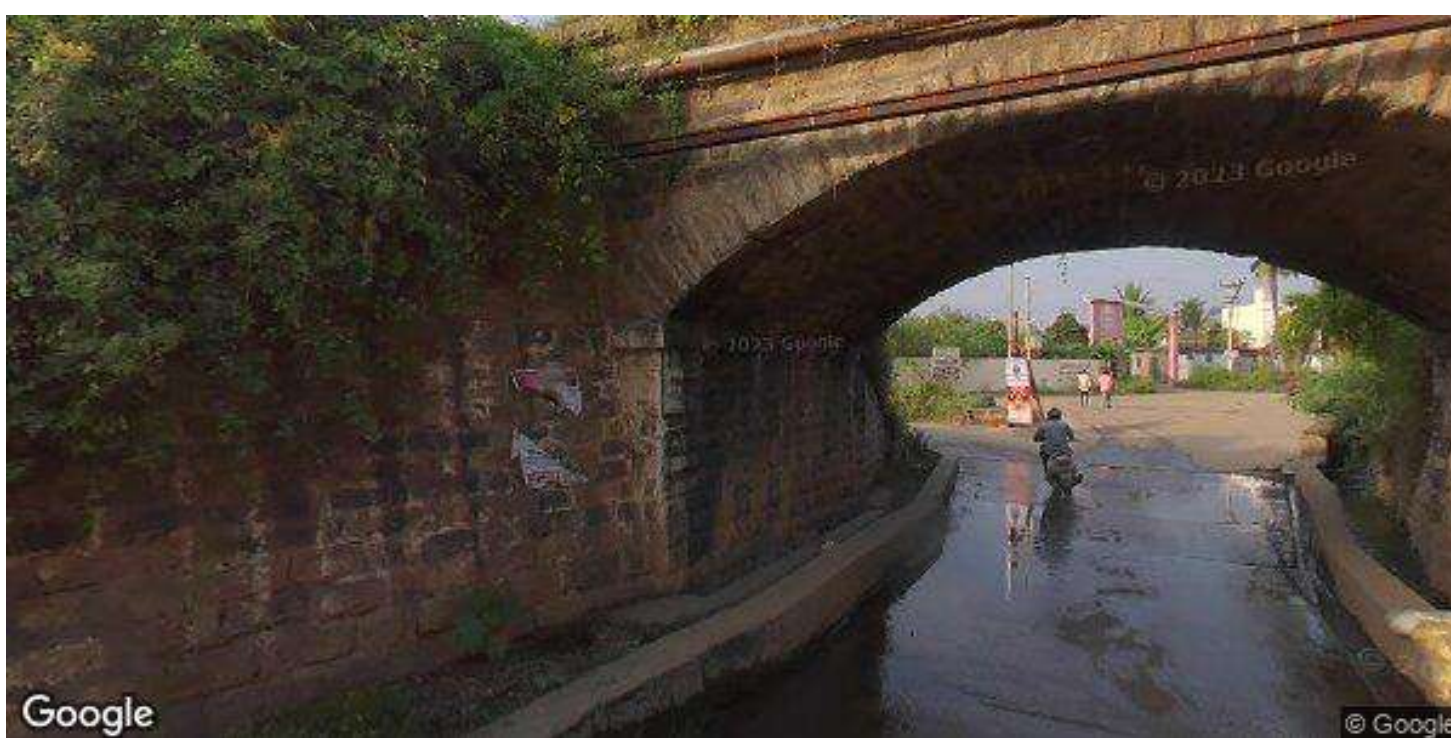


**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.32647, 77.74742



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.32609, 77.74727



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.18935, 77.77078**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.16417, 77.77367**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.16362, 77.77432**





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



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.04712, 77.73743



**Risk Type:** Turn  
**Risk Level:** Medium



Speed Limit: 30 KM/Hr

Coordinates: 11.04598, 77.73682



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 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: 10.94582, 77.71257



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.93834, 77.70347





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.87243, 77.64972



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.87207, 77.64474



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 10.87110, 77.64415**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 10.86208, 77.64439**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 10.86267, 77.64846**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.86249, 77.64934



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.85889, 77.65976



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 10.85766, 77.66133**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 10.85239, 77.66340**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 10.85059, 77.66579**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.84610, 77.66596

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