



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal TO ERODE PRECISION FARM PRODUCER

#### 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.

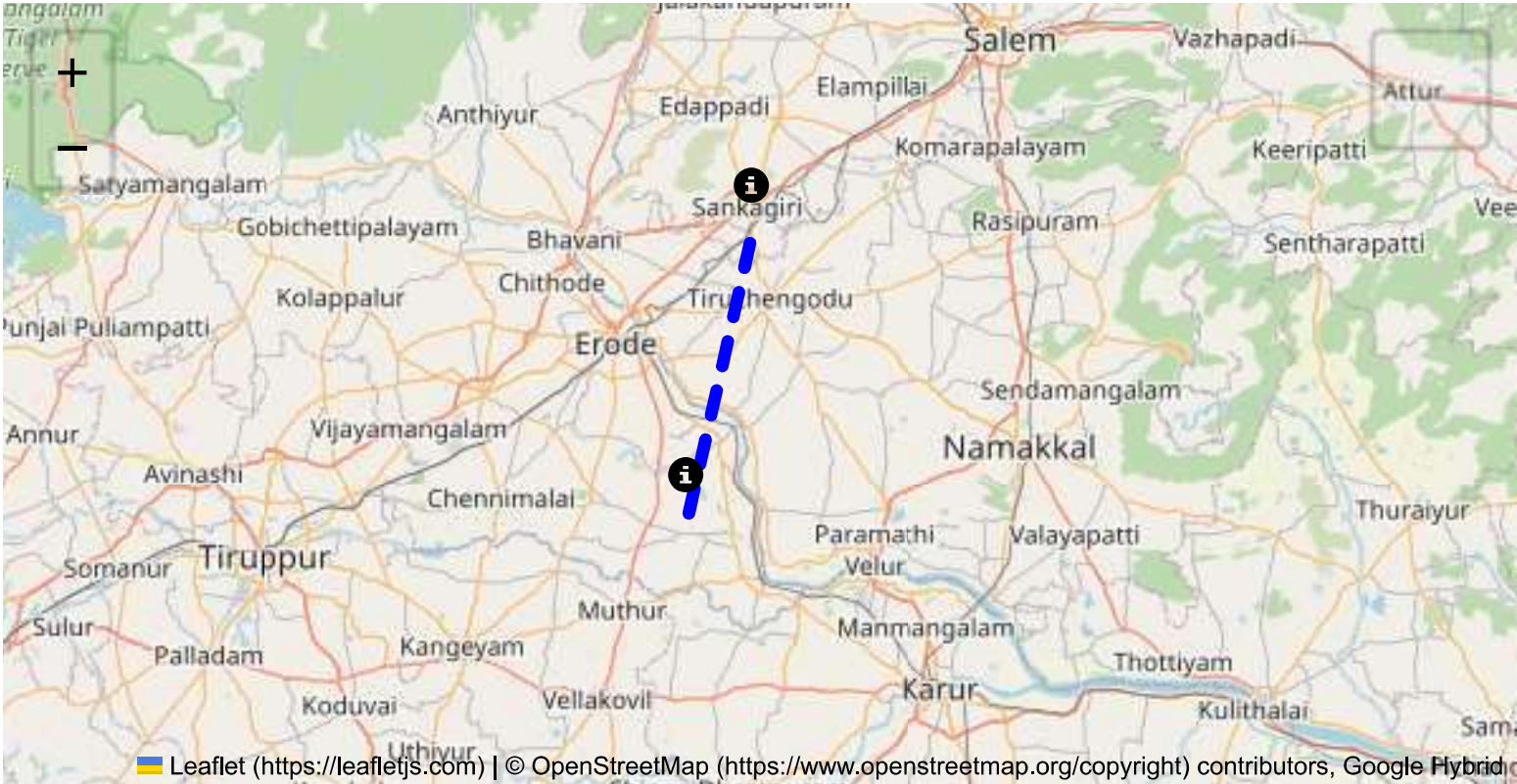
## Journey Risk Mitigation

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.

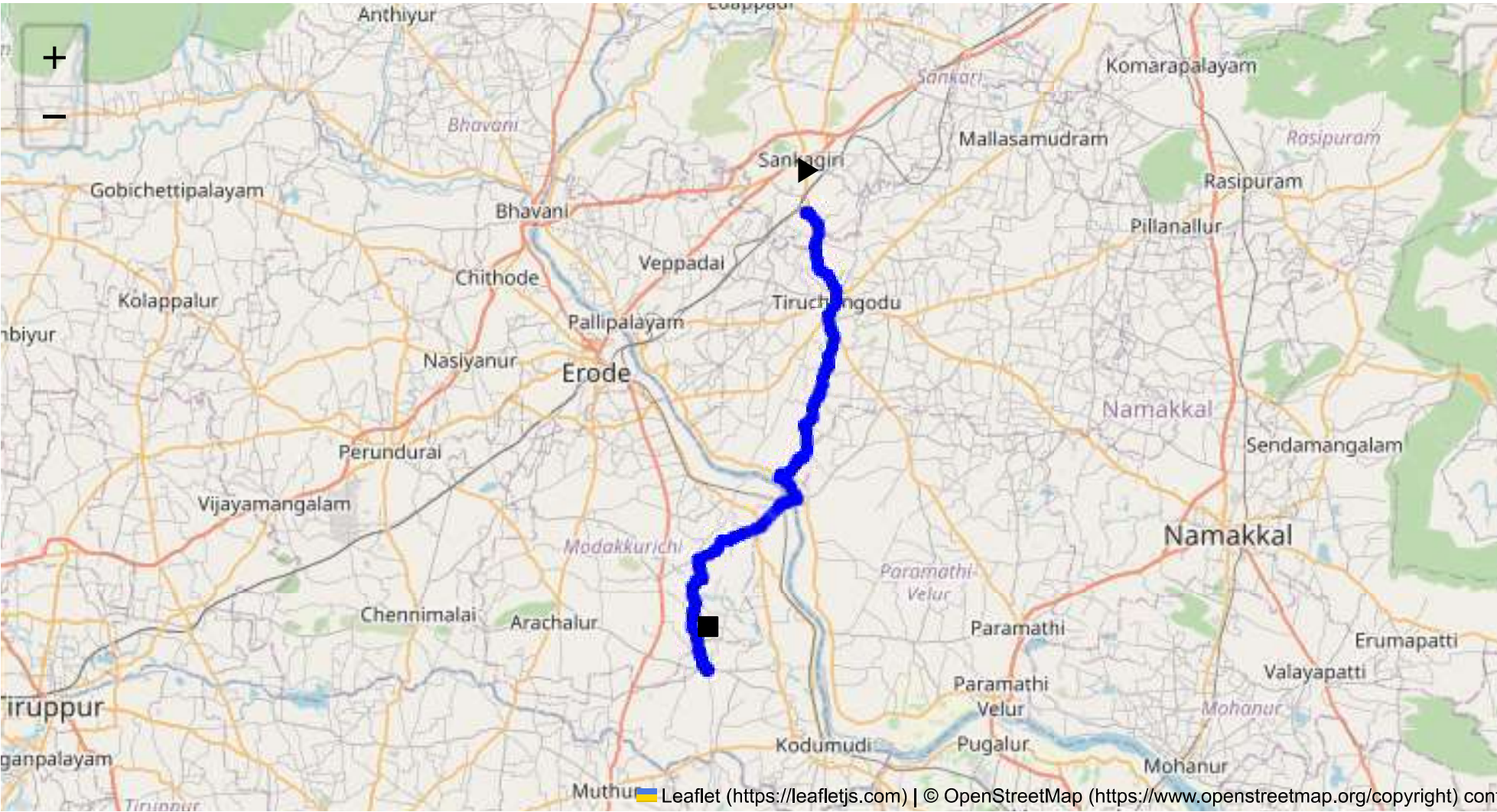
## Compliance with Government Directives

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: 44.77 km**  
**Estimated Duration: 1.2 hours**  
**Adjusted Duration (Heavy Vehicle): 1.5 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.126301, 77.803321)**



**Welcome to the Journey Risk Management Study**

Route Analysis Report from CVQF+23W, Sangagiri to 4RG3+9C6, SH 84C, Tamil Nadu

1. Overview of the Route Map:

- The route, approximately 44.77 kilometers in length, predominantly follows local roads, which are mostly single-lane and may pass through small towns and rural areas. The journey typically takes about 1.16 hours for heavy vehicles carrying hazardous materials.



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

- Tamil Nadu experiences a tropical climate with hot and humid conditions for most of the year. During the monsoon season, from June to September, intense rainfall can occur, leading to potential flooding and landslides in some areas. The summer months, from March to May, can become extremely hot and may affect road surface conditions.

## 3. Traffic Patterns:

- Traffic congestion is more prevalent during the morning (8 AM - 10 AM) and evening (5 PM - 7 PM) peak hours, especially in and around market areas and at junctions entering or exiting towns. Rural roads may have varying traffic loads due to agriculture-related activities.

## 4. Assessment of Road Quality and Infrastructure:

- Road quality varies, with a mix of well-paved roads and some segments with potholes or uneven surfaces. Potential issues include narrow roads and lack of proper signage. Infrastructure, such as bridges and culverts, may be old and require careful navigation.

## 5. Suggestions for Alternative Routes for Emergencies:

- Identify alternate routes using secondary roads that bypass major congested areas or flooding-prone segments. Have a GPS device or app to quickly reroute if necessary, and local maps for areas with limited digital coverage.

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

- Regulations require permits for transporting hazardous materials. It is essential to comply with safety protocols, including securement of materials and having appropriate documentation to avoid penalties.

## 7. Overview of Historical Incidents:

- Review of available data suggests minor accidents involving heavy vehicles, often related to narrow roads and sharp curves. There are minimal reported incidents specifically involving hazardous materials in this particular route.

## 8. Environmental Considerations and Sensitive Areas:

- Several agricultural fields and water bodies may be present along the route. Careful handling and prevention of hazardous material spillage are essential to avoid environmental contamination.

## 9. Analysis of Communication Coverage:

- Communication coverage is generally adequate near towns but may have dead zones in rural stretches. Drivers should be prepared for potential disruptions and determine spots for reliable signal beforehand.

## 10. Estimated Emergency Response Times:

- Emergency services in rural Tamil Nadu may have longer response times, averaging 30-45 minutes, depending on the proximity to major towns and the availability of local resources.

## 11. Overall Summary of Risk Assessment:

- The route poses moderate risk due to potential weather conditions, mixed road quality, and possible traffic congestion. Ensure vehicles are in good condition, loaded correctly, and

emergency protocols are in place. Prepare for variable communication availability and be ready to adjust the route as needed.

This report aims to equip heavy vehicle drivers with valuable information to navigate the route effectively and safely while avoiding or mitigating potential hazards. Regular updates and consultation with local resources are recommended for real-time information and current conditions.

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	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44022, 77.87546	15 KM/Hr
4	Turn	High	11.37868, 77.89498	15 KM/Hr
5	Turn	Medium	11.37842, 77.89452	30 KM/Hr
6	Turn	High	11.33268, 77.88827	15 KM/Hr
7	Turn	Medium	11.33071, 77.88660	30 KM/Hr
8	Turn	High	11.33065, 77.88650	15 KM/Hr
9	Turn	Medium	11.32155, 77.88499	30 KM/Hr
10	Turn	Medium	11.32130, 77.88484	30 KM/Hr
11	Turn	Medium	11.32102, 77.88435	30 KM/Hr
12	Turn	Medium	11.31205, 77.88131	30 KM/Hr
13	Turn	Medium	11.31151, 77.88008	30 KM/Hr
14	Turn	Medium	11.30805, 77.87934	30 KM/Hr
15	Turn	Medium	11.30625, 77.87776	30 KM/Hr
16	Turn	High	11.29763, 77.87710	15 KM/Hr
17	Turn	High	11.29668, 77.87515	15 KM/Hr
18	Turn	Medium	11.29620, 77.87503	30 KM/Hr
19	Turn	High	11.29585, 77.87457	15 KM/Hr
20	Turn	High	11.29549, 77.87464	15 KM/Hr
21	Turn	Medium	11.29417, 77.87309	30 KM/Hr
22	Turn	Medium	11.27096, 77.87034	30 KM/Hr
23	Turn	Medium	11.27057, 77.86827	30 KM/Hr
24	Turn	High	11.26017, 77.85606	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
25	Turn	High	11.25802, 77.85511	15 KM/Hr
26	Turn	Medium	11.25287, 77.86220	30 KM/Hr
27	Turn	High	11.24384, 77.86689	15 KM/Hr
28	Turn	High	11.24100, 77.86030	15 KM/Hr
29	Turn	Medium	11.24196, 77.85902	30 KM/Hr
30	Turn	Medium	11.24193, 77.85850	30 KM/Hr
31	Turn	Medium	11.23960, 77.85563	30 KM/Hr
32	Turn	Medium	11.20949, 77.81173	30 KM/Hr
33	Turn	High	11.20231, 77.79886	15 KM/Hr
34	Turn	Medium	11.19633, 77.79878	30 KM/Hr
35	Turn	High	11.18798, 77.80052	15 KM/Hr
36	Turn	High	11.18779, 77.79733	15 KM/Hr
37	Turn	Medium	11.18542, 77.79672	30 KM/Hr
38	Turn	Medium	11.18331, 77.79491	30 KM/Hr
39	Turn	High	11.18312, 77.79425	15 KM/Hr
40	Turn	Medium	11.18298, 77.79420	30 KM/Hr
41	Turn	Medium	11.17594, 77.79491	30 KM/Hr
42	Turn	Medium	11.17301, 77.79650	30 KM/Hr
43	Turn	Medium	11.16706, 77.79514	30 KM/Hr
44	Turn	Medium	11.16632, 77.79476	30 KM/Hr
45	Blind Spot	Blind Spot	11.16520, 77.79528	10 KM/Hr
46	Turn	Medium	11.16499, 77.79473	30 KM/Hr
47	Turn	High	11.16470, 77.79449	15 KM/Hr
48	Turn	Medium	11.16107, 77.79366	30 KM/Hr
49	Turn	Medium	11.15590, 77.79390	30 KM/Hr
50	Turn	Medium	11.15044, 77.79729	30 KM/Hr
51	Turn	Medium	11.14805, 77.79707	30 KM/Hr
52	Turn	High	11.14436, 77.79828	15 KM/Hr
53	Turn	High	11.14440, 77.79865	15 KM/Hr
54	Turn	Medium	11.13966, 77.79872	30 KM/Hr
55	Turn	Medium	11.13645, 77.80023	30 KM/Hr
56	Turn	High	11.13519, 77.79955	15 KM/Hr
57	Turn	High	11.13046, 77.80159	15 KM/Hr
58	Turn	Medium	11.12680, 77.80416	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
59	Turn	High	11.12661, 77.80462	15 KM/Hr
60	Turn	High	11.12613, 77.80463	15 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

## 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



	type	name	coordinates	speed_limit	risk_level
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: Turn  
Risk Level: High  
Speed Limit: 15 KM/Hr  
Coordinates: 11.44022, 77.87546





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.37868, 77.89498



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.37842, 77.89452





**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:** 11.33071, 77.88660



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.33065, 77.88650





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.32155, 77.88499



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 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:** 11.31205, 77.88131



**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:** 11.26017, 77.85606



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.25802, 77.85511





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



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.24384, 77.86689



**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:** 11.23960, 77.85563



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



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.20231, 77.79886





**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.18798, 77.80052**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.18779, 77.79733**





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.18542, 77.79672



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.18312, 77.79425



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.18298, 77.79420





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.17594, 77.79491



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.17301, 77.79650





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.16706, 77.79514



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.16632, 77.79476



**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.16520, 77.79528





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.16499, 77.79473



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.16470, 77.79449





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.16107, 77.79366



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.15590, 77.79390



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.15044, 77.79729





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.13966, 77.79872



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.13645, 77.80023





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.13519, 77.79955



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.13046, 77.80159



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.12680, 77.80416





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.12661, 77.80462



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.12613, 77.80463



