



JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal To SRI AMMAN AGENCY

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

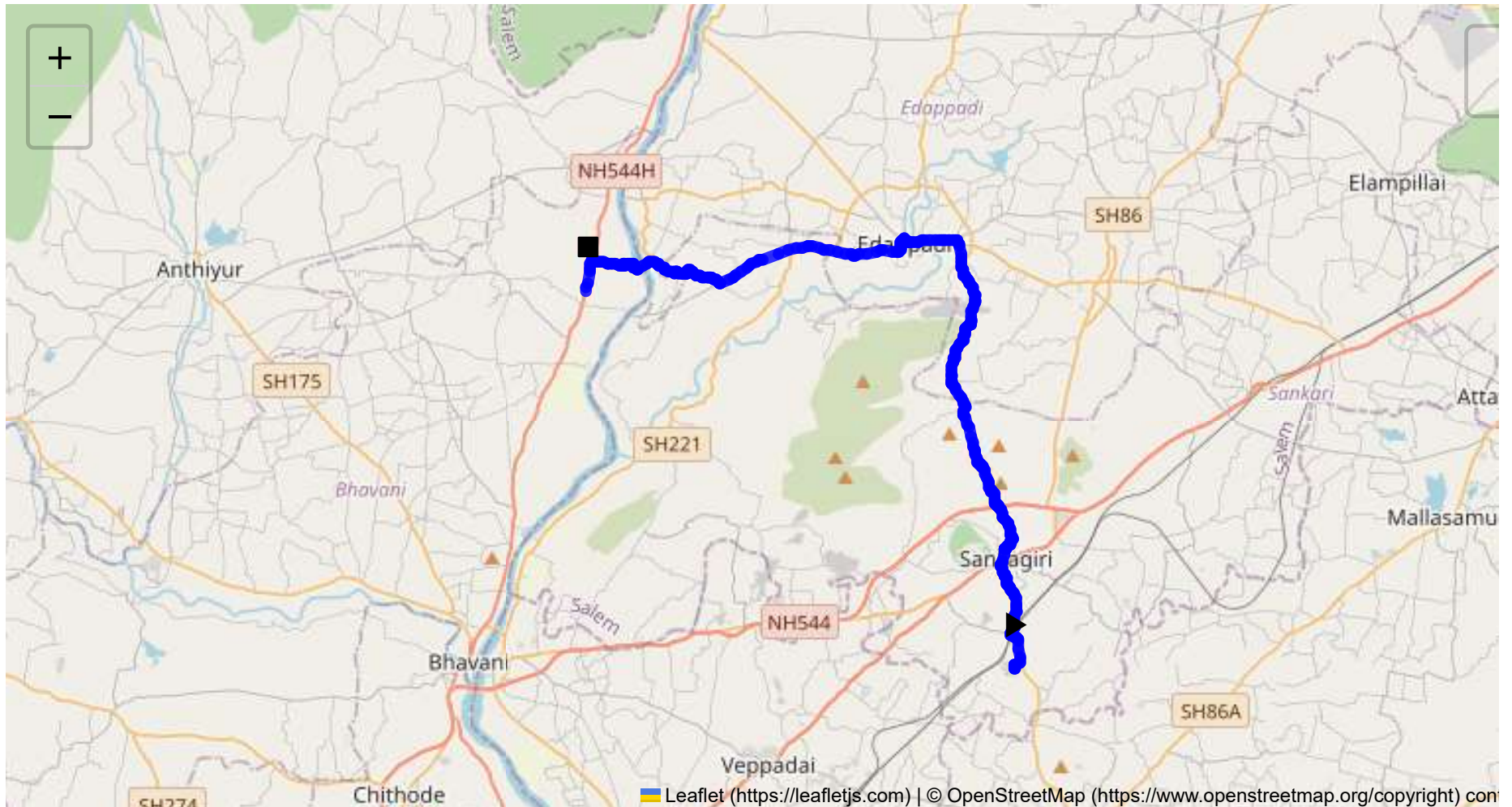
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 34.73 km
Estimated Duration: 1.0 hours
Adjusted Duration (Heavy Vehicle): 1.2 hours
Start: (11.4381, 77.8734)
End: (11.567609, 77.723153)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The journey begins at CVQF+23W, Sangagiri, and proceeds towards Salem, Edappadi, Kaveripatti, and Singampettai before reaching the final destination at 751, Kuthiraikkalmedu, Kurichi. This route spans approximately 34.73 kilometers, primarily using state highways and local roads which are commonly utilized by heavy vehicles. The legs of the journey include traversing through both urban and rural areas, with varying levels of traffic and infrastructure quality.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu experiences a tropical climate. The region can endure heavy rainfall during the monsoon season (June to September), causing potential hazards such as flooding in low-lying areas and reduced visibility due to fog during the early mornings and late evenings. Dry seasons may lead to dust storms, especially in rural parts of the route.

3. Analysis of Traffic Patterns

Traffic flow is relatively smoother outside urban centers. Peak congestion typically occurs during morning hours (8:00-10:00 AM) and evening hours (6:00-8:00 PM), especially near Salem, which is a major hub. The roads leading into and out of Salem are prone to congestion, especially during weekdays.

4. Assessment of Road Quality and Infrastructure

Overall road quality varies along the route. State highways are generally well-paved, but local roads may have potholes and fewer markings. Infrastructure such as signage and street lighting may be inconsistent, especially in rural sections. Maintenance activities might disrupt traffic flow, though they are typically signposted.

5. Suggestions for Alternative Routes for Emergencies

In case of emergencies, consider local bypasses around major towns. Alternative routes could include:

- For Sangagiri to Salem: Take NH544.
- Beyond Salem to Edappadi or other segments: The SH20 is a feasible alternative.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transport of hazardous materials requires adherence to specified time windows and permissible routes, with safety compliance such as vehicle markings, warnings, and requisite permits. It's essential to review the most current state legislation as they can frequently change.

7. Overview of Historical Incidents

The area has seen incidents primarily involving spills and overturns due to road quality and adverse weather. Historical data indicates higher risks near Salem due to increased traffic and more complex road junctions.

8. Environmental Considerations and Sensitive Areas

The route intersects several environmentally sensitive zones, such as water bodies near Kuthiraikkalmedu, requiring careful navigation to prevent contamination from spills. Preservation areas necessitate adherence to noise and pollution regulations.

9. Analysis of Communication Coverage

Cellular coverage is generally reliable in urban and slightly less so in rural areas. Potential dead zones exist between Edappadi and Kaveripatti. It is advisable to equip vehicles with alternative communication tools like satellite phones.

10. Estimated Emergency Response Times

Response times can vary significantly based on location:

- Urban sections near Salem could see responses in as little as 15-30 minutes.
- Rural areas closer to Edappadi or Kaveripatti might experience delays up to 45-60 minutes due to limited access routes.

11. Overall Summary of Risk Assessment

The route is moderately challenging due to varying road infrastructure and frequent traffic conditions. Weather plays a significant role during the monsoon season, while road quality concerns necessitate careful driving practices. The presence of environmentally sensitive areas requires a high degree of precaution, particularly when transporting hazardous materials. Continuous monitoring of regulatory changes and employing technology for communication and navigation will help mitigate risks.

In conclusion, this journey demands preparation and vigilance, emphasizing adherence to regulatory frameworks and proactive contingency planning for emergencies.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.58435, 77.83651	15 KM/Hr
1	Turn	High	11.43811, 77.87348	15 KM/Hr
2	Turn	Medium	11.43961, 77.87341	30 KM/Hr
3	Turn	Medium	11.43968, 77.87345	30 KM/Hr
4	Turn	High	11.44029, 77.87544	15 KM/Hr
5	Turn	Medium	11.44893, 77.87413	30 KM/Hr
6	Turn	High	11.45004, 77.87206	15 KM/Hr
7	Turn	Medium	11.45028, 77.87202	30 KM/Hr
8	Turn	High	11.47403, 77.86841	15 KM/Hr
9	Turn	Medium	11.47410, 77.86845	30 KM/Hr
10	Turn	High	11.47451, 77.86914	15 KM/Hr
11	Turn	Medium	11.47927, 77.86997	30 KM/Hr
12	Turn	High	11.48063, 77.87165	15 KM/Hr
13	Turn	Medium	11.48258, 77.87250	30 KM/Hr
14	Turn	Medium	11.49397, 77.86740	30 KM/Hr
15	Turn	Medium	11.50866, 77.86053	30 KM/Hr
16	Turn	Medium	11.52579, 77.85522	30 KM/Hr
17	Turn	Medium	11.58512, 77.85271	30 KM/Hr
18	Turn	High	11.58533, 77.83450	15 KM/Hr
19	Turn	Medium	11.58088, 77.83223	30 KM/Hr
20	Turn	High	11.57015, 77.76997	15 KM/Hr
21	Turn	Medium	11.57124, 77.76903	30 KM/Hr
22	Turn	Medium	11.57220, 77.76682	30 KM/Hr
23	Turn	Medium	11.57251, 77.76376	30 KM/Hr
24	Turn	Medium	11.57274, 77.76347	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
25	Turn	Medium	11.57427, 77.76022	30 KM/Hr
26	Turn	High	11.57479, 77.75941	15 KM/Hr
27	Turn	Medium	11.57338, 77.75861	30 KM/Hr
28	Turn	Medium	11.57349, 77.75755	30 KM/Hr
29	Turn	Medium	11.57325, 77.75698	30 KM/Hr
30	Turn	Medium	11.57398, 77.75535	30 KM/Hr
31	Turn	Medium	11.57506, 77.75094	30 KM/Hr
32	Turn	Medium	11.57567, 77.75065	30 KM/Hr
33	Turn	High	11.57781, 77.74745	15 KM/Hr
34	Turn	Medium	11.57769, 77.74570	30 KM/Hr
35	Turn	Medium	11.57514, 77.74101	30 KM/Hr
36	Turn	Medium	11.57526, 77.74068	30 KM/Hr
37	Turn	Medium	11.57576, 77.74019	30 KM/Hr
38	Turn	High	11.57674, 77.74005	15 KM/Hr
39	Blind Spot	Blind Spot	11.57833, 77.72536	10 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	police	Police Quarters	11.4741243, 77.8673495	30 km/h	Medium
1	hospital	Thilagam Hospital	11.4753573, 77.8685829	30 km/h	Medium
2	clinic	Meyyazhagan Clinic	11.4752254, 77.8685671	30 km/h	Medium
3	hospital	Dr. Jaganathan Hospital	11.4752717, 77.8709312	30 km/h	Medium
4	hospital	Kathir Eye Hospital	11.4740976, 77.8681591	30 km/h	Medium
7	hospital	Sankari Hospital	11.4777496, 77.873892	30 km/h	Medium
8	hospital	KRS Hospital and Diabetic Centre	11.5848828, 77.8449664	30 km/h	Medium
9	hospital	Kannan Hospital	11.5854802, 77.8425936	30 km/h	Medium
10	hospital	Aravind Hospital	11.5854615, 77.8424165	30 km/h	Medium
11	hospital	Muthu Eyecare Hospital	11.584736, 77.8393794	30 km/h	Medium
12	clinic	Uma Clinic	11.58398, 77.83977	30 km/h	Medium
13	clinic	KGP Clinic	11.5847763, 77.8387488	30 km/h	Medium
14	hospital	Government Hospital, Edapadi	11.5848264, 77.8380174	30 km/h	Medium
15	hospital	Sri Sankar Hospital	11.5862984, 77.8355021	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
16	hospital	Sri Advika Hospital	11.585049, 77.834422	30 km/h	Medium
17	clinic	Raj Physiotherapy Clinic	11.5857357, 77.8341218	30 km/h	Medium
18	hospital	Dr. O.S. Subramanium Hospital	11.584996, 77.834235	30 km/h	Medium
19	hospital	Aravinthu Eye Hospital	11.5866631, 77.8341465	30 km/h	Medium
20	clinic	Xcellent Homecare Clinic	11.584762, 77.8338085	30 km/h	Medium
21	hospital	Mohan Hospital	11.5841331, 77.8336277	30 km/h	Medium
22	hospital	Nivetha Hospital	11.5858509, 77.833451	30 km/h	Medium
23	hospital	Rathanasamy Hospital	11.58583, 77.833443	30 km/h	Medium
24	hospital	Pachiappa Hospital	11.58571, 77.833131	30 km/h	Medium
25	hospital	SKM Hospital	11.5841611, 77.8334397	30 km/h	Medium
26	clinic	Krishna Hospital and Clinic	11.5846542, 77.8333239	30 km/h	Medium
27	hospital	Arunagiri Hospital	11.5837095, 77.8332129	30 km/h	Medium
28	clinic	Rakshan Polyclinic	11.5809367, 77.8326223	30 km/h	Medium
29	hospital	Siddha Hospital	11.5827668, 77.8022539	30 km/h	Medium
30	hospital	Sri Shankar Hospital	11.5780699, 77.7471671	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
5	school	Goverment Boys Higher Secondary School	11.477659, 77.8659632	30 km/h	Medium
6	marketplace	Sunday Market	11.4796502, 77.8708458	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.58435, 77.83651



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: 11.44893, 77.87413



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45004, 77.87206



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45028, 77.87202

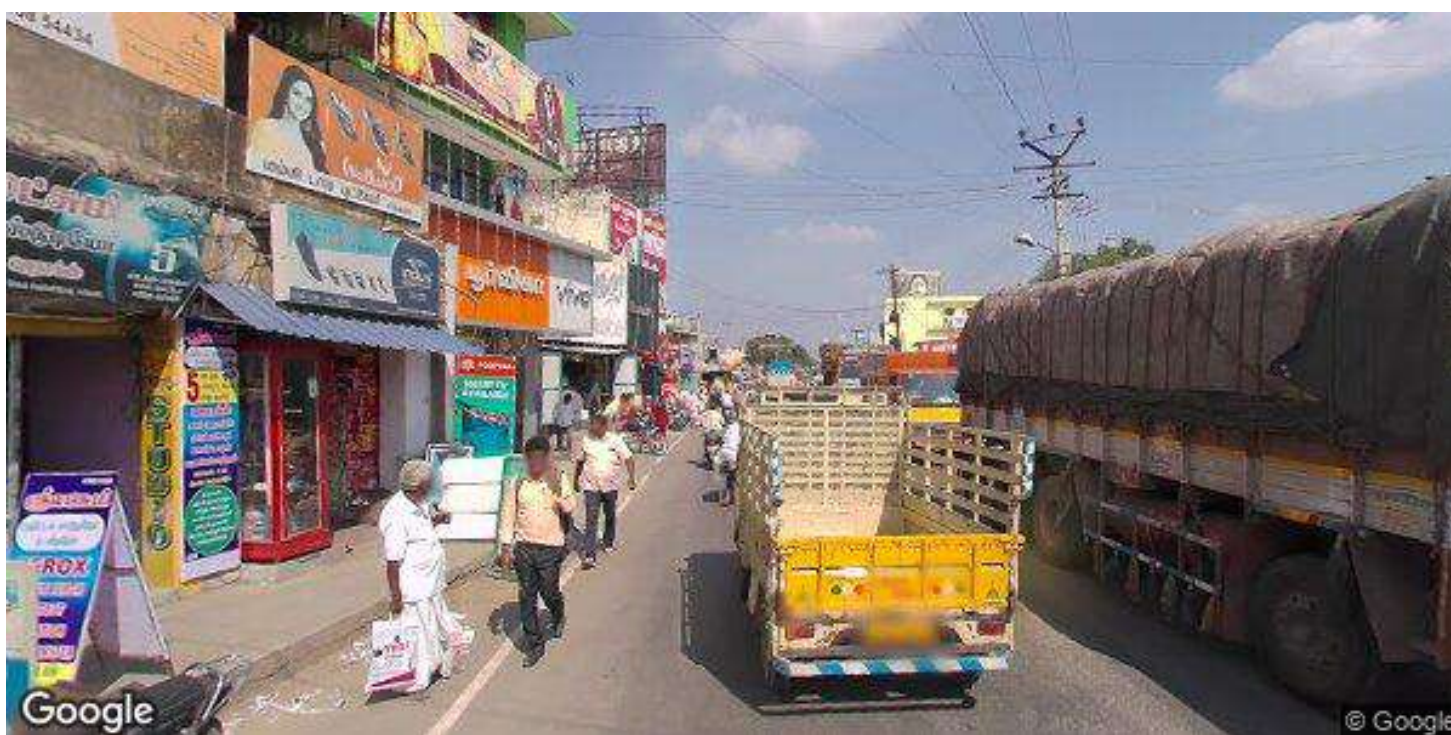


Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.47403, 77.86841



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.47410, 77.86845



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.47451, 77.86914



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.47927, 77.86997



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.48063, 77.87165



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.48258, 77.87250



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.49397, 77.86740



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.50866, 77.86053



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.52579, 77.85522



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.58512, 77.85271



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.58533, 77.83450



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.58088, 77.83223



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57015, 77.76997



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57124, 77.76903



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57220, 77.76682



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57251, 77.76376



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57274, 77.76347



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57427, 77.76022



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57479, 77.75941



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57338, 77.75861



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.57349, 77.75755



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.57325, 77.75698



Risk Type: Turn
Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57398, 77.75535



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57506, 77.75094



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57567, 77.75065



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.57781, 77.74745



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.57769, 77.74570



Risk Type: Turn
Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57514, 77.74101



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57526, 77.74068



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57576, 77.74019



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57674, 77.74005



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.57833, 77.72536
