



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal TO K A K MAHALAKSHMI ENTERPRISES

#### 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.

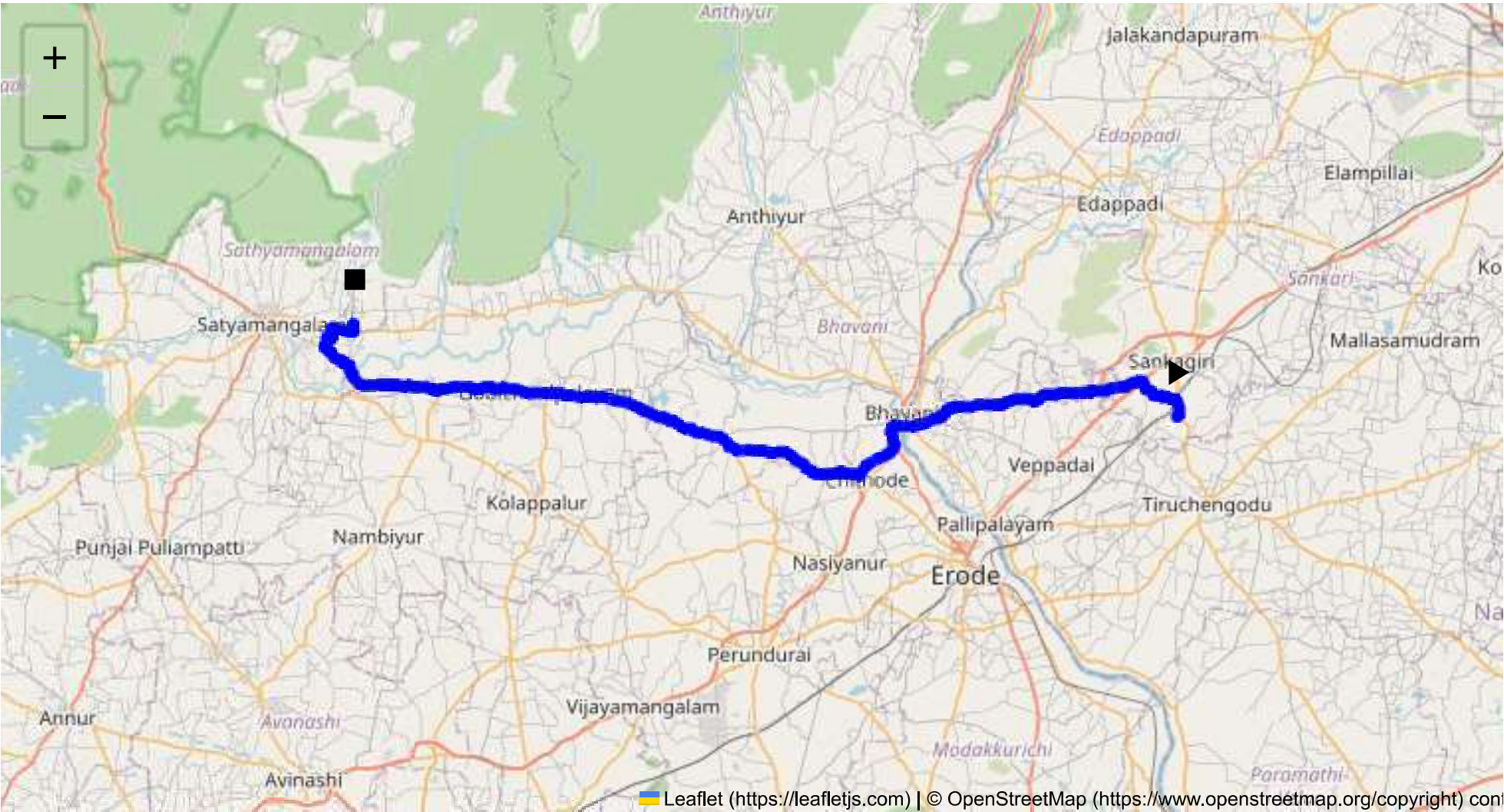
## Compliance with Government Directives

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: 77.51 km**  
**Estimated Duration: 1.6 hours**  
**Adjusted Duration (Heavy Vehicle): 2.0 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.501562, 77.301521)**



**Welcome to the Journey Risk Management Study**

**Route Safety Analysis: CVQF+23W, Sangagiri to G822+HGF, Dasappagounden Pudur, Tamil Nadu**

**1. Overview of the Route Map:**

- The route runs approximately 77.51 kilometers through Tamil Nadu's interior regions, connecting the starting point in Sangagiri to the destination in Dasappagounden Pudur.



- The route likely follows a combination of National and State Highways, interspersed with some local roads, featuring rural topography and agricultural areas.

## 2. Typical Weather Conditions and Hazards:

- Tamil Nadu experiences a tropical climate with hot summers and moderate to heavy monsoons.
- Potential hazards include slippery roads during the monsoon season (June to September) and reduced visibility due to heavy rain.
- Occasional fog in winter months could also pose risks, particularly in early mornings and late evenings.

## 3. Traffic Patterns:

- Peak hours in towns tend to be from 8:00 AM to 11:00 AM and 5:00 PM to 8:00 PM.
- Urban centers along the route may experience congestion, especially at junctions and market areas.
- Agricultural activities could cause slow-moving vehicles on rural roads, impacting heavy vehicles.

## 4. Road Quality and Infrastructure:

- National and State Highways are generally in good condition with regular maintenance.
- Local roads may be narrower and less well-maintained, with possible potholes or uneven surfaces.
- Checkpoints or toll booths might be present, requiring additional time for passage.

## 5. Alternative Routes for Emergencies:

- Depending on road closures, an alternate path through nearby industrial corridors or bypass roads could be considered.
- Being familiar with secondary roads in the region can provide flexibility in emergencies, like traffic diversions.

## 6. Local Regulations on Hazardous Material Transport:

- Regulations require permits for transporting hazardous materials, adherence to routes defined by local authorities, and compliance with safety standards.
- Restrictions may exist near densely populated or sensitive areas.

## 7. Historical Incidents Involving Heavy Vehicles:

- Information on incidents is subject to local records. Common incidents include vehicular breakdowns, occasional accidents due to high speeds or poor visibility, and spillage incidents involving hazardous materials.

## 8. Environmental Considerations:

- Route may pass through or near agricultural lands, therefore, caution is needed to minimize environmental impact.
- Sensitive areas like water bodies should be avoided if possible to prevent contamination.

## 9. Communication Coverage:

- Primary highways generally have good mobile network coverage.

- Rural segments may experience dead zones, impacting communication. It's advisable to carry alternative communication tools, such as satellite phones.

10. **Estimated Emergency Response Times:**

- Urban centers and well-established regions are likely to have faster response times, typically under 30 minutes.
- Rural or remote areas may experience delayed response times, potentially 45 minutes to 1 hour due to distance and road conditions.

11. **Overall Risk Assessment:**

- The route holds moderate risk due to weather, road quality, and potential congestion.
- Preparedness in terms of vehicle condition, familiarity with emergency routes, and adherence to regulations can mitigate these risks effectively.
- Continuous monitoring of weather forecasts and traffic updates is advised for real-time adjustments.

This analysis considers general conditions and should be complemented by local, real-time updates and specific guidance from traffic departments and regulatory authorities.

Risk Assessment - Turns

|    | Risk Type | Risk Level | Coordinates        | Speed Limit |
|----|-----------|------------|--------------------|-------------|
| 0  | Turn      | Medium     | 11.43822, 77.87348 | 30 KM/Hr    |
| 1  | Turn      | High       | 11.43968, 77.87345 | 15 KM/Hr    |
| 2  | Turn      | High       | 11.44029, 77.87544 | 15 KM/Hr    |
| 3  | Turn      | High       | 11.44898, 77.87410 | 15 KM/Hr    |
| 4  | Turn      | Medium     | 11.45357, 77.85789 | 30 KM/Hr    |
| 5  | Turn      | High       | 11.45352, 77.85698 | 15 KM/Hr    |
| 6  | Turn      | Medium     | 11.45847, 77.85140 | 30 KM/Hr    |
| 7  | Turn      | Medium     | 11.45898, 77.85135 | 30 KM/Hr    |
| 8  | Turn      | Medium     | 11.46303, 77.84945 | 30 KM/Hr    |
| 9  | Turn      | Medium     | 11.46314, 77.84928 | 30 KM/Hr    |
| 10 | Turn      | Medium     | 11.45509, 77.81383 | 30 KM/Hr    |
| 11 | Turn      | High       | 11.40046, 77.65371 | 15 KM/Hr    |
| 12 | Turn      | High       | 11.40035, 77.65383 | 15 KM/Hr    |
| 13 | Turn      | High       | 11.39829, 77.65233 | 15 KM/Hr    |
| 14 | Turn      | Medium     | 11.42079, 77.56127 | 30 KM/Hr    |
| 15 | Turn      | High       | 11.45745, 77.36598 | 15 KM/Hr    |

|    | Risk Type  | Risk Level | Coordinates        | Speed Limit |
|----|------------|------------|--------------------|-------------|
| 16 | Turn       | Medium     | 11.45747, 77.36596 | 30 KM/Hr    |
| 17 | Turn       | Medium     | 11.45763, 77.36309 | 30 KM/Hr    |
| 18 | Turn       | Medium     | 11.45750, 77.35617 | 30 KM/Hr    |
| 19 | Turn       | High       | 11.45959, 77.30751 | 15 KM/Hr    |
| 20 | Turn       | Medium     | 11.46612, 77.30076 | 30 KM/Hr    |
| 21 | Turn       | High       | 11.47154, 77.29802 | 15 KM/Hr    |
| 22 | Turn       | Medium     | 11.47329, 77.29852 | 30 KM/Hr    |
| 23 | Turn       | Medium     | 11.47453, 77.29525 | 30 KM/Hr    |
| 24 | Turn       | Medium     | 11.47522, 77.29448 | 30 KM/Hr    |
| 25 | Turn       | High       | 11.47598, 77.29452 | 15 KM/Hr    |
| 26 | Turn       | Medium     | 11.47625, 77.29425 | 30 KM/Hr    |
| 27 | Turn       | Medium     | 11.47740, 77.28980 | 30 KM/Hr    |
| 28 | Blind Spot | Blind Spot | 11.48499, 77.28237 | 10 KM/Hr    |
| 29 | Turn       | Medium     | 11.48601, 77.28317 | 30 KM/Hr    |
| 30 | Turn       | High       | 11.48720, 77.28243 | 15 KM/Hr    |
| 31 | Turn       | High       | 11.49173, 77.28363 | 15 KM/Hr    |
| 32 | Turn       | High       | 11.49122, 77.28577 | 15 KM/Hr    |
| 33 | Turn       | Medium     | 11.49248, 77.28682 | 30 KM/Hr    |
| 34 | Blind Spot | Blind Spot | 11.49885, 77.28762 | 10 KM/Hr    |
| 35 | Turn       | High       | 11.49668, 77.30171 | 15 KM/Hr    |
| 36 | Blind Spot | Blind Spot | 11.50168, 77.30111 | 10 KM/Hr    |

## Emergency Locations

|   | type     | name                                 | coordinates               | speed_limit | risk_level |
|---|----------|--------------------------------------|---------------------------|-------------|------------|
| 3 | hospital | Government Hospital                  | 11.4525596,<br>77.7749426 | 30 km/h     | Medium     |
| 4 | hospital | Dhanvantri Multi Speciality Hospital | 11.451362, 77.766602      | 30 km/h     | Medium     |
| 5 | hospital | Dhanvanthri Hospital                 | 11.4496712,<br>77.7593772 | 30 km/h     | Medium     |
| 6 | hospital | J.K.K. Trust Hospital                | 11.4445841,<br>77.7307962 | 30 km/h     | Medium     |

|    | type     | name   | coordinates               | speed_limit | risk_level |
|----|----------|--|---------------------------|-------------|------------|
| 8  | hospital | Shri Sathyanarayana Hospital                   | 11.4291297,<br>77.6913408 | 30 km/h     | Medium     |
| 9  | hospital | Thanish Siddha Hospital                        | 11.430003, 77.674964      | 30 km/h     | Medium     |
| 10 | clinic   | Harshitha Clinic                               | 11.4313207,<br>77.674718  | 30 km/h     | Medium     |
| 11 | hospital | Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam | 11.432369, 77.674894      | 30 km/h     | Medium     |
| 12 | clinic   | G.K Clinic                                     | 11.4297244,<br>77.6749715 | 30 km/h     | Medium     |
| 13 | hospital | Naarayani Hospital                             | 11.4157401,<br>77.5773087 | 30 km/h     | Medium     |
| 14 | hospital | P K Hospital                                   | 11.4175923,<br>77.5640962 | 30 km/h     | Medium     |
| 15 | hospital | Dharun Hospital                                | 11.4223638,<br>77.5597735 | 30 km/h     | Medium     |
| 16 | hospital | Dr. Ramaswamy Hospital                         | 11.4249065,<br>77.5535658 | 30 km/h     | Medium     |
| 17 | hospital | Dakshin Trauma Centre                          | 11.454593,<br>77.4461819  | 30 km/h     | Medium     |
| 18 | hospital | Dakshin Hospital                               | 11.4546301,<br>77.445905  | 30 km/h     | Medium     |
| 19 | hospital | Sri Varahi Herbal Research Centre and Hospital | 11.4539333,<br>77.4427438 | 30 km/h     | Medium     |
| 20 | clinic   | Germen Homeopathy Clinic                       | 11.4536305,<br>77.4394692 | 30 km/h     | Medium     |
| 21 | hospital | JP Hospital                                    | 11.454765, 77.438257      | 30 km/h     | Medium     |
| 22 | hospital | KKS Hospital                                   | 11.4551792,<br>77.4392927 | 30 km/h     | Medium     |
| 24 | hospital | Siranjeeve Hospitals                           | 11.453132,<br>77.4344382  | 30 km/h     | Medium     |
| 25 | clinic   | Anandhan Clinic                                | 11.4548037,<br>77.4349074 | 30 km/h     | Medium     |
| 26 | hospital | Ramachandran Hospital                          | 11.452242, 77.434641      | 30 km/h     | Medium     |
| 27 | hospital | Kumaran Hospital                               | 11.4533971,<br>77.4349621 | 30 km/h     | Medium     |
| 28 | hospital | Dr. Rathinasamy Hospital                       | 11.457562,<br>77.4327752  | 30 km/h     | Medium     |
| 29 | hospital | Gobi Neuro Mind Care                           | 11.4548344,<br>77.434649  | 30 km/h     | Medium     |

|    | type     | name                           | coordinates               | speed_limit | risk_level |
|----|----------|--------------------------------|---------------------------|-------------|------------|
| 30 | hospital | Hariharan Hospital             | 11.4523578,<br>77.4299287 | 30 km/h     | Medium     |
| 31 | hospital | Vasanth Hospital               | 11.4526864,<br>77.4292173 | 30 km/h     | Medium     |
| 32 | clinic   | Jeeva Nursing Home             | 11.4533031,<br>77.4294145 | 30 km/h     | Medium     |
| 33 | hospital | Sathya Hospital                | 11.4561856,<br>77.4298694 | 30 km/h     | Medium     |
| 34 | hospital | S K Hospital                   | 11.4540106,<br>77.430108  | 30 km/h     | Medium     |
| 35 | hospital | Sivakami Hospital              | 11.4531846,<br>77.4299288 | 30 km/h     | Medium     |
| 36 | clinic   | Sri Sudha Physiotherapy Clinic | 11.4559915,<br>77.4300217 | 30 km/h     | Medium     |
| 37 | hospital | Best Hospital                  | 11.4543558,<br>77.4263617 | 30 km/h     | Medium     |
| 38 | clinic   | Anand Nursing Home             | 11.4553169,<br>77.4296248 | 30 km/h     | Medium     |
| 39 | clinic   | Kanmani Child Care Clinic      | 11.4545273,<br>77.428668  | 30 km/h     | Medium     |
| 40 | hospital | Rajasekaran Hospital           | 11.454463, 77.4262        | 30 km/h     | Medium     |
| 41 | hospital | Samuel Hospital                | 11.4542555,<br>77.4271194 | 30 km/h     | Medium     |
| 42 | hospital | Sivasakthi Hospital            | 11.4544711,<br>77.4297229 | 30 km/h     | Medium     |
| 43 | hospital | SS Children's Hospital         | 11.4555386,<br>77.4296357 | 30 km/h     | Medium     |
| 44 | clinic   | Sri Dhanvantari Siddha Clinic  | 11.4561216,<br>77.4295797 | 30 km/h     | Medium     |
| 45 | hospital | Neha Hospital                  | 11.4560138,<br>77.4270219 | 30 km/h     | Medium     |
| 46 | hospital | M.S Children's Hospital        | 11.4556012,<br>77.4301006 | 30 km/h     | Medium     |
| 47 | hospital | Gobi Diabetic Hospital         | 11.455394,<br>77.4301181  | 30 km/h     | Medium     |
| 48 | clinic   | Dr. Ramesh Babu Clinic         | 11.4560871,<br>77.4296353 | 30 km/h     | Medium     |
| 49 | hospital | Sankareswari Eye Hospital      | 11.4572997,<br>77.428765  | 30 km/h     | Medium     |



|    | type     | name                                       | coordinates               | speed_limit | risk_level |
|----|----------|--|---------------------------|-------------|------------|
| 50 | hospital | Arun Hospital                              | 11.4548852,<br>77.4250314 | 30 km/h     | Medium     |
| 53 | hospital | Government Hospital                        | 11.4565126,<br>77.4288768 | 30 km/h     | Medium     |
| 54 | hospital | Sri Chakra Hospital                        | 11.4544464,<br>77.4228363 | 30 km/h     | Medium     |
| 55 | hospital | U M Hospital                               | 11.4544151,<br>77.4240386 | 30 km/h     | Medium     |
| 56 | hospital | Dr. Gopal Hospital                         | 11.455258, 77.422901      | 30 km/h     | Medium     |
| 57 | clinic   | VG Ortho Centre                            | 11.4550504,<br>77.4225102 | 30 km/h     | Medium     |
| 58 | clinic   | Palaniappa Clinic                          | 11.4555925,<br>77.4202828 | 30 km/h     | Medium     |
| 59 | hospital | Abi SK Hospital                            | 11.457163, 77.412487      | 30 km/h     | Medium     |
| 60 | clinic   | Nalam Vazh S.K Siddha and Varma Clinic     | 11.457576, 77.412164      | 30 km/h     | Medium     |
| 62 | clinic   | Singiripalayam Natarajan Siddha Ortho Care | 11.4603252,<br>77.3183801 | 30 km/h     | Medium     |
| 63 | hospital | Assisi Hospital                            | 11.4636431, 77.30493      | 30 km/h     | Medium     |
| 65 | clinic   | Care Clinic                                | 11.4968054,<br>77.2967153 | 30 km/h     | Medium     |
| 66 | clinic   | Lakshmi Ammal Clinic                       | 11.4964829,<br>77.3012867 | 30 km/h     | Medium     |

Crowded Spots

|   | type        | name                                      | coordinates               | speed_limit | risk_level |
|---|-------------|---|---------------------------|-------------|------------|
| 0 | school      | KRP Matric. Hr. Sec School                | 11.4546193,<br>77.8142445 | 30 km/h     | Medium     |
| 1 | college     | Vivekanandha Engineering College          | 11.4589312,<br>77.7899284 | 30 km/h     | Medium     |
| 2 | marketplace | Monday market                             | 11.452863,<br>77.775989   | 30 km/h     | Medium     |
| 7 | school      | SSM Matriculation Higher Secondary School | 11.4321653,<br>77.6880046 | 30 km/h     | Medium     |

|    | type    | name   | coordinates               | speed_limit | risk_level |
|----|---------|--|---------------------------|-------------|------------|
| 23 | school  | Shree Vidyalaya Matric Higher Secondary School | 11.4536114,<br>77.4383163 | 30 km/h     | Medium     |
| 51 | school  | Diamond Jubilee Higher Secondary School        | 11.4529541,<br>77.4280306 | 30 km/h     | Medium     |
| 52 | school  | CKK Palaniammal School                         | 11.4569211,<br>77.4276828 | 30 km/h     | Medium     |
| 61 | school  | Saratha Techno School                          | 11.4544819,<br>77.379986  | 30 km/h     | Medium     |
| 64 | college | Bannari Amman Institute                        | 11.4947151,<br>77.277266  | 30 km/h     | Medium     |

Route Photos of Risky Spots



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:** 11.44898, 77.87410



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45357, 77.85789



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45352, 77.85698





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45847, 77.85140



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45898, 77.85135





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.46303, 77.84945



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.46314, 77.84928



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45509, 77.81383





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.40046, 77.65371



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.40035, 77.65383





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.39829, 77.65233



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.42079, 77.56127



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45745, 77.36598





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45747, 77.36596



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45763, 77.36309





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45750, 77.35617



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45959, 77.30751



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.46612, 77.30076





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.47154, 77.29802



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.47329, 77.29852





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.47453, 77.29525



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.47522, 77.29448



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.47598, 77.29452





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.47625, 77.29425



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.47740, 77.28980





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.48499, 77.28237



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.48601, 77.28317



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.48720, 77.28243





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.49173, 77.28363



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.49122, 77.28577





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.49248, 77.28682



**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.49885, 77.28762



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.49668, 77.30171

**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.50168, 77.30111



