

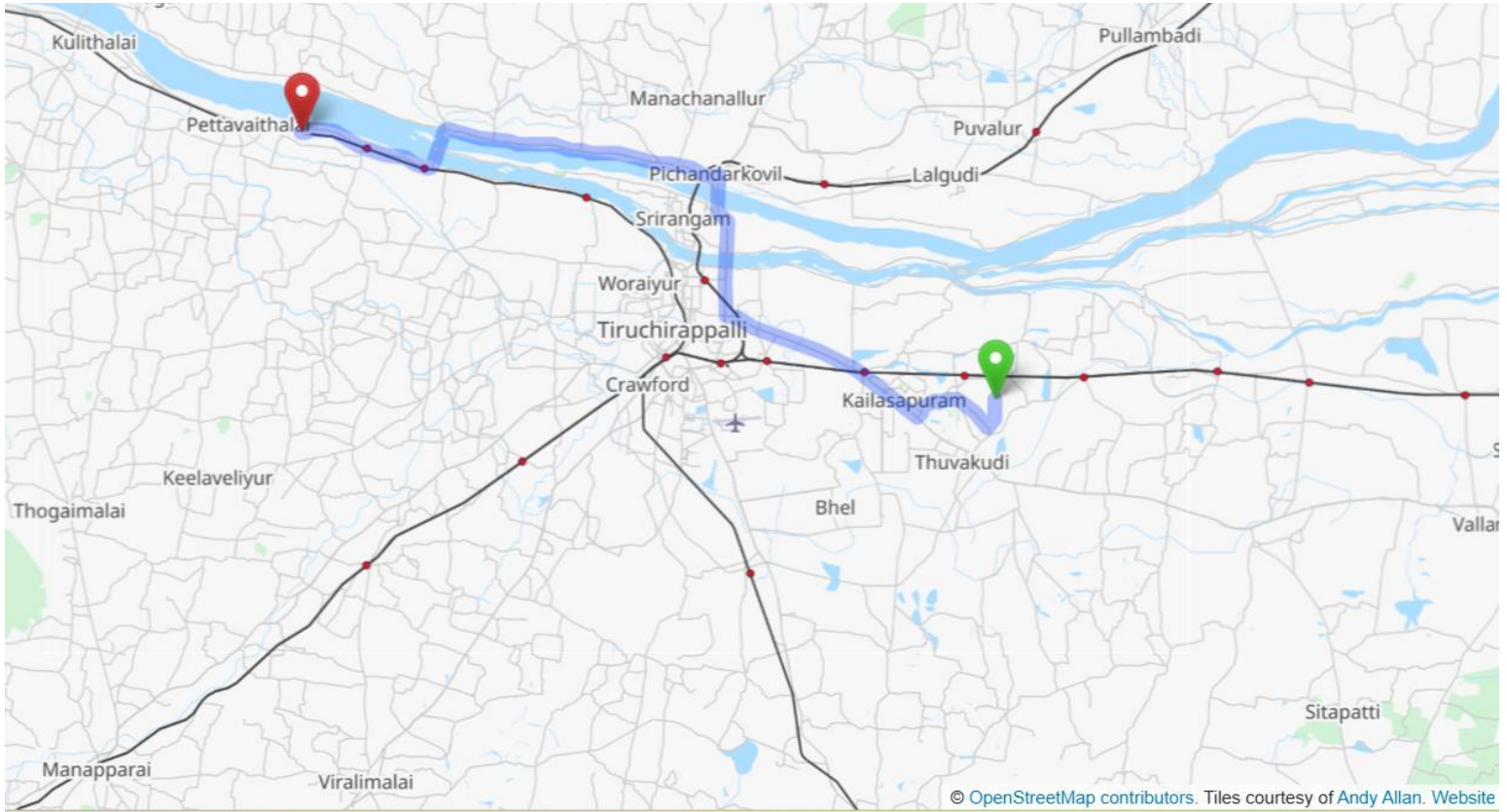


**IndianOil**

**WELCOME TO JOURNEY**  
**RISK MANAGEMENT (JRM)**  
**STUDY USING ARTIFICIAL**  
**INTELLIGENCE (AI)**  
**FOR IOCL TRICHY**  
**TERMINAL**

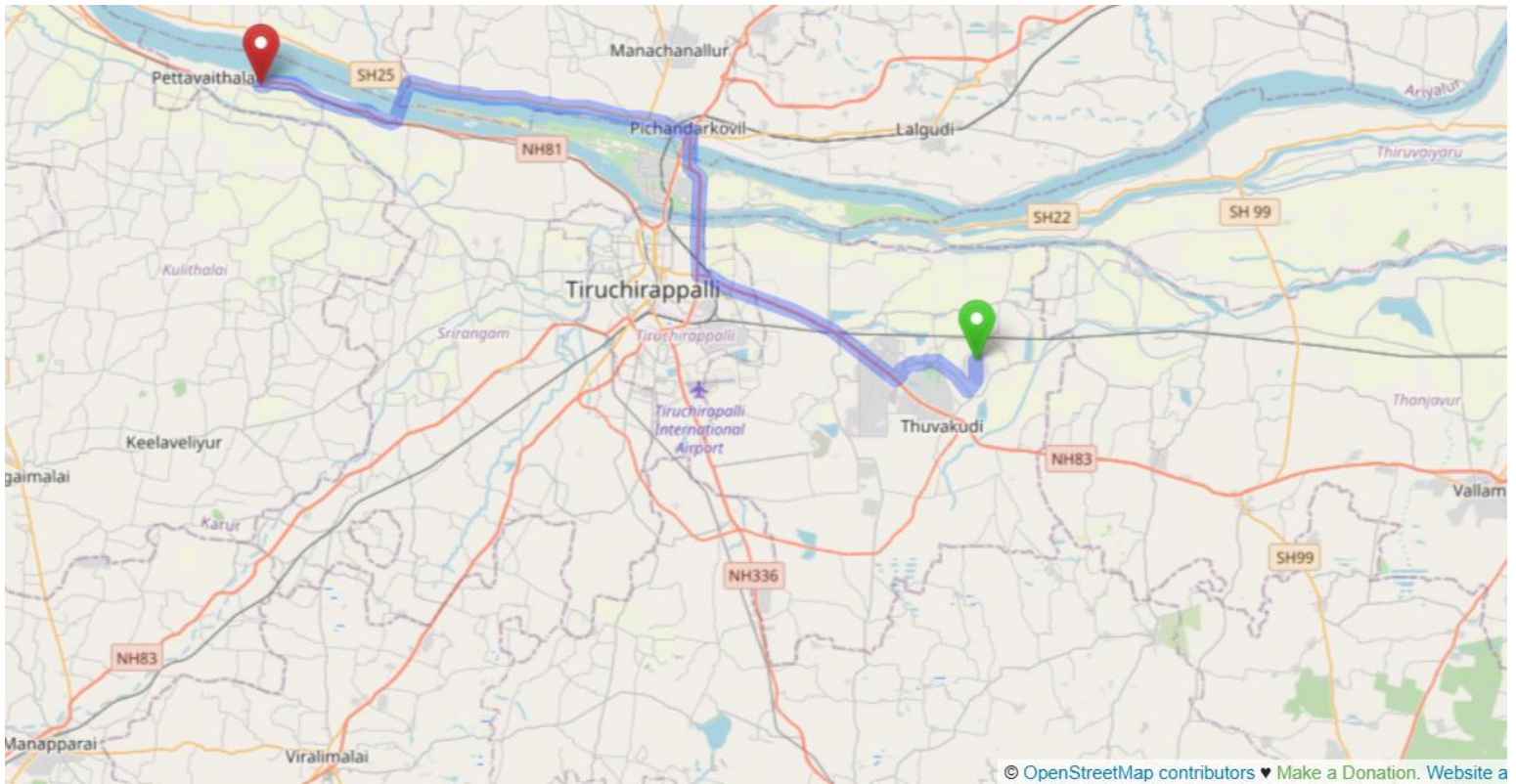
## **JOURNEY RISK MANAGEMENT REPORT**

**IOCL TIRUCHY TERMINAL (10.7753, 78.8368) TO SRI DHANALAKSHMI AGENCIES (10.895982 , 78.517002) TOTAL DISTANCE – 44.5 KM**



**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



ALARP/JRM/SRI DHANALAKSHMI

# **JOURNEY RISK MANAGEMENT REPORT**

## **Welcome to the Journey Risk Management Study for SRI DHANALAKSHMI AGENCIES**

**Total distance: 44.5 KM; Start with: (10.7753 , 78.8368), End with: (10.895982 , 78.517002)**

### **❖ Route Safety Analysis Report**

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

The route from Trichy Terminal (T.N) TO SRI DHANALAKSHMI AGENCIES.

The route passes Through Several key point including Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Continue on NH 83 to Tiruchirappalli, Follow NH67 to NH 81 in Melachinthamani, Follow NH 81 to Kavarkappalayam, Turn left at P R Hotel and Total distance from Trichy Terminal To SRI DHANALAKSHMI AGENCIESIS 44.5 KM.

#### **Typical Weather Conditions and Potential Weather-Related Hazards**

**Weather Conditions:** Trichy Terminal (T.N) To SRI DHANALAKSHMI AGENCIES experiences a tropical climate with heavy monsoon rains from June to September, high humidity, and moderate temperatures throughout the year ,The summers are short and sweltering; the winters are short, cool, and dry; and it is mostly clear year- round. Over the course of the year, the temperature typically varies from 60.8°F to 110°F and is rarely below 60.8°F to 110°F.



# JOURNEY RISK MANAGEMENT REPORT

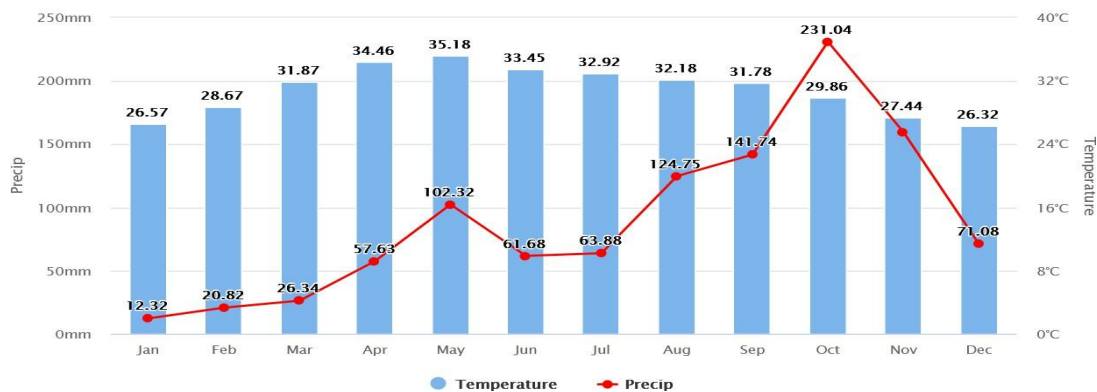
| Month                                 | Jan              | Feb              | Mar              | Apr               | May               | Jun              | Jul              | Aug              | Sep              | Nov              | Oct              | Dec              | Year             |
|---------------------------------------|------------------|------------------|------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Record high °C (°F)                   | 33.0<br>(91.4)   | 38.0<br>(100.4)  | 41.0<br>(105.8)  | 43.0<br>(109.4)   | 43.0<br>(109.4)   | 42.0<br>(107.6)  | 40.0<br>(104.0)  | 39.0<br>(102.2)  | 38.0<br>(100.4)  | 37.0<br>(98.6)   | 34.0<br>(93.2)   | 33.0<br>(91.4)   | 43.0<br>(109.4)  |
| Average high °C (°F)                  | 30.27<br>(86.49) | 32.88<br>(91.18) | 36.0<br>(96.8)   | 38.27<br>(100.89) | 38.79<br>(101.82) | 36.78<br>(98.2)  | 36.17<br>(97.11) | 35.4<br>(95.72)  | 35.03<br>(95.05) | 32.9<br>(91.22)  | 30.38<br>(86.68) | 29.34<br>(84.81) | 34.35<br>(93.83) |
| Daily mean °C (°F)                    | 26.57<br>(79.83) | 28.67<br>(83.61) | 31.87<br>(89.37) | 34.46<br>(94.03)  | 35.18<br>(95.32)  | 33.45<br>(92.21) | 32.92<br>(91.26) | 32.18<br>(89.92) | 31.78<br>(89.2)  | 29.86<br>(85.75) | 27.44<br>(81.39) | 26.32<br>(79.38) | 30.89<br>(87.6)  |
| Average low °C (°F)                   | 19.88<br>(67.78) | 20.93<br>(69.67) | 24.04<br>(75.27) | 27.62<br>(81.72)  | 28.89<br>(84.0)   | 27.59<br>(81.66) | 27.04<br>(80.67) | 26.45<br>(79.61) | 25.95<br>(78.71) | 24.64<br>(76.35) | 22.43<br>(72.37) | 20.93<br>(69.67) | 24.7<br>(76.46)  |
| Record low °C (°F)                    | 16.0<br>(60.8)   | 17.0<br>(62.6)   | 19.0<br>(66.2)   | 22.0<br>(71.6)    | 25.0<br>(77.0)    | 25.0<br>(77.0)   | 24.0<br>(75.2)   | 23.0<br>(73.4)   | 22.0<br>(71.6)   | 21.0<br>(69.8)   | 18.0<br>(64.4)   | 17.0<br>(62.6)   | 16.0<br>(60.8)   |
| Average precipitation mm (inches)     | 12.32<br>(0.49)  | 20.82<br>(0.82)  | 26.34<br>(1.04)  | 57.63<br>(2.27)   | 102.32<br>(4.03)  | 61.68<br>(2.43)  | 63.88<br>(2.51)  | 124.75<br>(4.91) | 141.74<br>(5.58) | 231.04<br>(9.1)  | 159.62<br>(6.28) | 71.08<br>(2.8)   | 89.44<br>(3.52)  |
| Average precipitation days (≥ 1.0 mm) | 3.09             | 3.27             | 5.36             | 7.36              | 16.73             | 12.36            | 13.55            | 18.91            | 19.64            | 22.73            | 17.55            | 9.73             | 12.52            |
| Average relative humidity (%)         | 72.01            | 65.19            | 58.27            | 53.97             | 51.56             | 50.59            | 51.14            | 56.11            | 60.33            | 70.18            | 77.39            | 76.61            | 61.95            |
| Mean monthly sunshine hours           | 11.19            | 11.34            | 11.34            | 11.63             | 12.65             | 12.68            | 11.83            | 11.24            | 11.05            | 9.11             | 7.68             | 8.29             | 10.84            |

**Weather-Related Hazards:** Trichy Terminal (T.N) To SRI DHANALAKSHMI AGENCIES Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To SRI DHANALAKSHMI AGENCIES weather stations and weather warnings that include risk of thunder, high UV index and forecast gales.

## Climate Graph

The chart below shows the mean monthly temperature and precipitation of Tiruchirappalli in recent years.



## Analysis of Traffic Patterns

**ALARP/JRM/SRI DHANALAKSHMI**

## **JOURNEY RISK MANAGEMENT REPORT**

### **Peak Hours:**

Typically, Trichy Terminal (T.N) To SRI DHANALAKSHMI AGENCIES peak traffic hours are from 8:00 AM to 11:00 AM and 4:00 PM to 8:00 PM on weekdays.

### **Congestion-Prone Areas:**

- Malar Mahal
- Old Burma Colony
- Government Branch Press, Tiruchirappalli
- National Institute of Technology Tiruchirappalli
- AGN InfoSystems & AGN INFOTECH
- NIT Trichy
- BHELEC CINEMA 4K Dolby 7.1
- Krishna Engineering Co Private Limited
- SESHASAYEE INSTITUTE OF TECHNOLOGY
- Sri Venkatesa Cinemas A/C Dolby Atmos

### **❖ Assessment of Road Quality and Infrastructure**

**Road Quality:** Generally, the roads are well-maintained but can suffer from potholes and water logging on State Highway during the monsoon season.

**Infrastructure:** Adequate signage, street lighting, and traffic signals are present, but some areas may lack proper drainage systems, leading to waterlogging.

### **❖ Suggestions for Alternative Routes for Emergencies**

**Alternative Route 1-** ). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Continue on NH 83 to Tiruchirappalli, Follow NH67 to NH 81 in Melachinthamani, Follow NH 81 to Kavarkappalayam, Turn left at P R Hotel .

**Alternative Route 2-** Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Tiruchirappalli, Take Vayalur Rd, Kulumani Main Rd and Nangavaram Main Rd to NH 81 in Perugamani,

**ALARP/JRM/SRI DHANALAKSHMI**

## **JOURNEY RISK MANAGEMENT REPORT**

Turn left at SHIVAM MEDICALS onto NH 81, Turn left at P R Hotel.

### **Summary of Local Regulations Affecting Hazardous Material Transport**

Regulations: Transport of hazardous materials is regulated by the Petroleum and Explosives Safety Organization (PESO) and the Motor Vehicles Act. Specific routes and timings may be restricted for hazardous material transport.

Permits: Ensure all necessary permits and documentation are in place.

### **❖ Overview of Historical Incidents**

Historical Incidents: There have been occasional incidents involving heavy vehicles, particularly during the monsoon season due to waterlogging and poor visibility. No major incidents involving hazardous materials have been reported recently.

### **❖ Environmental Considerations and Sensitive Areas**

- **Sensitive Areas:** Malar Mahal, Old Burma Colony, Government Branch Press, Tiruchirappalli, National Institute of Technology Tiruchirappalli, AGN InfoSystems & AGN INFOTECH, NIT Trichy, BHELEC CINEMA 4K Dolby 7.1, Krishna Engineering Co Private Limited, SESHASAYEE INSTITUTE OF TECHNOLOGY, Sri Venkatesa Cinemas A/C Dolby Atmos.
- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, National Institute of Technology Tiruchirappalli, AGN InfoSystems & AGN INFOTECH, NIT Trichy.
- **Hospital:** - Dr Kamali's Home Clinic, Muthammal Medical Foundation Hospital, Times Hospital - (Trichy Institute of Medical and Educational Services), Apollo Speciality Hospitals – Trichy. GVN Hospital (P) Ltd. - Multispecialty Hospital Trichy.
- **Gas Station:** IndianOil, Bharat Petroleum - Sri Vela Fuels, IndianOil, Reliance Petrol Bunk.

## **JOURNEY RISK MANAGEMENT REPORT**

- **Environmental Impact:** Minimize noise and air pollution, especially in residential and sensitive areas.
- **Air pollution:** Volatile chemicals evaporate during the filling and discharge process, or from leaks.
- **Loss of habitats:** Oil and gas operations can degrade animal habitats and disrupt migratory pathways.
- **Oil spills:** Oil spills can be devastating for animals and humans.
- **Greenhouse gas emissions:** Oil and gas operations can emit greenhouse gases like methane.
- **Analysis of Communication Coverage**

Communication Coverage: Generally good throughout the route, but potential dead zones may exist densely built-up areas or underpasses.

Dead Zones: Monitor for any communication blackouts, especially in underpasses or near large buildings.

- **Estimated Emergency Response Times**-Malar Mahal,Old Burma Colony,Government Branch Press, Tiruchirappalli,National Institute of Technology Tiruchirappalli,AGN InfoSystems & AGN INFOTECH,NIT Trichy,BHELEC CINEMA 4K Dolby 7.1,MedPlus Trichy Rail Nagar, areas like have quicker response times (15- 20 minutes). Congested areas may experience delays (up to 30-40 minutes).
- **Overall Summary of Risk Assessment**
- **Risk Level:** Moderate to High, especially during monsoon season.
- **Key Risks:** Waterlogging, traffic congestion, and potential communication dead zones.
- **Mitigation Measures:** Plan travel during non-peak hours, ensure proper vehicle maintenance, and have alternative routes and emergency contacts ready and control on the speed limit of the vehicle.







## JOURNEY RISK MANAGEMENT REPORT











- Road Signage for TT/PT Driver

### Road Traffic Signs in India

#### Mandatory/Regulatory Signs

















|   |  |  |   |
|---|--|--|---|
| <br>Stop                   | <br>Give way                | <br>No entry                               | <br>Straight prohibited  |
| <br>One way                | <br>One way                 | <br>Vehicles prohibited in both directions | <br>Horn prohibited      |
| <br>Pedestrians prohibited | <br>Cycles prohibited       | <br>Right turn prohibited                  | <br>Left turn prohibited |
| <br>U-turn prohibited    | <br>Overtaking prohibited | <br>Trucks prohibited                    | <br>Tonga prohibited   |

## JOURNEY RISK MANAGEMENT REPORT

|  |   |   |  |
|--|---|---|--|
|  <p>All motor vehicles prohibited</p> |  <p>Hand cart prohibited</p>   |  <p>Bullock cart prohibited</p> |  <p>Bullock and hand carts prohibited</p> |
|  <p>No parking</p>                    |  <p>No parking or stopping</p> |  <p>Speed limit</p>             |  <p>Axle load limit</p>                   |
|  <p>Width limit</p>                 |  <p>Weight limit</p>         |  <p>Length limit</p>          |  <p>Load limit</p>                      |
|  <p>Restriction ands</p>            |   |   |  |

## JOURNEY RISK MANAGEMENT REPORT

### Cautionary signs

|  |  |   |   |
|--|--|---|---|
|  <p>Right hand curve</p>      |  <p>Left hand curve</p> |  <p>Right hand pin bend</p> |  <p>Left hand pin bend</p> |
|  <p>Right reverse bend</p>    |  <p>Narrow bridge</p>   |  <p>Gap in median</p>       |  <p>Cycle crossing</p>     |
|  <p>Pedestrian crossing</p> |  <p>School</p>        |  <p>Men at work</p>       |  <p>Roundabout</p>       |
|  <p>Narrow road</p>         |  <p>Road widens</p>   |  <p>Side road left</p>    |  <p>Side road right</p>  |

# JOURNEY RISK MANAGEMENT REPORT

## Information signs

|                               |                            |                      |                      |
|-------------------------------|----------------------------|----------------------|----------------------|
|                               |                            |                      |                      |
| Advance direction             | Map type advance direction | Rotary intersection  | Reassurance          |
|                               |                            |                      |                      |
| Direction                     | Direction                  | Place identification | Truck lay bay        |
|                               |                            |                      |                      |
| Toll booth ahead              | Parking this side          | Parking both sides   | Cycle stand          |
|                               |                            |                      |                      |
| Scooter and motor cycle stand | Taxi stand                 | Auto-rickshaw stand  | Cycle-rickshaw stand |
|                               |                            |                      |                      |
| Public telephone              | Filling station            | Hospital             | First aid post       |

## Conclusion

The route for Trichy Terminal (T.N) To SRI DHANALAKSHMI AGENCIES is generally manageable but poses several risks, particularly during the monsoon season. Proper planning, adherence to regulations, and awareness of potential hazards can significantly mitigate these risks.

## JOURNEY RISK MANAGEMENT REPORT

- **Risk Assessment - Sharp Turns**

| Risk Type  | Risk Level | Coordination                             | Distance From Start | Recommendation Speed |
|------------|------------|--|---------------------|----------------------|
| Sharp turn | Medium     | 10.769517372474736,<br>78.83735063199906 | 650 M               | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.76584461192607,<br>78.8361700257199   | 1.1 KM              | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.764182189802032,<br>78.83459588401435 | 1.3 KM              | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.75826698538096,<br>78.83349398474651  | 2 KM                | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.756372549032195,<br>78.83034570133539 | 2.4 KM              | 20km/hr TO 30 Km/Hr  |
| Sharp turn | High       | 10.751346435623256,<br>78.8252297405902  | 3.2 KM              | 10km/hr TO 15 Km/Hr  |
| Sharp turn | High       | 10.757906942798716,<br>78.81117677157785 | 6.2 KM              | 10km/hr TO 15 Km/Hr  |
| Sharp turn | Medium     | 10.787358384509025,<br>78.77401388280337 | 10.8 KM             | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.807926793454792,<br>78.72541718894573 | 16.7 KM             | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.812858780584483,<br>78.71601872869049 | 17.8 KM             | 20km/hr TO 30 Km/Hr  |
| Sharp turn | High       | 10.813153854161522,<br>78.7123280092307  | 18.2 KM             | 10km/hr TO 15 Km/Hr  |
| Sharp turn | High       | 10.8132381608445,<br>78.71189885580515   | 18.3 KM             | 10km/hr TO 15 Km/Hr  |
| Sharp turn | Medium     | 10.817664228587676,<br>78.7119846864179  | 18.8 KM             | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.825209469597384,<br>78.71241383982665 | 19.6 KM             | 20km/hr TO 30 Km/Hr  |
| Sharp turn | Medium     | 10.844809252744147,<br>78.71308566683136 | 21.8 KM             | 20km/hr TO 30 Km/Hr  |



## JOURNEY RISK MANAGEMENT REPORT

|            |        |  |         |                        |
|------------|--------|--|---------|------------------------|
| Sharp turn | High   | 10.848867431944997,<br>78.71317588521788 | 22.2 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High   | 10.835081743210457,<br>78.69451700877174 | 22.7 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 10.83287621780848,<br>78.69186317673402  | 23 KM   | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High   | 10.862348713924893,<br>78.66144617876324 | 27.9 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High   | 10.873379388287242,<br>78.6198609088779  | 32.6 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 10.874769107207594,<br>78.61066257239314 | 33.7 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High   | 10.879099092324884,<br>78.58796870384445 | 36.2 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High   | 10.880122697958752,<br>78.57429319383913 | 37.7 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 10.884831238381038,<br>78.56466196600525 | 38.9 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.895681070107432,<br>78.53439239197333 | 42.5 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.896622735063016,<br>78.52784649217776 | 43.2 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.896295199801887,<br>78.5203416393202  | 44.1 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.896233538115514,<br>78.5171962927984  | 44.4 KM | 20km/hr TO 30<br>Km/Hr |

### • Risk Assessment - Elevation Changes

| Risk Type | Specific Risk | Risk Level | Coordination | Elevation Change | Gradient | Recommendation Speed |
|-----------|---------------|------------|--------------|------------------|----------|----------------------|
|           |               |            |              |                  |          |                      |

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT

|                  |         |     |                       |        |         |                      |
|------------------|---------|-----|-----------------------|--------|---------|----------------------|
| Elevation Change | Descent | Low | 10.7753, 78.8368      | -3.02m | -2.96 % | 40 km/hr to 50 km/hr |
| Elevation Change | Descent | Low | 10.993921 , 78.326323 | -9.28m | -6.28%  | 40 km/hr to 50 km/hr |

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SRI DHANALAKSHMI AGENCIES (10.895982 , 78.517002) TOTAL DISTANCE – 44.5 KM**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.769073692604486, 78.83720120889187**

**ALARP/JRM/SRI DHANALAKSHMI**

## **JOURNEY RISK MANAGEMENT REPORT**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.764113439530249, 78.83446118711721**

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.758209570013967, 78.83344387884853**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.751314343624747, 78.82530656733346**

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## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.75126610223314, 78.82518044583597**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.759296455409434, 78.80954749245673**

**ALARP/JRM/SRI DHANALAKSHMI**



## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.787270680907813, 78.77433315009567**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.801869769228155,  
78.74289067038384**

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.807212761783093, 78.727384388977**

**ALARP/JRM/SRI DHANALAKSHMI**

**ALARP/JRM/SRI DHANALAKSHMI**



## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.813158210442325, 78.7124472790252**

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.834245408141733,  
78.69381932742911**

**ALARP/JRM/SRI DHANALAKSHMI**



## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.846872549450348,  
78.6818558820155**

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.87826510925612,  
78.58921707882354**

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.896174112774371, 78.53306241708813**

**ALARP/JRM/SRI DHANALAKSHMI**



## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.897311967291115, 78.52091746468426**

**ALARP/JRM/SRI DHANALAKSHMI**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:  
10.896266579683104, 78.51726299132801**

**ALARP/JRM/SRI DHANALAKSHMI**



# **JOURNEY RISK MANAGEMENT REPORT**

**ALARP/JRM/SRI DHANALAKSHMI**