

**JOURNEY RISK MANAGEMENT REPORT**



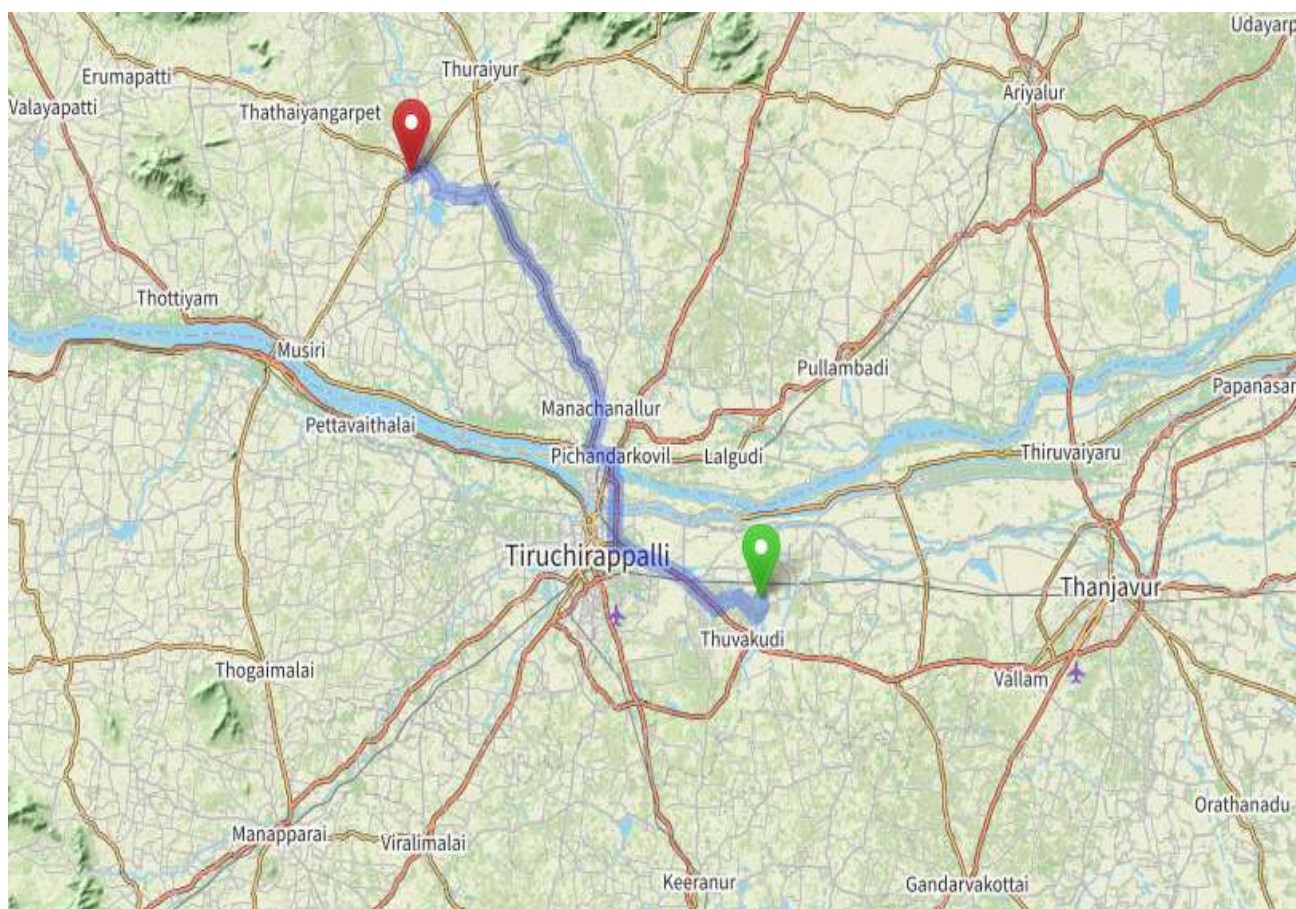
**IndianOil**

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

**ALARP/JRM/TNSO/KAYRA**

## **JOURNEY RISK MANAGEMENT REPORT**

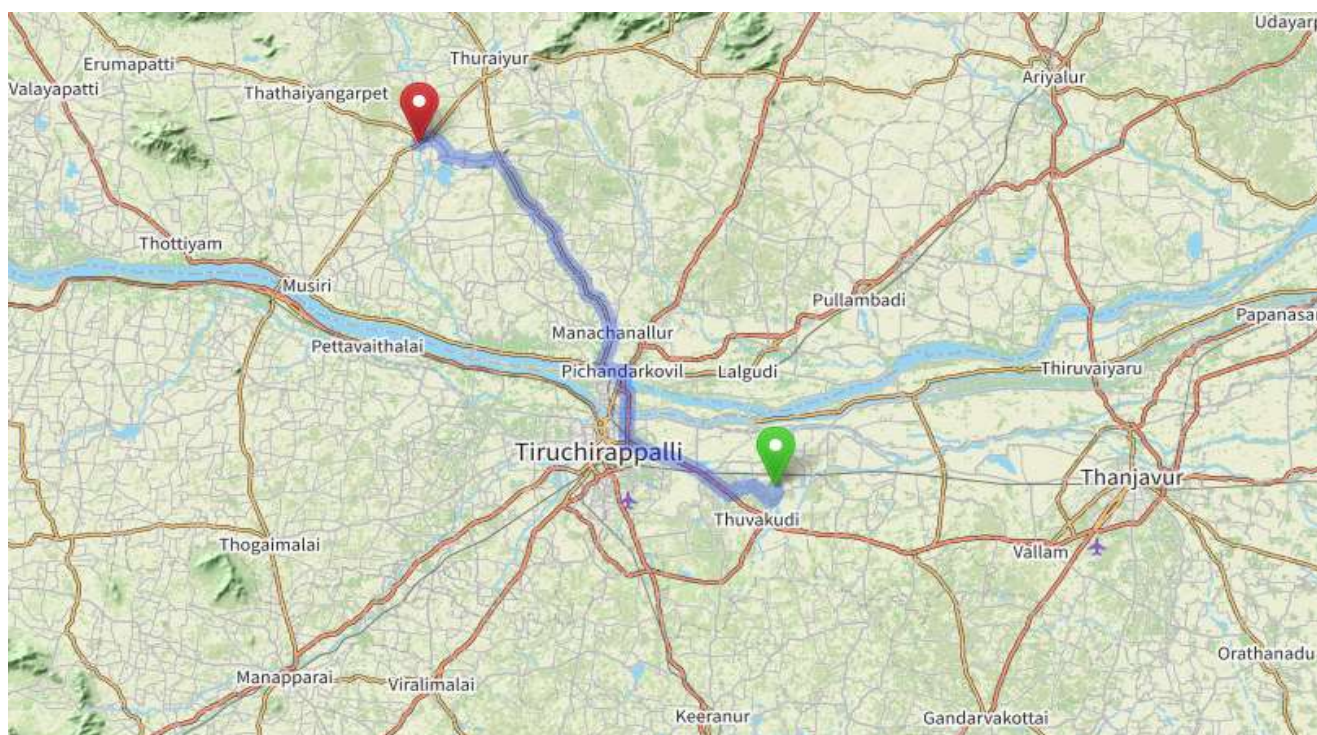
**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO KAYYANAR AGENCIES**  
**(11.076462, 78.536123) TOTAL DISTANCE – 62.6 KM**



**ALARP/JRM/TNSO/KAYRA**



## JOURNEY RISK MANAGEMENT REPORT



### Welcome to the Journey Risk Management Study for KAYYANAGAR AGENCIES

Total distance: 62.6 km; Start with: (10.7753, 78.8368), End with: (11.076462, 78.536123)

#### ❖ Route Safety Analysis Report

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

The route from Trichy Terminal (T.N). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi to SIDCO& Indian oil Storage, Continue on NH 83. Take NH 38 to Thuraiyur Main Rd/Thuraiyur - Tiruchirappalli Main Rd/Vadakkadu - Alangudi Rd and Total distance from Trichy Terminal to KAYYANAR AGENCIES IS 62.6 KM.

## JOURNEY RISK MANAGEMENT REPORT

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

#### Weather Conditions:

Trichy Terminal (T.N) To KAYYANAR 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.

| 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:

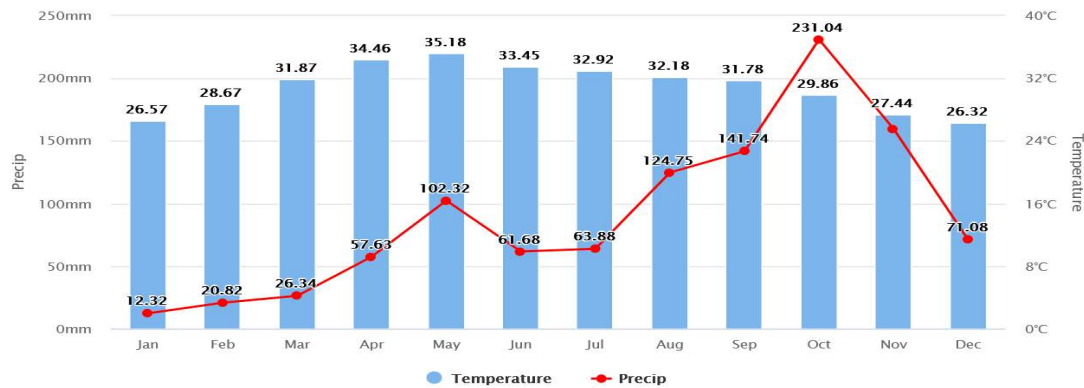
Trichy Terminal (T.N) To KAYYANAR AGENCIES Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

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

# JOURNEY RISK MANAGEMENT REPORT

## Climate Graph

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



## Analysis of Traffic Patterns

### Peak Hours:

Typically, Trichy Terminal (T.N) To KAYYANAR 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
- Handy Man Services
- TNSTC TRICHY RE CONDITIONING UNIT
- Asswin Battery House
- Old Palpannai Bus Stop
- Government Hospital
- Petrol Station

## **JOURNEY RISK MANAGEMENT REPORT**

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

**Road Quality:** Generally, the roads are well-maintained but can suffer from potholes and waterlogging 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-** The route from Trichy Terminal (T.N). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi to SIDCO& Indian oil Storage, Continue on NH 83. Take NH 38 to Thuraiyur Main Rd/Thuraiyur - Tiruchirappalli Main Rd/Vadakkadu - Alangudi Rd

**Alternative Route 2-** The route from Trichy Terminal (T.N). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi to SIDCO& Indian oil Storage, Continue on NH 83. Take NH 38 to Thuraiyur Main Rd/Thuraiyur - Tiruchirappalli Main Rd/Vadakkadu - Alangudi Rd.

### **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.

## **JOURNEY RISK MANAGEMENT REPORT**

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

- **Sensitive Areas:** Malar Mahal, Handy Man Services, TNSTC TRICHY RE CONDITIONING UNIT, Asswin Battery House, Old Palpannai Bus Stop, Government Hospital, Petrol Station
- **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.
- **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.



## **JOURNEY RISK MANAGEMENT REPORT**

- **Estimated Emergency Response Times-** Malar Mahal, Handy Man Services, TNSTC TRICHY RE CONDITIONING UNIT, Asswin Battery House, Old Palpannai Bus Stop, Government Hospital, Petrol Station, 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.



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- 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    |

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|  |   |   |  |
|--|---|---|--|
|  <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>            |   |   |  |

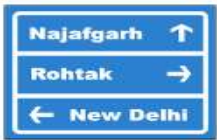

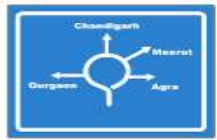
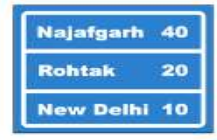
















## JOURNEY RISK MANAGEMENT REPORT

### 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 KAYYANAR 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     | 10.7695173762.674736,<br>78.83735063199906 | 650 M               | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.76584461192607,<br>78.8361700257199     | 1.1 KM              | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.764182189802032,<br>78.83459588401435   | 1.3 KM              | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.75826698538096,<br>78.83349398474651    | 2 KM                | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.756372549032195,<br>78.83034570133539   | 2.4 KM              | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High       | 10.751346435623256,<br>78.8252297405902    | 3.2 KM              | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High       | 10.757906942798716,<br>78.81117677157785   | 6.2 KM              | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium     | 10.787358384509025,<br>78.77401388280337   | 10.8 KM             | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.807926793454792,<br>78.72541718894573   | 16.7 KM             | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.812858780584483,<br>78.71601872869049   | 17.8 KM             | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High       | 10.813153854161522,<br>78.7123280092307    | 18.2 KM             | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High       | 10.8132381608445,<br>78.71189885580515     | 18.3 KM             | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium     | 10.817664228587676,<br>78.7119846864179    | 18.8 KM             | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.825209469597384,<br>78.7162.61383982665 | 19.6 KM             | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium     | 10.844809252744147,<br>78.71308566683136   | 21.8 KM             | 20km/hr TO 30<br>Km/Hr |

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|            |        |  |         |                        |
|------------|--------|--|---------|------------------------|
| Sharp turn | High   | 10.848867431944997,<br>78.71317588521788   | 22.2 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High   | 10.848867431944997,<br>78.71346458407959   | 22.3 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 10.843905458719005,<br>78.71344654040074   | 22.8 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High   | 10.841388997909634,<br>78.71341045302391   | 23.1 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High   | 10.841176338285557,<br>78.71582830599077   | 23.4 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 10.841956089501496,<br>78.71830028999419   | 23.7 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High   | 10.841353554649443,<br>78.72062.6900731076 | 23.9 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 10.923762843001246,<br>78.73680864147859   | 31.4 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.969669140000148,<br>78.73432189585048   | 36.9 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.987171788079136,<br>78.73507105073543   | 38.8 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 10.992556471613726,<br>78.73420495410657   | 39.7 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | Medium | 11.00672622162037,<br>78.73218406197262    | 41.5 KM | 20km/hr TO 30<br>Km/Hr |
| Sharp turn | High   | 11.041297550454644,<br>78.7281422777306    | 45.6 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | High   | 11.088704901640854,<br>78.59652834072946   | 55.2 KM | 10km/hr TO 15<br>Km/Hr |
| Sharp turn | Medium | 11.083205668883906,<br>78.54846841165704   | 61.0 KM | 20km/hr TO 30<br>Km/Hr |

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**(11.076462, 78.536123) TOTAL DISTANCE – 62.6 KM**



**10.769073692604486, 78.83720120889187**



**10.76411343953062.69, 78.83446118711721**

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10.758209570013967, 78.83344387884853



10.751314343662.6747, 78.82530656733346

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10.75126610223314, 78.82518044583597



10.759296455409434, 78.8095474962.65673

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10.787270680907813, 78.77433315009567



10.801869769228155, 78.74289067038384

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10.807212761783093, 78.727384388977



10.813070768754649, 78.71358087620345

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10.813158210442325, 78.7162.6472790252



10.817454621921845, 78.71214828336923

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10.829944696187399, 78.71262765817357



10.8343162.687172522, 78.71279030656987

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10.841088803407287, 78.71312538305449



10.844717051819696, 78.71311369720765

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10.844989438989616, 78.71307770835966



11.095169847505668, 78.75611253202945

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## JOURNEY RISK MANAGEMENT REPORT



11.091348068055074, 78.5964695219859



11.083201530660416, 78.54833159785098

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