

JOURNEY RISK MANAGEMENT REPORT

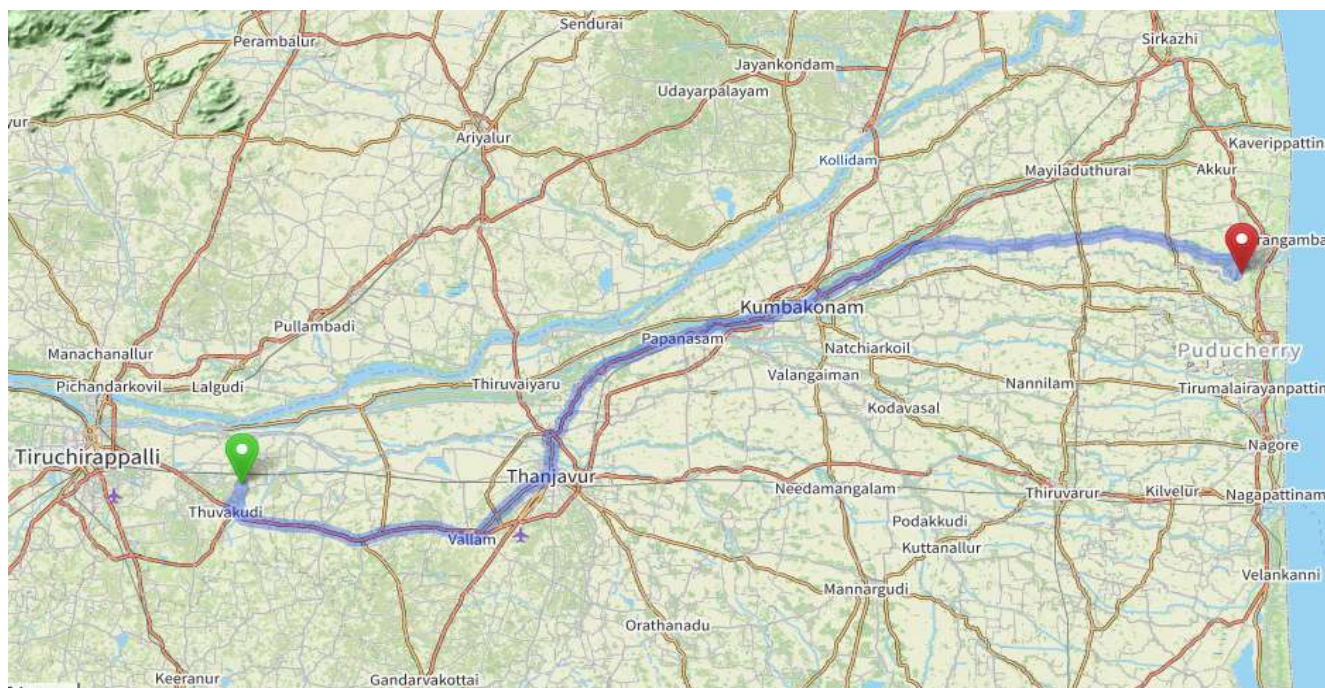


WELCOME TO JOURNEY
RISK MANAGEMENT (JRM)
STUDY USING ARTIFICIAL
INTELLIGENCE (AI)
FOR IOCL TRICHY
TERMINAL

ALARP/JRM/TNSO/THANAP

JOURNEY RISK MANAGEMENT REPORT

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO THANAPAL
PETROLEUM (10.9918456 , 79.8082377) TOTAL DISTANCE – 136KM**



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Welcome to the Journey Risk Management Study for THANAPAL PETROLEUM

Total distance: 136km; start with: (10.7753, 78.8368), End with: (10.9918456 , 79.8082377)

- **Route Safety Analysis Report**

1. **Overview of the Route Map**

Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi Follow NH 83 and NH 36 to Chinnammal Kallarai/Kallanai - Poombhuhar Rd/Poompuhar Rd in Kumbakonam Continue onto NH 36/NH 83 ake the exit toward NH 36 Follow Chinnammal Kallarai/Poompuhar Rd to NH 136B in Aduthurai Follow Aduthurai - Porayar Rd to your destination and Total distance from Trichy Terminal To THANAPAL PETROLEUMAGENCIESIS 136KM.

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Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions:

Trichy Terminal (T.N) To THANAPAL PETROLEUM 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 (91.4) | 38.0 (100.4) | 41.0 (105.8) | 43.0 (109.4) | 43.0 (109.4) | 42.0 (107.6) | 40.0 (104.0) | 39.0 (102.2) | 38.0 (100.4) | 37.0 (98.6) | 34.0 (93.2) | 33.0 (91.4) | 43.0 (109.4) |
| Average high °C (°F) | 30.27 (86.49) | 32.88 (91.18) | 36.0 (96.8) | 38.27 (100.89) | 38.79 (101.82) | 36.78 (98.2) | 36.17 (97.11) | 35.4 (95.72) | 35.03 (95.05) | 32.9 (91.22) | 30.38 (86.68) | 29.34 (84.81) | 34.35 (93.83) |
| Daily mean °C (°F) | 26.57 (79.83) | 28.67 (83.61) | 31.87 (89.37) | 34.46 (94.03) | 35.18 (95.32) | 33.45 (92.21) | 32.92 (91.26) | 32.18 (89.92) | 31.78 (89.2) | 29.86 (85.75) | 27.44 (81.39) | 26.32 (79.38) | 30.89 (87.6) |
| Average low °C (°F) | 19.88 (67.78) | 20.93 (69.67) | 24.04 (75.27) | 27.62 (81.72) | 28.89 (84.0) | 27.59 (81.66) | 27.04 (80.67) | 26.45 (79.61) | 25.95 (78.71) | 24.64 (76.35) | 22.43 (72.37) | 20.93 (69.67) | 24.7 (76.46) |
| Record low °C (°F) | 16.0 (60.8) | 17.0 (62.6) | 19.0 (66.2) | 22.0 (71.6) | 25.0 (77.0) | 25.0 (77.0) | 24.0 (75.2) | 23.0 (73.4) | 22.0 (71.6) | 21.0 (69.8) | 18.0 (64.4) | 17.0 (62.6) | 16.0 (60.8) |
| Average precipitation mm (Inches) | 12.32 (0.49) | 20.82 (0.82) | 26.34 (1.04) | 57.63 (2.27) | 102.32 (4.03) | 61.68 (2.43) | 63.88 (2.51) | 124.75 (4.91) | 141.74 (5.58) | 231.04 (9.1) | 159.62 (6.28) | 71.08 (2.8) | 89.44 (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:

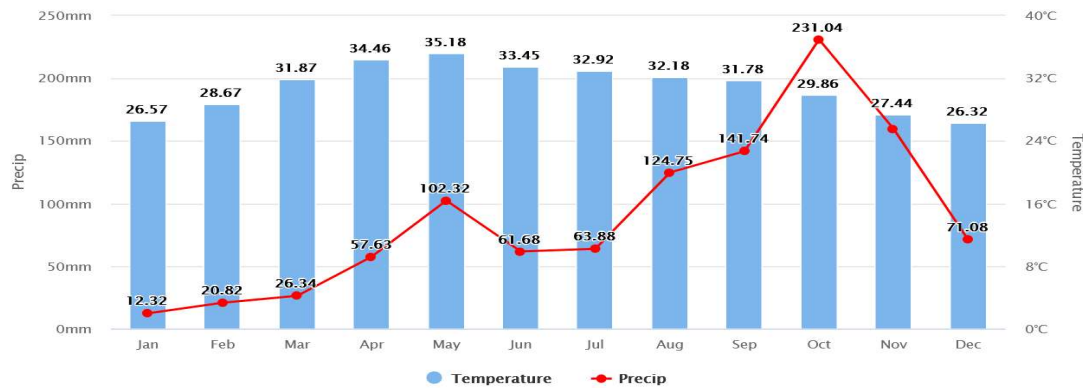
Trichy Terminal (T.N) To THANAPAL PETROLEUM Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

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

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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 THANAPAL PETROLEUM 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:

- Womens SIDCO Industrial Park
- furniture store room
- Aishwarya Medical Centre
- HOTEL SARVESH
- Sri Jaiguru Industries
- SIDDHARTH INFOTECH
- Nalladai Mukkuttu Bus stop
- manikandan house
- VINAYAKA MOTORS

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- **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**

2. Alternative Route 1-

Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi Follow NH 83 and NH 36 to Chinnammal Kallarai/Kallanai - Poombuhar Rd/Poompuhar Rd in Kumbakonam Continue onto NH 36/NH 83 take the exit toward NH 36 Follow Chinnammal Kallarai/Poompuhar Rd to NH 136B in Aduthurai Follow Aduthurai - Porayar Rd to your destination and Total distance from Trichy Terminal To THANAPAL PETROLEUMAGENCIESIS 136KM.

3. Alternative Route 2

Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi Follow NH 83 and NH 36 to Chinnammal Kallarai/Kallanai - Poombuhar Rd/Poompuhar Rd in Kumbakonam Continue onto NH 36/NH 83 take the exit toward NH 36 Follow Chinnammal Kallarai/Poompuhar Rd to NH 136B in Aduthurai Follow Aduthurai - Porayar Rd to your destination and Total distance from Trichy Terminal To THANAPAL PETROLEUMAGENCIESIS 136KM.

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**

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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:** Women's SIDCO Industrial Park, furniture store room, Aishwarya Medical Centre, HOTEL SARVESH, Sri Jaiguru Industries, SIDDHARTH INFOTECH, Nalladai Mukkuttu Bus stop, manikandan house, VINAYAKA MOTORS
- **Educational institutions** Aishwarya Medical Centre, SIDDHARTH INFOTECH
- **Hospital:** - Aishwarya Medical Centre, Vivekananda Hospital, AYUSH HOSPITAL.
- **Gas Station:** Bpcl petrol pump, SP Petroleum (HPCL), HP PETROL PUMP - M/S. A.V.R. PETROL, Indian Oil, Indian Oil.sk petrol (BPCL)
- **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.

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- **Estimated Emergency Response Times:** : Women's SIDCO Industrial Park, furniture store room, Aishwarya Medical Centre, HOTEL SARVESH, Sri Jaiguru Industries ,SIDDHARTH INFOTECH, Nalladai Mukkuttu Bus stop, manikandan house, VINAYAKA MOTORS .
- 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.
- **Road Signage for TT/PT Driver**














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Road Traffic Signs in India

Mandatory/Regulatory Signs
















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

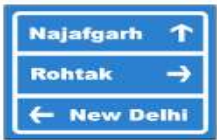

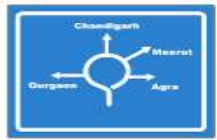
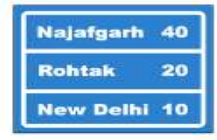
















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Cautionary signs

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

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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 THANAPAL PETROLEUM 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.

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• Risk Assessment - Sharp Turns

| Risk Type | Risk Level | Coordination | Distance From Start | Recommendation Speed |
|------------|------------|--|---------------------|----------------------|
| Sharp turn | Medium | 10.769517372474736, 78.83735063199906 | 650 M | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.76584461192607, 78.8361700257199 | 1.1 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.764182189802032, 78.83459588401435 | 1.3 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.75826698538096, 78.83349398474651 | 2 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.756372549032195, 78.83034570133539 | 2.4 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.751346435623256, 78.8252297405902 | 3.2 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | High | 10.749451955814655, 78.83046376176118 | 3.8 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 10.741610640579689, 78.82718594844422 | 4.8 km | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.734287918634735, 78.82046183804047 | 5.9 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.713512709090521, 78.80911996491783 | 8.5 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.706666925588681, 78.80782375086409 | 9.3 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.699582172344776, 78.80004646577926 | 10.5 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.691462364523247, 78.79064891388968 | 11.9 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 10.6638374704095, 78.78862357927507 | 14.9 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.660732498370965, 78.78635520468103 | 15.4 KM | 20km/hr TO 30 Km/Hr |

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|------------|--------|--|---------|------------------------|
| Sharp turn | Medium | 10.722227581362187, 78.9347603125112 | 16.8 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.730169911896706, 79.01559599787011 | 25.4 KM | 20km/hr TO 15 Km/Hr |
| Sharp turn | High | 10.726766081490599, 79.0635200113329 | 30.7 KM | 10km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.734140998950055, 79.10162826124223 | 35.5 KM | 20km/hr TO 15 Km/Hr |
| Sharp turn | High | 10.743217573382337, 79.12645636460246 | 38.3 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 10.742083016492803, 79.14435569493195 | 40.2 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.76250438798081, 79.15590364998322 | 43.6 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | High | 10.774983434117802, 79.16340982076655 | 45.6 KM | 10km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.840773476044372, 79.19170230933692 | 53.0 KM | 20km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 10.867992715032315, 79.19458929809974 | 56.4 KM | 20km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 10.932810648368424, 79.31161415037673 | 66.4 KM | 20km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 10.93579013016331, 79.31501287148157 | 72.3 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.939722999735817, 79.34499445397549 | 75.3 KM | 10km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.954500588962711, 79.34851455871397 | 77.8 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.96903910964294, 79.35349125864211 | 79.2 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | High | 10.98262363885776, 79.38808539203778 | 82.9 KM | 10km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.981670358967966, 79.39476145291698 | 84.3 KM | 10km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.991322175871051, 79.40932740368454 | 86.5 KM | 20km/hr TO 30 Km/Hr |

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|------------|--------|--|---------|------------------------|
| Sharp turn | Medium | 11.02310983216761, 79.47056898502633 | 93.3 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 11.026922397013648, 79.47639536543001 | 94.2 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | High | 11.019595080170273, 79.48149344828325 | 95.2 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 11.01846320194458, 79.48228243729623 | 98.3 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.022514114367116, 79.5021285451497 | 99.7 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.02573478250995, 79.52877693075244 | 101 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.023965603399521, 79.55074958724957 | 103 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.023712862703752, 79.55135040185937 | 105 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.023544368629196, 79.58791427525563 | 108 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.024723824308632, 79.60765533351251 | 110 KM | 20km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 11.028430654052562, 79.62181739713434 | 112 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.027503951050251, 79.6369235982029 | 114 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.029778580624127, 79.65065650826739 | 115 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.031144713826627, 79.66637516064458 | 117 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.035753166582557, 79.6868913241404 | 119 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 11.033198489770905, 79.69862942779595 | 121 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | High | 11.030543606015673, 79.72307530431958 | 123 KM | 10km/hr TO 15 Km/Hr |
| Sharp turn | Medium | 11.022117249019317, 79.75127031480297 | 125 KM | 20km/hr TO 30 Km/Hr |

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|------------|--------|--|----------|------------------------|
| Sharp turn | High | 11.009790249209269, 79.80713354736349 | 133 KM | 10km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 11.003272316592032, 79.80670049904907 | 134 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | High | 10.998454621553481, 79.80904617741886 | 135 KM | 20km/hr TO 30 Km/Hr |
| Sharp turn | Medium | 10.995654298945862, 79.80819174053443 | 135.6 KM | 20km/hr TO 15 Km/Hr |

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10.757864054403178, 78.8335156875251

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10.764113439530249, 78.83446118713621



10.751281467293017, 78.82523571998917

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10.751314343624747, 78.82530656733346



10.75126610223314, 78.82518044583597

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10.75028318292191, 78.82795244340517



10.749185832475025, 78.8304590222586

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10.739443239536497, 78.83780144303421



10.66061597511672, 78.78654572646798

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10.642196979947212, 78.78752451242383



10.59057338373165, 78.7823247876881

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10.758834669577205, 78.6592139735722



10.389384108854301, 78.7984169777083

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10.718135064816051, 78.94270693274366



10.738672953435, 79.11004664424632

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10.866480980638618, 79.18996103437749



10.938463991015075, 79.34584210079362

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10.98034660379777, 79.39425138634495



11.019655185422328, 79.48110779124357

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11.012542437765035, 79.77866174661126



10.998387643053475, 79.80976455040062

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