

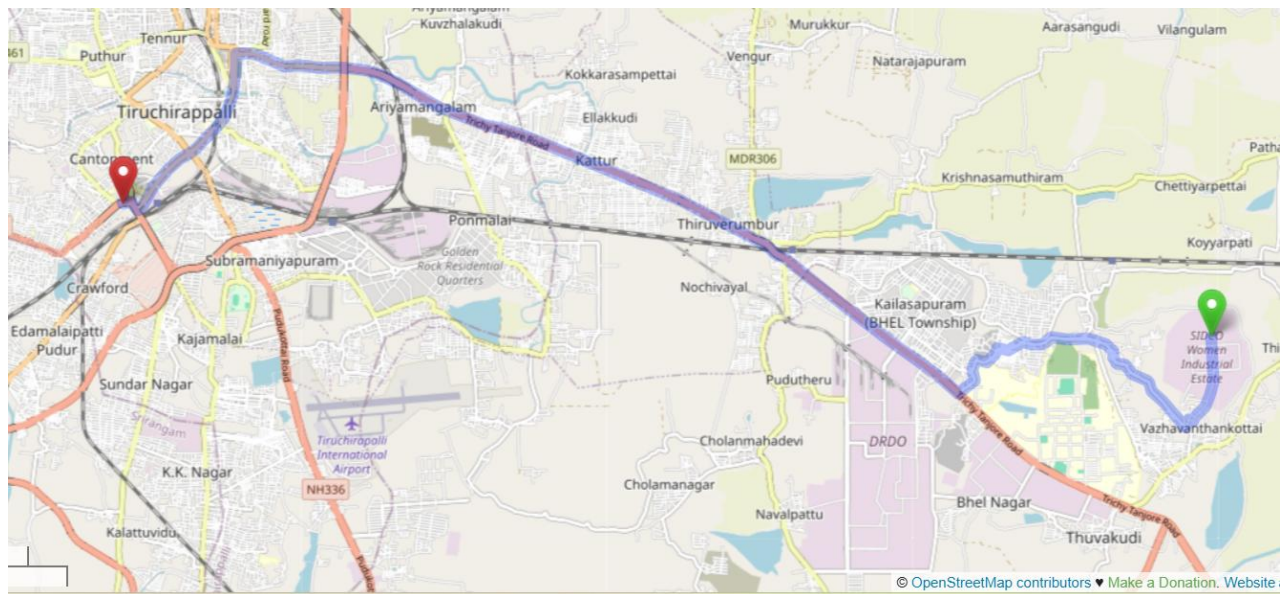
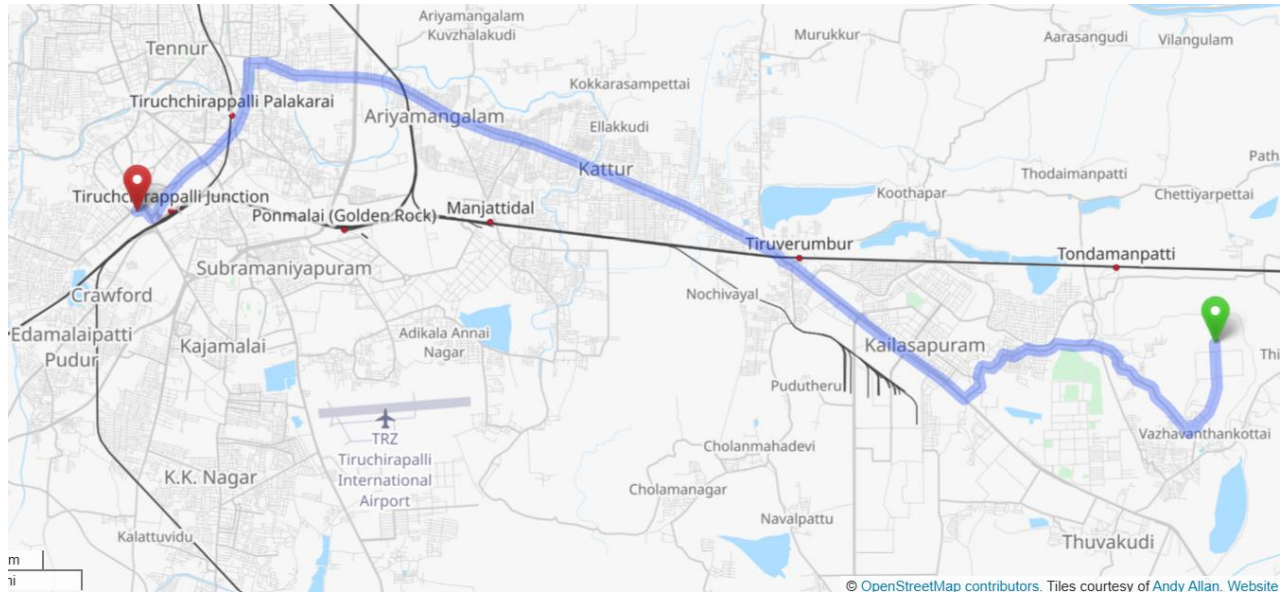


**IndianOil**

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

## JOURNEY RISK MANAGEMENT REPORT

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO ASGLOURDUSAMY PILLAI - SONS(10.794019 , 78.68037) TOTAL DISTANCE – 32.4 KM**



**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**

# JOURNEY RISK MANAGEMENT REPORT

## Welcome to the Journey Risk Management Study for ASGLOURDUSAMY PILLAI - SONS

**Total distance: 32.4 KM; Start with: (10.7753 , 78.8368), End with: (10.794019 , 78.68037)**

### ❖ Route Safety Analysis Report

#### 1. Overview of the Route Map

The route from Trichy Terminal (T.N) TO ASGLOURDUSAMY PILLAI – SONS. The Route passes Through several key point Including Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow Outer Ring Rd/Trichy Bypass and NH336 to Coimbatore - Trichy Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Pudukottai Main Rd in Sangillyandapuram, Tiruchirappalli, Continue on Coimbatore - Trichy Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Pudukottai Main Rd to your destination in Bharathiyar Salai and Total distance from Trichy Terminal To ASGLOURDUSAMY PILLAI - SONS IS 32.4 KM.

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

**Weather Conditions:** Trichy Terminal (T.N) To ASGLOURDUSAMY PILLAI – SONS 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

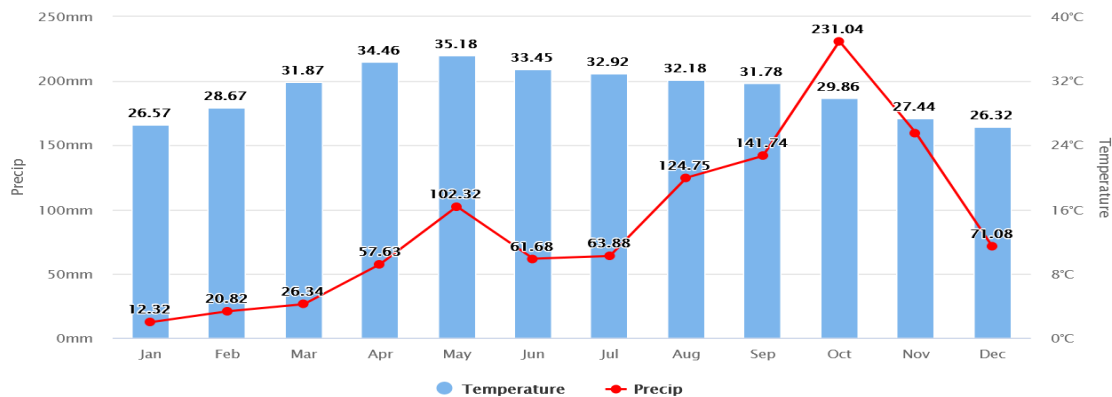
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	33.0 (91.4)	38.0 (100.4)	41.0 (105.8)	43.0 (109.4)	43.0 (109.4)	42.0 (107.6)	40.0 (104.0)	39.0 (102.2)	38.0 (100.4)	37.0 (98.6)	34.0 (93.2)	33.0 (91.4)	43.0 (109.4)
Average high °C (°F)	30.27 (86.49)	32.88 (91.18)	36.0 (96.8)	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 ASGLOURDUSAMY PILLAI – SONS 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 ASGLOURDUSAMY PILLAI – SONS 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**

**Peak Hours:**

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## **JOURNEY RISK MANAGEMENT REPORT**

Typically, Trichy Terminal (T.N) To ASGLOURDUSAMY PILLAI – SONS 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
- BVM Global School
- Morais City
- Anna Science Center Planetarium Office
- Tiruchchirappalli Junction
- Southern Railway Employees Cooperative Credit Society Ltd.
- Cauvery Railway Officers Club

### **❖ 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 water logging.

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

**Alternative Route 1-** ). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow Outer Ring Rd/Trichy Bypass and NH336 to Coimbatore - Trichy Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Pudukottai Main Rd in Sangillyandapuram, Tiruchirappalli, Continue on Coimbatore - Trichy Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Pudukottai Main Rd to your destination in Bharathiyar Salai.

**Alternative Route 2-** Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi Head south on SIDCO to Indian oil Storage Follow NH

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## **JOURNEY RISK MANAGEMENT REPORT**

83 to Coimbatore - Trichy Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Pudukottai Main Rd in Sangillyandapuram, Tiruchirappalli, Continue on Coimbatore - Trichy Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Pudukottai Main Rd to your destination in Bharathiyar Salai.

### **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, MedPlus Trichy Rail Nagar.
- **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:** Water logging, traffic congestion, and potential communication dead zones.

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## JOURNEY RISK MANAGEMENT REPORT

- **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**














### 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



## 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 and</p>			




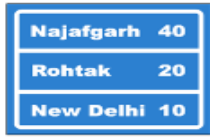
















## JOURNEY RISK MANAGEMENT REPORT

### 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 ASGLOURDUSAMY PILLAI – SONS 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**

<b>Risk Type</b>	<b>Risk Level</b>	<b>Coordination</b>	<b>Distance From Start</b>	<b>Recommendation Speed</b>
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	10.758130312968659, 78.83351974664701	2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.756215840348958, 78.8304884085524	2.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.75025962560424, 78.82817881762315	3.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.751181428433954, 78.825075304812	3.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.788122129802503, 78.77245993566413	11.0 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.804782958282365, 78.73240296705117	15.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.813014629793768, 78.7125664835725	18.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.803327220557641, 78.71195956893584	19.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.790534437451903, 78.70520803050302	21 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.788658803952563, 78.69639335547636	22 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.790225460860709, 78.696125420449	22.2 KM	20km/hr TO 30 Km/Hr

## JOURNEY RISK MANAGEMENT REPORT

Sharp turn	Medium	10.798622602396737, 78.69225950155165	23.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.800966240373466, 78.69020533341771	23.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.79321911249848, 78.68265329605767	24.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.793407108897984, 78.68241087870805	24.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.794363593083059, 78.68151138269248	25 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.794122774233092, 78.68002649571692	25.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.794083577686706, 78.68030632680295	25.2 KM	20km/hr TO 30 Km/Hr

### • Risk Assessment - Elevation Changes

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

## **JOURNEY RISK MANAGEMENT REPORT**

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO ASGLOURDUSAMY  
PILLAI - SONS(10.794019 , 78.68037) TOTAL DISTANCE – 32.4 KM**



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



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

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## 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**

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**

## 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/TNSO/ASGLOURDUSAMY PILLAI - SONS**

## JOURNEY RISK MANAGEMENT REPORT



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

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**



## JOURNEY RISK MANAGEMENT REPORT



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

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**

## JOURNEY RISK MANAGEMENT REPORT



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

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.789002672140349,  
78.69703832614323**

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**



## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.800597307718752,  
78.69075391907316**

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**

## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- HIGH COORDI: 10.793409217828719,  
78.68271867481357**

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**

## JOURNEY RISK MANAGEMENT REPORT



IMAGE :- SHARP TURN RISK LEVEL :- HIGH COORDI: 10.79430685447139,  
78.68167379211613



IMAGE :- SHARP TURN RISK LEVEL :- HIGH COORDI: 10.794133824945986,  
78.68007508505426

ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS



## JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- HIGH COORDI: 10.79405412371428,  
78.68011263597957**

**ALARP/JRM/TNSO/ASGLOURDUSAMY PILLAI - SONS**