**User acceptance Testing**

User Acceptance Testing is the final phase of software testing where real users test the system to verify if it meets business requirements and is ready for deployment.

In the Traffic Telligence ML project, UAT ensures that:

* Traffic predictions are usable, accurate, and action able.
* Sales force integrations (alerts, reports) work as intended.
* Users (traffic planners, city officials) are satisfied with the system.

**UAT Plan: Traffic Telligence**

1. **UAT Objectives**

Validate accuracy of ML traffic volume forecasts.

Confirm timely delivery of alerts in Sales force.

Ensure dashboards are user-friendly and actionable.

Check system handles real-time and historical data smoothly.

Verify workflows (notifications, escalations, reports).

1. **UAT Stakeholders / Users**

User Role Responsibilities

Traffic Analyst Review traffic volume reports and alerts

City Planner Use predictions for route planning

Operations Officer Respond to alerts/escalations

1. **UAT Test Scenarios**

Test Case ID Description Expected Result

TC01 Predict traffic volume for a given location/time Traffic prediction displayed correctly

TC02 Receive alert when traffic is above threshold Notification received in Sales force (email/SMS/case)

TC03 View trend dashboard in Sales force Dashboard loads correct charts & data

TC04 Compare predicted vs actual traffic Error margin is within accepted limit (e.g., <10%)

TC05 Holiday/event impact on predictions Model adjusts for external factors

1. **UAT Entry Criteria**

ML model is trained and deployed via API.

Sensor data and predictions are flowing to Salesforce.

Dashboards are configured and accessible.

Test users have access and training.

1. **UAT Exit Criteria**

All critical and high-severity test cases passed.

Error rate of traffic prediction within accepted limits.

Alerts are delivered with <1 min latency.

User feedback collected and implemented (if feasible).

1. **UAT Success Metrics**

**Metric Target**

Prediction accuracy (R²) ≥ 0.85

Mean Absolute Error (MAE) < 100 vehicles/hour

Dashboard load time < 3 seconds

Alert response time < 1 minute

User satisfaction (survey) ≥ 90% positive

1. **UAT Documentation**

UAT Test Plan (with scenarios, timeline)

UAT Test Cases with results (Excel or tool like TestRail)

UAT Feedback Summary

UAT Sign-Off Sheet (signed by stakeholders