Decision Engine: (Nathan Lutz)

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| **Category** | **Description** | **Test Case** | **Description** | **Objective** | **Requirements Referenced** |
| Integration | Decision Engine –  DB Interface | 2.1 | Database Connectivity | Test Current ITS database connection | 3.1.2.1.iv |
| 2.2 | Select Ability | Test ability to query the database and necessary tables | 3.1.2.1.v.a, 3.1.2.1.vi.a, 3.1.2.1.vi.d, 3.1.2.1.vi.g, 3.1.2.2.iii, 3.1.2.2.iv, 3.1.2.2.v, 3.1.2.2.vii, 3.1.2.3.iii, 3.1.2.3.iv |
| Unit | Decision Engine –  Ridership Trend Analysis | 2.3 | Input Validation | Validate Input of date, time range, stop id | 3.1.2.1.i,  3.1.2.1.ii |
| 2.4 | Interval Validation | Test future/past date determination | 3.1.2.1.iii |
| 2.5 | Average Function Test | Test average of embark/disembark for past 15 days | 3.1.2.1.vi.b |
| 2.6 | Past Event Test | Test past Event Detection | 3.1.2.1.vi.c |
| 2.7 | Future Event Test | Test future Event Detection | 3.1.2.1.vi.f |
| 2.8 | Ridership Variance Function Test | Test accuracy of variance between established disembark/embark averages and past event values | 3.1.2.1.vi.h |
| Integration | 2.9 | Ridership  Output Validation | Test output of embark/disembark to Ridership Trend Report function | 3.1.2.1.vii |
| Unit | Decision Engine –  Delay Impact Calculator | 2.10 | Input Validation | Validate input of GPS coordinates and dates | 3.1.2.2.i.  3.1.2.2.ii |
| 2.11 | Train Activity Test | Test ability to determine if a train is active or not | 3.1.2.2.iii |
| 2.12 | Delay Average Calculation Test | Test accuracy of average variance from the schedule | 3.1.2.2.vi |
| 2.13 | Alert Detection Test | Test ability to correctly identify active alerts | 3.1.2.2.vii, |
| 2.14 | Alert Delay Interval Application Test | Test accuracy of alert severity level delay interval on variance average | 3.1.2.2.viii |
| 2.15 | Total Calculated Delay Test | Test accuracy of comparison between calculated expected time-of-arrival and schedule | 3.1.2.2.ix |
| Integration | 2.16 | Delay Estimate Output Validation | Test output of delay time to Train Data Report Module |  |
| Unit | Decision Engine – Ontime Performance Reporting | 2.17 | Input Validation | Validate input of Date range and Stop ID | 3.1.2.3.i,  3.1.2.3.ii |
| 2.18 | Ontime Accuracy Test | Test accuracy of variance between past arrival times and schedule times | 3.1.2.3.v |
| Integration | 2.19 | Ontime Performance Output Validation | Test output of variance from the schedule to the Train Data Report Module | 3.1.2.4.vi |