Project Execution Plan: Green City Situation Awareness Project

Executive Summary

The "Green City Situation Awareness" project focuses on assessing and analysing traffic volumes and delays in the Gold Coast region, correlating the findings with public transport initiatives to assess whether a shift towards more sustainable, public modes of transport is occurring. The project focuses on private vehicle volume analysis from July to September 2023 and 2024, with comparisons of public transport ridership trends.
This document outlines the execution strategy, tasks, progress tracking, and Gantt chart to monitor the timely delivery of project milestones.

Objectives and Goals

- **Objective 1:** Analyse private vehicle volume data (July–September 2023 and 2024) for common links.
- **Objective 2:** Assess delays across key traffic detectors and perform comparative analysis of average delays (July vs. August, September).
- **Objective 3:** Compare private vehicle data with public transport ridership to assess if the 50-cent fare initiative correlates with increased public transport use.
- **Objective 4:** Provide a visual representation of traffic volumes, delays, and ridership trends in Gold Coast through maps, charts, and graphs.

Project Scope

- **Data Sources:**
    - **Private vehicle volume** from traffic detectors, for the period of July to September in 2023 and 2024.
    - **Public transport ridership data** for Gold Coast light rail, bus lines, and Queensland Rail.
    - **Delays and travel time** data from detectors measuring average delays per day across major links.
- **Tasks:**
    - Data preprocessing (cleaning and structuring vehicle and public transport data).
    - Aggregating volumes per detector site.
    - Comparative analysis of weekday vs. weekend traffic.
    - Mapping and geospatial analysis (QGIS visualisation).
    - Graphical representations of volume changes and delays.
    - Sourcing additional data from public transport authorities.
    - Gantt chart creation to track deliverables.

Project Execution Approach
The following sections will describe each step of the execution process in detail:

Execution Phases & Task Breakdown
Phase 1: Team Formation & Initial Setup (Weeks 1-3)
- **Objective:** Formulate the project team and allocate roles.
- **Tasks:**
    - Team formation.
    - Organising initial meetings to establish project goals.
    - Drafting the project proposal.
- **Progress Tracking:** Completed by Week 3.

Phase 2: Proposal Approval & IP Sign-Off (Weeks 4-5)
- **Objective:** Obtain client sign-off on intellectual property and ensure approval of the final project proposal.
- **Tasks:**
    - Submitting the finalised project proposal.
    - Client IP sign-off.
- **Progress Tracking:** Delivered by the end of Week 5.

Phase 3: Data Acquisition & Preprocessing (Weeks 6-7)
- **Objective:** Acquire the necessary private vehicle and public transport data for analysis.
- **Tasks:**
    - Receiving access credentials from the client for Snowflake and other data sources.
    - Gathering July to September 2023–2024 vehicle volume data and public transport ridership.
    - Data cleaning and structuring.
    - Handling missing data and performing initial exploratory analysis.
    - **Progress Tracking:** Data acquired and cleaned by Week 7.

Phase 4: Traffic Volume and Delay Analysis (Weeks 8-9)
- **Objective:** Analyse traffic volumes and delays and perform geospatial mapping.
- **Tasks:**
    - Conducting comparative analysis of private vehicle volumes for July to September 2023 and 2024.
    - Summating and averaging delays per link for each representative weekday/weekend.
    - Mapping volumes and delays using QGIS.
    - Detecting trends and shifts between July and August (post-50-cent fare initiative) in public transport.
    - **Progress Tracking:** 80% of volume/delay analysis completed by Week 9.

Phase 5: Public Transport Comparative Analysis (Weeks 10-11)
- **Objective:** Compare private vehicle volumes with public transport ridership data.

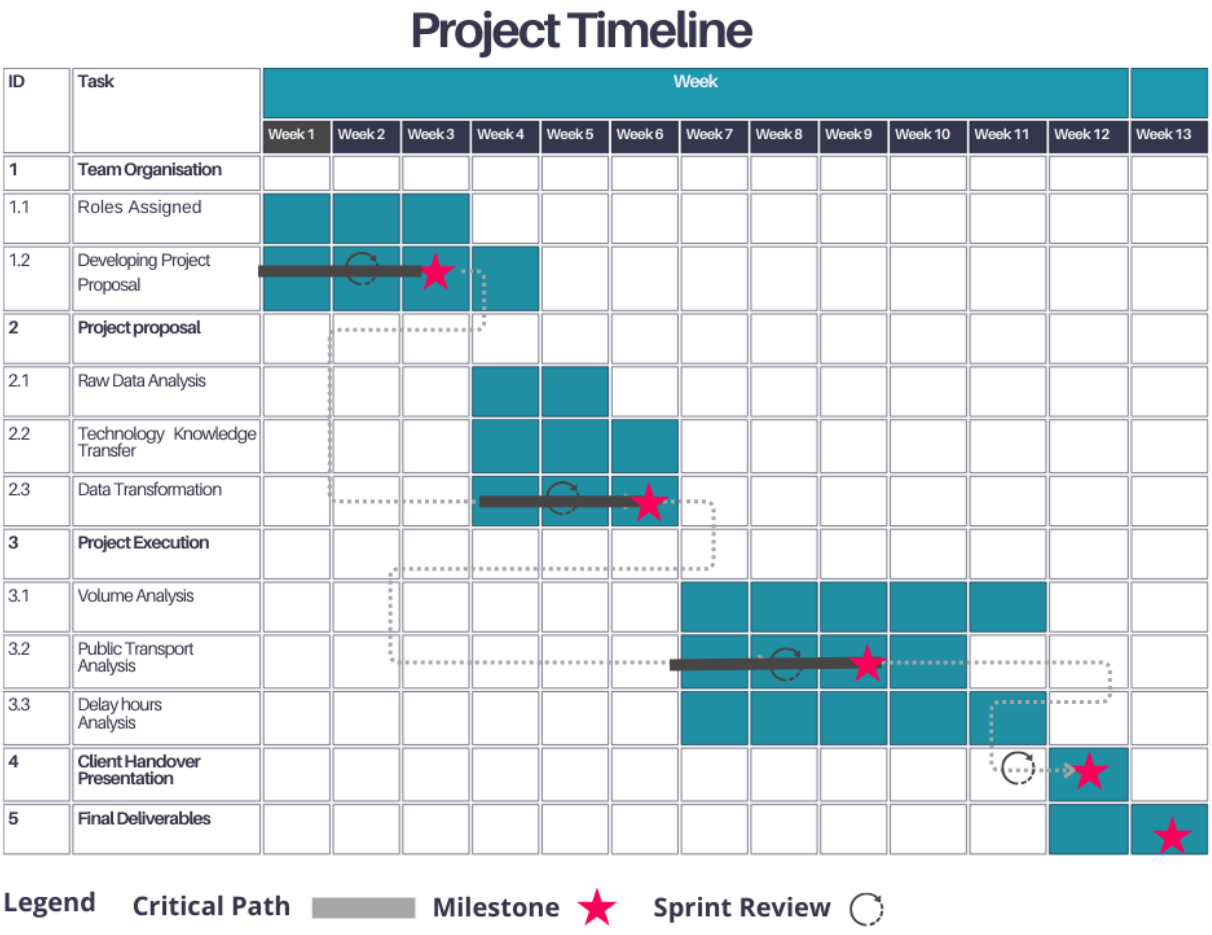
- **Tasks:**
    - Performing year-over-year analysis of public transport usage (Gold Coast Light Rail, Queensland Rail, Surfside Buses).
    - Summating total trips by public transport per mode.
    - Identifying correlations between private vehicle usage and increased public transport use (especially after the fare reduction).
    - **Progress Tracking:** Completed by Week 11.

Phase 6: Visualisation & Deliverables (Weeks 12-13)

- **Objective:** Provide graphical visualisations of the findings.
- **Tasks:**
    - Creating charts for volume comparison (weekdays vs. weekends, 2023 vs. 2024).
    - Graphing delays over time to show congestion trends.
    - Creating an infographic summarising the key insights (traffic volumes, delays, ridership shifts).
    - **Progress Tracking:** Visuals and deliverables ready for submission by Week 13.

Gantt Chart: Task Planning & Progress

Gantt Chart Overview (Weeks 1–13)



Deliverables and Milestones

- **Milestone 1 (Week 5):**
  - Approved project proposal and IP sign-off.
- **Milestone 2 (Week 7):**
  - Data acquisition and cleaning completed.
- **Milestone 3 (Week 9):**
  - 80% completion of volume and delay analysis.
- **Milestone 4 (Week 11):**
  - Completed public transport analysis.
- **Milestone 5 (Week 13):**
  - Final visualisation of results and submission of findings.

Conclusion

The Green City Situation Awareness project is structured with clear milestones, tasks, and progress tracking mechanisms. This Project Execution Plan ensures that all deliverables are on schedule, data analysis is thorough, and visualisation is ready for presentation to the client. Continuous check-ins with the client and regular internal reviews will ensure the project meets its objectives and provides actionable insights.