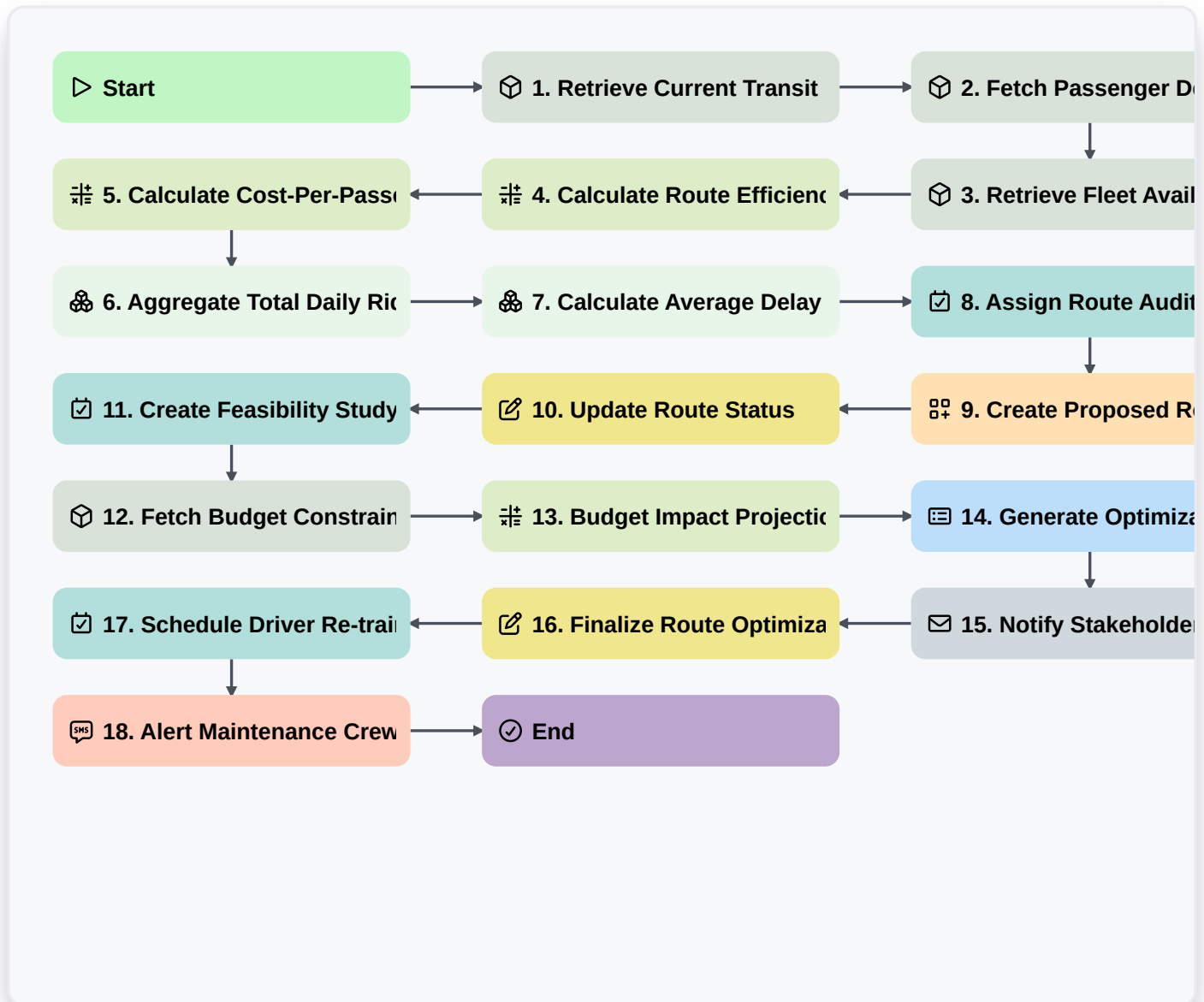


Public Transit Route Optimization Process



Start

Start of the Workflow/Process.

1. Retrieve Current Transit Routes

Fetch all active route entries from the Transit Routes data model to analyze current coverage.

2. Fetch Passenger Demand Data

Retrieve historical passenger count and heat map data from the Demand Data model.

3. Retrieve Fleet Availability

Get data on available buses, trains, and drivers from the Fleet Resource model.

4. Calculate Route Efficiency Score

Execute a formula comparing Passenger Demand vs. Current Vehicle Frequency to identify gaps.

5. Calculate Cost-Per-Passenger

Calculate the operational cost of existing routes divided by the total passenger volume.

6. Aggregate Total Daily Ridership

Sum the total number of passengers across all selected routes to determine high-impact zones.



7. Calculate Average Delay Time

Calculate the average latency/delay across all routes to identify bottleneck segments.

8. Assign Route Audit Task

Create a task for Urban Planners to physically inspect high-congestion segments identified in analysis.

9. Create Proposed Route Adjustment

Generate a new entry in the 'Proposed Changes' data model containing the optimized route coordinates.

10. Update Route Status

Update the status of existing routes to 'Under Review' in the Transit Routes model.

11. Create Feasibility Study Task

Assign a task to the Engineering team to assess the infrastructure requirements for new stops.

12. Fetch Budget Constraints

Retrieve the remaining quarterly budget from the Financials data model.

13. Budget Impact Projection

Calculate the projected cost of the new proposed routes against the available budget.

14. Generate Optimization Summary Report

Create a comprehensive report summarizing the findings, efficiency gains, and cost implications.

15. Notify Stakeholders of Proposed Changes

Send an email to City Council and Transit Authorities with the generated Optimization Report.

16. Finalize Route Optimization Plan

Update the 'Optimization Plan' entry status to 'Approved' once all task checklists are complete.

17. Schedule Driver Re-training

Create tasks for Operations Managers to update driver schedules based on new route timings.

18. Alert Maintenance Crews

Send SMS alerts to depot managers regarding necessary vehicle re-allocations.

End

End of the Workflow/Process.