

To: Operations & Scheduling Committee

Date: 06/21/2023

From: Pranjali Dixit, Manager of Planning

Reviewed by: *Ref*

SUBJECT: Swiftly Modules

Background:

In the fall of 2022, agency staff embarked on a search for alternative solutions to improve data collection for on-time performance (OTP) tracking. The goal was to achieve this enhancement without requiring a complete overhaul of the existing Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system. This led to exploring options provided by Swiftly, a cloud-based transit data platform.

Swiftly integrates seamlessly with existing hardware on buses, offering robust data analytics and visualizations. Staff implemented two key modules: On-Time Performance and Run Times. These modules provide a comprehensive picture of service delivery.

Swiftly:

Swiftly leverages a strategic combination of three data sources to track real-time bus location and calculate on-time performance and run times at every stop along each route – General Transit Feed Specification (GTFS) Realtime feed, BusTime Application Programming Interface (API) coming from the existing Clever Devices system, the platform collects vehicle location data from the CradlePoint routers already installed on the buses to help fill in gaps from the other two data sources.

In addition to higher frequency of data, the data from the routers has much lower latency (i.e., the delay between the data being generated and received), which means it more closely reflects real-time conditions. Swiftly's platform was able to provide 40% more stop-level data and recover 7% of data that would have otherwise been discarded due to missing operator login information and has been instrumental in analyzing system performance and developing targeted service changes for optimization.

Staff has recently begun testing additional functionalities within Swiftly. This ongoing exploration focused on identifying modules that can further enhance the capabilities of Operations, Customer Service teams as well as customers.

Modules:

Live Operations/Real-time Passenger Predictions

This module provides operations staff with a central hub for monitoring bus health and performance. Key features include:

- **Live Vehicle Tracking:** Updates every 5-10 seconds, giving dispatchers a clear picture of bus locations throughout the system.
- **Fleet Optimization:** Quickly identifies unassigned vehicles and facilitates efficient deployment based on real-time needs.

- **On-Time Performance Monitoring:** Enables proactive measures to address delays and improve overall schedule adherence.
- **Dynamic Stop Predictions:** Provides accurate arrival estimates for riders, even when buses are rerouted, allowing for better trip planning.
- **Enhanced Customer Service:** Equips call center staff with real-time data to effectively respond to customer inquiries about bus locations and arrival times.

A recent system outage highlighted the critical importance of this module. When traditional tracking methods were unavailable, temporary access to the module proved to be an essential resource. It allowed operations staff to maintain bus monitoring and customer service staff to continue assisting riders during the disruption.

GPS Playback

This module is a powerful tool that transforms raw location data into dynamic map visualization. It replays the historical movements of every vehicle in your transit network, allowing agency staff to rewind time and see the location of any bus during a specific period. This data can be further used for:

- **Vehicle Identification:** Block and trip IDs for easy route and schedule reference.
- **Driver Information:** Assign accountability and personalize performance reviews.
- **Performance Metrics:** Monitor adherence to schedules, headways, and speed limits to identify areas for improvement or recognize exemplary service.
- **Investigate Missed Stops:** Quickly investigate and resolve passenger complaints when passengers get passed up by buses.

Service Adjustments

This module empowers staff to adapt to unexpected situations and proactively manage service disruptions, all in real-time.

- **Dynamic Adjustments:** Instantly enact detours, modify departure times, add or cancel trips, close stops, and create temporary stops – all on the fly.
- **Real-Time Updates:** Changes made through Service Adjustments are reflected immediately in Swiftly's real-time predictions, keeping both customers and staff informed.

This is the first and only transit tool to share real-time detour information, including detour shapes and temporary stops, with third-party rider apps. This is achieved through Trip-Modifications, a cutting-edge update to the GTFS-rt TripUpdates specification. Additionally, our current partnership with Transit Royale allows us to leverage this innovative functionality and display real-time detour shapes directly within Transit's mobile app – empowering riders with the information they need, when they need it.

Financial Implications:

The one-year cost for the Live Operations/Real-time Passenger Predictions, GPS Playback and Service Adjustments modules is \$181,000. Staff plans to use TDA funds to cover the cost, which has already been included in the FY 2025 budget.

Recommendation:

Staff recommends acquiring the additional three modules from Swiftly for one year at a cost not to exceed \$181,000.

Action Requested:

Staff requests that the O&S Committee forward the proposed one-year contract with Swiftly to the Board for approval.

Attachments:

None