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hopthru

HOPTHRU PLATFORM SOLE SOURCE JUSTIFICATION
November 2022

Hopthru is the only full-service platform designed to handle every aspect of the APC (Automatic Passenger Counters) data pipeline from data processing to service planning. The platform consists of two modules, Hopthru Cleanse and Hopthru Analyze.

Hopthru Cleanse is an APC processing agent that produces APC data certifiable for NTD (National Transit Database) reporting. The module combines GTFS (General Transit Feed Specification), GTFS-RT(General Transit Feed Specification - Real Time) (if available), vehicle assignments, and raw APC data to automatically determine valid events, clean data as necessary, and ensure an accuracy level of 95%+ (as defined by the FTA (Federal Transit Administration) for both UPT ("unlinked passenger trips") and PMT ("passenger miles traveled").

Unlike other data cleaning tools which rely on custom business rules to be implemented by the agency, Hopthru's algorithms assign confidence values to each APC event; allowing the system to dynamically determine the proper cleaning methods to be applied at the time of processing. If NTD confidence and precision levels are not met in the results of sampling plans, Hopthru alone will provide the needed research and customizations to ensure such precision levels are achieved and maintained.

Additionally, Hopthru Analyze is a big-data platform designed to detect and deliver insights about system ridership and performance. It is the only software that continuously and automatically ingests ridership data and instantly surfaces system, route, stop, trip, block, and vehicle level analytics with tabular, graphical and geospatial analyses. Unlike other reporting tools, this analysis is automatic and does not need intermediary data processing before being plotted. By combining GTFS and APC data, Hopthru is able to calculate advanced KPIs, such as 'boardings per revenue hour' and 'passenger miles traveled'.

Unlike other tools which rely on custom hardware, Hopthru can work with any APC hardware. If an agency chooses to switch or replace onboard hardware in the future, Hopthru's services will not be impacted.

Hopthru, Inc. is the sole manufacturer and sole provider of the Hopthru Analyze and Hopthru Cleanse software. Furthermore, Hopthru, Inc. warrants that it is the only source for setup and customization, onboarding, and customer support services for the Hopthru platform.

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UNIQUE FEATURES & FUNCTIONALITY

1. Hopthru Cleanse uses proprietary algorithms that ingest APC metadata to assign confidence scores to each event. This allows Hopthru to dynamically deduce the root cause of anomalous APC data and determine the most effective cleaning technique at the time of processing.

2. Hopthru Cleanse does not discard APC data at the trip level. It instead discards at the event level, reducing the chance of false negatives and increasing an agency's ability to report 100% counts.

3. Hopthru Cleanse is able to continuously ingest and store GTFS-RT (if available) to bolster the platform's ability to accurately identify anomalous events and determine the most effective cleaning method.

4. Hopthru Cleanse is the only APC processing tool that does not require agency customization or development. If through future sampling plans, it is discovered that NTD thresholds are not being met, Hopthru alone will provide the necessary research and development to re-achieve those levels.

5. Hopthru Analyze provides tabular and geographical ridership analysis at every level of an agency's service area (system, route, trip, stop, block, vehicle). The ingestion of APC and GTFS data required for this analysis is automated — removing the need to manually send or upload data to the platform.

6. Hopthru Analyze automates the combining of schedule and APC data to calculate and geographically plot KPIs such as 'boardings per revenue hour' (productivity) and 'passenger miles traveled' at both a system and route level. No intermediary data processing is necessary.

7. In addition to APC data, Hopthru Analyze can ingest agency-defined custom attributes (e.g. benches, shelters, ADA accessibility, etc). This can be included and filtered by in all views and reports.

8. Hopthru Analyze uses proprietary algorithms that automate the association of disparate object IDs between APC and GTFS data (e.g. connecting routes that have different IDs in APC and GTFS data). This, in turn, allows agencies to associate ridership data with their public facing schedules.

9. Hopthru Analyze is the only platform to identify historical route changes to help explain ridership trends over a queried time period.

10. Hopthru Analyze uses proprietary algorithms to constantly monitor ridership performance and trigger alerts to user-defined events (e.g. High loads on specific routes, poor route efficiency, etc.)

11. Hopthru Analyze gives users the ability to build and modify reports from scratch across all levels of their service area (system, route, trip, stop, block, vehicle) that can:
    a. Be viewed tabularly or geographically
    b. Be automatically and continuously emailed to colleagues on a user-defined cadence
    c. Set alerts to monitor and notify users when thresholds are met

12. Hopthru Analyze allows agencies to analyze and visualize millions of APC data points in seconds without intermediary data processing. There is no limit to the amount of data that can be stored on the platform.

13. Hopthru Analyze can automatically exclude Holiday service from skewing report results. Users can also manually prescribe holiday service for days on which reduced service was unexpectedly run (e.g. snow days, hurricanes, etc.)

SOLE SOURCE JUSTIFICATION

(Requester completes Section A, B and C)

SECTION A - SOLE SOURCE PURCHASE:

Complete if sole source purchase is $10,000 or over, AND competition is not available. Sole Source approvals are valid one year from approval date, unless specified elsewhere.

Requisition No. (if applicable):	Amount:$26,500	Date: June 12, 2023
Supplies/Services Required (be specific): Full-service platform for APC data. Utilizing the automatic passenger counting hardware already installed on our fleet, the platform needs to 1) process APC data such that it achieves the accuracy thresholds as required by the Federal Transportation Administration for input into the National Transit Database, 2) provide diagnostic reporting so that we can evaluate the health of our hardware, and 3) provide an analytical solution that assists DCTS staff with understanding our ridership patterns.		
Proposed Vendor: Hopthru		Vendor No: 18319
Requested by: Richard Jones	Dept: Transportation	Ext: 2925
Justification prepared by: Richard Jones	Dept: Transportation	Ext:2925

Check One: The requested supply/service is a sole source procurement due to:

X	**Availability / One of a Kind**- No competitive product exists or is available from another vendor.
	Compatibility- Must match existing piece or brand of equipment and is available from only one vendor.
	Replacement / Maintenance- Repair or maintenance for specific brand of existing equipment and is available from only original equipment manufacturer or designated service dealer.
	Cost of Changing- The cost of changing vendors would be cost prohibitive. Provide detail in Section C.
	Other- Provide below full explanations, details, complete descriptions, and relevant reasons to support the sole source justification:

At the time of this procurement, Hopthru is the only software that can collectively complete the following, required functions:

APC Processing:

- The system must attain the accuracy thresholds as defined by the NTD without discarding trip or block-level data. Discarding this data would decrease our chances of being able to report 100% counts and would leave DCTS with an incomplete dataset.
- The system must be an out of the box solution that does not require DCTS to customize business rules.
- The vendor needs to have an already integrated data feed with our CAD/AVL system (GMV Syncromatics).

APC Diagnostics:

- The system must proactively alert staff when APC units aren't working as expected.
- Based on historical APC data, the system must deduce the historical picture of hardware health for each vehicle.
- The system needs to be more advanced than just confirming if an APC unit has "checked in". Based on whether or not the vehicle is in service, we need to be notified in the case that the system didn't receive any data and/or if the system received anomalous data (partial counts, etc.) that would be indicative of an underlying hardware issue.

APC Analysis:

- The system needs to provide both tabular and geographical analysis at every level of our service area (full system, route, trip, stop, block, and vehicle).
- The system needs to combine both APC data and GTFS data to enable schedule-based analysis. This will enable DCTS to analyze ridership based on scheduled geography and also enable the platform to calculate schedule-based KPIs like Boardings per Revenue Hour.
- The system must be able to import and analyze custom route and stop attributes. This will allow us to define and analyze ridership with regard to things like stop amenities, ADA accessibility, and more.
- The system must recognize schedule changes from our GTFS data and identify historical service changes to help explain ridership trends over time.
- The system must proactively notify us of user-defined events (e.g. high loads on specific routes, poor route efficiency, etc.)
- The system must allow users to build and modify reports from scratch across all levels of the service area (full system, route, trip, stop, block and vehicle). We must be able to view this data tabularly or geographically, as well as be able to download it in CSV format.
- The system must not have any storage limits.
- The system must exclude Holiday service from skewing results.

SECTION B – COST: Outline here in the greatest detail possible the cost of bidding or changing vendors. (You may attach additional sheets as necessary.)

In order to replicate the functionality provided by the Hopthru platform, DCTS would need to contract with a multitude of disparate vendors and consultants. We'd require:

- Consultants to validate and certify our APCs for NTD reporting.
- Consultants to build a custom diagnostic reporting solution to monitor our hardware health.
- Business Intelligence software to analyze the processed APC data. Because there are no other transit-specific platforms that analyze APC data in the required ways, we would likely need to hire additional staff or consultants to build a custom solution for DCTS.

The cost and effort of working with this disparate group of vendors would be a blocker to us getting this project off the ground and would prohibit DCTS from maximizing the value of our APCs.

SECTION C - REQUESTER CERTIFICATION: By submitting this request, I certify that the above justification/information is accurate and complete to the best of my knowledge and that I have no personal interests relative to this request.

Richard M. Jones, Jr. June 12, 2023

(Name and Signature of Requester) **(Date)**

SECTION D - TO BE COMPLETED BY PURCHASING AGENT:

Based on the information provided in Section A and attached supporting documents,

I concur ☐ / do not concur ☐ (see below) with purchase to be a Sole Source.

Do not concur for the following reason(s):

(Name and Signature of Purchasing Agent or Other) (Date)