

Cal-ITP Market Sounding

A Request for Information Regarding Technologies to Assess Real Time Transit Vehicle Occupancy

Date Issued: July 17, 2020

Date Due: August 7, 2020

1. Overview

This Market Sounding is intended to advance the state of the practice around assessing, streaming, and validating transit vehicle occupancy in real time for both buses and trains. This information is intended to support agency understanding of service utilization in order to automate reporting for the National Transit Database and other requirements. In addition, the COVID-19 crisis and on-going social distancing concerns have increased interest from the traveling public and public transit agencies in vehicle occupancy to reduce crowding.

This is not a solicitation. A Market Sounding is a request for information from the industry to understand what products or services may be available and to approximate the dollars that may be needed for procurement(s). The intent of this Market Sounding is to validate information, project objectives, and requirements for possible future solicitations.

2. Issuer Information

The California State Transportation Agency (CalSTA), the California Department of Transportation (Caltrans), and our rail and transit partners, acting through the California Integrated Travel Project (Cal-ITP) Steering Committee, are conducting this exercise in order to gather input from small or start-up firms as well as established and global companies in the marketplace. Cal-ITP is a project to facilitate easy and accessible travel planning and payments in California, beginning with transit. Dedicated to making traveling by transit easy to use and cost-effective for all, in-depth market research was conducted in 2019 and revealed three main areas of opportunity:

1. Improving reliable, **real-time information** (e.g. vehicle arrival time, service changes, crowding etc.);
2. Reducing friction in **payment**; and
3. Providing a process for transit riders to **verify eligibility for discounts** (e.g. youth, elderly, employee benefits, veterans, persons with disabilities and low-income riders).

For questions about this Market Sounding, send an email to calitp@dot.ca.gov by July 24, 2020 17:00 PT.

All questions and responses to them will be posted on the [Cal-ITP website](#) on July 31, 2020.

3. Goal of the Market Sounding

This Market Sounding is the first step towards 1-3 demonstration projects with small and rural transit agencies starting in late summer 2020. Responses will be evaluated to:

- Gain insights on the landscape of providers and possible partnership opportunities
- Understand how Cal-ITP could make reliable passenger counting technology more affordable and accessible to all California agencies (potentially for inclusion in [California's draft Minimum GTFS Guidelines](#)).
- Further Cal-ITP's understanding of the customer information technology product landscape, particularly as it relates to small and rural transit agencies.

4. Background

The need

California's 300+ transit providers are able to call upon Caltrans and Cal-ITP for technical support. One area where Caltrans regularly offers technical assistance to small and rural operators is with procurements and the associated reporting requirements. Ridership, particularly per vehicle-mile, is a common reporting requirement, and one that can require great effort on the part of the operator to estimate and submit.

In parallel, the entire transit industry is increasingly interested in understanding vehicle capacity, due to the COVID-19 crisis and on-going social distancing requirements. Agencies have developed per-operator and labor-intensive systems to communicate when vehicles are no longer able to receive additional passengers and to deploy additional vehicles if vehicles are at capacity. Passengers want to know if the vehicle they are planning to board will have sufficient room for them, and if not, when the next vehicle might arrive, reliably. Third party transit planning apps want to communicate real time vehicle occupancy to reassure passengers and/or help them plan safer alternative itineraries.

The opportunity

At this time, the General Transit Feed Specification Real Time (GTFS-RT) specification has three possible fields that allow agencies to describe, in real time, the level of crowding on their vehicles. As part of GTFS-RT, this information is intended to be communicated with every transmission of the vehicle's position (ideally 3-4 times a minute).

- OccupancyStatus is produced by only a handful of agencies around the world. It originally described crowding in categorical terms (some seats available, many seats available), which is less precise but more accurate than an absolute count. This would be an appropriate information format for enabling social distancing.
- The GTFS-[occupancies](#) extension and [GTFS-RIDE](#) describe the number of passengers on board the vehicle at each stop. These are more precise but potentially less accurate. If archived properly, this information could allow agencies to both describe their historic ridership by trip and stop, as well as, if available in real time, convey the occupancy status of an individual vehicle relative to local public health guidelines.

The request

Cal-ITP and its partners seek hardware and software solutions that will automate the passive observation and real-time transmission of ridership at the vehicle-level. The hardware should be resilient to real world conditions, legible to vehicle operators and maintenance staff, with high uptime and low cost to install and

maintain. The software should be resilient and legible as well as it transmits data that supports GTFS-RT standards.

Cal-ITP recognizes that this is a precise combination of requests, and we seek information that will advance the state of the practice towards this ideal requested state.

5. Who Should Respond

Responses are welcome from interested entities in many fields, including, but not limited to: transportation, transportation technology, passenger information, transit operations, telecomms, payments, accessibility, privacy, biometrics, data, and computer vision, as well as funding agencies and stakeholders. Cal-ITP is particularly interested in solutions, ideas, and companies that provide innovative approaches to addressing the need to automate observation and real-time transmission of ridership at the vehicle-level.

6. Why You Should Respond

Cal-ITP will use this information to guide development and deployment of real-time information solutions in California, starting in August 2020. This includes prioritizing solutions for deployment and identifying market gaps, business opportunities, and other funding sources. In addition, here are some of the benefits to future partners.

- Working with Cal-ITP to test, evaluate and prove your business and use cases with California residents, visitors, and employees.
- Scaling your business model to multiple agencies across California.
- Aligning your offering with Cal-ITP's metrics of success by conducting demonstrations.
- Working collaboratively in creating and accessing data streams and reports.

7. How to Respond

Responses can be submitted by email to calitp@dot.ca.gov and should include the following information in this order:

1. Solution Description. Describe the proposed tool and provide a product specification.
2. Business Model. Describe your target market, how you expect to make a profit, and how you expect to fulfill customer needs at a competitive price and sustainable cost.
3. Deployment. Indicate how the proposed solution has been deployed, tested, or implemented. Note the jurisdiction where it has been used and any project partners.
4. Quality Assurance. Discuss both data accuracy and precision, as well as data validation methods and performance standards.
5. Maintenance. What will be required of agencies to keep the system functioning reliably? What will the vendor do to address changes in data standards, security vulnerabilities, and other ongoing updates?
6. Privacy. Describe how customer privacy would be protected with the solution. How will the solution or tools store, share, and destroy data about transit users? Describe if the solution will monetize user data, and if so, how user privacy will be protected.
7. Barriers. Note any implementation challenges you've seen previously or foresee with deployment in California.

8. Funding. Note any resources needed upfront or on an on-going basis, such as office support, driver support, hardware, software, additional development time, and presumed existing equipment. Distinguish startup costs from maintenance costs, and indicate how costs would scale for agencies of different sizes (from fewer than 10 vehicles to hundreds).
9. Contact information for an authorized representative of the solution or tools.
10. Company information. Provide an overview of the company, solution owner, or developer, including links to a relevant website or Github repo. If desired, the submission can include PDF attachments with other helpful materials, but please ensure they are no more than 10MB in size and fewer than 20 pages.

8. Schedule & Deadlines

Responses can be submitted by email to calitp@dot.ca.gov until August 7, 2020 17:00 PT.

9. Evaluation Process

Cal-ITP staff will evaluate responses on a rolling basis. They may reach out during the submission period to ask clarifying questions or solicit additional information. Learnings will be processed and published by Caltrans following the Chatham House Rule for source-anonymization.

10. Disclaimer

This Market Sounding is not the start of a market procurement or a legally binding agreement between CalSTA, Caltrans, their rail and transit partners, or any other market parties.