

Bay Area Infrastructure Financing Authority
Network and Operations Committee

December 13, 2024

Agenda Item 6a

Interstate 680 (I-680) Express Carpool Check Smartphone App Pilot Update

Subject:

Update on the results of the I-680 Contra Costa Express Lanes carpool verification smartphone app pilot, including pilot evaluation results, key findings, and framework for determining next steps.

Background:

Bay Area Express Lanes experience high rates of occupancy violations – an estimated 30% of vehicles on average are violating occupancy requirements. Express Lane operators across the country are experiencing comparably high rates of occupancy violations. BAIFA, like other operators nationally, is actively exploring tools to address this issue. Better compliance with occupancy requirements allows for a more equitable system, with faster and more reliable trips for buses, carpools, and those who choose to pay to drive in the lanes.

Today, carpool drivers use a FasTrak Flex® toll tag to declare the number of people in their vehicles, which results in their accounts being tolled at full price or the carpool discount.

Occupancy enforcement is done in the field by the California Highway Patrol (CHP) with assistance from roadside beacons or digital displays that indicate how many occupants are declared, but is limited by CHP's other duties and inherent challenges associated with verifying occupancy manually.

MTC has evaluated various technologies to verify carpools including, most recently, a smartphone app that allows users to self-verify their carpool status. The app uses smartphone optical sensors to determine the number of real faces present at the beginning and end of each trip.

To procure a solution necessary to evaluate a smart phone app, MTC issued a Request for Proposals (RFP) in 2019 and in May 2020, the MTC Operations Committee awarded a contract to RideFlag Technologies (RideFlag) to pilot its smartphone app. The pilot, called Express Carpool Check Smartphone App Pilot, was delayed due to the pandemic. In February 2023, the BAIFA Committee approved Phase 1 of the pilot, allowing carpooling participants to use the I-

680 Contra Costa Express Lanes with the app and a registered license plate in lieu of a FasTrak[®] account for a period not to exceed six months. The objective of the Phase 1 pilot was to determine how well the app works to verify carpools in express lanes, including functionality and accuracy, user acceptance and ease of use, privacy, and full deployment potential.

The Phase 1 pilot launched in September 2023 and was completed in February 2024. One hundred participants made almost 2,000 trips while using the app on the I-680 Contra Costa Express Lanes between Martinez and Dublin and provided feedback through 1,000 surveys. Outreach was targeted via a social media campaign to ensure diverse participation, and 80% of participants were from Equity Priority Communities.

Pilot Evaluation Results and Key Findings

Pilot evaluation results indicate that the technology works and verifies carpools with 99% accuracy. About 87% of participants reported that the application was very easy or easy to use, while 10% were indifferent or neutral and 3% felt that it was not easy to use. MTC tested two versions of the RideFlag app; the first one only counted the number of real faces at the beginning and end of the trip but did not check if they were the same people. The second compared facial geometry/measurements taken at the beginning and end of the trip to determine if the people were likely the same. Results did not indicate a significant difference between the two versions; the first version had quicker verification time and was reported as slightly easier to use. Staff are now considering what it would take to implement the technology at scale.

Next Steps

The results of the Phase 1 pilot are promising. It may be possible to someday use the app to determine eligibility for carpool discounts on Bay Area Express Lanes and toll bridges while continuing to use FasTrak toll tags for toll payment. The technology could make it possible to phase out FasTrak Flex switchable tags, and potentially ease the burden on CHP in their efforts to enforce occupancy violations.

However, deployment of a technology-based solution would mean changes to a sizable and complex existing FasTrak operation underpinning carpooling on the regional bridges as well as its express lanes. As such, it involves significant agency and region-wide effort, requiring regional consensus and evaluation of considerations related to privacy, equity, accessibility,

operational feasibility and statewide interoperability. Staff is developing a framework to consider the goals, objectives and considerations for a potential future deployment, including opportunities and challenges related to integrating the RideFlag app with the existing toll system or customer service back office. Staff intends to develop a roadmap in 2025 for a Phase 2 pilot to explore resource, procurement and technical and operational considerations and assess policy, governance, and statutory implications of deploying a smartphone-app based carpool verification solution for the Bay Area.

Issues:


None identified.

Recommendations:

Information

Attachments:

- Attachment A: Presentation



Andrew B. Fremier