To: Clipper Executive Board
CC: Carol Kuester, MTC

Subject: Bay Area Ventra for Sept 26 Clipper Executive Board Meeting

Dear Clipper Executive Board,

"Bay Area Ventra" is defined below my signature. Please consider asking MTC staff to explore "Bay Area Ventra." This could include:

1. Organize MTC staff and Bay Area transit agency staff that are attending the October 18-19 National Shared Use Mobility Conference in Chicago. Have this group a) use Ventra in Chicago, b) meet with CTA/PACE staff to obtain local Ventra insights, c) report back on the experience.
2. Undertake analysis from the Bay Area, rather than from Chicago.

Upgrading the Bay Area's regional transit fare collection system is an important task that is already underway. It may be difficult to add Ventra-like capability. On the other hand, the Internet of Things is upon us. There may be an opportunity for the Bay Area to catch up and to provide an improved customer experience.

Thanks in advance for your consideration,

Steve Raney
Executive Director, Smart Mobility
Joint Venture Silicon Valley
100 West San Fernando Street, Suite 310, San Jose, CA 95113
www.jointventure.org/maas

Bay Area "Ventra" transit NFC tap and pay
Bring Chicago's more-advanced technology to the Bay Area
June 2016, http://bit.ly/28JDOT4

In a mad rush in June, 2016, Joint Venture opportunistically created a non-binding draft project proposal for "Bay Area Ventra transit NFC[1] tap and pay." (See feature set below.) This was to be a sub-task in a larger federal grant proposal for Joint Venture's Fair Value Commuting project. Parties could not reach agreement in the short timeframe but the region should continue to consider this proposal.

Chicago Transit Authority's Ventra is a partnership between the firms Cubic and Moovel. In the Bay Area, Cubic has the Clipper Card v1.0 contract through 2019, hence it is possible to bring Ventra functionality to the Bay Area using software teams that are already successfully working together, cutting and pasting existing, working lines of

---

[1] Near-field communication (NFC) is a set of communication protocols that enable two electronic devices, one of which is usually a portable device such as a smartphone, to establish communication by bringing them within about two inches of each other.

software code. Since 2013, Ventra has supported public transit NFC tap and pay using Apple Pay and Google Wallet (iPhone and Android). [2]

Portland TriMet offers their mobile Tickets app integrated with Cubic's back end and Moovel's RideTap SDK, providing: mobile public transit e-payment, multimodal trip planning, Lyft, Car2go, bikeshare, etc. [3]

In February 2016, American Public Transit Association and the industry lobbying group NFC Forum partnered to promote public transit NFC payment, via the NFC Forum Transport Special Interest Group (SIG). NFC Forum's high-level members/sponsors include Apple, Google, Samsung, Mastercard, and VISA. Hence there is a national priority for NFC transit payment, putting pressure on the Bay Area to close the technology gap with more advanced cities (Chicago, Portland, Phoenix, London, etc). Japan has had mobile phone transit payment for more than ten years.

In pursuit of an improved customer experience and if funding can be arranged, it may be possible to negotiate a win/win agreement between MTC and Cubic/Moovel for "Bay Area Ventra" extending the existing Clipper software platform.

One possible financing and staffing arrangement:
- $700,000 federal funding
- $500,000 funding from Cubic and partners
- MTC may be constrained on staff bandwidth and might only be able to contribute 400 person hours per year to this effort.

The desired feature set:
- An MTC/Clipper branded consumer Mobility Aggregation (MobAg) smartphone app that is issued/owned by MTC. MobAg provides a single smartphone app to replace your car. A seamless combination of public/private transit/microtransit, bikeshare, rideshare, carshare, vanpool, and advanced mobility services. MobAg apps integrate next-generation mobility services including Lyft, Uber, Scoop, ZipCar, and Car2Go. 20% of Lyft/Uber trips feed public transit. MobAgs provide multimodal trip planning, presenting compelling options for travelers to choose from. Bay Area Ventra will use the Cubic/Moovel software platform.
- Mobile NFC tap and pay at any Clipper reader in the Bay Area (every rail transit station, 96%+ of public transit buses). A "virtual Clipper card" is loaded onto the traveler's phone. 50% of mobile phones currently have NFC (iPhone 6 and beyond). By October of 2018, 90% of phones will have NFC. Low-income penetration of such phones is very similar to high-income penetration.
- Since 2013, Chicago Ventra has supported NFC tap and pay using Apple Pay and Google Wallet (iPhone and Android). 2013 video: https://www.youtube.com/watch?v=TtgOuuLxn_Q
- A visual proof of payment and bar code ticket for legacy phones that don't support NFC.
- The ability for the smartphone NFC reader/writer function to physically update Clipper cards with value/product resulting from in-app payments.
- MTC may negotiate for open APIs that will be compatible with the upcoming Clipper 2.0 Project.
- MTC may negotiate for open APIs to better enable third party Mobility Aggregation apps such as Moovit, Transit App, Urban Engines, TripGo, Swiftly, Xerox's app (GoLA, etc), and Siemens' app can integrate easily.
- The "enterprise commute trip reduction" (ECTR) space (employer commute program automation with commuter benefits payroll software) includes vendors Luum and RideAmigos, both with significant employer "wins" in the Bay Area. MTC may negotiate open APIs to accelerate ECTR integration with Bay

[2] Ventra: https://en.wikipedia.org/wiki/Ventra
[3] Trimet: https://mobileticketingtoday.com/2016/05/06/moovel-n-a-launches-ridetap-pilot-in-portland-or-offers-lyft-and-car2go-within-trimet-tickets-application/ , http://trimet.org/app/index.htm, Moovel's Rider App and RideTap SDK: http://www.moovel-transit.com/products/.

Area Ventra. This allows employers to provide subsidies to the smartphone to pay for mobility services and allows Ventra to report travel mode for creation of ECTR real-time commute mode dashboards.

Third party projections for NFC tap and pay market penetration:
- Gartner Group predicts that by 2018, 50% of consumers in mature markets will use smartphones / wearables for Mobile Payments. Gartner differentiates between smartphone NFC payment (Apple Pay, Samsung Pay and Android Pay) versus branded mobile wallets from banks and credit card providers, but Gartner does not forecast how the market plays out.
- eMarketer defines "proximity mobile payments" as point-of-sale transactions that use mobile phones as a payment method, via tapping, waving and similar functionality. eMarketer projects about 40% of smartphone users will make such payments in 2019.