



PROPOSAL FOR:

# Tuolumne County Transit Agency



DoubleMap  
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Indianapolis. IN 46204

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## Transmittal Letter

*The transmittal letter should include the name, title, mailing address, e-mail address, phone number and original signature of an individual with authority to negotiate on behalf of and to contractually bind the proposing Contractor, and who may be contacted during the period of proposal evaluation. Only one transmittal letter need be prepared to accompany all copies of the Technical and Cost Proposals.*

DoubleMap has identified and understands the Tuolumne County Transit Agency's (TCTA) need for an Automated Vehicle Locator (AVL) / Real Time Passenger Information System (RTPIS) solution to improve efficiency, emergency preparedness, and reliability of the Tuolumne County Transit (TCT). TCTA desires a service that manages on-time performance of transit and provides real time passenger information to the general public. In November, Sales Development Rep, Abram Fleming, performed a demo for both Alex Padilla and Tyler Summersett. Abram was able to understand TCTA's current CAD/AVL set up as well as their challenges. Abram gave a detailed description of the DoubleMap system and highlighted important features for Tuolumne including how it is a turnkey system that is expandable and can seamlessly integrate to allow for additional future options such as Automatic Passenger Counters, Automatic Voice Announcements, and signage. Also, the DoubleMap system allows administrators to make GTFS updates at the click of a button.

DoubleMap's solution is scalable, allowing TCTA to build upon itself by adding integrations without replacing hardware. DoubleMap's off-the-shelf hardware and open-source software keeps TCTA free from costly proprietary solutions. DoubleMap's Mobile Data Terminal (MDT) is the main piece of hardware offering which allows for multiple types of integrations now or in the future depending upon TCTA's goals and budget. Additional solutions can be added without replacing existing hardware. This greatly reduces costs and allows for scalability. Additionally, DoubleMap's solutions have an open API which allows for integrations with existing hardware as well as future solutions. DoubleMap can introduce TCTA to multiple clients who previously had systems that required a complete rehaul when integrations were desired. DoubleMap saves additional costs, hardware, and implementations by simple and easy integrations into the MDT.

Through our strategic partnerships, DoubleMap has experience implementing and supporting clients in over 700 locations across North America. For TCTA's solution, DoubleMap will provide a dedicated installer and support staff to ensure a timely and successful installation. DoubleMap has a 100% success rate of implementations. While DoubleMap normally follows a Five Phase Implementation Process, DoubleMap is able to be flexible. A DoubleMap client had a tight timeline and needed a live ITS solution before the students came back to their campus. DoubleMap was able to successfully implement the live solution within four weeks of receiving the notice to proceed.

As a DoubleMap client, we provide you with complete training of our system, a personal project manager (whom you have a direct line to), and around-the-clock support so that you have full control of your system. You don't become a number, but a partner, as we join you in working towards the success of your transit goal. Additionally, DoubleMap has pioneered initiatives like our Visual Route and Stop Creator which enables clients to make immediate changes to their system. Clients are able to control their system themselves (if they so desire) and doesn't require them to request changes in a queue and wait hours or days for the changes to take effect. DoubleMap ensures clients systems are intuitive, easy to use, and fully supported at all times by DoubleMap staff.

DoubleMap's client base varies from Fortune 500 companies like Walt Disney Studios to municipalities like Rochester Public Transit in Rochester, MN, Kitsap Transit in Bremerton, WA, and Lynx in Orlando, Florida. DoubleMap thrives on tackling issues and creating sustainable solutions, and we invite you to inquire with our references listed within this proposal to gain a better understanding of what a partnership with us encompasses.

Sincerely,

A stylized, handwritten signature in dark ink, appearing to read 'Ilya Rekhter'.

Ilya Rekhter  
CEO, DoubleMap Inc.

DoubleMap's offer is valid for a period of six months from its due date and thereafter until the prospective respondent withdraws it, or a contract is executed, or the procurement is terminated by the TCTA, whichever occurs first.

Ilya Rekhter  
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For any matters regarding the information in this proposal and its contents contained herein, please contact:

Mr. Thomas Standley, DoubleMap, Inc.  
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## Introduction

*In this section, proposing Contractor should furnish a brief history of their firm and qualifications as it relates to providing automated vehicle locator/real time passenger information systems. In addition, proposers should demonstrate an adequate understanding of the work requested in this RFP document.*

## Executive Summary

DoubleMap's mission is to safely move people to the most important events in life. To accomplish this vision, DoubleMap provides users with free, public information for various modes of transportations, user-friendly mobile application designed for all ages and expertise, real-time updates for fixed route transportation solutions, and a safe network for on-demand ride hailing. DoubleMap services have been built with flexibility in mind to provide both dispatchers and riders with real-time vehicle location for a seamless transit experience. DoubleMap's solutions include Fixed-Route, On-Demand, Multimodal, Electronic Fares, and First/Last Mile.

DoubleMap was founded in 2009 by a former Google Engineer who saw an opportunity for innovation and growth within the ITS industry. He realized that major public transit companies were working with rigid software developed years before, in the early 1990's, and they faced difficulty modifying their solutions. DoubleMap has not only bridged the technology gap, but leads the market in providing innovative transit software technology. DoubleMap's expansion has landed us on the Inc 5000 list of fastest growing companies in America the last three years in a row.

Through our strategic partnerships, DoubleMap has over 700 client locations across the globe.

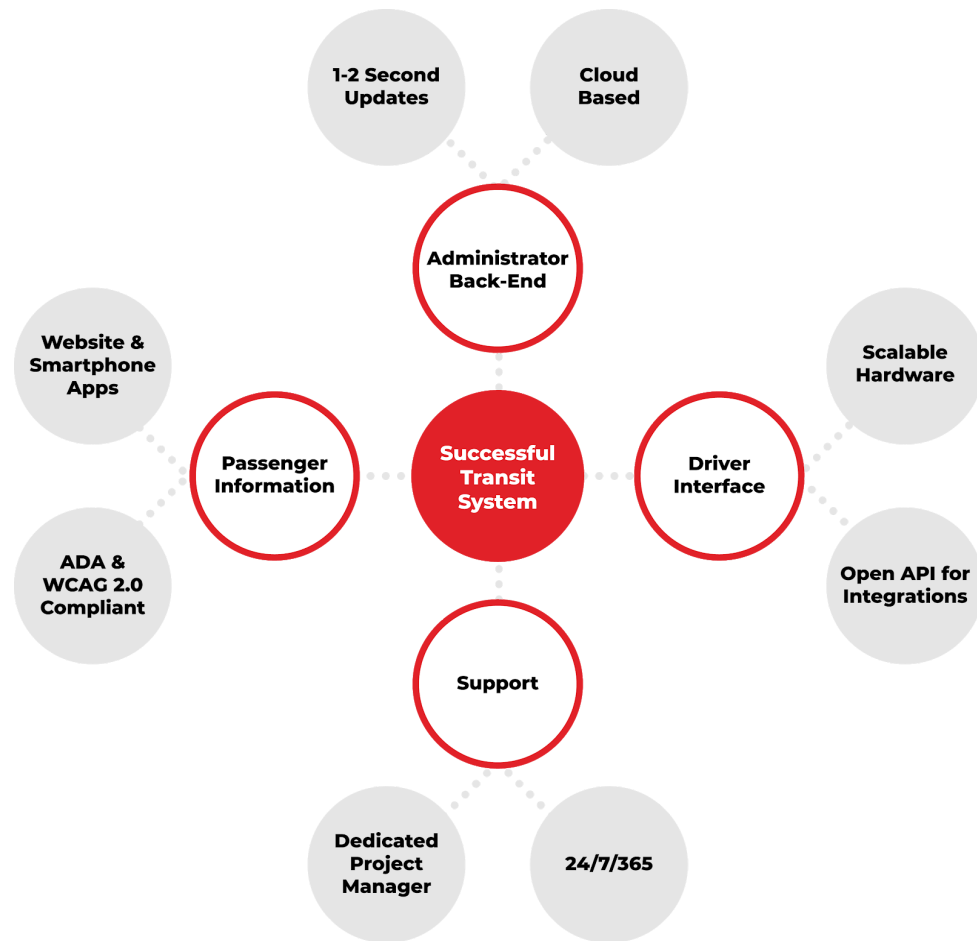


## Company Information

**Name of Organization:** DoubleMap, Inc.  
**Type:** Private Corporation in the State of Indiana  
**Business Since:** 2009  
**Headquarters Address:** 429 N. Pennsylvania St. -- Suite 401 Indianapolis, IN 46204  
**Support Offices:** Orlando, FL & Cupertino, CA  
**Federal Identification No.:** 45-3658717  
**Primary SIC Number:** 7372  
**Dun & Bradstreet Number:** 02-911-3583  
**Telephone number:** +1 (855) 463.6655  
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**Contact for this Proposal:** Mr. Thomas Standley, DoubleMap, Inc.  
thomas@doublemap.com | 317-969-8734

## The DoubleMap Solution

The DoubleMap Solution provides an all-encompassing foundation for a Computer Aided Dispatch (CAD) / Automatic Vehicle Locator (AVL) & RTPIS system. With solutions for administrators, drivers, and passengers backed by DoubleMap support, TCTA can know that their transit needs will be met. With an open API and scalable hardware for integrations, you don't have to worry about having to replace hardware for future expansions.



DoubleMap understands TCTA's scope of requested work. To fulfill this scope DoubleMap proposes a system that provides real-time vehicle information to both administrators, dispatchers, and passengers. DoubleMap offers a full reporting platform which includes both canned reports as well as the ability for TCTA to create their own dashboards and ad-hoc reports. Reporting is included but not limited to, on-time reports, off-route reports, passenger reports, on-time performance, speeding, mileage, route travel time reports, route change reports, headway reports, and more. DoubleMap reporting allows for analysis of both daily and long-term operation so TCTA can make adjustments in order to ensure they are optimizing their time and resources to increase efficiency and customer satisfaction.

DoubleMap is proposing a base solution of Pepwave routers which will meet TCTA's base system requirements per the RFP specifications. By implementing the router, TCTA's drivers will be able to utilize TCTA's current MDTs without having to replace any hardware currently onboard. DoubleMap's goal is to provide the most cost effective and robust solution as possible, and the

addition of the router is most non-invasive option to provide real-time passenger information, SMS, IVR, the mobile application, and the administrative back-office portal with all of the reporting and administrative functionality, such as creating new routes with a click and drag functionality that takes effect instantly. While DoubleMap is initially proposing the implementation of the router in order to save on costs for the base system, we are also proposing the option of deploying the DoubleMap ruggedized Mobile Data Terminal (MDT), which will serve as the central onboard computer and hub for all of the additional modules and integrations currently onboard as well desired optional modules. For instance, with the addition of the ruggedized MDT, TCTA would not be required to install an additional Vehicle Logic Unit (VLU) to deploy additional modules, such as Automated Passenger Counting, Automated Voice Announcements, Onboard Signage, and Traffic Signal Priority.

DoubleMap has a great deal of experience in providing a complete robust, turn-key system for TCTA, complete with Mobile Data Terminals, Automated Passenger Counting, etc., and we also have a great deal of experience in leveraging existing hardware, and deploying routers and standard GPS devices in order to provide a real-time passenger information and CAD/AVL system in order to fit within an agency budget. Additionally, the routers that we are proposing can also be used to deploy passenger Wi-Fi - another area where DoubleMap has a great deal of experience. Regardless of whether or not TCTA decides to deploy passenger Wi-Fi in the immediate future, TCTA will have the hardware already onboard in order to ensure a smooth deployment. DoubleMap is open to either option - deploying routers and leveraging the existing hardware or deploying a complete ruggedized fixed-route hardware/technology solution - and our team will work with the TCTA to ensure a smooth transition away from Nextbus.

## Management Plan & Technical Approach

A Project Management Plan with a detailed budget and cost schedule. The management plan should include:

### Qualifications, Expertise & Experience

- a. Contractor's qualifications, expertise, and past work experience in providing these services to other local transit agencies.

DoubleMap has successfully delivered multiple CAD/AVL projects since its inception in 2009 and has over 700 client locations across North America. At all such times, DoubleMap has worked with various public and private agencies and have integrated systems from various manufacturers.

DoubleMap's coverage includes municipalities, universities, airports, hospitals, and corporate fleets including Fortune 500 companies all across the United States, spanning three continents in all.





## Project Management Program

*b. A description of the overall management program planned to accomplish the objectives of this project.*



### Missy Mattson — Project Manager

Ms. Mattson oversees the activities for system implementations at transit agencies and universities by planning, organizing and scheduling with client's project team and DoubleMap staff. She leads the implementation team in the areas of installation, quality assurance, system acceptance and system production. She defines requirements to maximize customer satisfaction by ensuring all functions are delivered in accordance to project plan and schedule. She monitors daily performance of her clients' systems in order to maintain the level of service committed to in the agreements. Ms. Mattson has managed sites including the University of Pennsylvania; Broome County Transit in Vestal, NY; Town of Estes Park; Florida International University; City of Fargo in Fargo, ND; Southern Methodist University, and Sandy Area Metro in Sandy, Oregon.

## Action Plan

*c. A thorough explanation of the Contractor's proposed course of action. References should be made to RFP requirements and the Contractor's plans for meeting those requirements. If the Contractor proposes major changes in the RFP approach, those changes should be clearly specified.*

DoubleMap's proposed course of action, that are also a part of the overall TCTA project management procedures, can be summarized in five holistic phases, which take us from initial, basic ITS discussions through the project's overall acceptance and the "Go-Live" phase. Moreover, DoubleMap has reviewed the RFP and understands the overall TCTA project approach. At this stage, DoubleMap accepts the approach and does not propose any major changes to it.



**Phase 1: Initiate** – "Notice to Proceed" - DoubleMap and TCTA will discuss the project scope, goals and deliverables. DoubleMap proposes a rigid timeline for data migration, training, installation, testing and the go-live phases. Recurring meetings are scheduled, and the appropriate TCTA staff are assigned to specific project needs and/or oversight. "Accepting Testing Procedures" approved. DoubleMap also collects any GTFS, routing, scheduling and existing manifests for use in the new overall ITS system.



**Phase 2: Design** – DoubleMap’s development and operations teams will cleanse and import critical data to the new CAD/AVL module. If no such data exists, these teams will work alongside TCTA staff to analyze, design and input the necessary data. This is where the “System Design Document” will be approved. The resulting CAD/AVL system framework will be launched internally, although the system will not be functional until phase 3 is complete.



**Phase 3: Build & Deploy** – “Factory Acceptance Testing” completed and Mobile Data Terminals (MDTs) are installed with software modules at this point. Next, the physical installation and on-board wiring takes place for each vehicle, directly followed by training of DoubleMap system and “System Documentation Approved”. The system collects historical timing data for use in DoubleMap’s estimated time of arrival (ETA) algorithms.



**Phase 4: System Acceptance** – “Pilot Fleet Testing” completed followed by “Full Fleet Testing”. of the whole system takes place. The respective staff members join DoubleMap in monitoring the deployed system in real-time for feedback and system acceptance. ETA predictions will be released internally to for review and acceptance prior to public launch. “System Acceptance Testing” and “Operation Period Testing” completed at this time.



**Phase 5: Go-Live** – System Live map, mobile website, and smartphone apps will be released to your riders. ETA predictions will also be available on all DoubleMap interfaces for public use. TCTA staff will be presented with bus stop branding options, and any public facing kiosks or displays can be used to showcase the real-time tracking technology.

The below scope of work explains, in detail, how DoubleMap will meet each of the requirements listed in the RFP.

## Proposed Project Schedule

*d. An itemized description of the proposed project schedule, and the end products to be produced.*

Please refer to Attachment A: Gantt Chart.

## Scope of Work - Required Items

- e. *Technical discussion of the scope of work. Contractor's interpretation of the scope of work and demonstration of the Contractor's understanding of the project requirements, their capability to provide the requested scope of work and their commitment to meet the proposed schedule or alternative schedule submitted with their proposal.*

## AVL Hardware

### A. **Using Our Existing AVL Hardware or Proposing to Use New AVL Hardware.**

*The Contractor may describe how the proposal can utilize all or some of our existing Automatic Vehicle Locator (AVL) hardware or the Contractor may propose to use new AVL equipment. If the proposal cannot use TCT's existing AVL equipment, the Contractor must describe why they cannot use our existing hardware. If there are any additional costs needed to update or improve our existing hardware, they need to be included as a part of the proposal. Please review Attachment A for more details on our existing hardware. Bonus points will be given to proposals that can utilize all or part of our existing hardware. If the Contractor is proposing to use new hardware for our bus system, we are interested in the cost for new hardware for 1 bus, and the entire fleet (20 Buses). This option is not a requirement.*

- *Must be a Turnkey ready system including optional items.*
- *All new hardware shall remain under warranty for the first year of contract.*
- *TCTA is interested in purchasing and/or leasing AVL hardware equipment.*

DoubleMap is able to integrate with TCTA's existing AVL hardware equipment with the proposed DoubleMap solution in order to decrease costs. TCTA can continue to allow their drivers to login to their existing MDTs. Additionally, DoubleMap can offer a ruggedized MDT for future integrations such as APC, AVA, and signage.

## Wireless Service

### B. **Wireless Service**

*Our current real time information company purchases AT&T wireless service for our GPS trackers.*

## Cellular Service Subscription

- *The Contractor may propose either purchasing the wireless cellular service on behalf of Tuolumne County Transit (TCT) or may propose having TCT purchasing the cellular service directly. Also the Contractor may propose both options in the Contractor's proposal.*

DoubleMap has these options listed in the pricing sheet as an optional item.

## Proposed Cellular Service Provider

- *We are requesting the Contractor describe which cellular network they plan to utilize.*

DoubleMap recommends using the Verizon Cellular Network with the DoubleMap system.

## Existing Hardware Replacement

- *If Contractor proposes to replace our existing hardware with new equipment, we recommend purchasing AVL hardware that communicates with Verizon Wireless cellular service since they have the best overall coverage in Tuolumne County.*

Although DoubleMap uses cellular communication platforms for its services and has a strong working relationship with Verizon, it can function perfectly on all domestic cellular carriers. If Verizon Wireless cellular service has the best overall presence and coverage in the Tuolumne County, DoubleMap will strongly recommend using Verizon's network for its communication needs.

## Rider Interface

### C. Rider Interface - Real Time Information, Maps, and Predictions

*The Proposal is required to include provide a visual mapping display with information that shows vehicle GPS locations en route in real-time. The GPS readings of the bus location must occur in real-time with vehicle location information posted on a Graphic User Interface map display available on a public website and viewable through various devices (Smartphone, Kiosk, Bus Stop, PC, etc.). The system should be equipped with a notification service, whereupon users can subscribe and be able to select one route or multiple routes and be notified when the next bus is coming.*

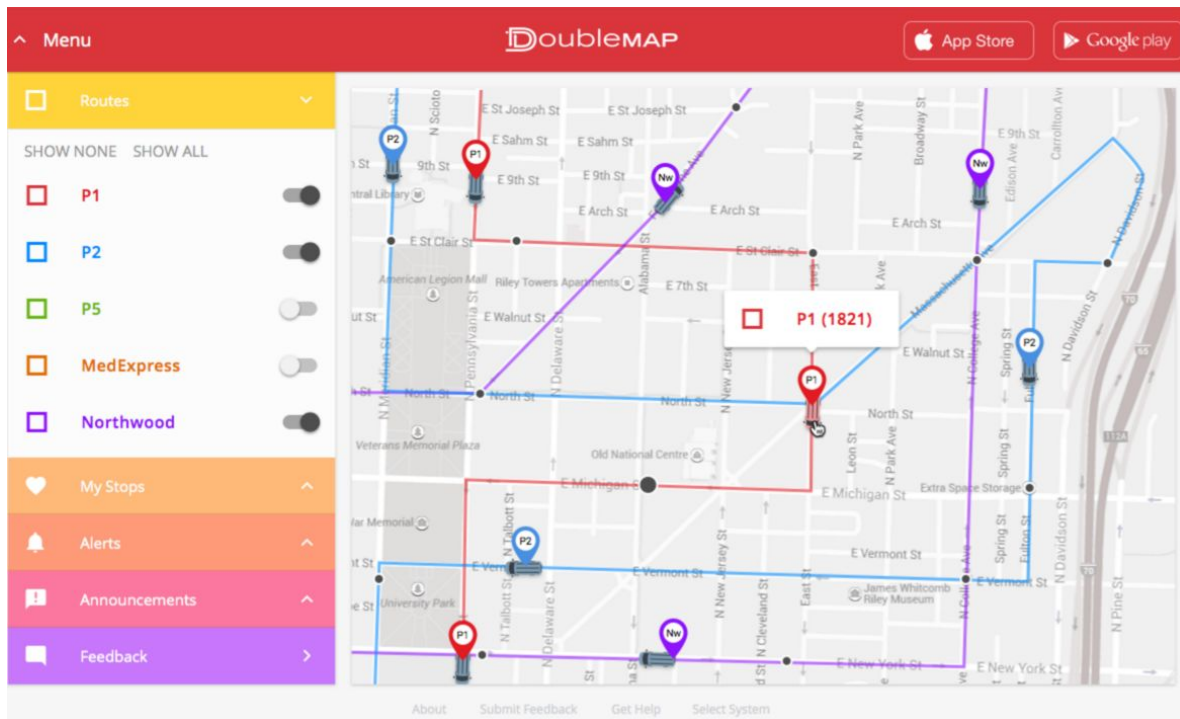
### Public Website

DoubleMap provides a public website as a part of the cross-platform map-based experience, which can be accessed from computer web browsers, tablets, and mobile phone browsers (automatically senses when the application is on a mobile phone and makes buttons larger and touch-friendly). This gives passengers an optimized solution to access vehicle locations and estimated times of arrival data at an address such as TCTA.DoubleMap.com.

DoubleMap designed this interface using cutting-edge technology (Html5 and Google Maps V3) in order to help riders avoid constant webpage refreshing, but also to create a cross-platform experience.

Additionally, riders are able to see their location in comparison to nearby stops, as well as the ETAs for their vehicle, and where the vehicle is currently located, all in real-time. If a vehicle is running behind, the system automatically updates at an industry-leading 1-2 second polling rate. This industry-leading feature offers a true, real-time experience. There are no jumps or lags in the DoubleMap system, be it on the smartphone application or on the passenger website.

DoubleMap's public website allows users to view a visual representation of each vehicle's location. This allows riders to clearly view a vehicle's direction and location by a color-coded vehicle ID. The bus symbols on the map are also representative of the direction of the vehicle - the front of the bus on the map is the front of the bus on the route, in real-time. Administrators are able to choose from any color on the spectrum to color all routes, and can change these colors at any time without contacting DoubleMap, for free.



*The Public Website displays color-coded vehicle directions and routes*

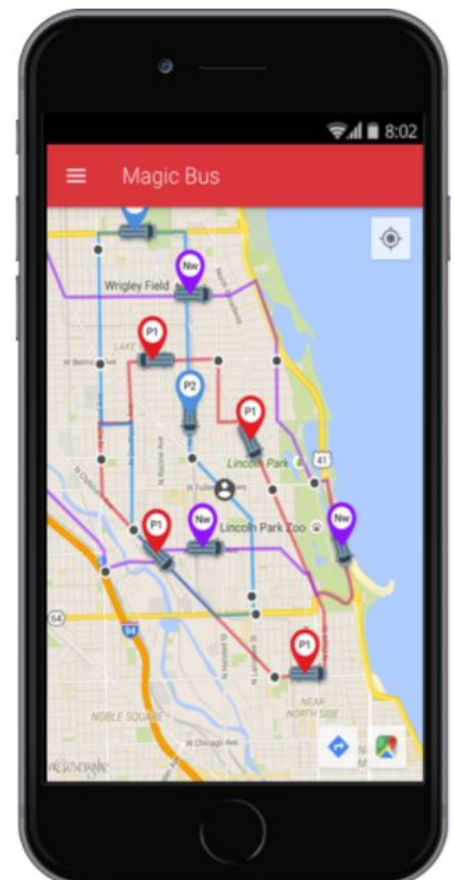
## *Smartphone Application*

The DoubleMap application was built with flexibility and is able to incorporate real-time information. DoubleMap has designed its mobile phone strategy around two pillars: 1) The mobile platform should provide riders with full access to every feature available in the laptop/desktop site, and 2) the DoubleMap system is accessible from a myriad array of phones/platforms in order to maximize the number of riders with access to real-time information.

DoubleMap transitioned the full functionality of a client website across all mobile platforms. This means that riders will see the exact same 1-2 second GPS bus updates with smoothing algorithm, ETA prediction times to the next stop, notifications for "my stop", and announcements in a mobile format.

DoubleMap is able to meet these rigorous mobile platform requirements through the use of the cross-platform technology listed above, but also provides native applications in order to provide a well-rounded offering.

DoubleMap has been approved (and is currently included) in numerous city-backed mobile applications. The development and customization typically required to be integrated into municipal systems is extensive, so DoubleMap's experience



*DoubleMap's Smartphone App*

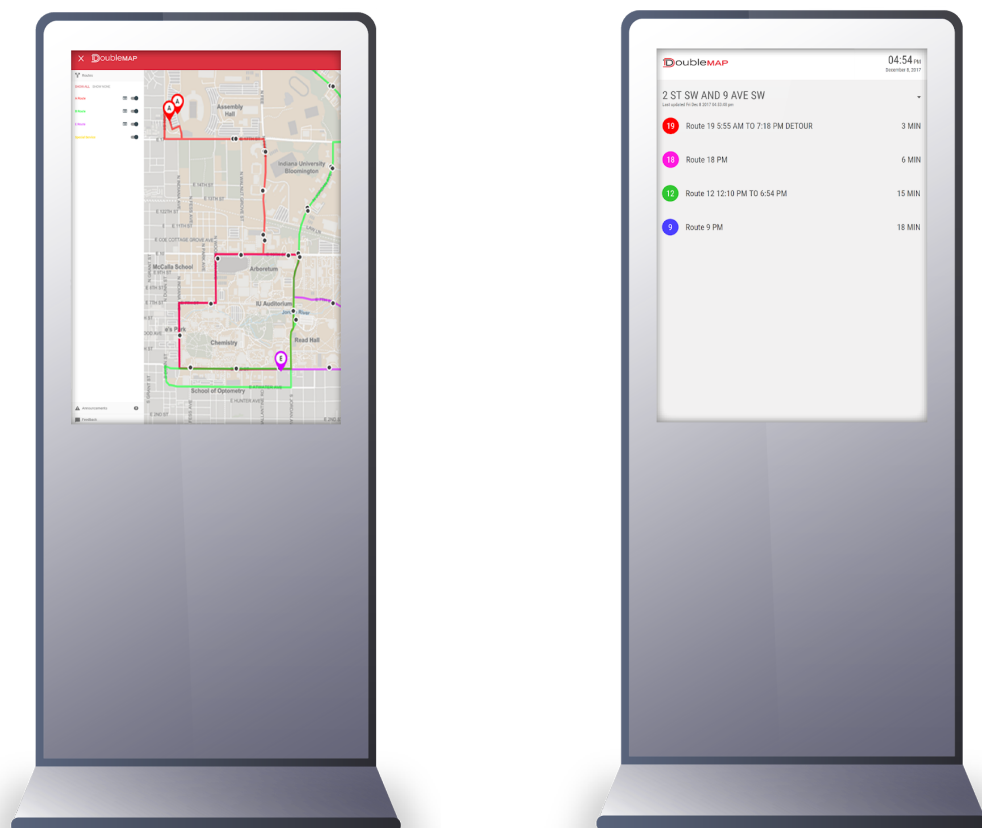


in this area will provide an immediate impact towards a positive implementation and adoption rate.

Conclusively, DoubleMap is able to offer solutions for iPhone and Android platforms to go along with web offerings for Windows Phone, Blackberry, and all other webkit enabled phones.

## Kiosk

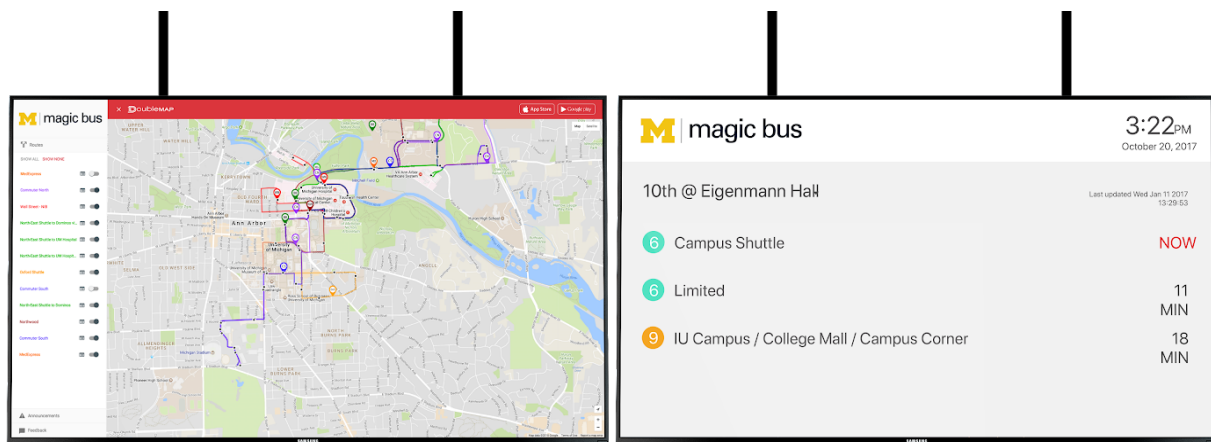
DoubleMap is able to provide and install kiosks which allow passengers to see a map of specific routes and a list of estimated arrival times, configurable by administrator. DoubleMap has implemented kiosks at multiple client locations including Bloomington Transit, City of Columbia, Tar River Transit, and Valley Metro.



## LCD Panel Displays / Public Displays / Arrival Departure Boards

DoubleMap is able to disseminate real-time information through electronic displays. DoubleMap provides both indoor and outdoor versions of LCD panel displays. The indoor versions are typically mounted inside of lobbies, cafeterias, restaurants, or reception areas. The outdoor versions are climate controlled and can be located anywhere that has an available power supply. Both versions can use standard Ethernet, WiFi, or cellular for data connectivity. Both versions also use standard 110/120 volt AC power.

**DoubleMap's ETA system is built to show both inbound/outbound stop times. Additionally, DoubleMap is able to provide clients with an Arrival/Departure board (shown below) that can be used at transfer centers or at any other highly trafficked rider areas.**



## Public Displays

The DoubleMap LCD displays are capable of not only showing arrival/departure times for a given bus stop, but a live map showing the current positions of all of the vehicles en route. Signs can also be designed to show just the arrival/departure predictions. The layout, color scheme, and logos are all specific to the transit system. The DoubleMap LCD displays are available in 26", 32", 42", and 52" versions for both the indoor and outdoor options. DoubleMap can also provide just a webpage for display on existing LCD screens. This is a very economical way of providing real-time information to passengers if current LCD screens are already in place near bus stops.

## LED Signs

DoubleMap is able to provide changeable message LED (CMS) signage for bus bays and wayside. These signs are installed in bus shelters or transit terminals where passengers waiting for their buses can see the information they need such when the bus is coming and where the bus is heading to next.



These CMS signs display real-time bus arrival information and informational text messages via a wireless communications link to the proposed CMS software module. The CMS are also capable of providing keywords.

## Technical Specifications

<b>Pixel Pitch</b>	8mm (0.3") center-to-center; 1,600 pixels per sq ft 12mm (0.47") center-to-center; 646 pixels per sq ft
<b>Color capability</b>	1 color (amber)
<b>LEDs per pixel</b>	1 amber
<b>Estimated LED lifetime</b>	100,00+ hours
<b>LED Viewing angle</b>	30°
<b>Contrast enhancement</b>	Contrast enhancing polycarbonate face
<b>Service access</b>	Front access with removable door
<b>Graphic capability</b>	Text, graphics, logos, multiple font styles and sizes
<b>Control software</b>	Venus® 1500 or third-party integrators using Venus® 1500 (SDK) software developers kit
<b>Power</b>	120 or 240 VAC single phase
<b>Display dimming</b>	64 levels (automatic or manual control)
<b>Communication options</b>	RS232, RS422 and Ethernet (wired or fiber)
<b>Compliance information</b>	UL listed, NEMA 4X cabinet, IBC 2009, NEC

## Display Configuration

8mm and 12 mm, monochrome AF- 6300 series displays can be ordered in single-face (SF) or double-face (DF) configurations.



single-face (SF)



double-face (DF)

## LED technical specifications

DoubleMap's software provides administrators with:



Sign Access



Configuration

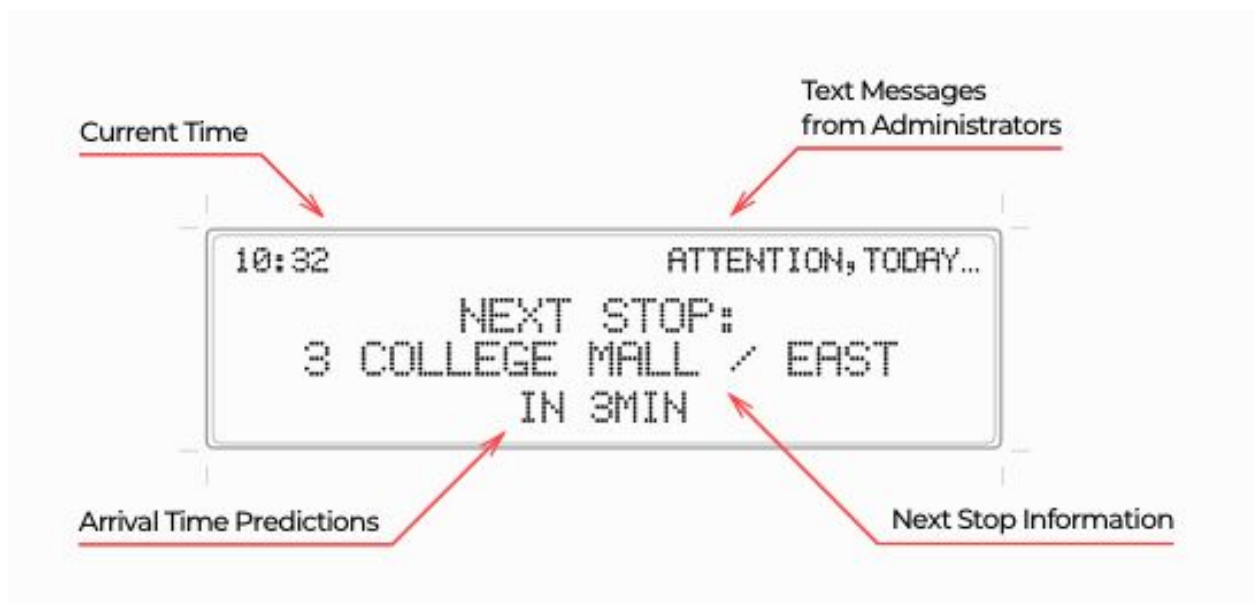


Real-Time Updates



Signs Health  
Monitoring

Signs can Display:



The real-time prediction arrival/departure of the next vehicle is recalculated periodically for all bus stops and the updated information is broadcasted to the message signs. Prediction updates are sent at least every 60 seconds and the signs' internal logic continues to 'count down' from the most recent update. If more routes serve the bus stop than available lines on the sign, the sign will simply cycle through the routes with a different route displayed every 2 to 3 seconds.

Messages are displayed with route or station identifier and arrival/departure times are shown in minutes for the next two vehicles servicing the stop location. The agency name

and the current time of day information are also interleaved among other general public announcement messages.

DoubleMap's LED signs can also be equipped with a passenger activated text-to-speech device, which converts the written text-to-speech for ADA accessibility requirements.

At bus stop locations served by multiple transit agencies, all agencies can be displayed and the system will indicate which routes are serviced by which agencies. Cost sharing agreements can make these signs even more affordable.

## Real Time Tracking

- *Real time tracking means that a vehicle's location is reported via an automatic vehicle location (AVL) device and installed on each vehicle and transmitted to an internet server with a delay of not more than 60 seconds. This is done through the use of GPS for pinpointing the location and a wireless communication system for transmitting the information to an internet server.*

The DoubleMap system offers real-time tracking option for all its vehicles plying on various routes. The vehicles' location are reported via an AVL device that is installed on each vehicle. The vehicle locations are transmitted to an internet server and the status is constantly refreshed and updated at a rate of 1-2 seconds on the public website that is viewed on the central console, smartphones and personal computers, apart from the various kiosks and bus stops across various locations on the route. This is done using GPS, while maintain a real-time tracking with a high level of accuracy in displaying vehicle locations on the map.

## Bus Arrival Predictions

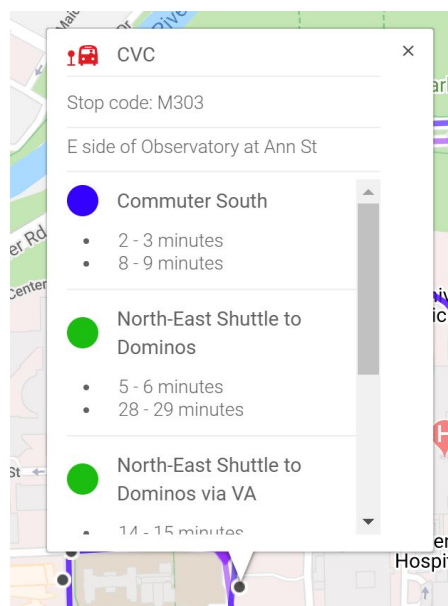
*For the user interface, the proposal must include these features:*

- **Bus Arrival Predictions** - *Riders should be able to receive accurate and reliable bus predictions from these type of devices:*

## Public Website

- **Public Website.** *Riders should have the ability to view arrival predictions for all route bus stops on a public viewable website that is hosted and created by the Contractor.*

The TCTA Riders will receive accurate and reliable bus predictions from the public website that will be provided by DoubleMap, like TCTA.DoubleMap.com. Riders will be able to view the public website in their smartphones (iOS and Android devices) as well as in tablets, and personal computers, for all route bus stops.



*ETAs along each route*



DoubleMap's estimated time of arrival program is capable of calculating estimates while the bus is on route. DoubleMap's cross-platform approach serves additional value when riders attempt to access ETA's on the go.

The predictive arrival algorithm uses scheduled data as a basis for estimations, and weighs in the current situation into near-term predictions, along with historical data. Historical data is collected for each route, and aggregated based on day of week and time of day to compensate for variations in traffic and business.

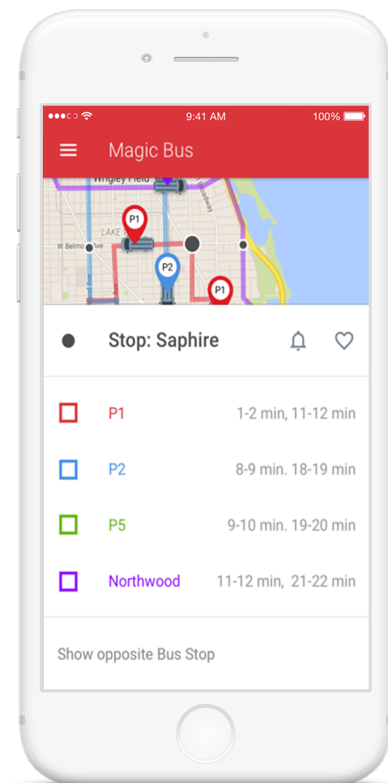
The algorithm updates the estimated time of arrival (ETA) on-demand and each time ETAs are requested. For anomalous situations, such as off-route buses or unplanned detours, the algorithm will give a best-effort prediction and then re-do the predictions once the bus has reached its next stop.

## Android & iOS App

- **Cell Phone Application on iPhone and Android.** *Riders should have the ability to view arrival predictions for all route bus stops on a cellphone application including iPhone and Android marketplace that is hosted and created by the Contractor.*

The DoubleMap application was built with flexibility and is able to incorporate real-time information. DoubleMap has designed its mobile phone strategy around two pillars: 1) The mobile platform should provide riders with full access to every feature available in the laptop/desktop site, and 2) the DoubleMap system is accessible from a myriad array of phones/platforms in order to maximize the number of riders with access to real-time information.

DoubleMap transitioned the full functionality of a client website across all mobile platforms. This means that riders will see the exact same 1-2 second GPS bus updates with smoothing algorithm, ETA prediction times to the next stop, notifications for "my stop", and announcements in a mobile format.

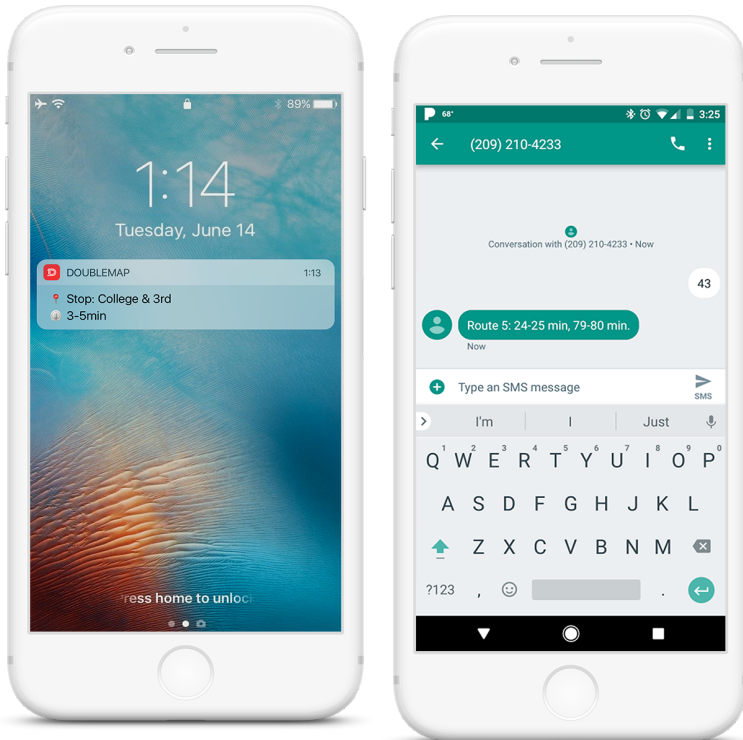


## SMS-Text Messages

- **SMS - Text Messages.** *The system should allow riders to access arrival predictions via an SMS text messaging for all fixed route bus stops in the transit service area.*

Passengers can choose to be notified by push notifications keeping them up to date with notices and ETAs without opening the mobile app.

DoubleMap is able to provide rider access to arrival estimates via SMS text messaging. Each bus stop will be assigned a specific ID, which riders will be able to send to a designated DoubleMap number for an estimated time of arrival reply within seconds. These text SMS notifications allow riders, that do not have mobile smartphones, to still have real-time data at the tap of their fingertips.



## Dial-in Phone (Optional)

- **Optional - Dial in Phone system.** We currently have a local phone number that riders can call and receive a prediction for each bus route and bus stop. This is an optional item that proposers may or may not choose to provide this option for riders.

DoubleMap's IVR is built to provide voice-response information to callers, and can respond at multiple speeds of text. All passengers are also able to view web-based and smartphone application-based interfaces. DoubleMap can provide an optional IVR system through which callers can request rides using an ordinary telephone. The IVR system will provide prompts for the caller to input the desired pickup and dropoff stops in several ways. Stops can be each given a numeric ID that callers can dial using the number pad on their phone. After prompting the caller for pickup and dropoff station ID numbers, the IVR system will confirm the ride details and then instantly register the request with the dispatching system.

Additionally, the IVR system has the optional capability to allow callers to find a stop by name. The rider simply needs to dial in a few letters of the desired station, and the system will intelligently search for the station name and allow the rider to choose for the search results.

## Live Map System

- **Live Map System.** The riders should be able to easily access a live-map from the website and cellphone application..

The DoubleMap system will allow TCTA riders to easily access a live-map to track vehicle locations on their mobile devices. The Live Map can also be viewed on any computers using a web browser and the public URL that will be shared by DoubleMap.

## Arrival Predictions

### D. Providing Arrival Predictions for Tuolumne County Transit's Unique Public Transit System

We are requesting the proposals answer these three questions. We are also seeking more detailed information on how proposals can or cannot provide these services. If Contractor can provide these services please provides examples and case studies from other agencies. Failure to respond to these questions will result in proposals losing points.

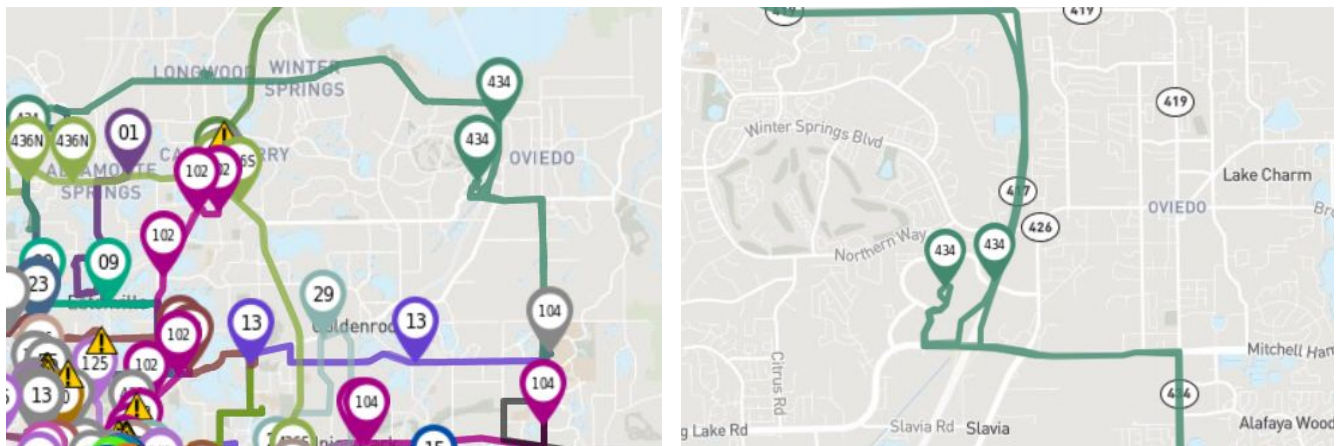
### Deviated On-Demand Fixed Route Stops

- **Can the Contractor provide accurate and reliable predictions for our deviated on-demand fixed route bus stops?**

All five of our fixed routes have bus stops that riders have to call our office (Dispatcher) and request bus service to these bus stops in advance before the bus departs at the beginning of each run. Our current company does not provide predictions for any deviated on-demand bus stops. We are interested in any Proposal that can provide deviated on-demand predictions, reports, and data on these bus stops. If Contractor can provide these services, please provide examples and case studies from other agencies.

DoubleMap is able to comply with the requirement. With the DoubleMap system TCTA will get accurate and reliable bus arrival predictions for its deviated on-demand fixed route bus system. The algorithm updates the estimated time of arrival (ETA) on-demand and each time ETAs are requested. For situations, such as off-route buses, or unplanned detours, the algorithm will give the best-effort prediction and then re-do the predictions once the bus has reached its next stop. DoubleMap has experience doing this at Lynx Transit. Please see the below case study.

DoubleMap's client Lynx needed a way to connect their passengers in Oviedo to a fixed route stop. DoubleMap implemented first/last mile rides to connect them to the fixed route.



*Images of Oviedo's distance from the Fixed Route service*

Lynx set up their system so that every 60 minutes (this is configurable for any amount of time) a bus will go to the Oviedo Marketplace stop and pick up passengers and then connect them to other fixed route stops. Additionally, the bus will pick up passengers around Oviedo who have requested the on-demand service and then can also be connected to the fixed route system. The bus will honor all on-demand requests in the Oviedo area so long as it always returns to the stop every 60 minutes. If a on-demand request comes in at the exact same time the bus is required to be at the super stop, the request will be completed right after the stop pick up/drop off.

### Manage Fixed Routes:

Fixed route for Oviedo Marketplace

Day	Start	End	Repeat Every
Monday	06:10	19:10	60 Minutes
Tuesday	06:10	19:10	60 Minutes
Wednesday	06:10	19:10	60 Minutes
Thursday	06:10	19:10	60 Minutes
Friday	06:10	19:10	60 Minutes
Saturday	06:10	19:10	60 Minutes

[Edit](#) [Delete](#)

*The configurable time loop for the bus to visit the Oviedo stop*

Scheduled Rides						
Rider	Phone	Driver	Vehicle	Passengers	Pick up	Drop off
fixed_route_scheduled_ride		RamonS12	6823	0	Oviedo Marketplace	Oviedo Marketplace
samjr	(407) 732-8729	RamonS12	6823	1	87 Tyson Court, Oviedo, Florida 32765, United States	Oviedo Mall Boulevard, Oviedo, Florida 32765, United States
fixed_route_scheduled_ride		RamonS12	6823	0	Oviedo Marketplace	Oviedo Marketplace
Chicamore@yahoo.com	(407) 491-0659	RamonS12	6823	1	KELLY CREEK CIRCLE	BURGER KING

*Admin Dashboard Displaying Pick Up and Drop Offs from Oviedo Marketplace*

### Special Event Services

- **Can the Contractor provide accurate and reliable predictions for our special one-day and weekend special event day service?**

Some of these events are held at the same locations (Fairgrounds) with identical bus stop pickup and drop-off locations. If Contractor can provide these services, please provide examples and case studies from other agencies.

DoubleMap is able to comply with this requirement. DoubleMap can provide accurate and reliable predictions for TCTA's special one-day/weekend special event services. DoubleMap's estimated time of arrival program is capable of calculating estimates while the bus is on route. DoubleMap's cross-platform approach serves additional value when riders attempt to access

ETA's on the go. The predictive arrival algorithm uses scheduled data as a basis for estimations, and weighs in the current situation into near-term predictions, along with historical data. Historical data is collected for each route, and aggregated based on day of week and time of day to compensate for variations in traffic and business. The algorithm updates the estimated time of arrival (ETA) on-demand and each time ETAs are requested.

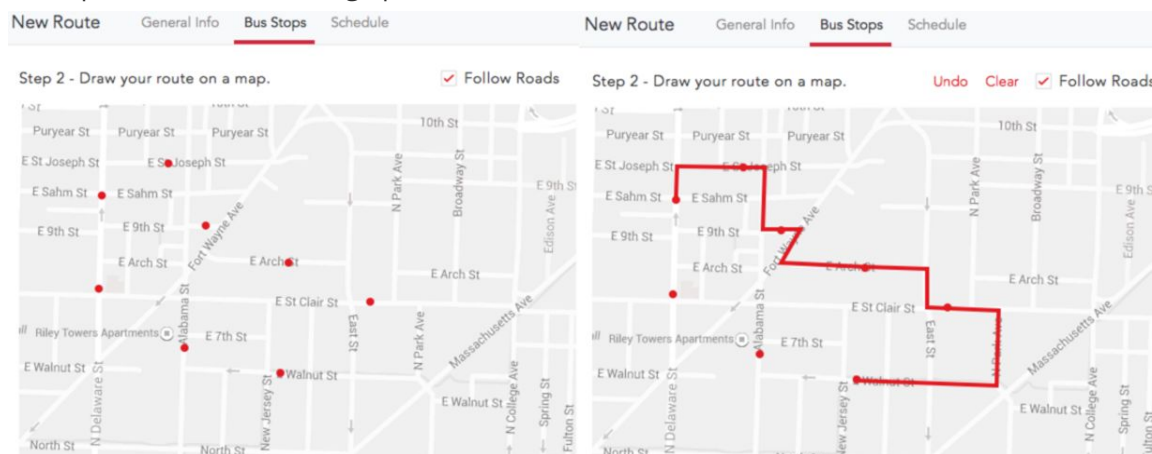
DoubleMap has many university clients including Tulane, Oregon State, Ohio State, and University of Kentucky which utilize our easy and seamless Route and Stop Creator to set up routes for special one-day/weekend game days.

### *Visual Route & Stop Creator / One day/Weekend Routes*

DoubleMap pioneered the Visual Route and Stop Creator, which allows for point-and-click route and stop editing. Administrative staff will be able to use a simple point-and-click interface to adjust routes and add bus stops instantly, eliminating the need to print out paper maps and waiting weeks for the changes to take effect.

DoubleMap's Visual Route and Stop Creator is a one-stop shop for full route creation, including descriptions of the route, the color of the route, display and full name of the route, and operational times. All data for the route can be changed in this screen at any time without contacting the DoubleMap team.

The DoubleMap stop creator is an industry-leading module which empowers administrators to make unlimited stop additions/adjustments with pinpoint accuracy in conjunction with the route management suite. This tool allows users to visually drag a stop within the map to ensure accurate location. DoubleMap utilizes the power of Google Street View to enhance the process to a more powerful visual vantage point.



*Drawing routes in the Visual Route and Stop Creator*

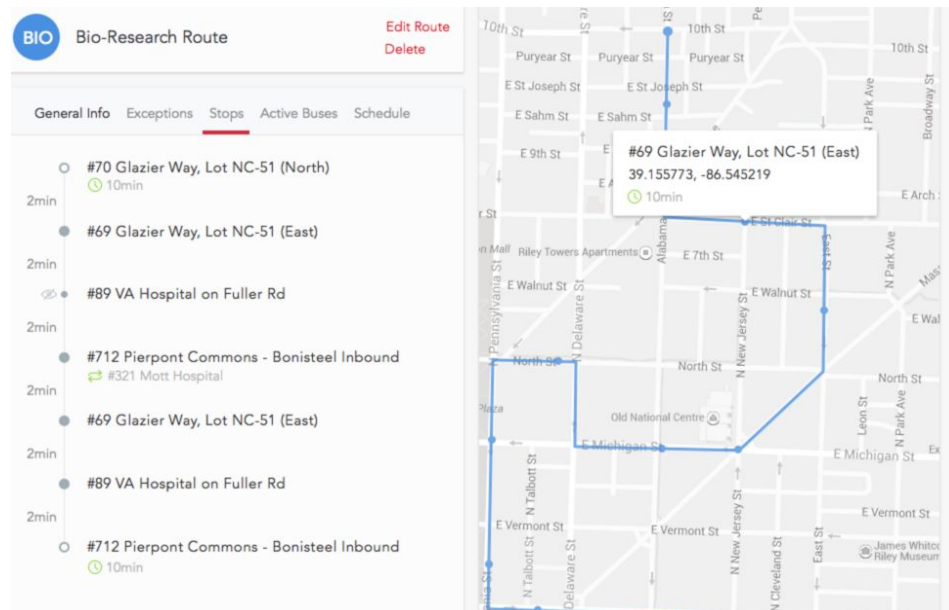
Additionally, DoubleMap's route creator allows for periodic route adjustments, changes, and additions in-house. The route creator tool was designed with simplicity in mind and offers DoubleMap administrators unprecedented control over the management of their system.

The route creator is based on a point-and-click system, which does not require any knowledge of coordinates, or programming. Users login to the administrator interface, select a route they want to edit, or start with a new route. The administrator clicks a point on the map and proceeds to



click along the desired route – the DoubleMap system will automatically connect the points and extract the GPS coordinates.

The DoubleMap system provides route and vehicle information in real-time, utilizing a 1-2 second refresh rate to ensure accuracy.



*Interface to match inbound and outbound pickup locations*

## Rio Olympics

DoubleMap was selected to support the Opening Ceremonies Routes for the Rio 2016 Olympics in order to quickly and efficiently create routes and provide ETAs with a 1-2 second update.

## Login & Logout from Management Interface

- **Can the Contractor provide the ability to login and logout of our paratransit buses into the management interface?**

*Currently our paratransit buses can be logged-in and logged-out with the management staff into a paratransit job which is color coded with a Dial-A-Ride status bar. If Contractor can provide these services, please provide examples and case studies from other agencies.*

DoubleMap currently offers this feature. One specific client utilizes both our fixed route DoubleMap solution as well as our on-demand paratransit TapRide solution. They will switch to on-demand trips when they aren't conducting the fixed route service.

Administrators are able to control this login and logout from one system to the other via the administrative dashboard. As seen below, the administrator can filter by various categories and switch vehicles from fixed route work to on-demand trips.



Filter

Route

All

Driver

All

GPS status

All

Fields

field=value

Alerts

Buses

74	demand	Details
75	On-demand	Details
76	On-demand	Details
77	On-demand	Details
78	Kifer Inbound	KF1257b Details

*Admin Dashboard Management Interface*

## User Service Agreement, Maintenance & Updates

### **E. User Service Agreement, Maintenance, and Updates to the Real Time Information System**

The Proposal must describe the maintenance and up keeping of our existing real-time passenger information system. The TCTA is interested in learning about the customer service provided to customers.

#### User Service Agreement

- Does the contractor have a user service agreement for upkeep of predictions, maintenance and updates to our real time information system?

Please refer to Attachment B: Service Level Agreement. DoubleMap historically performs at over 99.99% uptime.

#### GTFS Data

- In the proposal, we are requesting Contractors describe the process for submittal of our transit schedule data such as GTFS data or another form of data format.

DoubleMap is able to comply with the requirement.

The DoubleMap system allows the submittal and export of TCTA transit schedule data like GTFS data or similar other data format, by a single mouse-click.

This will allow TCTA to easily enter their data into the NTD Databases.

### GTFS download

Agency URL




















http://ecat.doublemap.com

Season

Summer 2018 ▼

DOWNLOAD

*One-Click GTFS Export*

Tools	
	Dashboard
	Add Request
	Reporting
	Driver History
	Ride History
	Charts
	Heat Map
Manage	
	Users
	Groups
	Hours
	Service Boundary
	Stops
	Fixed Routes
	Announcements
	Vehicles
	Recurring Rides
	Ride Restrictions
	Auto Assignment Rules
	Fares

### Online Software for Data

- We are interested if there is another form of creating or utilization of online software to generate our transit schedule data.

DoubleMap's fixed route solution contains all the schedules, routes, blocks, and trips in the backend website to be accessed at any time. DoubleMap has experience providing multiple different types of scheduling software. Additionally, DoubleMap has our internal paratransit software, TapRide.

DoubleMap's product TapRide provides an unparalleled on-demand real-time tracking software solution to shuttles all over the U.S. and internationally. TapRide was built with flexibility in mind, and so far DoubleMap has tailored TapRide to 45+ clients, including Fortune 500 companies and top universities. Both the University of Michigan and Oregon State University have utilized TapRide in order to bring comprehensive and efficient SafeRide programs to their campuses.

DoubleMap's proposed system will allow administrators to access the system at any time day or night through their own DoubleMap website. This website can be accessed through any device with a screen that uses internet (computers, smartphone, webkit-enabled mobile phones, tablets) for administrators to easily and efficiently manage their fleet and system. This will assist administrators in improving safety and oversight of services, as well as generate accurate data through DoubleMap's reporting suite for performance monitoring.

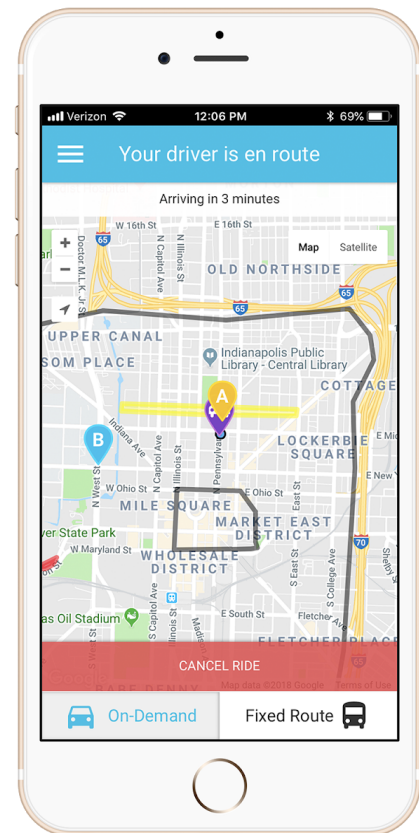
The solution enables administrators and dispatchers to have complete system overview where they view the vehicles in real time, view current ride requests, view scheduled rides, and easily view rider, driver, vehicle, and ETA information.

The sidebar of the administrator site allows admins to input a request for call in passengers requesting a ride. Gives them access to a full reporting suite, driver history, ride history, charts, and a heat map of areas most utilized. This information will allow administrators to know how their system is functioning and to immediately correct issues or gaps in service.

Under the Manage portion of the sidebar, admins are able to manage users of the system, hours of service operations, service boundaries, add, edit, or remove stops, announcements, vehicles, ride restrictions, auto assignment rules, fares, and driver cancel notes.

The TapRide system effectively manages the types of rides that are requested so admins can make sure that through their vehicles can handle the type of ride requests and accommodations that their passengers need (including but not limited to: wheelchair accessible, number of passengers including companions and aids, and additional assistance from the driver in boarding the vehicle). DoubleMap can edit the TapRide system to include the types of accommodations for passengers that administrators requires.

TapRide allows riders to make a request for current or future scheduled pick up in several ways. They can request a ride through the smartphone application, through a web browser via a computer, tablet, or webkit-enabled mobile phone, or by calling into dispatch.



## Run Block

DoubleMap's Block Scheduling feature is used as a means to auto-assign daily work assignments to vehicles for drivers to log in to and service that day. This helps free up dispatch from tedious tasks such as constantly routing vehicles and the many different route patterns or directions that the vehicle may make throughout the course of the day.

## Trips

Trips are the smallest components of Block scheduling and they make up the bulk of service drivers will complete in their block. Trips are defined as, "the one-way operation of a revenue vehicle between two terminus points on a route." They are generally noted as inbound, outbound, eastbound, westbound, etc. to identify directionality when being discussed.

Trips can be found in the schedule data for each route - a trip consists of a segment of that route's scheduled stops. These times are shown in military time, and show when the bus was at that stop. If instead of a time, it shows a "-", it means the system does not take that stop into account.

Schedule Consisting of Trips

Schedule								
Name	Next day	Breckenrid...	Main Stree...	Ice Rink S...	Illinois Gulch	Emmit Lode	Club Hous...	Gold Point
BPD-T2		07:05	07:08	07:09	07:11	07:15	07:17	07:18
BPD-T3		07:35	07:38	07:39	07:41	07:45	07:47	07:48
BPD-T4		08:05	08:08	08:09	08:11	08:15	08:17	08:18
BPD-T5		08:35	08:38	08:39	08:41	08:45	08:47	08:48
BPD-T6		09:05	09:08	09:09	09:11	09:15	09:17	09:18
BPD-T7		09:35	09:38	09:39	09:41	09:45	09:47	09:48
BPD-T8		10:05	10:08	10:09	10:11	10:15	10:17	10:18
BPD-T9		10:35	10:38	10:39	10:41	10:45	10:47	10:48

## Blocks

Only a single bus can be assigned to a block. Blocks will automatically assign the routes to the drivers that they are delineated to, at the time they are supposed to start. Blocks are made up of groups of trips. To view blocks, click on the "Blocks" tab on the admin site. Then you select "View", "Edit", or "Delete" on the block you want. At the top right corner you can select "Block Assignments". Block assignments will show you the routes that are assigned to a vehicle. On the Block Assignments page, you can also perform Batch Save. Batch save allows you to repeatedly save blocks so it can run for an entire week, month, etc. On the top right hand corner of the block assignments page, you can select "Block assignment log". This will take you to the block assignment log, which shows the routes the that are assigned to a vehicle.

Block Assignments Logs					
ID	Timestamp	User	Start Date	End Date	Actions
254	2018-03-14 07:45:28-04	klittlejohn	2018-03-14	2018-03-14	<a href="#">View</a>
253	2018-03-14 06:07:29-04	klittlejohn	2018-03-14	2018-03-14	<a href="#">View</a>
252	2018-03-14 04:29:12-04	klittlejohn	2018-03-14	2018-03-14	<a href="#">View</a>
251	2018-03-13 14:47:07-04	jyouells	2018-03-13	2018-03-13	<a href="#">View</a>

## Block Assignments Log

To create, a new block click on "New Block". Once on this page, you can name it, choose the season, then select the trips for this block. To select the trips you wish, you can search it in the filter trips box, or scroll through the list of trips. Once you have found one of the trips you want, click add. When you select the trips, it will automatically order the trips by time. Below the list of trips is unstructured work. Unstructured work is a way to show the times when a driver is not working during a block. For example if they are doing a training, or taking a break, that can be put into the block as well so there is no confusion.

### Unstructured work

Route
BRECK to FRISCO

Description
Break

Start Time
11 : 45

End Time
12 : 30

ADD

Blocks of unstructured work:

1. BRECK to FRISCO 11:45 - 12:30

## Creating a New Block

### Add Block

Name

Season
Summer 2017

### Manage trips

Add one or more trips to this block

Filter Trips

DFC-T10 — FRISCO to COPPER DETOUR — 10:30:00  
DFC-T12 — FRISCO to COPPER BBQ DETOUR — 11:30:00  
DFC-T12 — FRISCO to COPPER DETOUR — 11:30:00  
DFC-T14 — FRISCO to COPPER DETOUR — 12:30:00  
DFC-T14 — FRISCO to COPPER BBQ DETOUR — 12:30:00  
DFC-T16 — FRISCO to COPPER BBQ DETOUR — 13:30:00  
DFC-T16 — FRISCO to COPPER DETOUR — 13:30:00  
DFC-T18 — FRISCO to COPPER DETOUR — 14:30:00  
DFC-T20 — FRISCO to COPPER DETOUR — 15:30:00  
DFC-T20 — FRISCO to COPPER BBQ DETOUR — 15:30:00  
DFC-T22 — FRISCO to COPPER BBQ DETOUR — 16:30:00  
DFC-T22 — FRISCO to COPPER DETOUR — 16:30:00  
DFC-T24 — FRISCO to COPPER BBQ DETOUR — 17:30:00  
DFC-T24 — FRISCO to COPPER DETOUR — 17:30:00  
DFC-T25 — FRISCO to COPPER BBQ DETOUR — 18:30:00  
DFC-T25 — FRISCO to COPPER DETOUR — 18:30:00

ADD Hold ⌘ to select multiple trips

Selected Trips

1. BF-T15 — BRECK to FRISCO — 13:15:00
2. DFC-T18 — FRISCO to COPPER BBQ DETOUR — 14:30:00

## Adding Trips to a Block



Assign Drivers and Vehicles to Blocks

←
Wednesday, March 14, 2018
→

Blocks for
Monday - Friday ▼

Block ↓	Driver	Vehicle
101	(Select a driver) ▼	303 ▼
102	(Select a driver) ▼	705 ▼
103	(Select a driver) ▼	727 ▼
151	(Select a driver) ▼	(Select a vehicle) ▼

## Assigning Drivers and Vehicles to Blocks

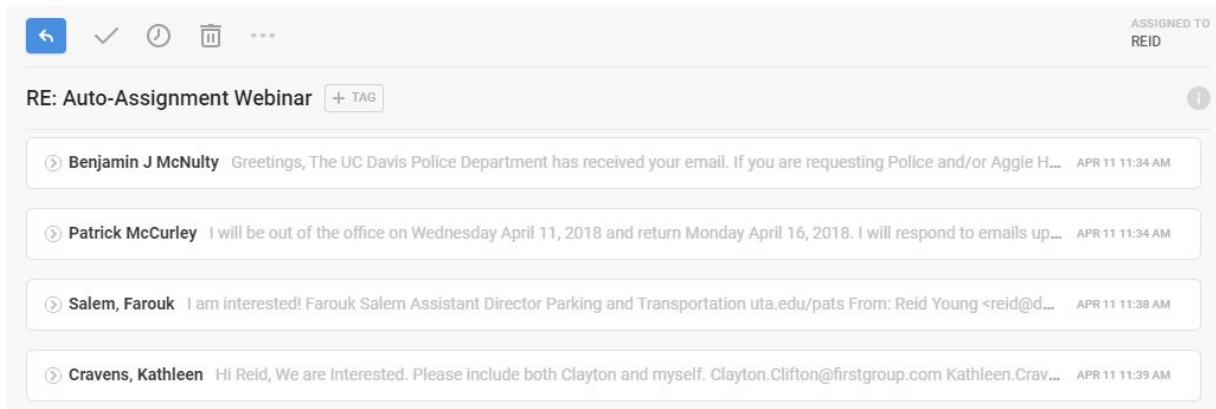
Fixed route all the schedule routes block trips are all contained in the backend website all this can be accessed at any time. We have experience providing multiple diff types of scheduling software. Our internal paratransit software. Also talk about RUN Block

### Customer Support Services

- We are requesting knowledge of customer support service for issues pertaining to hardware and software glitches.

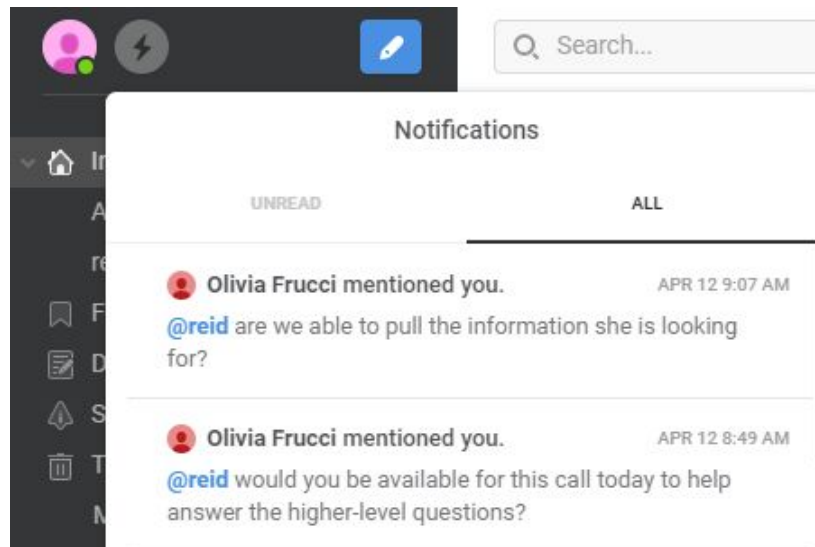
DoubleMap is able to comply with this requirement. DoubleMap utilizes Front as a multi-channel support system within a single platform to track, assign, and resolve client requests for issues pertaining to hardware and software glitches. DoubleMap responds to requests within three hours. DoubleMap is capable of responding in minutes when severe instances occur. Front tracks all requests from clients within the Operation's team shared inbox. No matter what channel a client uses to contact DoubleMap, e-mail or chat, their request will be time stamped in this inbox. The Project Manager or support agent assigned to the request is immediately able to respond to the client request or questions.





### *Front's Request Inbox System*

Front also allows internal communications on the same screen as the inbox. The support agent can easily switch from client communication to internal DoubleMap communication to collaborate with team members to quickly receive answers from project manager all while staying with the email thread. While these internal communications stay within the email request being resolved, all internal communication stays within the DoubleMap support team. The client will receive a response as an email tied to their initial request.



### *Internal Support Communication*

New Message

From: reid@doublemap.com to: |

CC BCC

Subject:

Write here...

Reid Young, DoubleMap, Inc.

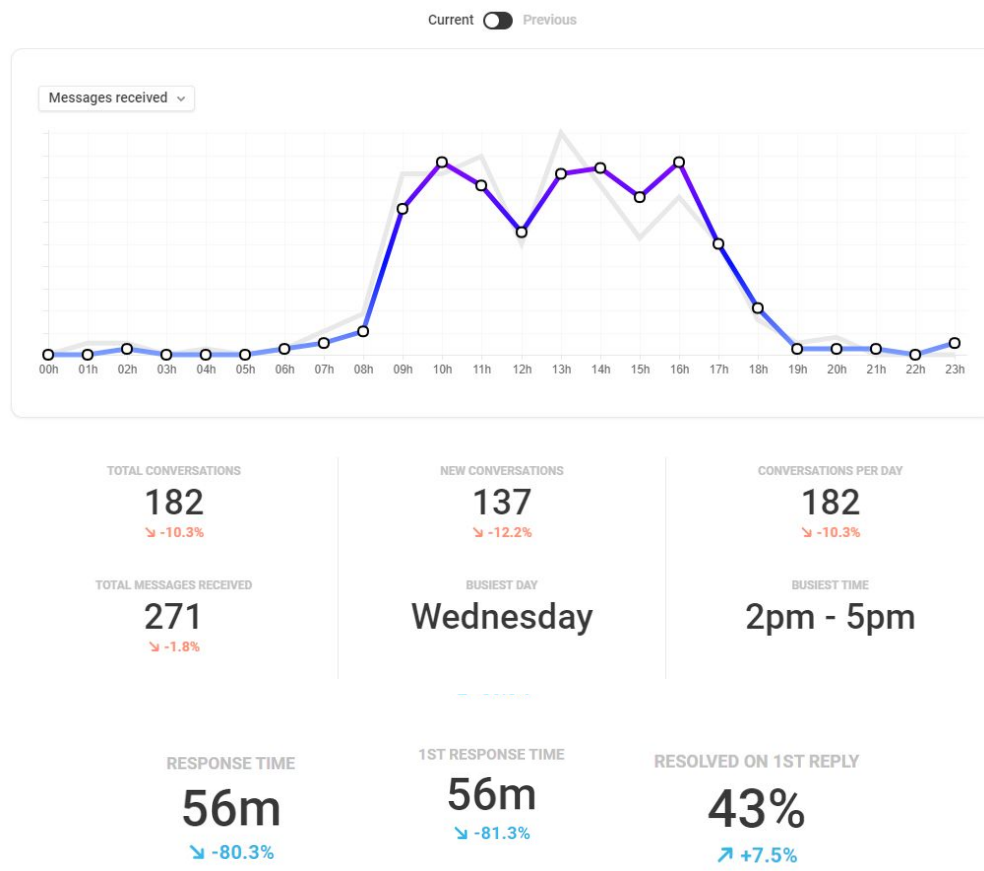
Suite 401 | 429 N. Pennsylvania Street | Indianapolis, IN 46204

Office 1 (855) 463-6655 | Cell (317) 969-8798

reid@doublemap.com | www.doublemap.com

## External Response to Client

Front allows the support team to view both real-time and historical analytics to monitor requests. This provides insight into request patterns and allows the support to proactively manage when peak request times occur to ensure optimal coverage. Front also tracks metrics such as first response time, the number of replies sent, and the percentage of request resolved on the first reply.



## Front Analytics

Additionally, Front tracks client satisfaction. Clients will be prompted in their email to rate their level of satisfaction with DoubleMap's resolution of their request or question. Through Front, DoubleMap tracks client satisfaction ratings, amount of ratings, and the rating history.

## Customer Satisfaction

Average Rating

**9.18**

Change: **9.18** ▲

Total Ratings

**85**

Change: **85** ▲

### *Customer Satisfaction Monitoring*

Through Front, the DoubleMap help desk is available 24/7/365 for fleet administrators. General questions and requests for training materials can be sent to [info@doublemap.com](mailto:info@doublemap.com). TCTA will be provided a direct line to a dedicated Project Manager, additionally, support inquiries may be sent to [support@doublemap.com](mailto:support@doublemap.com) as a secondary/fail safe measure. DoubleMap's direct phone line for support inquiries is (317) 969-7898.

### *24/7 Support Structure Schedule*

Support Structure Schedule							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8AM - 8PM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support (on call)	Phone Support (on call)
	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager (on call)	Project Manager (on call)
8PM - 1AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)
1AM - 8AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)

### *24/7 Customer Support Structure Schedule*

## Response Time

- How timely of responses from the Contractor is proposed to maintain in duration of the Agreement.

Utilizing Front as a multi-channel support system within a single platform, DoubleMap is able to respond to client requests within three hours during the Agreement period. During this period, DoubleMap is also capable of responding in minutes when severe instances occur.

## Management Interface

### **E. Management Interface - Maps, Reports and Data**

*The Vehicle Tracking Software must provide a graphical user interface Graphic User Interface real-time automatic vehicle location data display. Vehicle icon on the map display shall clearly indicate Vehicle ID, Route Direction, and Location. Further layered information on the vehicle should include Run Trip, Date / Time and Speed. The Contractor should provide detailed explanation of existing maps and software mapping components and how they work with other components of the system. Screenshots of display windows utilized by dispatch and / or the passenger should be provided describing key features, attributes, and the information available within the mapping component. The Contractor should describe in detail all traveler supported components that it provides, to include the features within each component as well as software and hardware required for implementation.*

*The Bus Tracking software must include one integrated map with detailed maps of the service area region. The map views should include standard map display features (zoom in/out, panning etc.). The maps should have an automatic refresh feature with the option of refreshing the map view 'upon-demand' by the dispatcher. The geo-spatial object management portion of the system should provide capabilities to trace routes, place stops and landmarks on the map for dispatchers and the general public to see. The mapping component shall also include a navigational request.*

*The Real Time Passenger Information System must include a Route Management module which can be utilized by the dispatcher to effectively manage the route and determine the location of any vehicle in service. The system must provide the dispatcher the necessary real-time information to manage vehicle fleets whether they are on fixed shuttle routes, in the yard, or on special on-demand detours on route. The system should display the time each bus arrives at each stop per route and the "wait times" (e.g., how long the bus is at the stop). The software should include a GUI real-time dispatch display that clearly indicate status (i.e., color-coding), with emphasis on bus arrival times at designated stops based on the average speed of the bus and traffic impacts. The vehicle icon on the dispatch display should clearly indicate Vehicle ID, Route, Directional Status, Arrival Time, Departure Time, and Date & Time of last GPS update.*

*The Real Time Passenger Information System must include a public interface that provides customers with bus location information. At a minimum, the bus locations are to be displayed on a map available on the web. Desired functionality include details available for each bus (showing route, time at last stop or last time point, minutes late/early, etc.). The Contractor should also describe other information distribution interfaces that are available with their product such as stop-based electronic displays, text/SMS messaging, and etc. TCTA may not choose to implement these additional features if their going cost is too high, but the availability of multiple interfaces will be an important benefit.*

*Access to all real-time and archived vehicle location data must also be available to third party applications for external development purposes. The Contractor should indicate which method would be used (XML, RSS, JSON, SQL, etc.).*

DoubleMap is able to comply with this requirement. DoubleMap provides a real-time API that allows developers to retrieve AVL data in the JSON format. DoubleMap's vehicle tracking software provides a graphical user interface for real-time vehicle location data display. The Management Interface is discussed in the sections that follow.

## Vehicle Tracking Software

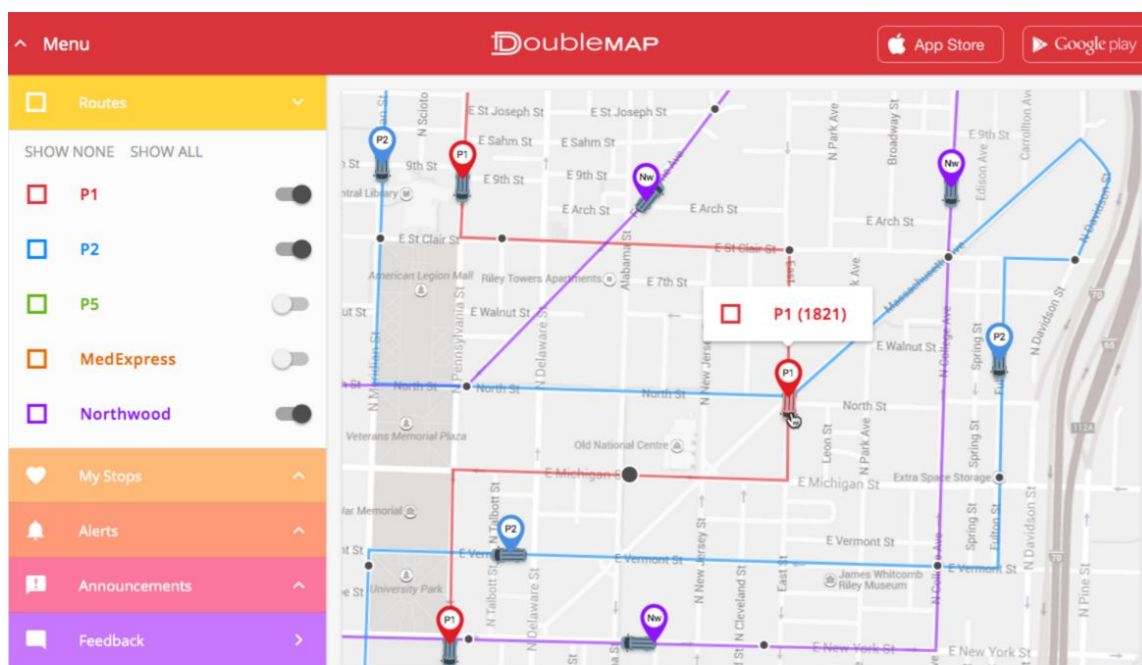
DoubleMap is able to integrate/install the Automatic Vehicle Locator (AVL) system on the client's vehicles as required. The DoubleMap system provides route and vehicle information in real-time,

utilizing a 1-2 second refresh rate to ensure accuracy. DoubleMap provides an optimized solution for riders to access vehicle locations and estimated time of arrival data.

DoubleMap provides a public website as a part of the cross-platform map-based experience, which can be accessed from computer web browsers, tablets, and mobile phone browsers (automatically senses when the application is on a mobile phone and makes buttons larger and touch-friendly). This gives passengers an optimized solution to access vehicle locations and estimated times of arrival data at an address such as TCTA.DoubleMap.com.

DoubleMap designed this interface using cutting-edge technology (Html5 and Google Maps V3) in order to help riders avoid constant webpage refreshing, but also to create a cross-platform experience. Additionally, riders are able to see their location in comparison to nearby stops, as well as the ETAs for their vehicle, and where the vehicle is currently, all in real-time. If a vehicle is running behind, the system automatically updates off of an industry-leading 1-2 second polling rate. This industry-leading feature offers a true, real-time experience - there are no jumps or lags in the DoubleMap system, be it on the smartphone application or on the passenger website.

DoubleMap's public website allows users to view a visual representation of each vehicle's location. This allows riders to clearly view a vehicle's direction and location by a color-coded vehicle ID. The bus symbols on the map are also representative of the direction of the vehicle - the front of the bus on the map is the front of the bus on the route, in real-time. Administrators are able to choose from any color on the spectrum to color all routes, and can change these colors at any time without contacting DoubleMap, for free.



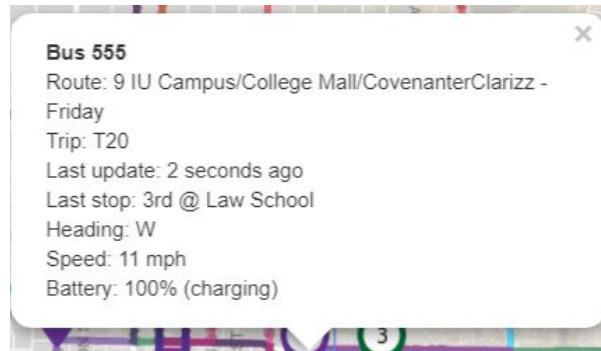
*The Public Website displays color-coded vehicle directions and routes*



## Auto-Updating

DoubleMap's smartphone applications and client websites are built around the same functionality so that riders will see the exact same 1-2 second GPS bus updates.

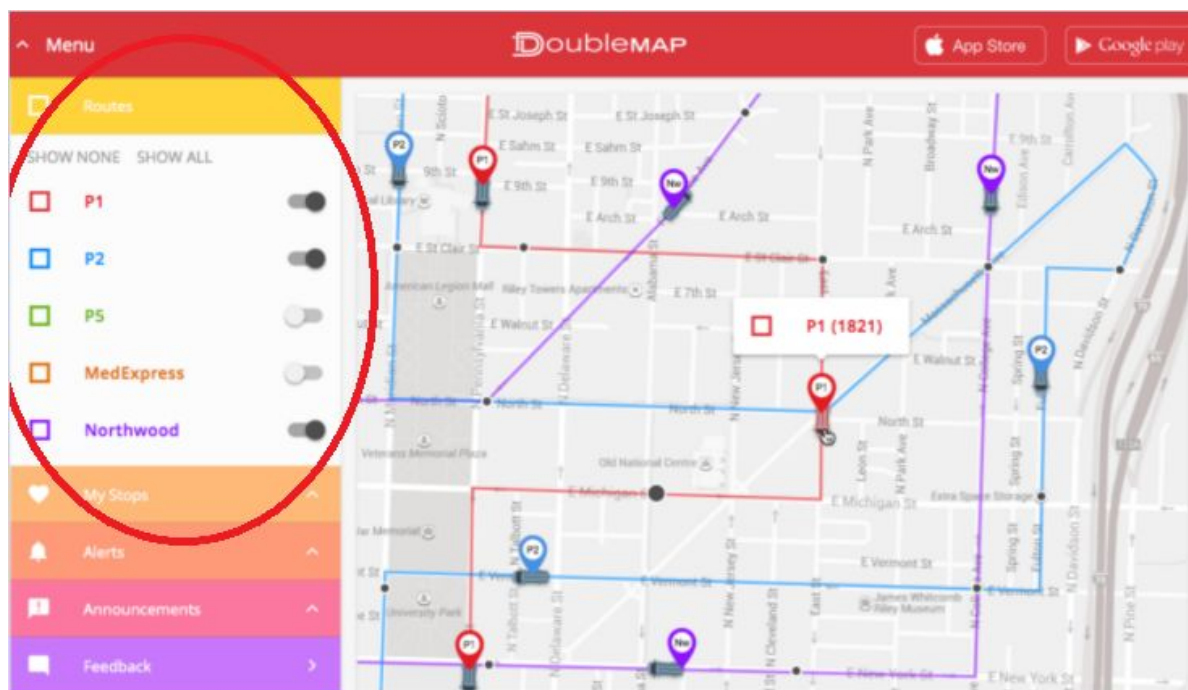
The vehicles do not "jump" locations - all vehicles move in a steady manner without reloading.



*Bus Information showing a 2 second update rate*

## Routes of Interest

The public website allows viewers to utilize the sidebar to make routes they are interested in visible, and routes they aren't interested in can be turned off and made invisible.

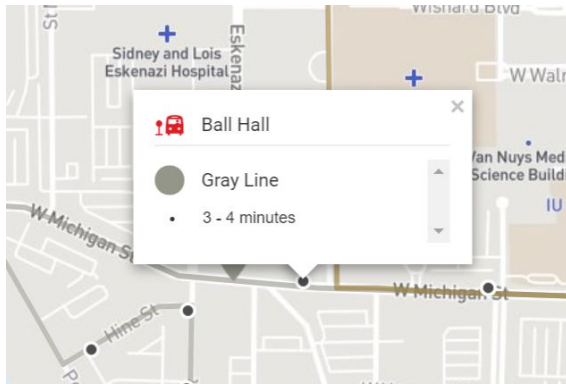


*Displaying Specific Routes*

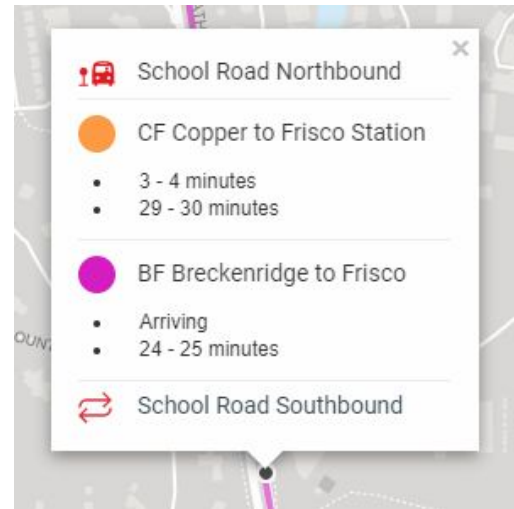


## Arrival Estimates

On the public website, riders can click on the stop the desire and instantly see the ETA for that route or stop.



*ETA for the Ball Hall Stop*

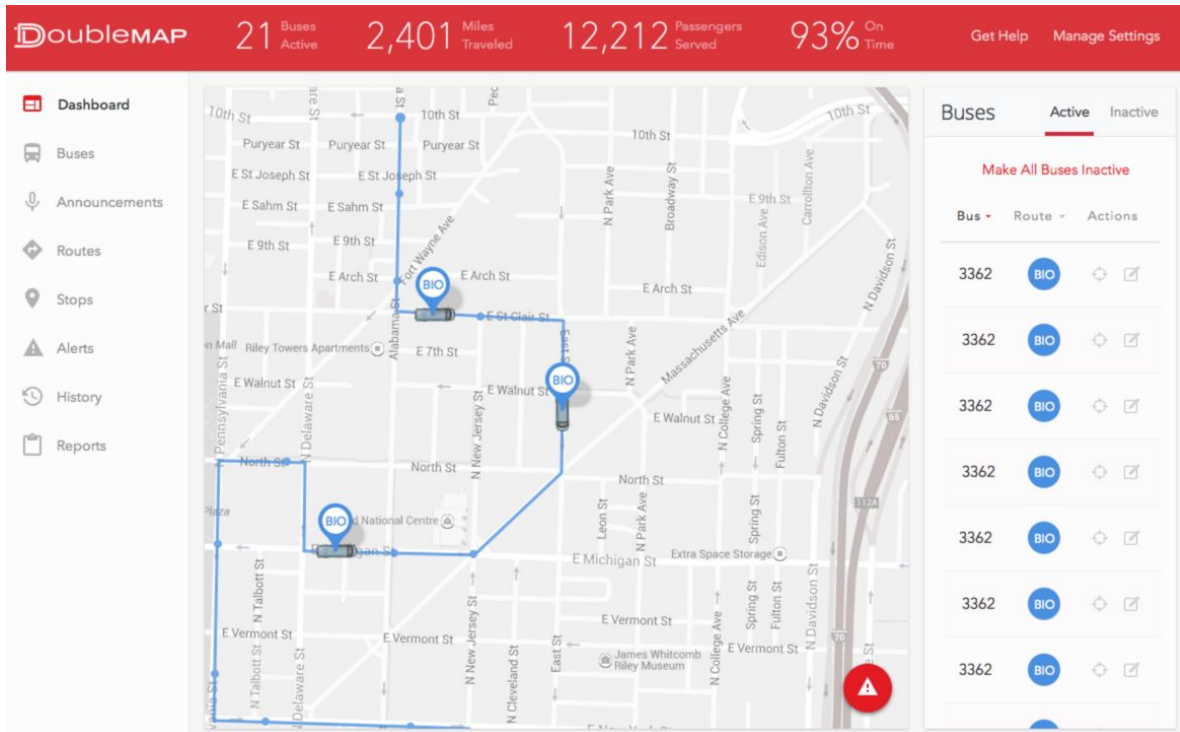


*ETAs along each route*

## Fixed Route Management Module

The DoubleMap system is built to provide accurate daily fixed-route management. DoubleMap administrative users are able to track all vehicles, drivers, and passengers through the DoubleMap Administrative Dashboard.

DoubleMap has designed the administrator platform to work on any office computer and display seamless vehicle locations on a map interface in real-time. Additionally, all software is web-based. So, no special software is required to be uploaded to computers to view and manage the DoubleMap system.



*Administrative Dashboard allows users to accurately manage fixed route services in real-time*

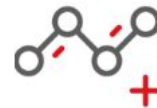
The dashboard allows for unlimited:



Users (licenses)



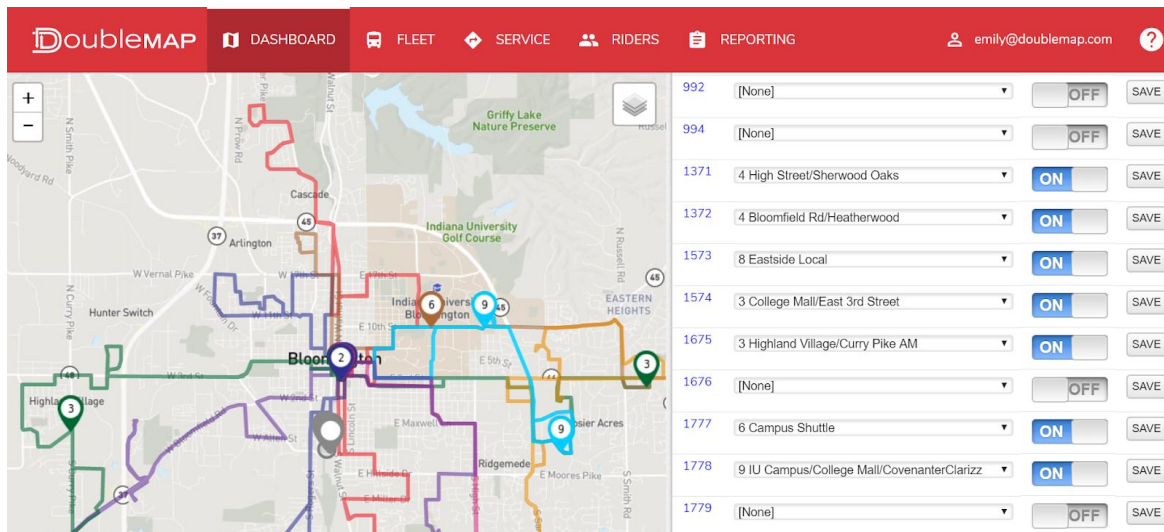
Edits/Changes



Route/Stops Additions

DoubleMap also lists real-time KPIs (Key Performance Indicators) along the top of the dashboard. KPIs can be configured to display the information most desired by the TCTA system administrators. For example, TCTA system administrators could choose to have their On-Time performance monitored at the top in real-time.

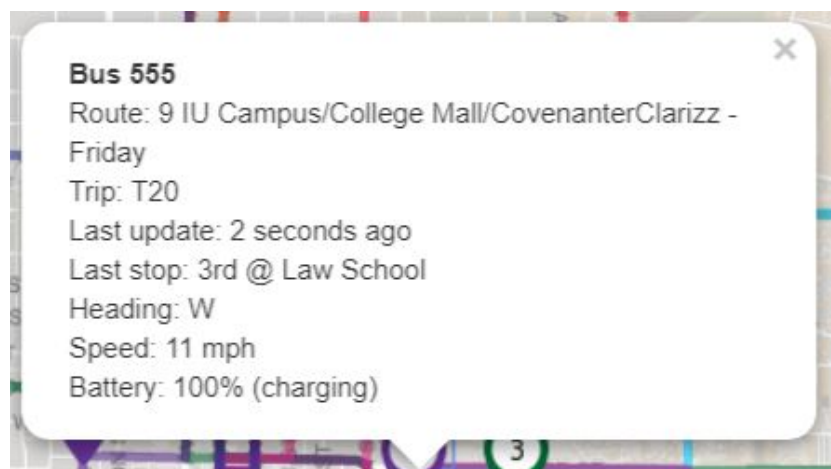
Dispatchers are able to assign buses to routes through the administrator dashboard. To the right of the map, the dispatchers have a column where they can use a drop down to assign specific buses to specific routes as well as turn the routes on and off.



*Dashboards with column to assign routes and turn them on and off*

## Auto-Updating

The admin dashboard displays 1-2 second GPS bus updates. The vehicles do not “jump” locations - all vehicles move in a steady manner without reloading. When administrators or dispatchers click on the bus icons on the map they will see a pop-up with configurable information for that vehicle.

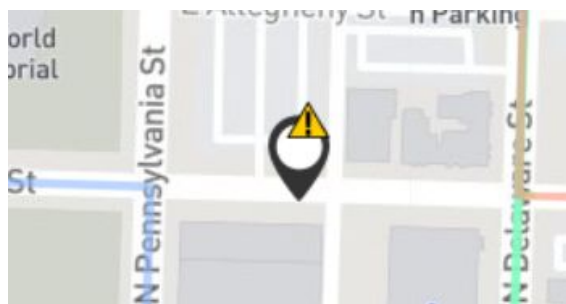


*Bus Information showing a 2 second update rate*

## Location Data

Tracking of location in the DoubleMap system begins and ends when the driver turns the ignition on and off.

Busses that are currently not assigned a route, or that are assigned to a route that is

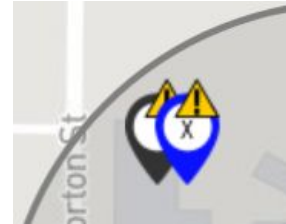


not running, will show up as icons with a black color.

*An unrouted bus, or bus assigned to an inactive route*

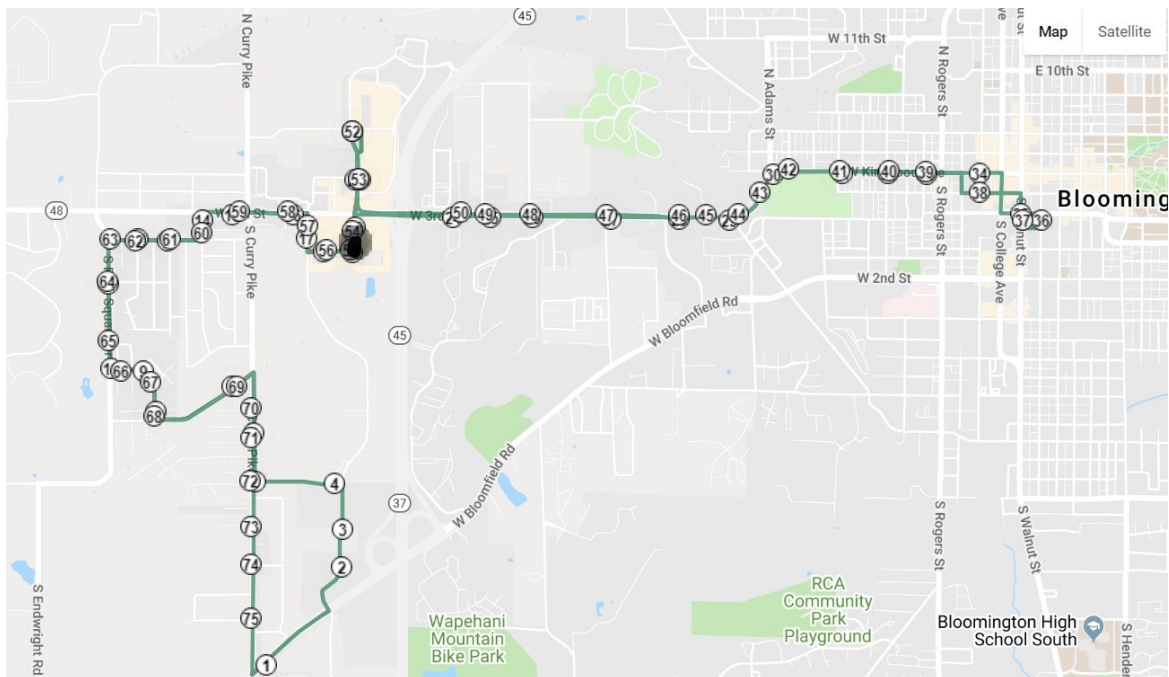
## Alert for loss in GPS signal

The DoubleMap system generates an alert for loss in GPS signal. Each route is color-coded and each vehicle has its own separate icon to clearly differentiate them. If a bus hasn't updated its GPS signal within the allotted time then an triangle warning signal will be visible on the administrative dashboard to alert the admin/dispatcher.



*Warning sign of lost GPS signal*

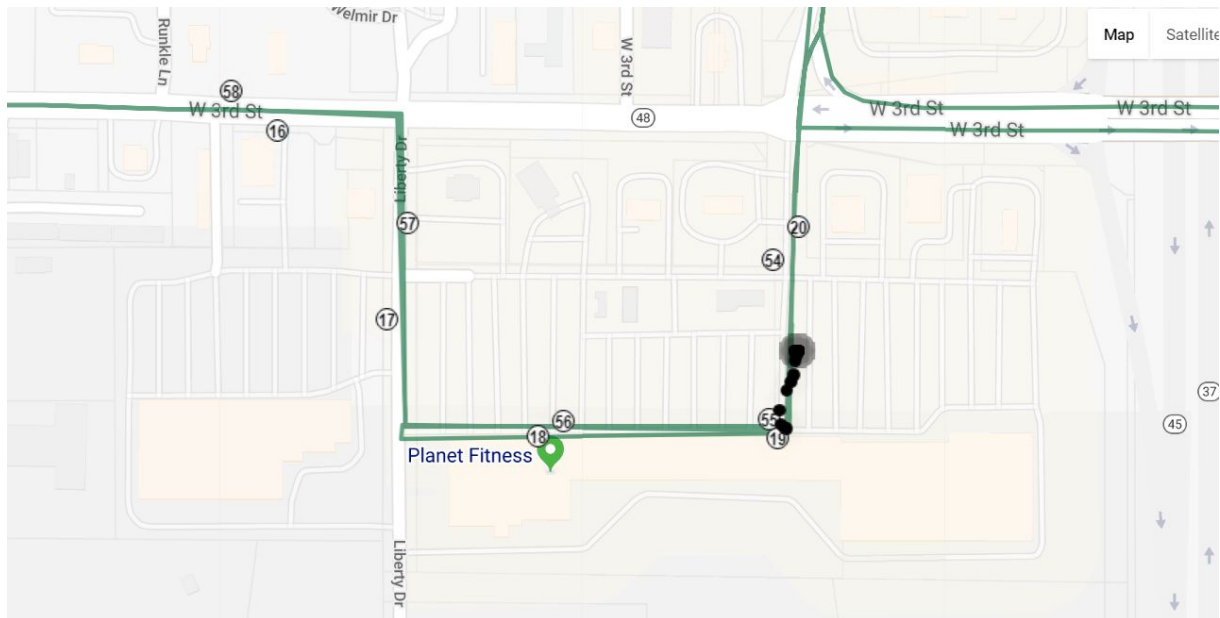
## Zoom Feature



*Zoomed Out View*

Users can easily zoom-in and zoom-out on the map.

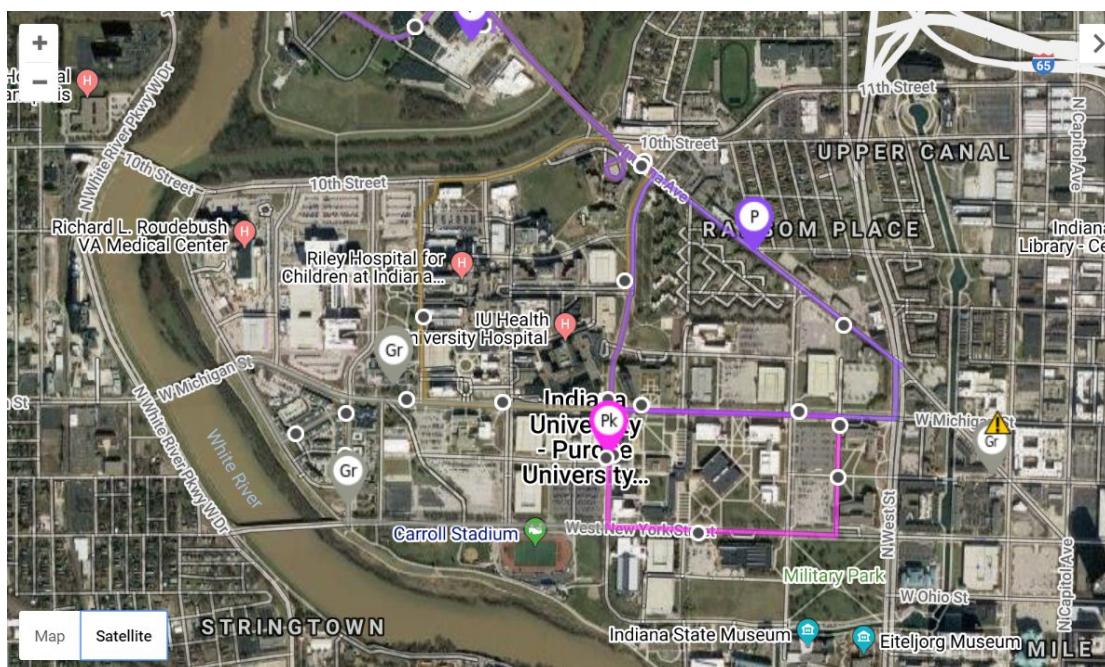




*Zoomed In View*

## Satellite and Street Views

The DoubleMap system supports street view and satellite views in the system map.



*Satellite View*



Street View

## Seasonal Routes

The DoubleMap system administrators have the ability to build seasonal routes, weekend day routes, weekend routes, and other configurations they might need. The image below displays an administrative look at the route built. On the left-hand side they are color-coded. When running, these routes will be displayed on both the admin and passenger facing maps in the corresponding colors.

5 Sare Road - Sat.	5	5 Route	Mo	Tu	We	Th	Fr	Sa	Su
6 Campus Shuttle - Sat Summer	6	6 Route	Mo	Tu	We	Th	Fr	Sa	Su
6 Campus Shuttle - Summer	6	6 Route	Mo	Tu	We	Th	Fr	Sa	Su
6 Campus Shuttle - Sun - Summer	6	6 Route	Mo	Tu	We	Th	Fr	Sa	Su
6 Limited SUMMER	6L	6 Limited	Mo	Tu	We	Th	Fr	Sa	Su
8 Eastside Local	8		Mo	Tu	We	Th	Fr	Sa	Su
8 Stonebelt	8		Mo	Tu	We	Th	Fr	Sa	Su
9 IU Campus/College Mall/Campus Corner - Summer M-F	9	9 Route	Mo	Tu	We	Th	Fr	Sa	Su
9 IU Campus/College Mall/Campus Corner - Summer Sat	9	9 Route	Mo	Tu	We	Th	Fr	Sa	Su

Route Types



The access to all real-time and archived vehicle location data will be available to third party applications for external development purposes. DoubleMap provides a real-time API that allows developers to retrieve AVL data in the JSON format.

## Contract Agreement

### **F. Contract Agreement**

*Tuolumne County Transit Agency (TCTA) is seeking a four year agreement with an option to renew for two additional years. We have attached the Draft Agreement as Attachment B. If there are any changes proposed to the Draft Agreement, they must be proposed as part of the proposal.*

If awarded the contract, DoubleMap would like to negotiate Section 35.

## Project Management & Administration

### **G. Project Management and Administration**

*There will be a Kick-off Meeting for this project to introduce the project team, identify roles, establish lines of communication and responsibility, future planned technologies and finalize project schedule. Bi-weekly and monthly reports on progress of scope of work completion and estimates of remaining work on each tasks.*

DoubleMap is able to comply with this requirement. DoubleMap is willing to participate in the Kick-off Meeting for this project to introduce the project team, identify the roles, establish the lines of communication and responsibilities, discuss about the scope for the future planned technologies and finalize the project schedule. The Reporting schedules will also be discussed and finalized to update TCTA on the progress of scope or work completion and estimates of remaining work, on each tasks.

## Scope of Work - Optional Items

*Additional bonus points (up to 10 points) will be provided to contractors that propose and provide cost estimates for these optional services/hardware. Contractors should explain how they will facilitate the implementation, managing and upkeep of each optional item.*

## Mobile Fare Payments

### **A. Mobile Fare Payments**

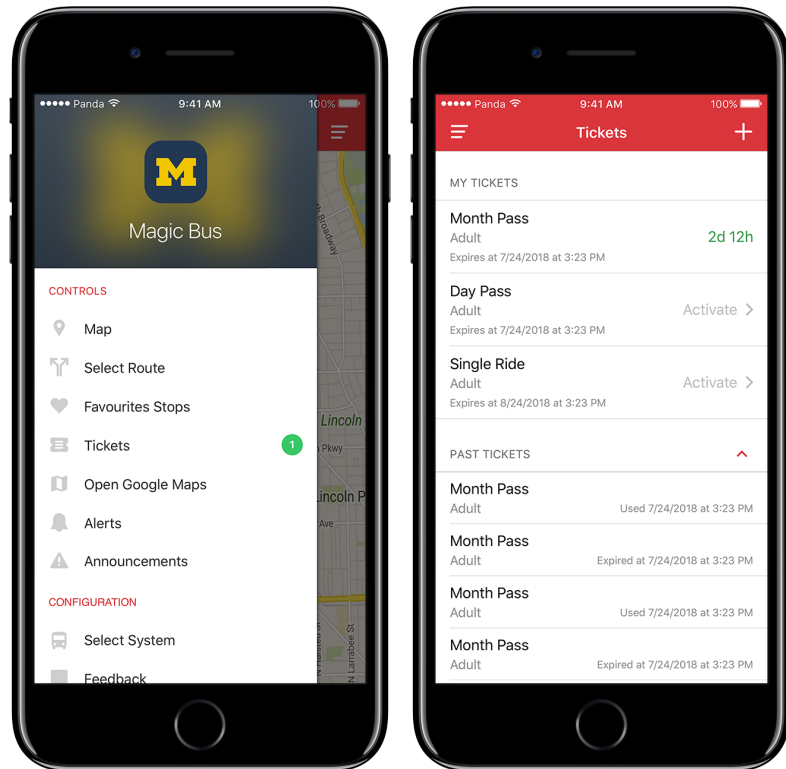
*The Contractor may propose a mobile fare payment system for Tuolumne County Transit. The mobile fare payments will help improve convenience for riders with smartphones. Options in the mobile fare payments include adding an online account, mobile payment and electronic ticket capability to a mobile app for riders. It will also provide self-service and managed service options for customer service and revenue management to agencies, authorities and operators.*

## Mobile Fares

DoubleMap can provide both, a hardware free fare payment solution, as well as, a farebox and kiosk hardware fare payment solution for Tuolumne County Transit.

DoubleMap's mobile fare solution is integrated into the DoubleMap smartphone application for a seamless rider experience.

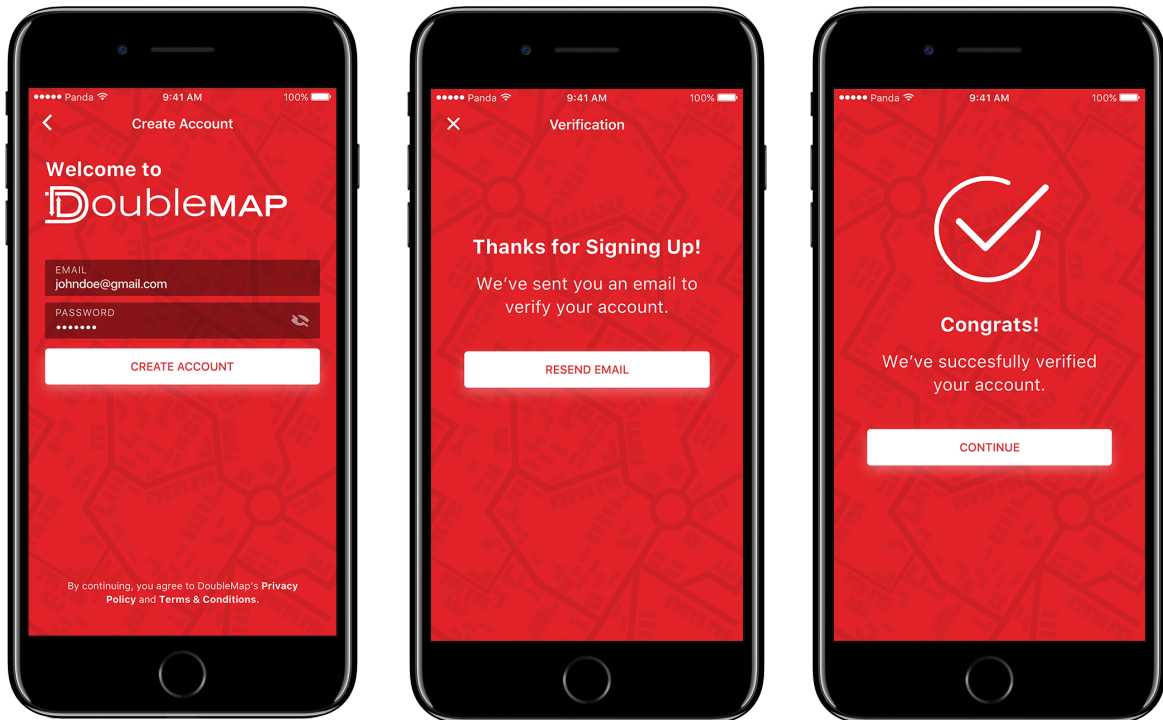
Riders are able to set up an account profile, add payment information, purchase tickets and passes, and use their electronic tickets in order to board their rides, all within the DoubleMap app.



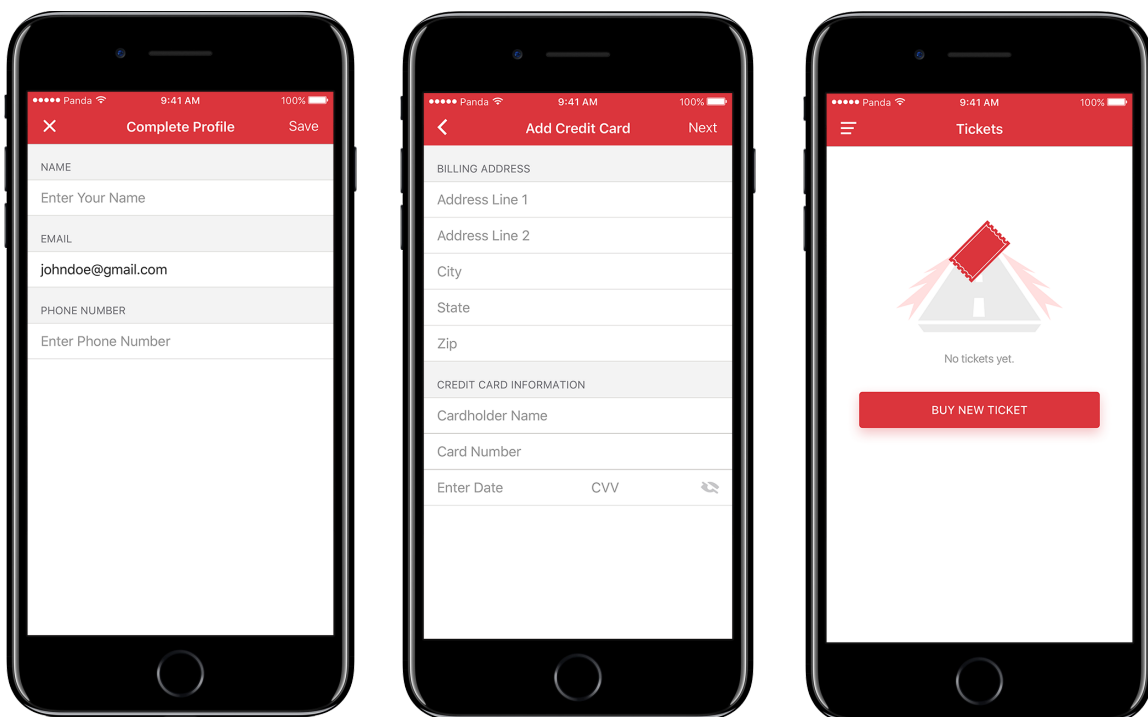
Mobile Fares

## Account Setup

TCTA passengers are able to quickly and easily set their mobile fares account with their email and password. Upon hitting "Create Account" an email will be sent to the user's email for verification. Once the account has been verified riders will be able to complete their profile, add a credit or debit card, and begin purchasing tickets for their rides.



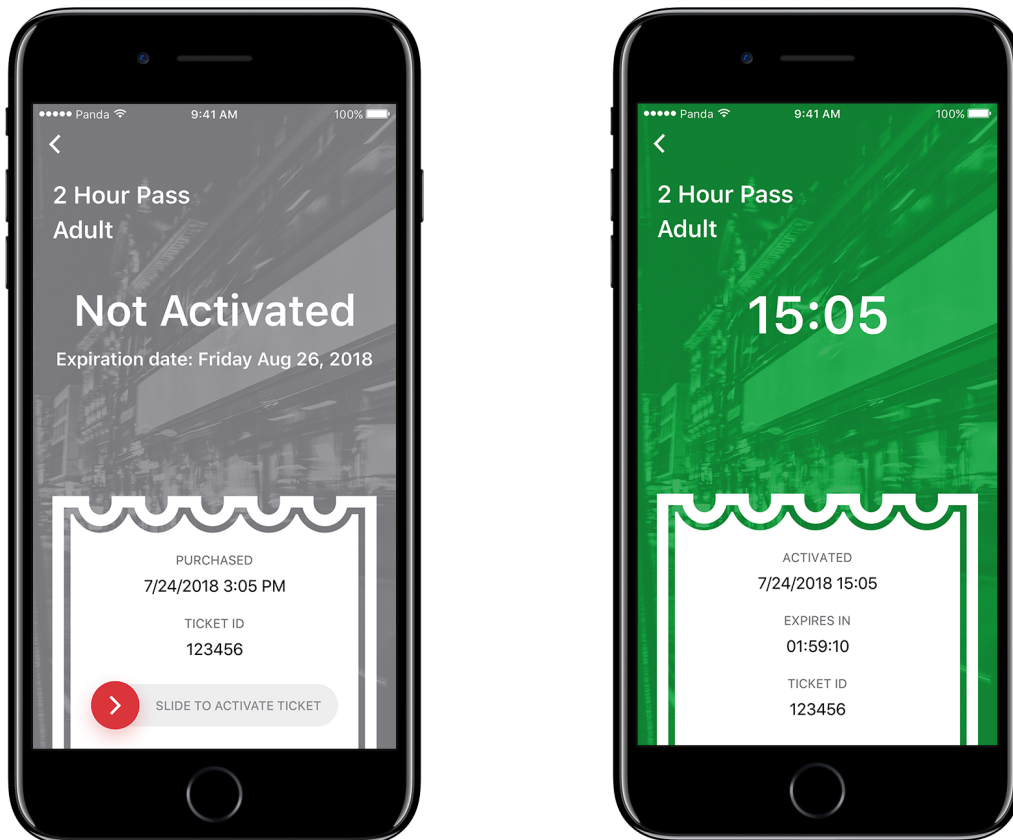
*Account Verification*



*Account Setup*

### Ticket Activation

Once the rider has purchased a ticket he or she will need to activate the ticket by simply sliding the arrow at the bottom of the screen.



### Ticket Activation

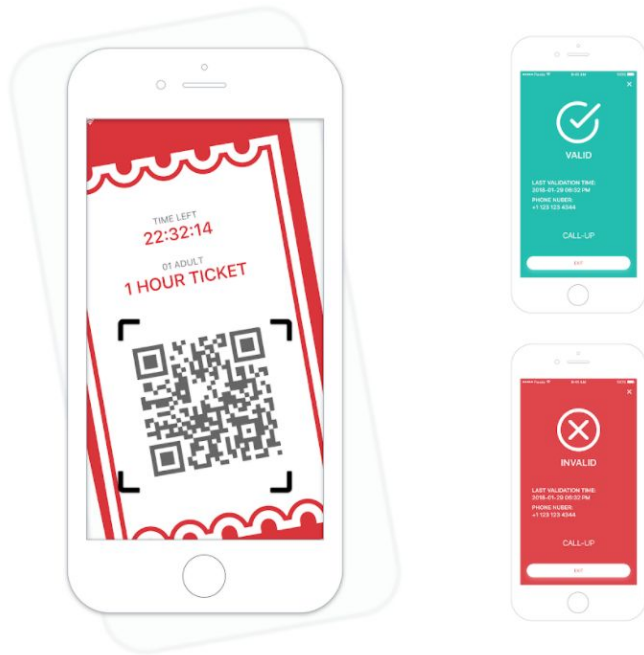
Once activated, the image on the ticket will be in motion. This feature keeps the ticket from being fraudulently duplicated. The current time will be moving in military time in the middle of the ticket, and a countdown timer towards the bottom of the ticket will countdown the time left to the ticket expiration. Additionally, the ticket's color scheme will change daily to further prevent the misuse of passenger fare tickets.

With this fare solution, drivers will visually verify tickets and will not have to physically scan each ticket or interact with any hardware. This is the simplest and fastest fare payment offer which saves costs and increases efficiency.

## Onboard Validation

In the DoubleMap system, tickets can be validated through electronic fare media. This eliminates the need for operators to inspect fare media.

Upon onboarding riders will use their phone to scan their ticket.



*Ticket Inspection*

## Non-Electronic Fare

DoubleMap can accept and account for payments that are not from electronic fares for riders without smartphones that need to pay in cash. Whenever a driver clicks 'Onboard', inputs a flag down ride, or completes a pickup itinerary item (same as 'Onboarding on normal TapRide), a Fare window will popup that asks the driver how many of each fare types the rider(s) has paid with. The fare types can be changed on the admin panel in a new tab labeled 'Fares'. A report for fares exists which lists the drivers and displays how many of each type of fare each respective driver has received. In addition, for cash fares, the report will list how much money was received.

The 'amount' field on the admin page should only be used when cash exchanges hands and it is used to account for how much cash the driver has received. This value is reflected in the reports on the admin panel. The 'notes' field is only displayed on the admin panel and not to the drivers.



Enter the fares collected:

3 fares to collect.

Full Fare \$2.00	+	-	1
Half Fare \$1.00	+	-	0
Free Fare	+	-	1
Pre-Paid	+	-	0
Transfer	+	-	1

Fares collected: 3

Cancel Submit

((TapRide))

- Dashboard
- Add Request
- Reporting
- Charts
- Driver History
- Manage Users
- Manage Hours
- Service Boundary
- Manage Stops
- Vehicles
- Fares**

Add Fare Type ?

Payment Type?	Amount?	Note?	Add
<input type="text"/>	\$ <input type="text"/>	<input type="text"/>	<input data-bbox="1225 965 1289 999" type="button" value="+"/>

Manage Fares:

Payment Type	Amount	Note	Remove
Full Fare	\$2.00		<input data-bbox="1262 1111 1321 1144" type="button" value="Remove"/>
Half Fare	\$1.00		<input data-bbox="1262 1167 1321 1200" type="button" value="Remove"/>
Free Fare			<input data-bbox="1262 1223 1321 1256" type="button" value="Remove"/>
Pre-Paid			<input data-bbox="1262 1279 1321 1312" type="button" value="Remove"/>
Transfer			<input data-bbox="1262 1335 1321 1368" type="button" value="Remove"/>

## Fare Types

## Wi-Fi Service

### B. Wi-Fi Service

The Contractor may propose a Wi-Fi data coverage plan for all 20 of our buses that can be used for offering free Wi-Fi service on the bus. We prefer to use Verizon Wireless cellular coverage since they have better overall coverage in Tuolumne County. Our current real time information company purchases AT&T wireless service for our GPS trackers.

DoubleMap is offering our rugged 4G LTE router with add on automatic failover. This hardware offers redundant SIMs slots with automatic switching. This means that if Wifi is not available on one provider, the hardware will automatically switch to a different provider so as to provide consistent, available wifi.

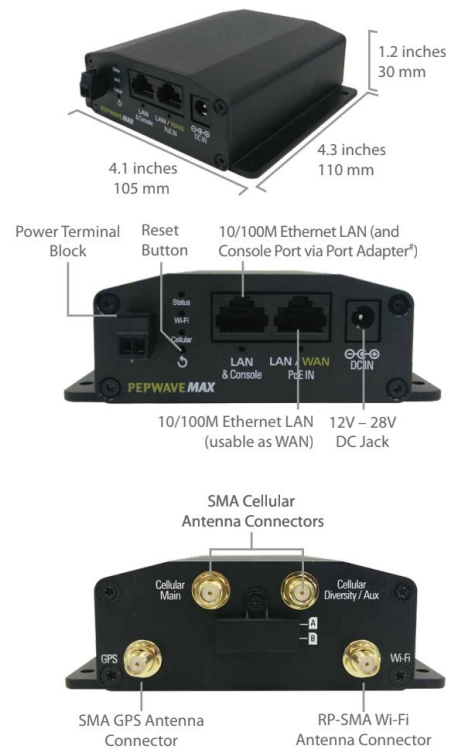
Additionally, you can set the hardware to switch SIM cards when you're about to exceed a data cap. It will allow you to travel across borders without changing SIM cards manually.

With built-in GPS fleet tracking and InControl cloud-based management, you can keep tabs on location and manage your mobile network from any Internet-connected device.

Branding your captive portal is as easy as uploading your logo and terms & conditions. You can easily set bandwidth allowance and access duration per user.

## Specifications

MAX BR1 Mini	
WAN Interface	1x 10/100M Ethernet Port# 1x Embedded LTE Modem with Redundant SIM Slot
LAN Interface	1x 10/100M Ethernet Port
Wi-Fi Interface	802.11b/g/n Wi-Fi WAN# or AP
Router Throughput	100Mbps
LTE Throughput	See Ordering Information
Recommended Users	1-60
Cellular and GPS Antenna Connector	2x SMA Antenna Connectors 1x SMA GPS Antenna Connector 1x Wi-Fi Connector
Power Input	DC Jack/Terminal Block: 12V – 28V DC Passive PoE Input (WAN Port, 12V – 28V DC)
Power Consumption	12W (max.)
Dimensions	4.1 x 4.3 x 1.2 inches 105 x 110 x 30 mm
Weight	0.54 pound 244 grams
Operating Temperature	-40° – 149°F -40° – 65°C
Humidity	15% – 95% (non-condensing)
Certifications	FCC, CE, RoHS EN 61000: Electromagnetic Compatibility
Warranty	1-Year Limited Warranty



## Automatic Passenger Counter

### C. Automatic Passenger Counter (APC's)

*The Contractor may propose new APC's or the Contractor can propose on using our three existing Automatic Passenger Counters (APC's). We currently have three automatic passenger counters on three of our buses which we rotate around different routes. If there are any additional costs needed to update or improve out existing hardware, they need to be included as part of the proposal. Please review Attachment A for more details on our specific APC's. Bonus points will be given to proposals that can utilize existing our APC's.*

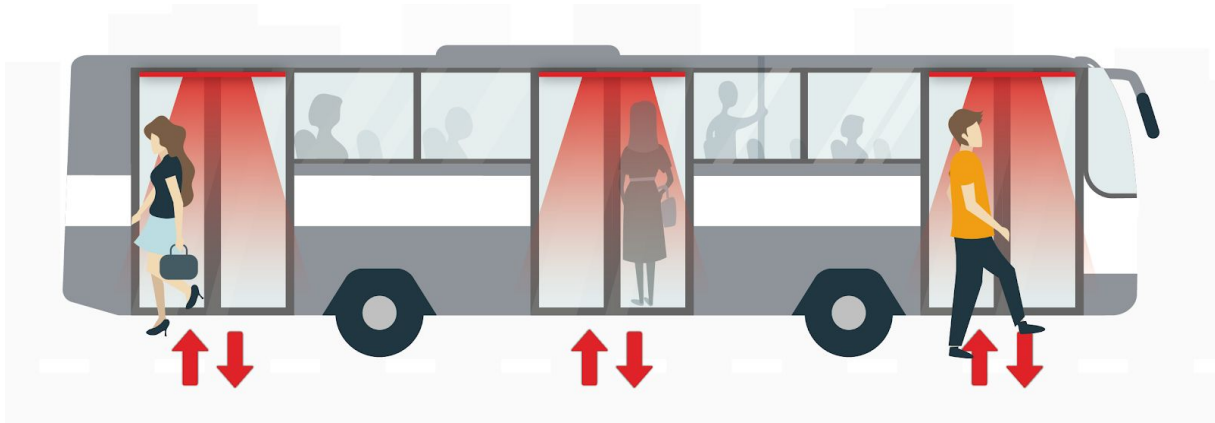
TCTA may continue to use the three existing Automatic Passenger Counters (APCs) that are already installed in the buses and are rotated around different routes. DoubleMap can integrate with the existing Infodev APCs as well as propose Hella APCs for the additional 17 buses. Optionally, DoubleMap can replace the three Infodev APCs with Hella APCs if needed.

Through DoubleMap's partner vendors, DoubleMap is able to provide a mature Automatic Passenger Counting (APC) Software Package consisting of proven APC Software modules and APC Support procedures applied to the APC data generated by the DoubleMap AVL system present on vehicles. DoubleMap's APC solution has been utilized at multiple locations with a 100% implementation success rate.

APC lasers are installed in the vehicle doorways to accurately count and transmit data to the DoubleMap administrative back-end. DoubleMap supports both type of lasers, those installed at

the top of the doorways which recognize and count each head that onboards and alights, and those installed toward the bottom of the doorway that count on-boarding and alighting footsteps.

- Supports every major APC vendor which allows clients to pick the option best suited for them based on price and requested features.
- Real-Time passenger data transmission to the administrative module for same day reporting.
- Ability for both admin and passengers to view bus capacity in real-time.



DoubleMap's APC Module, including all necessary support/training, will produce both measurable and non-measurable benefits in excess of the investment in the APC Software package. The APC Return-On-Investment (ROI) realized will take the form of improved service productivity, improved service quality, and access to an up-to-date, highly accurate, comprehensive set of information to meet analytical requirements.

### Digital Passenger Counting (DPC)

DoubleMap's DPC software provides drivers the ability to input passenger boardings by type through a touch-based input on DoubleMap's MDT, a process formally accomplished through physical clickers or paper tallies. Customizable features such as system-specific passenger types provide rider segment information that has typically required fareboxes or card reading systems to collect, and is not captured through APC hardware.



With DoubleMap's DPC, drivers are able to enter information through a touchscreen interface, which collects and sends data in real-time to DoubleMap's servers. DoubleMap's DPCs are capable of editing passenger counts as necessary.

Each time a driver enters in passenger data, the DPC attaches a timestamp and total load by stop, which provides real-time information to administrators. Administrators are then able to create instant reports, which show passenger boardings by day, month, and year. This data can be further drilled down to display boardings by bus/route/stop/time.

Additionally, the DPC module provides the ability to customize its interface – which has allowed DoubleMap to create custom interfaces for system-specific passenger types and add a button for 'number of passengers left behind.' Customizable features such as system-specific passenger types provide rider segment information that has typically required fareboxes or card reading systems to collect, and is not captured through APC hardware.

This robust functionality has resulted in many clients using the DPC module in place of APC hardware, but several of DoubleMap's existing clients chose to use the DPC in conjunction with existing APC's for rider-type information segments, and to collect backup data for FTA approval of their APC data for NTD reports.

## Destination Signs

### **D. Destination Signs**

*The Contractor may propose how they can utilize some or all of our existing destination signs. Please describe why you cannot use all our existing destination signs. If there are any additional costs needed to update or improve our existing hardware, they need to be included as part of the proposal. Please review Attachment A for more details on our specific destination signs. Bonus points will be given to proposals that can utilize our existing destination signs.*

DoubleMap is able to integrate TCTA's existing destination signs with the proposed DoubleMap system. DoubleMap has successfully integrated with clients' existing destination signs in previous CAD/AVL projects.

## Automatic Vehicle Announcement Systems

### **E. Automatic Vehicle Announcement System (AVAS)**

*The Contractor may propose an Automatic Vehicle Announcement System (AVAS) that is fully compliant with the Americans with Disability Act (ADA). We are interested in proposals that have an Automatic Volume Control & Voice Modulation to lower and increase the volume. We are also interested in manual Stop Request Feature which riders can push or pull.*

DoubleMap is able to offer an automated voice annunciation (AVA) system that is fully automated and complies with the Americans with Disabilities Act of 1990 (ADA). The proposed AVA system uses audible and visual announcements inside the bus as well as audible announcements outside the bus using speakers. DoubleMap's AVA system is built to connect directly into the DoubleMap MDT and fully integrates with internal and external LED signage to utilize single-source hardware for both modules. This integration allows for automatic GPS-triggered voice announcement in a time-critical fashion and employs all route and bus stop configuration data to work seamlessly with AVA and AVL functionality. Additionally, DoubleMap's ability to utilize on-board indoor/outdoor existing speakers results in several notable benefits: reduced costs, less invasive wiring in buses, over-the-air updates to the hardware, and a general simplicity for administrators and drivers using the system. DoubleMap has implemented AVA systems for multiple clients including Bloomington Transit, City of Columbia, City of Lodi, Indiana University, Mississippi State University, and Tar River Transit.

DoubleMap is able to provide over-the-air updates which is done remotely by our dedicated team. Over-the-air updates streamline the ability to update tablets with new text-to-speech or WAV files and doesn't require any physical update by TCTA or the DoubleMap team.

DoubleMap provides several differentiators such as voice-synthesized announcements and an industry-leading audio-based channel switch to differentiate internal and external speakers based on GPS location and an administrative-side settings. The use of voice-synthesis technology allows DoubleMap to update announcement messages/stop names/locations in real-time and without making administrators manually record each change.

The MDT utilizes a built-in GPS component to trigger an announcement at a predefined (can be customized for each stop if necessary) distance leading up to a stop to allow passengers an ample amount of time to signify their desire to disembark the bus. The audio signal will then be sent from the VLU/MDT to the buses speakers through DoubleMap's audio cabling, which is able to determine if the announcement is intended to be heard inside, outside, or on both sets of



speakers. DoubleMap audio cabling is configured to listen for a low tone before an announcement to instantly route the sound to the appropriate speakers on the bus. Based on this technology, the DoubleMap administrator may set specific stops to only announce on inside speakers, while others are set to be announced outside. Additionally, the DoubleMap administrators are able to set time thresholds, which allow for additional flexibility such as announcing outside stop information before a predetermined time, e.g., before 10pm on weekdays.

As the vehicle travels down the road making its stops and performing its trips, the AVA system automatically updates the run, route, trip, and stop information so that it is always announcing the correct stops, ensuring compliance with ADA requirements. The AVA also includes the ability to make non-stop related announcements on a timed or location basis, great for advertising and informational messages.



*AVA Announcement Diagram*

The AVA solution can make the following announcements. Along with each announcement, corresponding text is displayed on the interior sign.

- Stop announcements when approaching selected stops, triggered by location of the vehicle;
- Current route and destination on the interior speaker at the first stop of a trip when the door closes;
- Public safety messages when selected by the vehicle operator;
- Periodic messages as scheduled by the dispatcher.

Between stop announcements the system displays the current date and time, and the current route and destination of the vehicle on the interior sign. Driver PA announcements will override any announcement being made by the AVA system.

## AVA Announcement Management

Creating announcements for stops and routes made on the admin site under the, "Stops" and "Routes" pages.

- Concise announcements are more effective than longer ones.
  - Concise Announcement: **1st & Main**
  - Long Announcement: **Corner of 1st street and Main street**
- It is easier for riders to hear keywords.
  - Clear Announcement: **Library**
  - Unclear Announcement: **University Library at Corner of 5th Street and Grey Avenue.**
- DoubleMap AVA software allows the user to test the pronunciation. The system can be tested on any web browser and does not require a desktop program for adequate testing. You can test the pronunciation by clicking the small box with a speaker on it. If the pronunciation doesn't sound right, it can be typed in phonetically, so it is pronounced correctly. For example: 'route' must be put in as, "rout."

Add Stop

Name	First St and Main St.	
Pronunciation	1st and Main	
Description		
Latitude	39.771317	
Longitude	-86.163197	

## Stop Announcement Creation

DoubleMap's easily managed AVA system will allow TCTA to make changes to route/stop names without having to update all the tablets manually. Everything is done through the servers and is automatically updated on the tablet without need for further interaction. If TCTA wants to redesign routes / stops for riders, any changes made on the route / stop creator will be automatically updated to the tablet without further instruction from administrators. On the

"Routes" page in the administrator website, admins can easily select which stops should be announced along a route.

	Delete	Name	Buffer	Announce	Announce Route
1.		[34] DoubleMap	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.		[61] Ohio and Meridian	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.		[4] Green Capitol and Ohio	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.		[105] Ohio and West Trigger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.		[104] Ohio and West	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.		[98] 10th and Capitol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<div> <div>⇐ [98] 10th and Capitol ▼</div> <div>➕ ADD STOP</div> </div>					

### Choosing Which Stops Are Announced

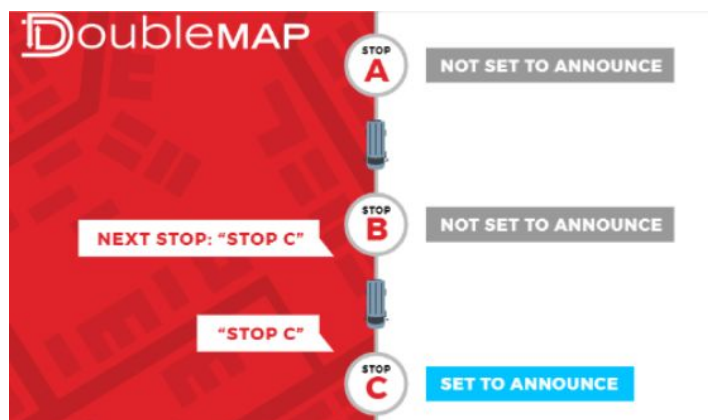
#### Stop Spacing: Announcement Intervals

DoubleMap, along with the Federal Transit Administration (FTA), recommends that stop announcements be at main intersections or destination points, instead of every stop. In some cases, announcements at every stop can be considered noise pollution. The FTA recommends the following stops to be announced.

- Time points and cross streets published in schedules and on route maps
- Public facilities such as government offices, libraries, and schools
- Medical facilities
- Stores and shopping malls
- Cultural entertainment venues
- Other popular destinations

If two stops that are at a close enough interval and both are set to announce, it may cause the previous announcement to get cut short. To assure that announcements don't get cut off, they should have concise wording and be far enough away that the bus can make the announcement without triggering the next stop's geofence.

Each stop has a default geofence of 40 meters surrounding it, and a stop will be announced as "next stop" when it leaves the previous stop's geofence, and announced again when the bus enters that stop's geofence. For example, referring to the illustration below, if Stop C is set to announce, when the bus leaves Stop B's geofence, it will announce, "Next Stop, Stop C". When the bus enters Stop C's geofence, it will announce, "Stop C".



### AVA Announcement Diagram

The bus also needs to pass through the stops geofence in order to make the announcement. To make sure bus travels through the geofence and the announcement is made, the stop pins need to be located where the drivers are actually stopping.


DoubleMap utilizes several factors to determine stop detection: Estimated distance from stop location, current speed, and estimated time to arrive at stop. All items are configurable for each agency's needs and on a stop-by-stop basis.

### Invisible Stops

Invisible stops are stops that can only be viewed on the admin site by administrators. A stop can be made invisible by unchecking the "visible" box at the bottom of the New Stop or Edit Stop screen. This will cause the stop to still collect valuable data for reports, but not be visible to the public.

Invisible stops can be used for announcements and/or advertisements. The announcements act the same as a regular stop, however you can change the announcement to whatever you like. For example, if you would want to advertise your local sports team, when passing the stadium you can add an announcement, "Now passing Lucas Oil Stadium. Home of the Colts".

Add Stop

Name	<input type="text" value="Lucas Oil Stadium"/>	
Pronunciation	<input type="text" value="Now Passing Lucas Oil Stadium. Home of the Colts."/>	
Approach Heading	<input type="text"/>	
Buddy	<input type="text" value="None"/>	
Visible	<input type="checkbox"/>	
Radius (feet)	<input type="text" value="40"/>	

### Advertisement Announcement at Invisible Stop

## Extended Warranty / Maintenance Service

### F. Extended Warranty/Maintenance Service

*The Contractor may propose an optional extended warranty service if needed. We are interested in annual fee invoiced for all of the hardware devices. The maintenance quote should include but not be limited to: annual preventative maintenance checks on all contract equipment and reports to the TCTA on equipment conditions, repair work performed by the Contractor and an inventory report of TCTA owned equipment. Any equipment replaced or removed from the system for disposal is the property of the TCTA and is not to leave the premises without the prior written consent from the Executive Director. The maintenance service fee would complement the standard/limited warranty or begin once the warranty has expired.*

DoubleMap is able to comply with this requirement.

### DoubleMap's Standard Warranty

Four year hardware warranty is included within this proposal. Customer service for all features (hardware, software, administrative use, driver use, troubleshooting) is included as a part of this proposal as well.

DoubleMap will take commercially reasonable measures to maximize the availability of the Service to TCTA and TCTA's riders. From time to time, the Service will be intentionally unavailable for system maintenance. DoubleMap will give TCTA prior notice and will perform such work during off-peak times. DoubleMap historically performs at over 99.99% uptime.

Any hardware procured directly from DoubleMap includes a Limited Warranty for a period of four (4) years against defects in workmanship and material.

Services covered under DoubleMap's Limited Warranty exclude effort required to support the following hardware issues:

- ❖ Problems caused by failure of Customer's operations staff to follow instructions or corrective procedures provided by DoubleMap
- ❖ Hardware misuse, negligence, willful misconduct, tampering, accident, abuse, fire, flood, wind, earthquake, act of God or public enemy
- ❖ Upgrade of tracker and sign hardware
- ❖ On-site troubleshooting
- ❖ On-site repair of hardware
- ❖ Shipping costs for repair parts, including warranty repairs

In any case where malfunctioning Equipment falls under the DoubleMap Limited Warranty, the Equipment is deemed warranted against defects in workmanship and material, in the country to which DoubleMap ships the equipment, on a return-to-factory basis for a period of four years. Customer shall return the defective equipment in accordance with DoubleMap shipping instructions. DoubleMap's sole responsibility under this warranty shall be, at DoubleMap's option, to either repair or replace any component that fails during the warranty period during the warranty period because of a defect in workmanship and material. If DoubleMap determines that the equipment is not defective within the terms of the warranty, Customer shall pay DoubleMap all costs of handling, transportation and repairs at DoubleMap's then-prevailing rates.

### SaaS considerations under DoubleMap Limited Warranty

System software is maintained and supported by DoubleMap IT staff and consists of internet-based Map displays, transit management reports, real-time passenger information, AVL and schedule integration, and XML transmission. DoubleMap support Services includes the following:

- ❖ System Administration of Servers and General Maintenance
- ❖ Maintaining a private network system to store, manage and protect Customer's AVL and related data
- ❖ Maintaining administrative software at a level of functionality that was established at the time the system was originally implemented for Customer



- ❖ Maintaining system uptime with minimal interruptions that may be caused by periodic scheduled backup or other unscheduled interruptions
- ❖ Working directly with wireless carriers to resolve data interruption issues originated by the carriers.

SaaS support covered under DoubleMap's Limited Warranty excludes effort required to support the following:

- ❖ Problems caused by failure of Customer's operations staff to follow instructions or corrective procedures caused by DoubleMap
- ❖ Customization of DoubleMap software and/or management reports designed and implemented exclusively and specifically based on customer requirements
- ❖ Maintenance for any third-party hardware and software purchased herein
- ❖ All costs associated with on-site support, including travel and living expenses as well as labor charges incurred by DoubleMap.

## Technical Requirements

### Data & Infrastructure

#### A. Data & Infrastructure

*The Contractor should recommend a data network that will provide real time vehicle location data. The data network must utilize real-time with a built-in resolution for dead-zones. The Contractor should define the specifications for the data communications protocols and the time delays that will occur between capture of GPS coordinates and data transmission to the map views. The Contractor should state the maximum number of vehicles that can be supported by the data communications being proposed. Additionally, the Contractor should describe in detail the means for monitoring the status of communications between each vehicle and the central dispatch center. The Contractor should clearly identify all equipment necessary to transmit data between vehicles and the dispatch center. The Contractor must identify how the proposed data network will resolve for potential interference restrictions (i.e., dead-zones). The Contractor must describe in detail all hardware, software, wiring, and interconnections necessary to include pricing for the automatic transferring of data between vehicles, central dispatch, and posting data to graphical user interface (GUI) map views.*

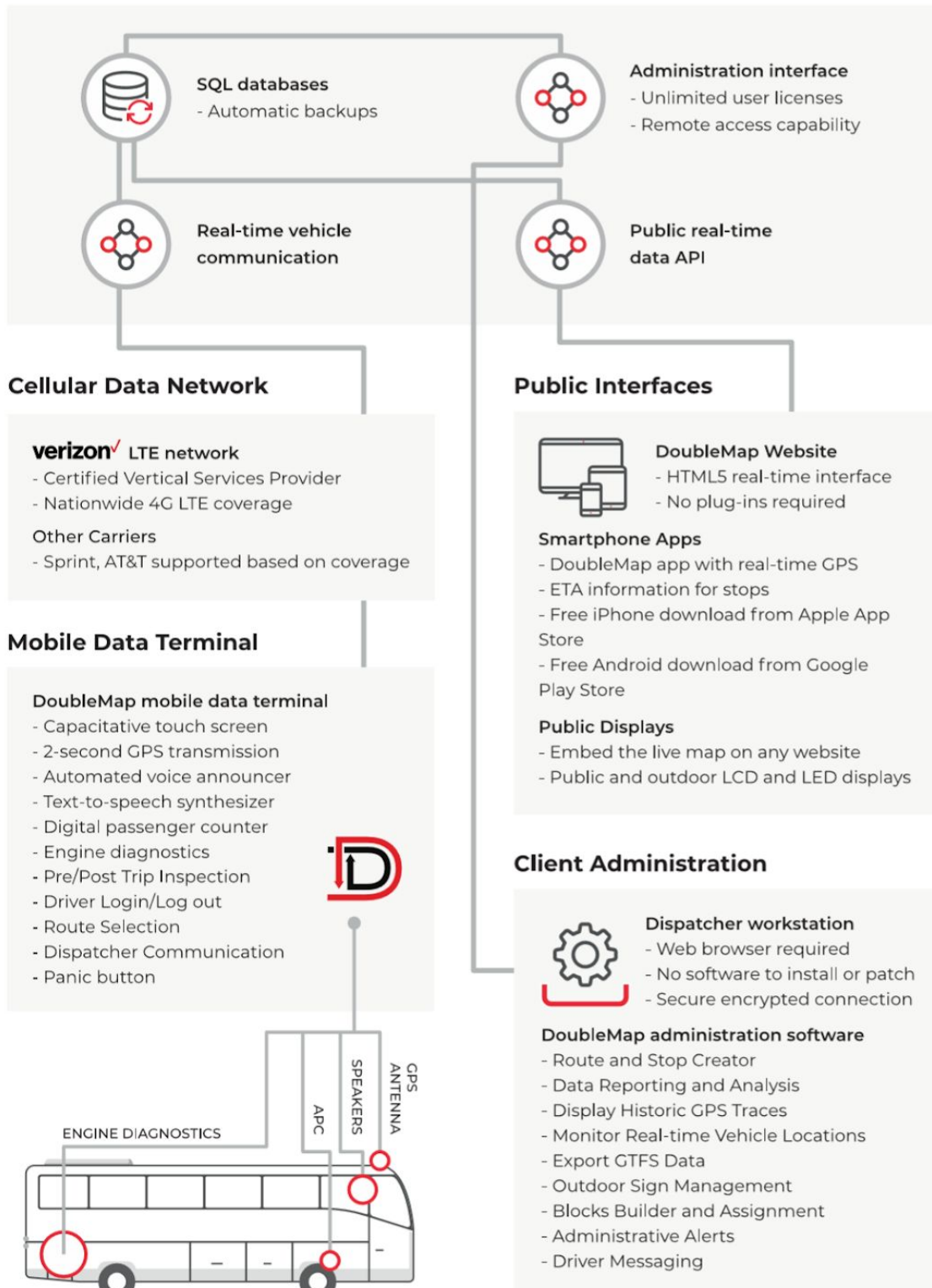
#### Recommended Data Network

DoubleMap uses cellular connections and has a strong working relationship with Verizon but can function perfectly on all domestic cellular carriers. DoubleMap's base system is built entirely upon cellular connectivity - cellular pings are the basis for the DoubleMap GPS system. DoubleMap supports utilizing radio, but suggests using cellular data because of the coverage, existing infrastructure, and refresh rate of 1-2 seconds. DoubleMap has included cellular documentation instead of radio (below) for this reason.

DoubleMap's data servers and networking equipment reside across multiple geo-redundant, secure locations to ensure optimal uptime and security. Moreover, DoubleMap's SaaS model allows for continual enhancements and improvements which are simply pushed to TCTA, without the need of your IT staff's intervention. An overview of the DoubleMap system architecture is displayed below:

## DoubleMap cloud servers

Fully managed cloud infrastructure



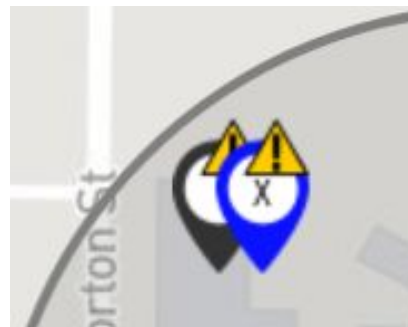
## Data Communication

DoubleMap uses 4G LTE data as its communication backbone and utilizes it for all internal communications between the central dispatch center and each of the vehicles on route.

The DoubleMap system provides route and vehicle information in real-time, utilizing a 1-2 second refresh rate to ensure accuracy. So, the admin dashboard displays every 1-2 second GPS bus updates. To support such a high data refresh rate, the DoubleMap system requires a data network (4G LTE network) that supports and offers a high bandwidth for its data communication requirements. DoubleMap system is successfully supporting fleets of over 300 vehicles. There is no vehicle limit to the number of vehicles that can be supported by the data communications being proposed.

DoubleMap's primary piece of hardware utilized in hundreds of vehicles, the Mobile Data Terminal (MDT), is utilized to communicate between the vehicles and the central dispatch center. The MDT is a fully rugged ZX70 7" tablet. The ZX70 is the most current device in ruggedized technology and is compatible with each vendor's software. DoubleMap's ZX70 tablet features a 7" scratch free LumiBond display with damage-resistant gorilla glass to allow easy readability with a scratch resistant screen. The ZX70 is engineered to be able to withstand shock and vibrations generated by transit vehicles. It is drop resistant, vibration resistant, atmosphere certified, and MIL-STD-810G and IP67 certified.

Whenever a vehicle enters a dead-zone and there is a loss of GPS signal the central dispatch center immediately receives a notification on the administrative dashboard, with a change in the icon, as shown here. The MDT continues to store all information during the transit, and transmits to the central dispatch center instantaneously, once the network (signal) is restored.



*Warning sign of lost GPS signal*

## Hardware & Software

DoubleMap is proposing a base solution of Pepwave routers which will meet TCTA's base system requirements per the RFP specifications. By implementing the router, TCTA's drivers will be able to utilize TCTA's current MDTs without having to replace any hardware currently onboard.

While DoubleMap is initially proposing the implementation of the router in order to save on costs for the base system, we are also proposing the option of deploying the DoubleMap ruggedized Mobile Data Terminal (MDT), which will serve as the central onboard computer and hub for all of the additional modules and integrations currently onboard as well desired optional modules. For instance, with the addition of the ruggedized MDT, TCTA would not be required to install an additional Vehicle Logic Unit (VLU) to deploy additional modules, such as Automated Passenger Counting, Automated Voice Announcements, Onboard Signage, and Traffic Signal Priority.

DoubleMap software is web-based and doesn't require any software to be downloaded onto computers. All hardware, software, wiring, and interconnection is included in the pricing and optional pricing.

## Software & Hardware Requirements

### **B. Software and Hardware Requirements**

*TCTA prefers an Application Service Provider ASP solution, whereby the ASP will manage and distribute information from a central data center. The Contractor is to respond to the requirements below for purchased hosted software applications:*

### DoubleMap Responsibilities

1. *The Contractor is to assume responsibility for a complete delivery, setup, configuration, and installation of software and hardware. The Contractor must work directly with hardware vendors to provide a smooth and seamless data transmission between communications devices and software applications.*

DoubleMap is able to comply with this requirement. DoubleMap shall completely deliver the equipment, complete the setup, configure, and install the hardware and software, as a part of its project installation and commissioning process. DoubleMap will work directly with every hardware vendor to ensure a smooth and seamless data transmission between all communication devices and software applications.

### DoubleMap Solution

2. *A system solution that uses proven open technology with minimal operational impacts to passengers, vehicle operators, and dispatchers and a system which requires minimal system customization. Any new or customized software requiring further development shall be indicated in the proposal. TCTA must approve the design and functionality of any new or customized software prior to development.*

DoubleMap is able to comply with this requirement. The DoubleMap system solution requires minimal system customization and uses proven open technology with minimal operational impacts to TCTA passengers, vehicle operators, and dispatchers.

### Type of Equipment

3. *All equipment must be current production/state-of-the-art, commercially rated and manufactured by well-established and reputable manufacturers. Equipment must be readily available for the expected life-span of the system as needed for repair, replacement, or expansion/upgrades.*

DoubleMap is able to comply with this requirement. All equipment supplied by DoubleMap or any of its associates for the TCTA project will be from the current batch of production. The systems will be state-of-the-art, commercially rated and manufactured by well-established and reputable manufacturers. All equipment used by DoubleMap in the TCTA project will be readily available for the expected life-span of the system as needed for repair, replacement, or expansion and upgrades.

### DoubleMap Certification

4. *The Contractor must certify that the proposed equipment is designed for and suitable for the TCTA's intended purpose of demand-response and fixed route services which require long-life and high reliability under adverse conditions.*

DoubleMap is able to comply with this requirement.

### Solid-State Design

5. *All electronic equipment should be solid-state design, and all equipment housings should be waterproof and dust-proof.*

DoubleMap is able to comply with this requirement. Moreover, all equipment supplied for the TCTA project will be in solid-state (design), and the housings will be waterproof and dust-proof. This would ensure a better system performance and an extended system life.

### Comply to Environmental Conditions

6. *All Contractor provided on-board equipment should operate properly under the environmental conditions encountered on board the vehicles including conditions pertaining to temperature, humidity, dust/dirt, power variations, shock, and vibration.*

DoubleMap is able to comply with this requirement. Every on-board equipment supplied by DoubleMap or any of its associates will operate properly under the tough environmental conditions usually encountered on board the vehicles. These would include compliance to conditions arising out of factors related to temperature, humidity, dust/dirt, power fluctuations/variations, shock and vibrations. DoubleMap utilizes ruggedized hardware which has been specifically designed for the transit environment.

### Vehicle Wiring & Connectors

7. *The Contractor proposal must include all vehicle wiring and connectors required for the equipment. The wiring and connectors should be appropriate to the transportation environment where the equipment is to be installed. Shielded cables should be provided where necessary to avoid interference problems.*

DoubleMap is able to comply with this requirement.

## Warranty & Maintenance

### C. Warranty and Maintenance

*All components of the Real Time Passenger Information System should include a standard/limited warranty that begins once the system is installed for TCTA by the Contractor. The Contractor should provide a copy of the warranty and maintenance terms in the proposal. The Contractor should specify the following:*

### Hardware, Software & Equipment Maintenance

1. *Hardware, software, and vehicle equipment maintenance agreement terms, including the level of support provided.*

Hardware, software and vehicle equipment supplied by DoubleMap for the Real Time Passenger Information System in the TCTA project will be maintained and covered under the standard/limited warranty terms of DoubleMap as given below.

### DoubleMap's Standard Warranty

Four year hardware warranty is included within this proposal. Customer service for all features (hardware, software, administrative use, driver use, troubleshooting) is included as a part of this proposal as well.



DoubleMap will take commercially reasonable measures to maximize the availability of the Service to TCTA and TCTA's riders. From time to time, the Service will be intentionally unavailable for system maintenance. DoubleMap will give TCTA prior notice and will perform such work during off-peak times. DoubleMap historically performs at over 99.99% uptime.

Any hardware procured directly from DoubleMap includes a Limited Warranty for a period of four (4) years against defects in workmanship and material.

Services covered under DoubleMap's Limited Warranty exclude effort required to support the following hardware issues:

- ❖ Problems caused by failure of Customer's operations staff to follow instructions or corrective procedures provided by DoubleMap
- ❖ Hardware misuse, negligence, willful misconduct, tampering, accident, abuse, fire, flood, wind, earthquake, act of God or public enemy
- ❖ Upgrade of tracker and sign hardware
- ❖ On-site troubleshooting
- ❖ On-site repair of hardware
- ❖ Shipping costs for repair parts, including warranty repairs

In any case where malfunctioning Equipment falls under the DoubleMap Limited Warranty, the Equipment is deemed warranted against defects in workmanship and material, in the country to which DoubleMap ships the equipment, on a return-to-factory basis for a period of four years. Customer shall return the defective equipment in accordance with DoubleMap shipping instructions. DoubleMap's sole responsibility under this warranty shall be, at DoubleMap's option, to either repair or replace any component that fails during the warranty period during the warranty period because of a defect in workmanship and material. If DoubleMap determines that the equipment is not defective within the terms of the warranty, Customer shall pay DoubleMap all costs of handling, transportation and repairs at DoubleMap's then-prevailing rates.

### **SaaS considerations under DoubleMap Limited Warranty**

System software is maintained and supported by DoubleMap IT staff and consists of internet-based Map displays, transit management reports, real-time passenger information, AVL and schedule integration, and XML transmission. DoubleMap support Services includes the following:

- ❖ System Administration of Servers and General Maintenance
- ❖ Maintaining a private network system to store, manage and protect Customer's AVL and related data
- ❖ Maintaining administrative software at a level of functionality that was established at the time the system was originally implemented for Customer
- ❖ Maintaining system uptime with minimal interruptions that may be caused by periodic scheduled backup or other unscheduled interruptions
- ❖ Working directly with wireless carriers to resolve data interruption issues originated by the carriers.

SaaS support covered under DoubleMap's Limited Warranty excludes effort required to support the following:

- ❖ Problems caused by failure of Customer's operations staff to follow instructions or corrective procedures caused by DoubleMap
- ❖ Customization of DoubleMap software and/or management reports designed and implemented exclusively and specifically based on customer requirements
- ❖ Maintenance for any third-party hardware and software purchased herein
- ❖ All costs associated with on-site support, including travel and living expenses as well as labor charges incurred by DoubleMap.

#### Turnaround Time

2. *The services provided what are the turnaround times for hardware repairs, etc.*

Please refer to Attachment B: Service Level Agreement.

#### Toll Free Technical Support Number

3. *Toll free technical support number provided during the hours of 8:00 a.m. to 5:00 p.m. PDT Monday through Friday. Include information on evening and weekend support hours and services.*

DoubleMap utilizes Front as a multi-channel support system within a single platform in order to track, assign, and resolve client requests. DoubleMap responds to requests within three hours. DoubleMap is capable of responding in minutes when severe instances occur.

Through Front, the DoubleMap help desk is available 24/7/365 for fleet administrators. General questions and requests for training materials can be sent to [info@doublemap.com](mailto:info@doublemap.com). TCTA will be provided a direct line to a dedicated Project Manager. Additionally, support inquiries may also be sent to [support@doublemap.com](mailto:support@doublemap.com) as a secondary/fail safe measure. DoubleMap's direct phone line for support inquiries is (317) 969-7898. DoubleMap's toll free number is 855-463-6655.

Support Structure Schedule							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8AM - 8PM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support (on call)	Phone Support (on call)
	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager (on call)	Project Manager (on call)
8PM - 1AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)
1AM - 8AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)

### 24/7 Support Structure Schedule

#### Scheduled Downtime Notifications

If the contractor is hosting the system, a notification should be provided prior to any scheduled downtime and as soon as possible regarding any unscheduled downtime with a detailed explanation including length of service interruption. Up-time should be 99.9%.

DoubleMap will be hosting the system in its own controlled environment with managed servers, and will be available to TCTA as a SaaS application.

DoubleMap will continually update the backend and passenger facing applications. The DoubleMap application for TCTA will be continually supported by DoubleMap and updates shall be made on a minimum of 1 server update per week. Updates will be automatically done at no additional cost to TCTA and performed during a timeframe which will not interrupt TCTA's administrator or users.

However, for all scheduled maintenance, when system downtime will be required, the TCTA system administrators and users will be intimated well in advance about the maintenance window, when the tasks will be performed.

For unscheduled downtime, DoubleMap will communicate to TCTA system administrators and users about the unscheduled downtime status with a detailed explanation when the service was interrupted.

DoubleMap however, historically performs at over 99.99% uptime.

### **Negotiating Terms etc.**

*TCTA retains the right to negotiate purchase/warranty terms where appropriate. TCTA also has the option of accepting or rejecting an extended warranty/maintenance agreement. The Contractor should state in the proposal any extended warranty/maintenance agreements that are available for the proposed equipment. The Contractor should include their annual software and hardware maintenance escalation percentages. Additionally, the Contractor should include descriptions of how new versions/upgrades of the software are released and what options customers have to migrate to these new versions. Specify if the new versions/upgrades are included in the purchase price.*

DoubleMap is able to comply with this requirement.

DoubleMap does not escalated the annual software and hardware and maintenance cost.

As the DoubleMap system will be available to TCTA as a SaaS application, the backend will be maintained, updated and upgraded from time-to-time by DoubleMap, to ensure TCTA enjoys a trouble free and uninterrupted service during the entire period. All passenger facing applications will also be updated and maintained by DoubleMap during this period. All app updates will be available on the respective Android and iOS platforms and can be downloaded free of charges. Every app updates for mobile devices are reviewed by DoubleMap Q&A team and then approved for release by Google and Apple play stores.

## **Data Storage & System Reporting**

### **D. Data Storage & System Reporting**

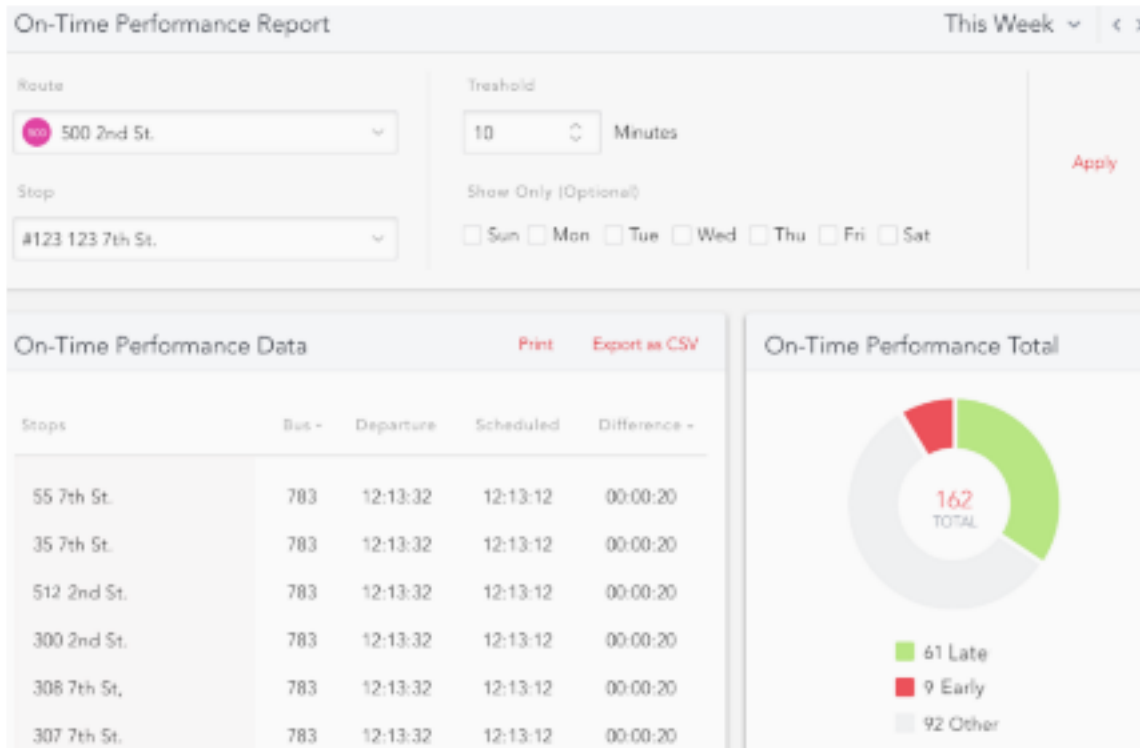
*The Real Time Passenger Information System shall collect vehicle location data and store it for reporting. The reporting component should provide monthly, annual, year-to-date, and ad-hoc operational reports on vehicles, drivers, locations, etc. We are requesting access to two years' worth of data and storage on the website/module. Reports that we are requesting as part of our proposal include:*

### **On-time Performance Reports**

1. *On-time performance reports, including early and late stop departures and wait times.*

DoubleMap is able to comply with this requirement. The Real Time Passenger Information System will collect vehicle location data and store it for reporting. DoubleMap provides an interactive schedule adherence platform that utilizes real-time AVL information to relate overall system performance and schedule on-time adherence. The on-time performance tool is capable of producing reports based on full route or by individual stop/vehicle on the selected route or for the full fleet. This tool then allows administrators to select a date range and on-time threshold.

A screenshot of the report can be seen in the figure below. In this example, administrators are able to see the schedule adherence data for a stop along a given route. The adherence threshold is set for 10 minutes early or late. In this case, there were several instances of buses being outside of the 10-minute adherence threshold. A pie chart provides a visual representation of all trips in the webview. Administrators are also able to download all of this information into a CSV file.



*On-Time Performance Report*

## Vehicle Usage

### 2. Vehicle usage (demand-response and fixed-route usage, etc.)

DoubleMap is able to fully comply with this requirement. DoubleMap provides a robust report to understand vehicle usage by retrieving the average trip time. The TCTA administrators are able to produce reports for each route through the input screen. They are also prompted to select a date range from within the same prompt.

Upon entry of the route and date range, the report will generate an output form that is visible from within the web view. The data shown is segmented by Stop ID/Stop name, and provides the following information:

- Average time between each sequenced stop
- Average cumulative time through the sequence of stops
- Including the average time for the entire trip
- GPS data points between each stop
- Dwell time at each stop
- Cellular data points between each stop

From this report, the administrators will be able to understand the vehicle usage for its fixed-route service.



Route Travel Times Report

This Week

Route

500 2nd St.

Show Only (Optional)

☐ Sun

☐ Mon

☐ Tue

☐ Wed

☐ Thu

☐ Fri

☐ Sat

Apply

Route Travel Times Data

Print

Export as CSV

Stop Name	Time (min)	Cumulative	Data Points	Dwell Time	Dwell Points
#127 PC 7th Ave	5.2	3.9	6	1.2	0
#128 445 4th St.	7.1	4	7	0.1	7
#129 467 4th St.	4.7	4.6	7	0.2	0
#130 130 7th St.	10.8	4.8	7	0.8	0

*Route Travel Time Report*

## Route Statistics

- Route statistics (schedule adherence, historical routes driven, defined routes, off-route vehicles, etc.).

DoubleMap is able to comply with this requirement. Some of the reports are discussed below:

## Schedule Adherence

DoubleMap is able to provide schedule adherence through the Headway Analysis Report, as well as through the On-Time Performance Report. The MDT will allow the driver to see schedule adherence updates. While driving, the MDT will provide color coded updates that are constantly displayed for the driver to see. The MDT will display a green color if the driver is falling behind schedule. The MDT will show no color, or remain black, if the driver is on schedule. The MDT will display the color red if the driver is ahead of schedule. DoubleMap has included details on these reports below.



*Interface when the driver is behind schedule, on schedule, and ahead of schedule, respectively*

**ADHERENCE**  
**01:16**

**ADHERENCE**  
**-00:14**

**ADHERENCE**  
**-02:38**

## Route History Module

DoubleMap offers the following three modules depending on the desired historical playback. Once the date, time, duration, and, if applicable, vehicle or route has been indicated, the interactive module will reenact vehicle movements.

History Playback

Date & Time

2018-04-30 15:03

Duration

30 ▾ minutes

Load data

LOAD DATA

Status

Loaded 30 minutes

▶ PLAY

⏸ PAUSE

⏮

⏭

Mon Apr 30 2018 15:07:38 GMT-0400 (Ea

Map

Satellite

**Bus 1676**  
Route: 6 Campus Shuttle  
Trip: T27  
Speed: 0 mph (0 kph)  
Battery: 100%

*Replay Map*

- Bus & Route History Module - This displays the movements of all vehicles operating during the given time period.
- Bus History Module - This is a breadcrumb-style playback tool for all vehicle data transmissions. It displays GPS locations, route, heading, speed, and battery charge. The display is configurable for clients and vital to driver management and route improvements.
- Route History Module - The vehicles are color-coded in this display and they correlate with heading by vehicle icon color turning progressively darker as movement occurs. It is essential to utilize when handling rider call-in's or complaints.

DoubleMap displays the actual GPS points. So, the system administrator and DoubleMap have millions of data points to utilize when determining route statistics including a vehicle's location, speed, idle time, and heading.

### Off-Route

Off-Route Reports	
Off-Route Totals by Route	Shows the amount of time buses deviated from the route's path grouped by route
Off-Route Totals by Season	Shows the amount of time buses deviated from the route's path grouped by season
Off-Route Occurrences by Route	Shows the amount of occurrences where buses deviated from the route's path grouped by route

### Example of Off-Route Reports

### Replay Map

4. *Replay Map. With the ability to replay the previous 2 years' worth of bus location based data on map.*

DoubleMap is able to comply with this requirement.

### Type of Reports

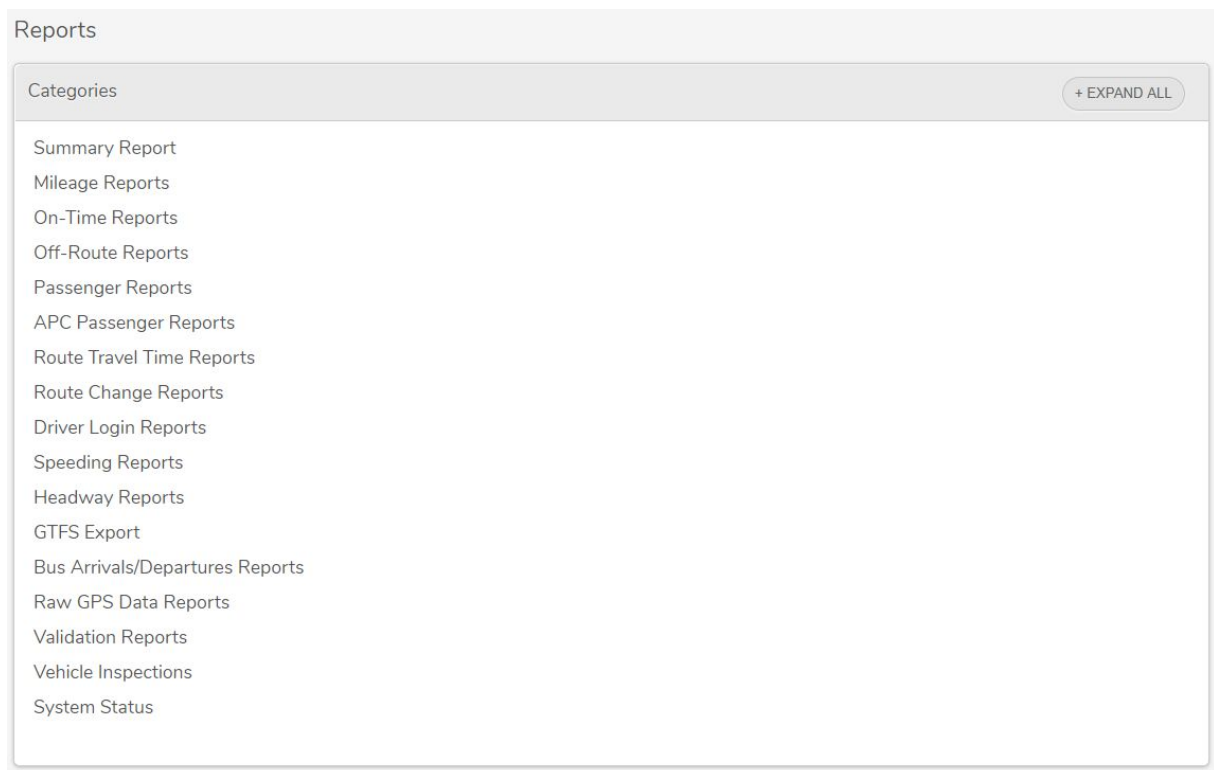
*The Contractor should describe in detail the types of reports that are available and if the reports listed above are available or not. We are also interested in additional customized reports available for future deployment of automated fare collection, destinations signs, and etc. If one or more of the reports are not currently available, the Contractor should include the cost for developing such reports as a separate line item.*

DoubleMap is able to provide a full reporting suite for client administrators including a dashboard of canned reports as well as a Business Intelligence platform powered through Gooddata which allows for administrators to create custom dashboards and ad-hoc reporting for both a comprehensive and detailed look into aspect of TCTA's service.

### Canned Reports

The DoubleMap reporting module provides an extensive collection of management dashboard reports and is able to provide transit information in addition to other management reports. All reports are accessible through a web browser interface for viewing and accessing historical information in the internal database. The reports allow managers to gain greater insight and control over their plans, schedules and communications. For each report, the system presents a web page so that agency staff can access the system remotely.

DoubleMap reports will enable managers to improve a number of performance factors, including schedule adherence and headway management. For instance, schedule adherence reports will allow managers to maximize on-time performance, and provide the ability to drill down through multiple layers of data to get at the root cause of scheduling problems. Administrators can also look for patterns over a period of time or performance at a specific time. These tools are helpful for improving existing routes as well as planning future routes.

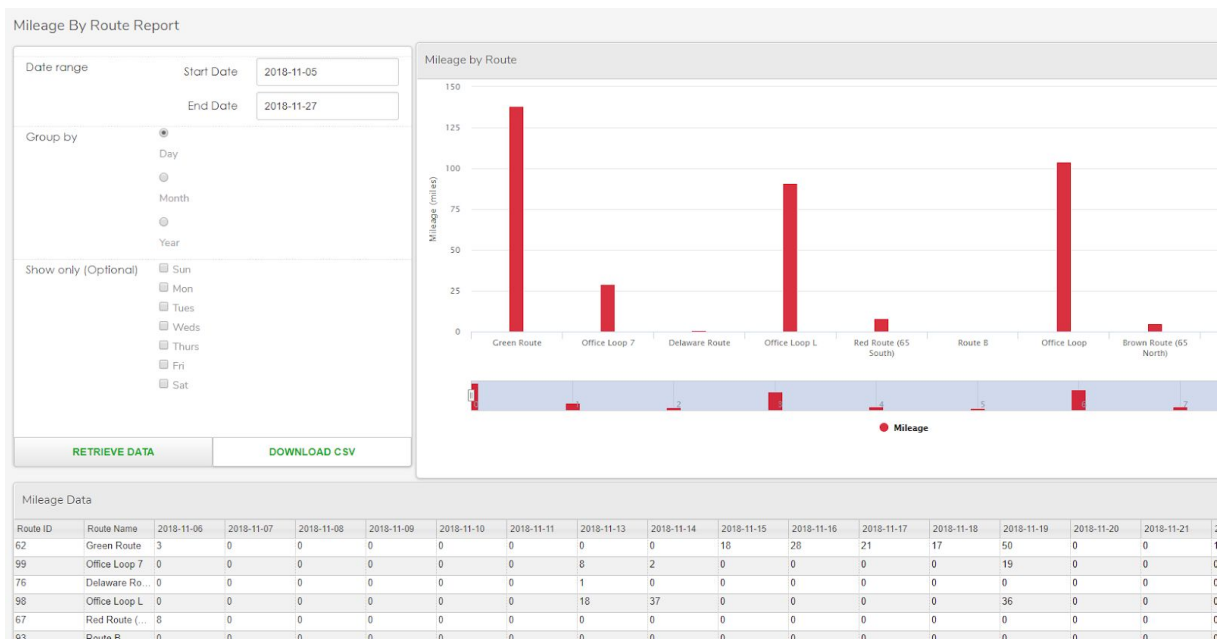


*Canned Reporting Categories*

## Passenger Reports

Passengers by Route	Daily passenger reports, organized by route
Passengers by Stop	Daily passenger reports, organized by stop
Passengers by Type	Daily passenger reports, organized by type
Passengers by Type and Route	Daily passenger reports, organized by type and route
Passengers by Type and Stop	Daily passenger reports, organized by type and stop
Passengers by Bus and Type	Daily passenger reports, organized by bus and type
Passengers by Bus and Stop	Daily passenger reports, organized by bus and stop
Passengers by Trip	Daily passenger reports, organized by trip
Passengers by Bus	Daily passenger reports, organized by bus
Passengers by Stop and Hour	Daily passenger reports, organized by stop and hour
Hourly Passengers	See passengers each hour of the day within a certain date range.
Passengers by Route Daily Averages	See average daily ridership by route
Bus Capacity By Trip	See highest percentage of bus capacity filled per trip
Card Reader Scans	Download a log file of card reader scans in the specified date range

## Reports within Categories



## Example Report



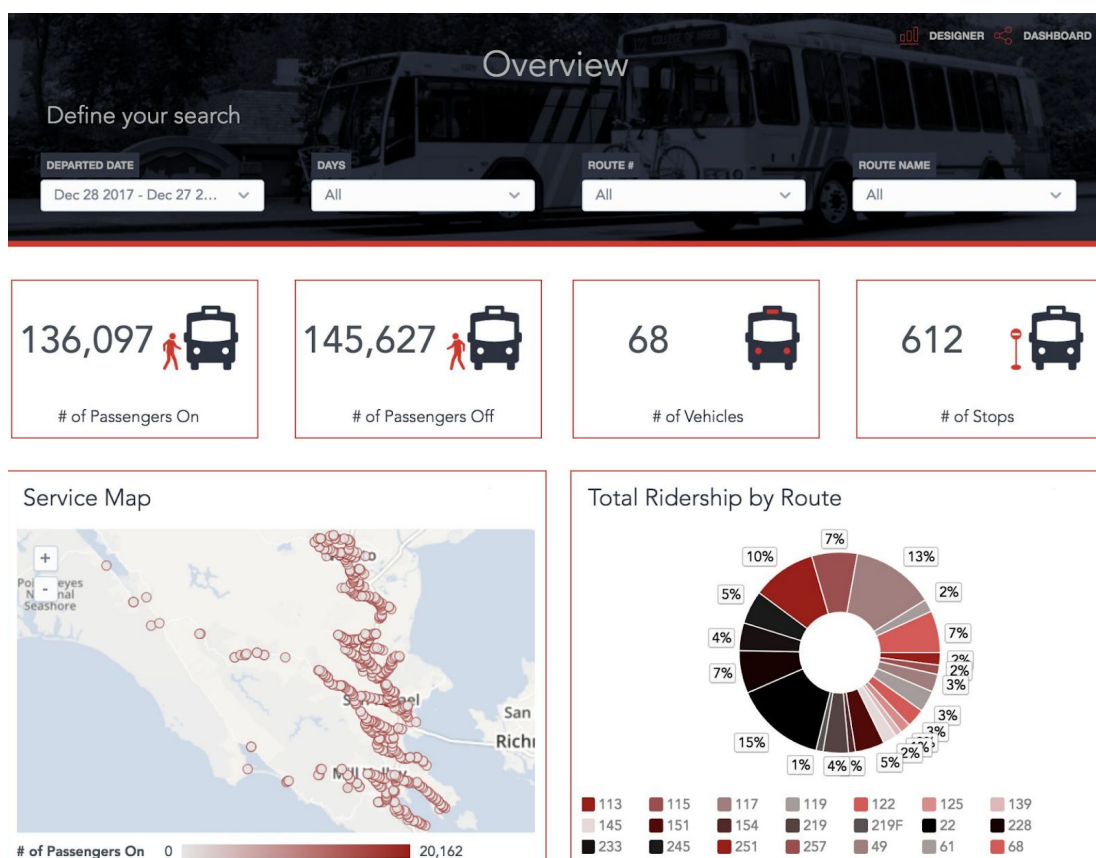
## Business Intelligence

DoubleMap's ability to offer this platform to the TCTA is invaluable as the business analytic platform takes the same powerful analytics traditionally confined to data experts and delivers them to transit clients like TCTA .

Why is this platform amazing? It allows administrators and dispatchers to directly answer key problems and questions (e.g. why did our on-time performance change dramatically?). It allows the client to be notified when things go off-track (e.g. monitoring the activity of the all the vehicles/drivers to continuously make their services better). It will allow the administrators and dispatchers to understand what's going on all day, everyday. They can use data to support operation decisions and fix problems in real-time. They can track day-to-day activity as they view/manage the buses on the map. The platform will further help the client mitigate risks and comply with security directives (data permissions, user management, etc).

The data collected, the reports built, and information analyzed is at TCTA's fingertips to be able to view, investigate, and build for multiple aspects of the service.

Administrators will be able to see an overview of their service broken down into sections which are most important to them: number of passengers boarding and alighting, number of system vehicles, and number of stops. An overview of the service map will be visible, as well as charts to highlight key areas.

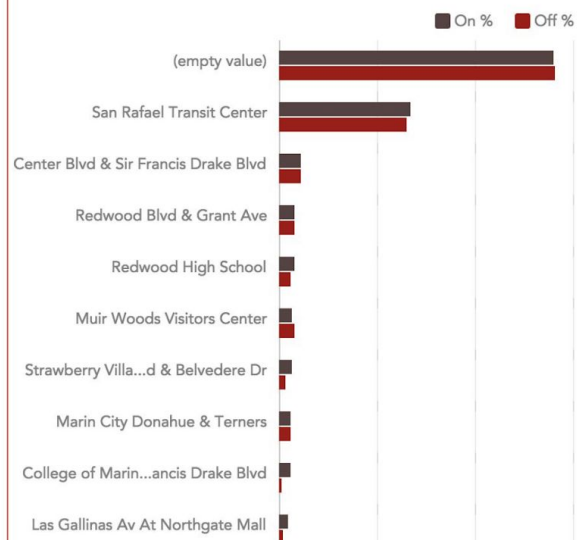


Administrators can define their search by using the filters located along the top in order to pull up ridership information for specific days and routes.

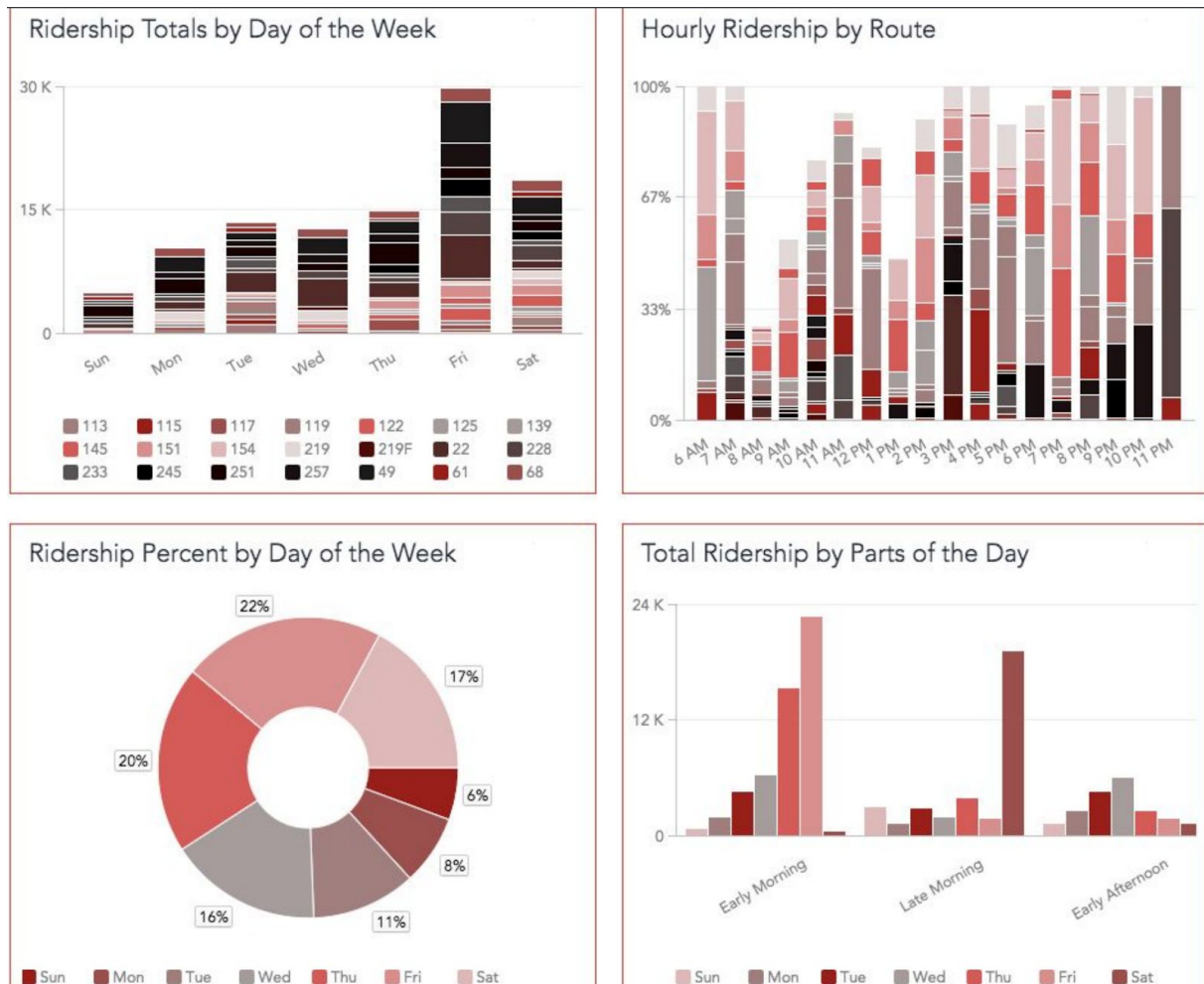
## Stop Ridership Breakdown

Stop Name	Avg On	Avg Off	Total On	% On	Total Off	% Off
(empty value)	0.5	0.6	41,872	31%	45,211	31%
1111 Sir Francis Drak	0.1	0.0	159	0%	44	0%
1125 Sir Francis Drak	0.0	0.2	50	0%	194	0%
1137 Idylberry Rd	0.0	0.0	0	0%	0	0%
1204 Idylberry Rd	0.9	0.0	18	0%	0	0%
120 Mount Lassen Ct	0.0	0.0	0	0%	0	0%
1220 S Eliseo Dr	0.0	0.2	17	0%	97	0%
14682 Sir Francis Dra	0.2	0.2	142	0%	139	0%
203 Smith Ranch Rd-C	0.0	0.2	12	0%	109	0%
204 Smith Ranch Rd	0.2	0.0	46	0%	8	0%
3194 Lucas Valley Rd	0.0	0.0	0	0%	0	0%
33 San Clemente Dr	1.2	1.7	181	0%	273	0%
4810 Shoreline Hwy	1.9	0.2	208	0%	21	0%
4813 Shoreline Hwy	0.2	1.1	22	0%	144	0%
600 Larkspur Landing	0.2	0.1	298	0%	168	0%
630 S Eliseo Dr	0.1	0.1	33	0%	72	0%
6402 Shoreline Hwy	0.0	0.0	2	0%	1	0%

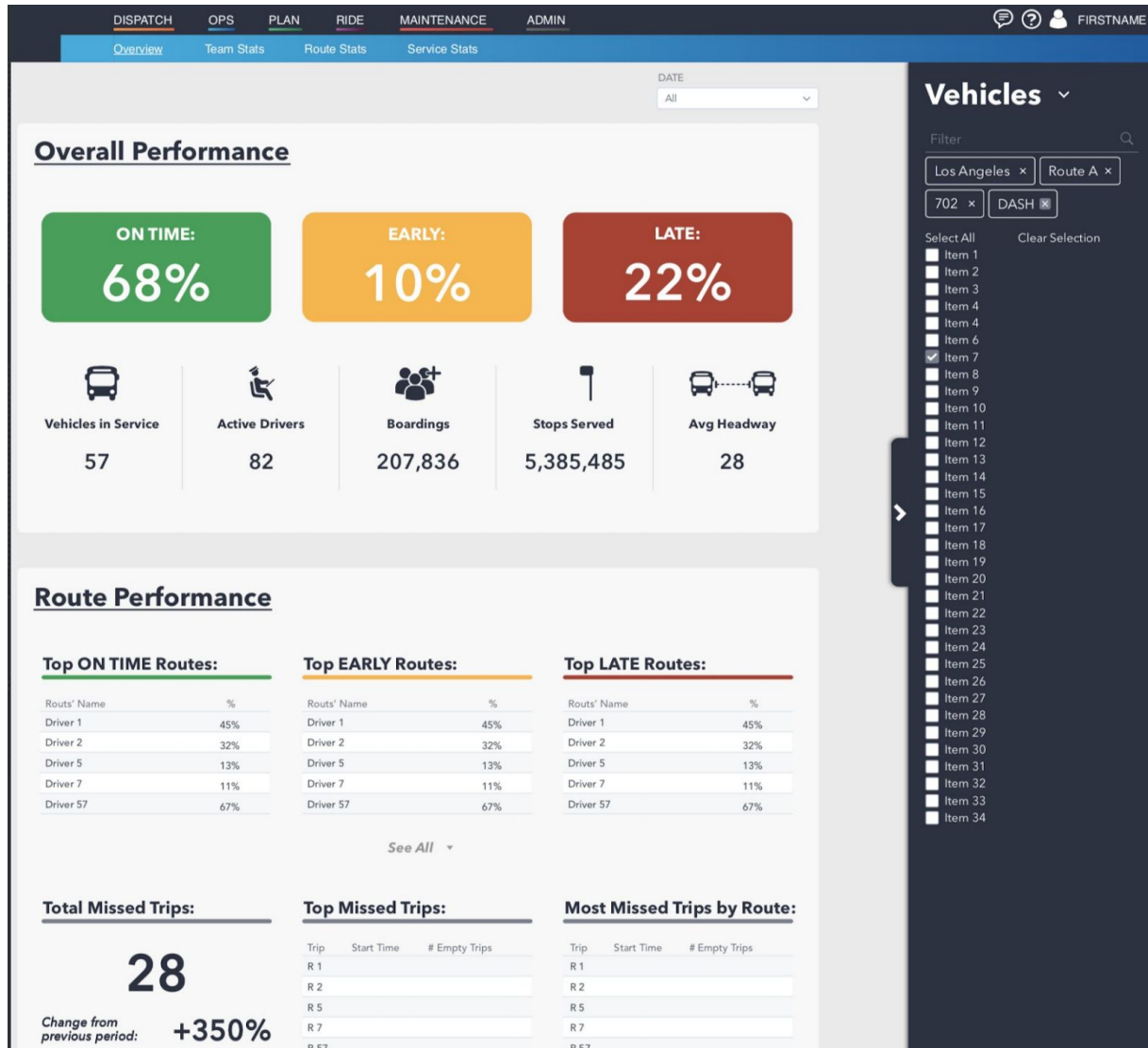
## Ridership Percentages by Stop



Administrators can information via an array of charts and graphs in order to view information by definable filters such as day of week, hours, and parts of the day.



Administrators are further able to view reporting including, but not limited to, Route Performance, Drivers' Performance, Individuals' Performance, Performance Trend, Ridership statistics, Ridership hotspots, and more.



DISPATCH

OPS

PLAN

RIDE

MAINTENANCE

ADMIN

Overview

Team Stats

Route Stats

Service Stats

TYPE

NAME

ROUTE

DATE

On Time

All

All

All

Drivers' Performance

ON TIME

Average

XX

Driver	early%	deviation
Driver 1	45%	
Driver 2	32%	
Driver 5	13%	
Driver 7	11%	
Driver 57	67%	

EARLY

Average

XX

Driver	on time%	deviation
Driver 1	45%	
Driver 2	32%	
Driver 5	13%	
Driver 7	11%	
Driver 57	67%	

LATE

Average

XX

Driver	late%	deviation
Driver 1	45%	
Driver 2	32%	
Driver 5	13%	
Driver 7	11%	
Driver 57	67%	

Individuals

Performance split

#

Driver's Name	Route	On Time	Early	Late	Trips
Driver 1	45%	45%	45%	45%	45%
Driver 2	32%	32%	32%	32%	32%
Driver 5	13%	13%	13%	13%	13%
Driver 7	11%	11%	11%	11%	11%
Driver 57	67%	67%	67%	67%	67%

Performance Trend

Driver	AVG.On Time Performance	On Time Trend
Driver 1	45	
Driver 2	32	
Driver 5	13	

Vehicles

Filter

Los Angeles x Route A x

702 x DASH x

Select All

Clear Selection

☐ Item 1

☐ Item 2

☐ Item 3

☐ Item 4

☐ Item 5

☒ Item 6

☐ Item 7

☐ Item 8

☐ Item 9

☐ Item 10

☐ Item 11

☐ Item 12

☐ Item 13

☐ Item 14

☐ Item 15

☐ Item 16

☐ Item 17

☐ Item 18

☐ Item 19

☐ Item 20

☐ Item 21

☐ Item 22

☐ Item 23

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☐ Item 25

☐ Item 26

☐ Item 27

☐ Item 28

☐ Item 29

☐ Item 30

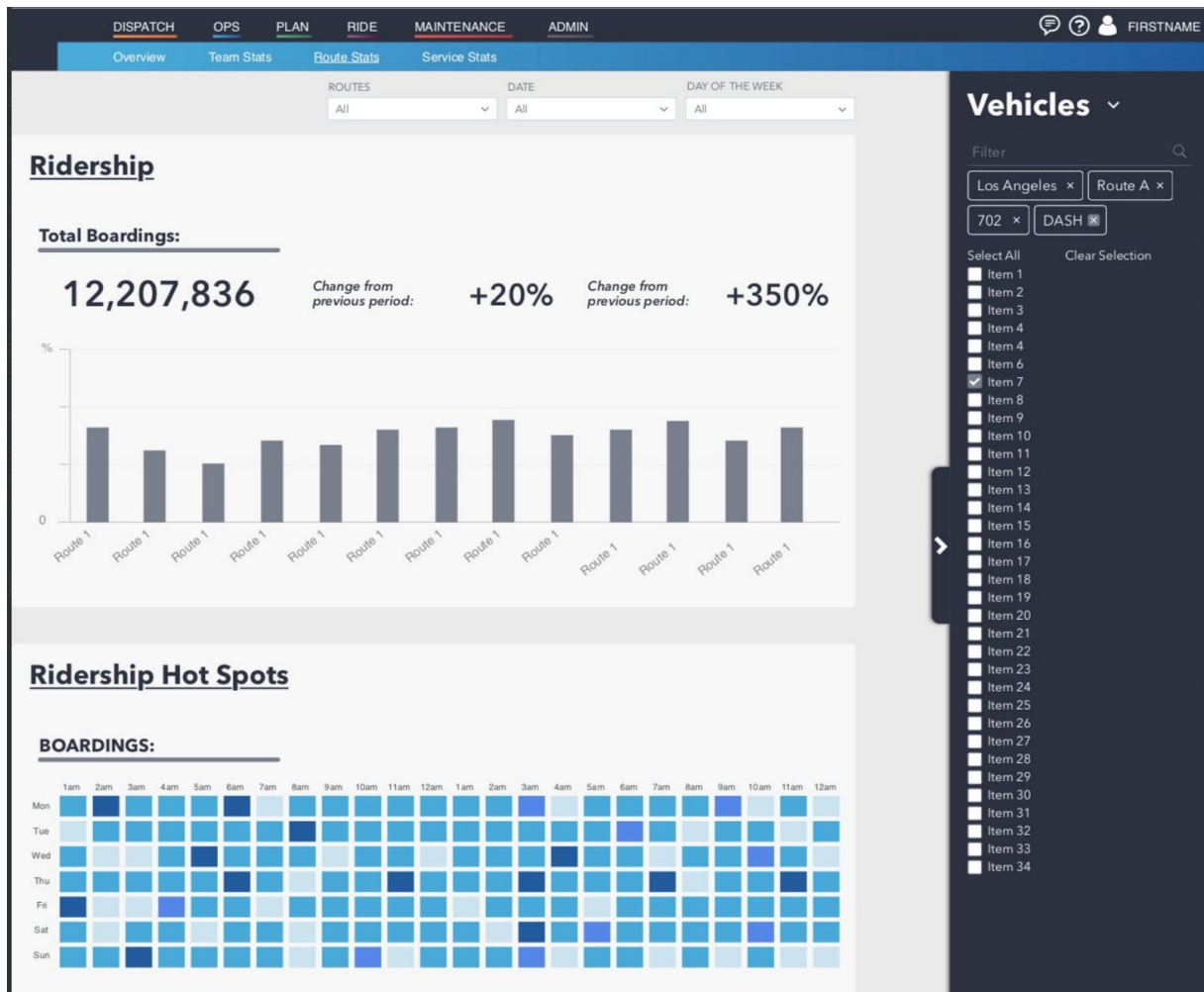
☐ Item 31

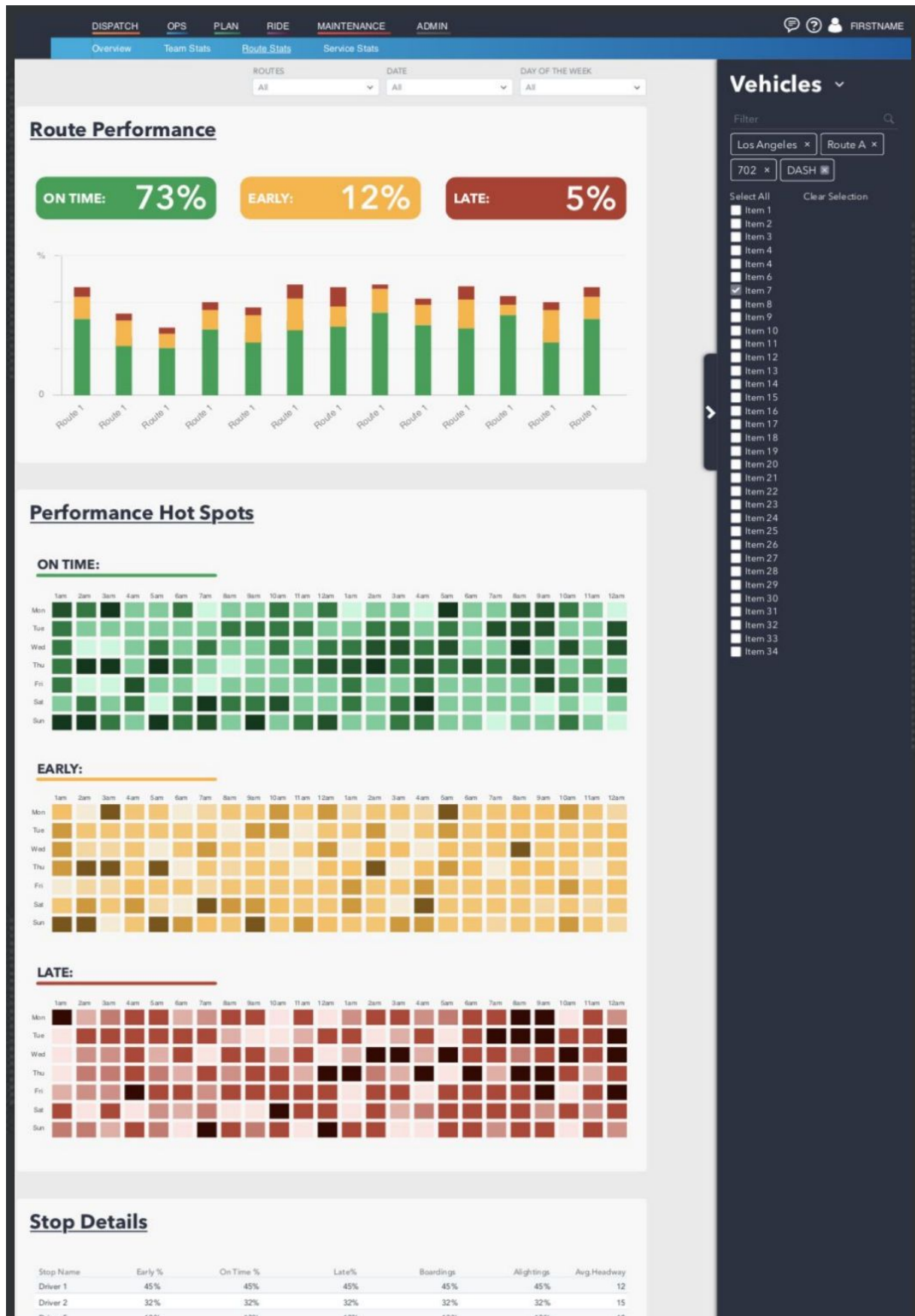
☐ Item 32

☐ Item 33

☐ Item 34







## Documentation

### E. Documentation

*All aspects of the Real Time Passenger Information System and individual components should be clearly and thoroughly documented for both technical and non-technical support staff and for end-user understanding. Documentation should encompass detailed product descriptions as well as step-by-step instructions on how to utilize the equipment. Documentation should be geared towards varying audiences to include vehicle operators, dispatchers, network support staff, area managers, transit operators, and maintenance technicians. Documentation materials should be broken into the following areas and/or functions;*

### Hardware, Software & System

1. Computer hardware, systems software, and equipment specifications.

DoubleMap will provide thorough and updated documentation for both technical, non-technical support staff as well as end user understanding. DoubleMap standard documentation includes troubleshooting guide and step by step instructions on system usage, meant for dispatchers, area managers, transit operators, vehicle operators, and maintenance technicians, amongst others. Documentation and system manuals on computer hardware, software (including API documentation) and system specifications are also included. Every system resources are available in physical, as well as digital formats for DoubleMap customers.

### End-user Focused Documentation

2. End-user focused materials on "How To" operate the equipment within each of the Real Time Passenger Information System components. For example, detailed step-by-step instructions should be included for:
  - a. Traveler Information Features (Web Interface, etc.)
  - b. Map Creation and Views (Zooming, Multiple Views, Map Maintenance, etc.)
  - c. Wireless Data Communications (Usage of wireless equipment and data transmission procedures)
  - d. Route Management and Performance (Dispatcher)
  - e. Data Storage and Reporting (Report Generation, Ad-Hoc Report Creation, etc.)
  - f. Data Access including API for use in developing 3rd party applications.
  - g. Automatic Passenger Counters - if proposed (Equipment and Maintenance)

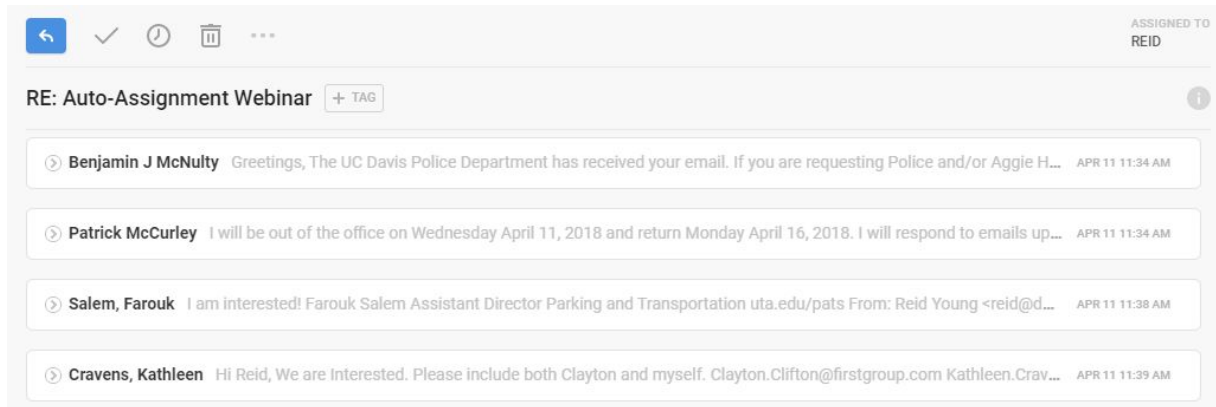
DoubleMap is able to comply with this requirement. Every documentation resource for systems and subsystems used by DoubleMap in their TCTA project are meant for end-users, containing step by step instructions on how to operate each of the system modules. Some of these will include user instructions on how to use the DoubleMap web interface with all its features, use of the wireless devices that are a part of the DoubleMap system, route management features, use of AVA modules, API documentation and APC modules. DoubleMap will also train TCTA users in batches and will also offer a 24/7 Support Helpdesk to address and resolve user queries from TCTA.

### On-going Support

3. On-going support with various options (on-line, phone, etc.)

DoubleMap provides ongoing support to its customers using various options and channels that are easily available to users, including methods like online, phone etc. DoubleMap utilizes Front as a multi-channel support system within a single platform in order to track, assign, and resolve client requests. DoubleMap responds to requests within three hours. DoubleMap is capable of responding in minutes when severe instances occur. Front tracks all requests from clients within the Operation's team shared inbox. No matter what channel a client uses to contact DoubleMap,

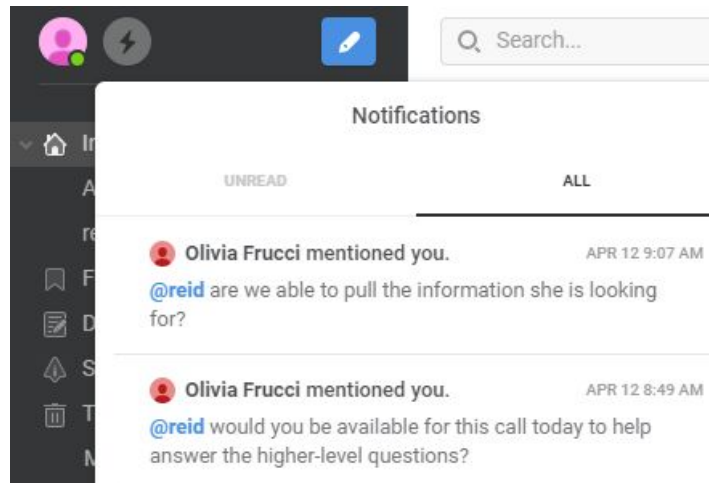
e-mail or chat, their request will be time stamped in this inbox. The Project Manager or support agent assigned to the request is immediately able to respond to the client request or questions.



### Front's Request Inbox System

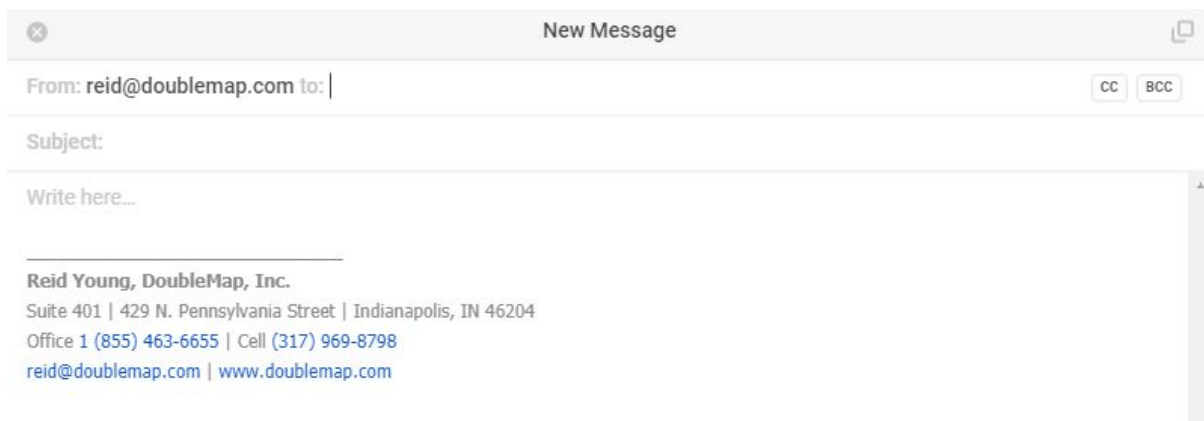
Front also allows internal communications on the same screen as the inbox.

The support agent can easily switch from client communication to internal DoubleMap communication to collaborate with team members to quickly receive answers from project manager all while staying with the email thread. While these internal communications stay within the email request being resolved, all internal communication stays within the DoubleMap support team.



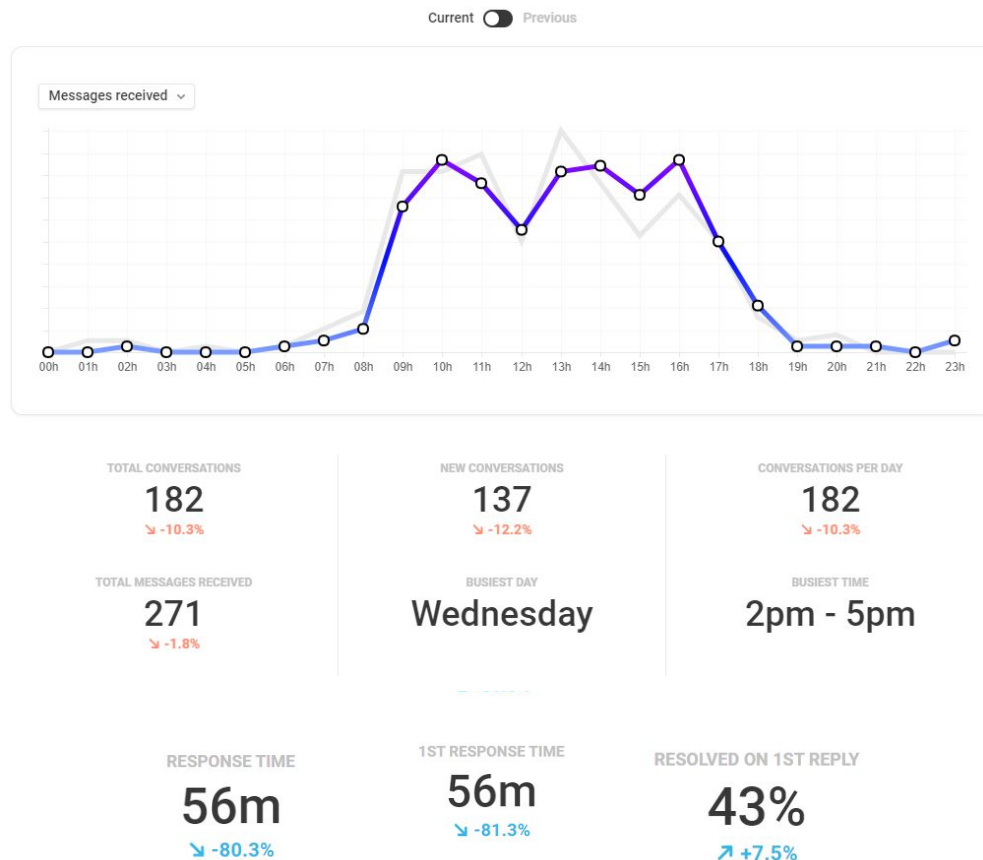
### Internal Support Communication

The client will receive a response as an email tied to their initial request.



### External Response to Client

Front allows the support team to view both real-time and historical analytics to monitor requests. This provides insight into request patterns and allows the support to proactively manage when peak request times occur to ensure optimal coverage. Front also tracks metrics such as first response time, the number of replies sent, and the percentage of request resolved on the first reply.



### Front Analytics

Additionally, Front tracks client satisfaction. Clients will be prompted in their email to rate their level of satisfaction with DoubleMap's resolution of their request or question. Through Front, DoubleMap tracks client satisfaction ratings, amount of ratings, and the rating history.

### Customer Satisfaction

Average Rating

**9.18**

Change: **9.18** ▲

Total Ratings

**85**

Change: **85** ▲

### Customer Satisfaction Monitoring

Through Front, the DoubleMap help desk is available 24/7/365 for fleet administrators. General questions and requests for training materials can be sent to [info@doublemap.com](mailto:info@doublemap.com). TCTA will be



provided a direct line to a dedicated Project Manager, additionally, support inquiries may be sent to [support@doublemap.com](mailto:support@doublemap.com) as a secondary/fail safe measure. DoubleMap's direct phone line for support inquiries is (317) 969-7898. Toll-free number can be reached at 855-463-6655.

### 24/7 Support Structure Schedule

Support Structure Schedule							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8AM - 8PM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support (on call)	Phone Support (on call)
	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager (on call)	Project Manager (on call)
8PM - 1AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)
1AM - 8AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)

### 24/7 Support Structure Schedule

#### Escalation Process

DoubleMap has a multi-level support structure for its Post-Implementation system maintenance and support. The DoubleMap Support Level starts at Tier-1 that escalates to Tier-2. Escalations from Tier-2 goes to the DoubleMap Project Manager for the TCTA project. So, Ms. Missy Mattson will address all escalations from Tier-2 support for the TCTA project. Further escalations from the Project Manager will lead to the DoubleMap Director of Implementation, Ms. Rebecca Grivas. From here the support query escalates to the DoubleMap Chief of Staff, Ms. Megan Dixon, and finally to the DoubleMap CEO, Mr. Ilya Rekhter.

#### Toll-Free Support Number

4. Toll free support number provided during the hours of 8:00 am to 5:00 pm PDT Monday through Friday. Include information on evening and weekend support hours and services.

*The Contractor should provide a sample of the documentation in the proposal. Upon installation, the successful Contractor will provide complete documentation and training materials.*

DoubleMap is able to comply with this requirement. DoubleMap's direct phone line for 24/7 support inquiries is (317) 969-7898. Toll-free number can be reached at 855-463-6655. The support schedule is indicated in the previous section.

## Training

### F. Training

*The Contractor should provide training support to address all aspects of the Real Time Passenger Information System and including any individual component. The Contractor should provide on-site consultation and training throughout the implementation process. Training should be provided for both technical and non-technical support staff and end-user administrators. Training should encompass demonstrations of the overall product and individual component parts. Step-by-step instructions should be demonstrated on how to install and/or use the equipment for varying audiences to include vehicle operators, dispatchers, network support staff, area managers, transit operators, and maintenance technicians. Detailed documentation materials (as described) should be included in training sessions to provide the level of depth required to effectively administer and operate the Real Time Passenger Information System and its component parts.*

DoubleMap is able to comply with the TCTA training and documentation requirements as mentioned herein. DoubleMap is able to provide both in-person training as well as webinar training. The following is a list of standard training courses that DoubleMap provides. Training is always specifically tailored to meet the needs of the clients, depending upon the options selected and the timeframe available for scheduled training.

#### Fixed Route Supervisor Training

Think of this as a “train-the-trainer” course. DoubleMap wants to ensure TCTA supervisors have full knowledge of the system to allow their drivers and other maintenance staff to succeed. This training is proposed as a 1-2 hour module and can accommodate for multiple attendees.

#### In-Vehicle Hardware Overview and Best Practices

This training course revolves around Mobile Data Terminal operation for drivers as well as best practices to ensure minimal disruption of the system when in operation. We will also cover AVA and passenger counters, if those options are selected or added at a future date. For this module, DoubleMap actually provides this training during installation to ensure all maintenance staff and crew are best equipped to work with the system in the longer-term.

#### Data Mining & Analysis Training

The focus of this course is to provide training on all back-end reporting and statistical tracking methods for TCTA's system. These metrics govern your daily operations as well as budget for future transit plans. This includes, but is not limited to:

- On-Time Performance Reporting
- Vehicle Mileage Analysis
- Off-Route Reporting
- Speeding Reports
- GTFS Exporting Package (for Google Transit/Trip Planning)
- Headway Analysis and Reporting

Finally, DoubleMap proposes a 1-hour training module for any/all administrative access users:

#### System Administration Training

This training covers all CAD/AVL components, all AVA access/tools, Google Transit administration, and any other proposed topics. This course is highly technical, and is proposed as a 1-hour training module for administrative access users.

### Real-Time Passenger Information System Training

This training session ensures your supervisors understand how input data works through the CAD/AVL system to display real-time information to all passenger-facing websites, kiosks, LCDs, and iPhone/Android applications. For detours, system alerts, and on-demand changes -- TCTA staff can easily make changes and push out information to the public in real-time.

### Vehicle Operator Instruction

Most drivers will have an identical user experience, so DoubleMap takes this time to ensure all drivers are aware of what input protocols are needed to have the system run smoothly. DoubleMap also covers relevant FAQs which DoubleMap has seen across the existing client base. This is proposed as a 1-hour training course for all drivers.

### Training & Support Services

*The Contractor should describe following the training support and service:*

#### Toll Free Support Number

1. Toll free support number provided during the hours of 8:00 am to 5:00 pm PDT, Monday through Friday. Include information on evening and weekend support hours and services.

DoubleMap is able to comply with the requirement. DoubleMap's direct phone line for 24/7 support inquiries is (317) 969-7898. The 24/7 support schedule is as given below. This schedule includes information related to DoubleMap support hours and services, for 24 hours in a day and all 7 days in a week.

Support Structure Schedule							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8AM - 8PM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support	Phone Support (on call)	Phone Support (on call)
	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager	Project Manager (on call)	Project Manager (on call)
8PM - 1AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)
1AM - 8AM	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support	Email Support
	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)	Phone Support (on call)
	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)	Project Manager (on call)

### On-site System Support

2. On-site system implementation consultation and support. State the number of hours provided.

DoubleMap is able to comply with this requirement if needed. The number of hours provided for on-site implementation support depends on the Optional modules that are selected. For example, if DoubleMap installs the router and leverages the existing hardware, then the amount of time onsite would be 35 hours for implementation and installation. An additional 25 hours

would be added, for example, if Automated Voice Announcements are selected as an option. Our goal is to make sure each and every agency is 100% proficient in the DoubleMap system post-training and implementation, and our team will stay onsite until the TCTA staff is entirely comfortable with running the system without DoubleMap intervention.

### Hardware/Equipment & Installation Training

3. *Hardware/equipment and vehicle installation training. State the number of hours provided.*

DoubleMap is able to comply with this requirement. This training course revolves around Mobile Data Terminal operation for drivers as well as best practices to ensure minimal disruption of the system when in operation. We will also cover AVA and passenger counters, if those options are selected or added at a future date. For this module, DoubleMap actually conducts the training during installation to ensure all maintenance staff and crew are best equipped to work with the system in the longer-term. **\*A total of 15 training hours will be provided and can be divided among workshops once a finalized plan has been determined.**

### Field Training

4. *Field training for dispatchers, field supervisors, and field operators. State the number of hours provided.*

DoubleMap is able to comply with this requirement. Think of this as a “train-the-trainer” course. DoubleMap wants to ensure TCTA dispatchers, supervisors and field operators have full knowledge of the system to allow their drivers and other maintenance staff to succeed. This training is proposed as a **1-2 hour** module and can accommodate multiple attendees.

### Administrator Training

5. *Administrator training for administrators and support staff. State the number of hours provided.*

DoubleMap is able to comply with this requirement. This training covers all CAD/AVL components, all AVA access/tools, Google Transit administration, and any other proposed topics. This course is highly technical, and is proposed as a **1-hour** training module for administrative access users.

### Train the Trainer

6. *Training for the ‘trainers’. State the number of hours provided.*

DoubleMap is able to comply with this requirement. The **Field Training** (discussed above) that will be conducted by DoubleMap will be a training for the ‘trainers’. DoubleMap would like to ensure TCTA dispatchers, supervisors and field operators have full knowledge of the system to allow their drivers and other maintenance staff to succeed. This training is proposed as a **1-2 hour** module and can accommodate multiple attendees.

### On-going Training

7. *On-going training support and various training options. Describe in detail the training support and service and suggest a training plan with proposed timelines for varying stages before, after, and during the project.*

DoubleMap will provide manuals with content that corresponds to the TCTA’s employees requirements. Training Manuals are customized depending upon the class and the client requirements. Manual content can include troubleshooting pages, best practices, FAQs, and more.

DoubleMap can also provide either, in-person, or, virtual training. The training, whether virtual or in-person, will be recorded and provided to the client. This recording is both video and audio and can be referred to at any time.

The client will also be provided with access to DoubleMap's help tools conveniently located on Google Drive. These include:

## Admin Help Videos

- *Announcements*
- *Buses*
- *Dashboard*
- *History Report*
- *Logins*
- *Reports Page*
- *Route Creation*
- *Stop Creation*
- *Stops Main Page*

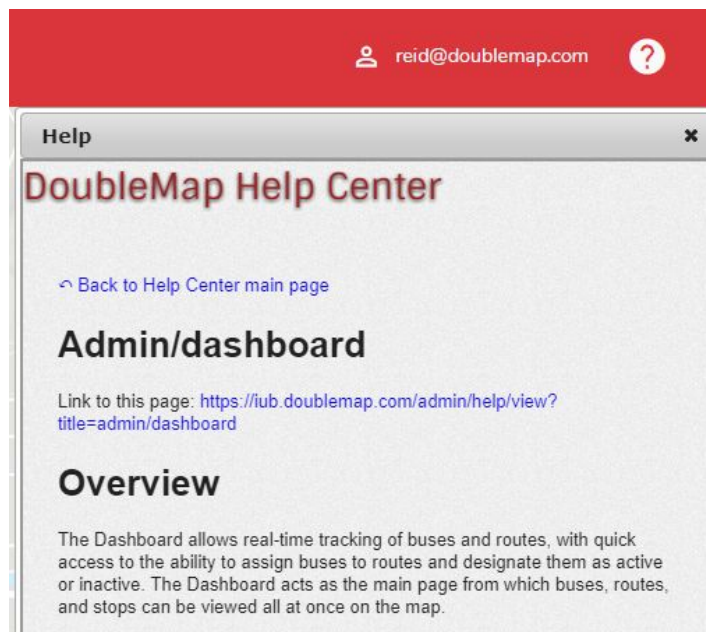
## Documentation

- *Adding Buses to the Admin Site*
- *Administrative Site Reference Guide*
- *Approach Headings*
- *Manually Updating DoubleMap*
- *Mobile App Rider's Guide*
- *Mobile Data Terminal (MDT) Install Guide for AVL*
- *Reports Write Out*
- *Tablet Bus Number Pairing*
- *Tablet Settings for Integrations*
- *Tablet Troubleshooting*

## Help Button

Additionally, administrators have the option to click on the question mark icon on any page of the administrative dashboard in order to receive helpful information on how to navigate and operate the page they are on.

Users will be able to view an overview of the purpose of the features on that page, a short video clip, and a glossary of terms and phrases relevant to that page. Many current DoubleMap clients utilize this tool after completing DoubleMap training as a refresher to remember how all the system's features operate.



As a part of its many initiatives, DoubleMap conducts periodic webinars for clients to continue client engagement and education on DoubleMap solutions. The dates are released to the clients in advance to allow for registration and planning. Detailed training plan/calendar will be prepared by the DoubleMap team in consultation with TCTA system administrators and authorities. The training plan as mutually decided, will be shared with TCTA to ensure complete participation.



## Project Management

*The Contractor must prepare an explanation of the project management system and practices to be used to assure that the project is completed within the scheduled time frame and that the quality of the required products will meet the TCTA's requirements. The proposal should explain the roles and responsibilities of project management as required and optional work products.*

### DoubleMap 5 Phase Implementation

DoubleMap's project management procedures can be summarized in five holistic phases, which take us from initial, basic ITS discussions through the project's overall acceptance and the "Go-Live" phase.



**Phase 1: Initiate** – "Notice to Proceed" - DoubleMap and TCTA will discuss the project scope, goals and deliverables. DoubleMap proposes a rigid timeline for data migration, training, installation, testing and the go-live phases. Recurring meetings are scheduled, and the appropriate TCTA staff are assigned to specific project needs and/or oversight. "Accepting Testing Procedures" approved. DoubleMap also collects any GTFS, routing, scheduling and existing manifests for use in the new overall ITS system.



**Phase 2: Design** – DoubleMap's development and operations teams will cleanse and import critical data to the new CAD/AVL module. If no such data exists, these teams will work alongside TCTA staff to analyze, design and input the necessary data. This is where the "System Design Document" will be approved. The resulting CAD/AVL system framework will be launched internally, although the system will not be functional until phase 3 is complete.



**Phase 3: Build & Deploy** – "Factory Acceptance Testing" completed and Mobile Data Terminals (MDTs) are installed with software modules at this point. Next, the physical installation and on-board wiring takes place for each vehicle, directly followed by training of DoubleMap system and "System Documentation Approved". The system collects historical timing data for use in DoubleMap's estimated time of arrival (ETA) algorithms.



**Phase 4: System Acceptance** – "Pilot Fleet Testing" completed followed by "Full Fleet Testing". of the whole system takes place. The respective staff members join DoubleMap in monitoring the deployed system in real-time for feedback and system acceptance. ETA predictions will be released internally to for review and acceptance prior to public launch. "System Acceptance Testing" and "Operation Period Testing" completed at this time.



**Phase 5: Go-Live** – System Live map, mobile website, and smartphone apps will be released to your riders. ETA predictions will also be available on all DoubleMap interfaces for public use. TCTA staff will be presented with bus stop branding options, and any public facing kiosks or displays can be used to showcase the real-time tracking technology.

Please refer to Attachment C: Implementation Plan.

## Contractor & Subcontractor Staff

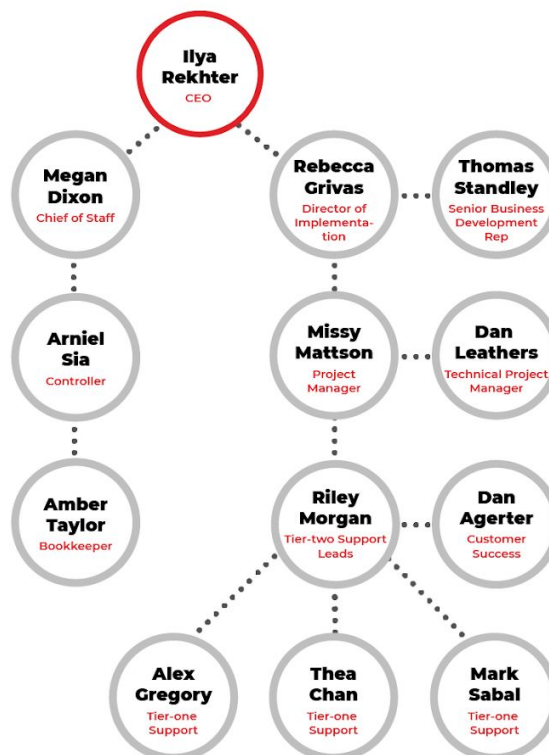
The proposal must describe the qualifications and experience of each professional who will participate in the project including a resume of each member of the project team. List of Project Personnel and their duties and qualifications. A Project Manager must be designated and an organizational chart showing the manager and all project staff must be included. A matrix must be presented indicating the effort either in percentage of the total project or in man-hours which will be contributed by each professional during each phase or task making up the project. If a subcontractor will be used, the contractor must include a letter from the subcontractor committing to perform at least the work shown for subcontractor professionals in the above-described matrix. The proposal should explain the roles and responsibilities of the contractor and any subcontractors as required and any optional work products.

## DoubleMap Organization

### DoubleMap Employees



### Dedicated Sub-Team for your Project



## Resumes

### Ilya Rekhter — CEO



Mr. Rekhter oversees all aspects of operations for DoubleMap, including customer support during and post-system implementations. Through his work, Mr. Rekhter has received recognition in Inc Magazine, the Indianapolis Business Journal's 40 under 40 list, and was awarded TechPoint's rising star award in 2015. Mr. Rekhter has over eight years experience in the transit industry and has a diverse background in customer service, project management and finance. Prior to joining DM, Mr. Rekhter was an international strategy consultant at Abt Associates in Washington DC, where he managed enterprise software implementations for government organizations across 15 countries. Mr. Rekhter has worked with the University of Michigan, GoComo (Columbia, MO), Bloomington Transit (Bloomington, IN), Lynx (Orlando, FL), and Indiana University (Bloomington, IN) in a project management capacity to ensure custom features meet the organization's specific requests. Mr. Rekhter resides in Indianapolis, IN, but was raised in Ann Arbor, MI.

### Rebecca Grivas— Director of Implementation



Ms. Grivas oversees all aspects of operational installments for DoubleMap, including customer support and training during and after system implementations. In her previous role as project manager, Ms. Grivas defined and executed contract deliverables on time and on budget for 10-15 projects at a time; while supporting a client base of 60+ client. She oversaw and assessed project budgets, vendor relationships, timelines for efficient delivery, and project profitability. Ms. Grivas has overseen installations and ongoing support/maintenance at DoubleMap sites including Mississippi State University, Yale University, Citibus in Lubbock TX, Green Bay Metro Transit, UC Berkeley, and Ohio State University, ensuring on-site support met the organization's' specific requests. Ms. Grivas resides in Indianapolis, IN.

### Thomas Standley — Senior Business Development



Mr. Standley leads a team of six that covers the West half of the U.S. Coast and all of Asia, Central America, and Africa. Mr. Standley has been with DoubleMap for nearly five years and directs his team in generating new leads. Mr. Stanley travels to potential clients for on-site presentations and final round interviews for the Request for Proposal (RFP) process. Mr. Standley has led qualification of potential clients for \$4.3 million+ USD deals for the company. He focuses on creating new accounts and engaging with interested clientele each week, strategizing directly with the founders to achieve 400% growth. Mr. Standley provides feedback on international transit markets and helps identify competition and other roadblocks to the success of DoubleMap.

### Missy Mattson — Project Manager



Ms. Mattson oversees the activities for system implementations at transit agencies and universities by planning, organizing and scheduling with client's project team and DoubleMap staff. She leads the implementation team in the areas of installation, quality assurance, system acceptance and system production. She defines requirements to maximize customer satisfaction by ensuring all functions are delivered in accordance to project plan and schedule. She monitors daily performance of her clients' systems in order to maintain the level of service committed to in the agreements. Ms. Mattson has managed sites including the University of Pennsylvania; Broome County Transit in Vestal, NY; Town of Estes Park; Florida International University; City of Fargo in Fargo, ND; Southern Methodist University, and Sandy Area Metro in Sandy, Oregon.

### Dan Agerter - Customer Success



Mr. Agerter oversees all current client relationships and the introduction of new DoubleMap features. During his time at DoubleMap he has helped build and maintain healthy client relationships that have excelled for years. In addition to building client relationships, Mr. Agerter works diligently with clients to identify new features that would benefit their system. Mr. Agerter has worked with all sizes of clients such as Bloomington Transit (Bloomington, IN), University of Michigan (Ann Arbor, MI), Southern Methodist University (Dallas, TX), Ohio State University (Columbus, OH), Athens Transit (Athens, OH), and more.

### Dan Leathers — Technical Project Manager



Mr. Leathers plays a key role in ensuring efficient operational installments for DoubleMap, and works closely with Mr. Dixon. He has a background rooted in technical installations and quality assurance. Mr. Leathers has performed over 75 installations during his nearly five years at DoubleMap. He has performed installations at DoubleMap sites including GoComo (Columbia, MO), University of Alabama (Tuscaloosa, AL), Texas State University (San Marcos, TX), Bloomington Transit (Bloomington, IN), University of Michigan (Ann Arbor, MI), Stanford University Hospital, City of Beaumont (Beaumont Transit), and others.

### Riley Morgan — Tier Two Support



Mr. Morgan manages tier-one support and ensures all issues are responded to within three hours of client submittal. Mr. Morgan is also responsible for all inventory and shipments to and from DoubleMap. This includes the shipping, receiving, re-stocking, and accountability of the inventory. Mr. Morgan has supported clients such as the University of Michigan, Rochester Public Transit (Rochester, MN), Bloomington Transit (Bloomington, IN), Texas State University (San Marcos, TX), University of Cincinnati (Cincinnati, OH), and many others.



### Alex Gregory, Thea Chan, and Mark Sabal — Tier-One Support



Mr. Gregory, Miss Chan, and Mr. Sabal assist Mr. Morgan in handling customer support. They assist with gathering customer information, performing troubleshooting, and identifying the solution. Tier-one Support acts as the first layer of support for clients. Tier-one is dedicated to Front communication, and responds to any client within three hours of their post. Mr. Gregory, Miss Chan, and Mr. Sabal have supported clients like the University of Michigan, Rochester Public Transit (Rochester, MN), Bloomington Transit (Bloomington, IN), Texas State University (San Marcos, TX), University of Cincinnati (Cincinnati, OH), and many others.

### Megan Dixon — Chief of Staff



Miss Dixon oversees day-to-day operations of the staff and projects. In addition, Miss Dixon manages the Finance Team and handles any billing concerns once escalated. She also supervises the management staff and oversees client service agreements. Miss Dixon has been with DoubleMap for five years, and remained actively involved with all DoubleMap's clients. She has worked with small and large clients alike including Lynx (Orlando, FL) and The Walt Disney Company (Burbank, CA).

### Arniel Sia — Controller



Mr. Sia oversees financial activities and drives pricing strategies. Mr. Sia manages all financial documents, invoices, and creates pricing templates. He is also responsible for internal cost accounting, project valuations, and inventory. Mr. Sia has worked with clients like the University of Michigan, Bloomington Transit (Bloomington, IN), Athens Transit (Athens, OH), Georgetown University (Washington, DC), Summit County (Frisco, CO), and many others.

### Amber Taylor — Finance Assistant



Mrs. Taylor assists the controller, Mr. Sia, with finance related tasks. Mrs. Taylor handles bookkeeping-related tasks, manages invoices and receipts, and works with clients to meet payment deadlines. Over the past three years, Mrs. Taylor has worked clients like the University of Michigan, Columbus International Airport (Columbus, OH), Indiana University (Bloomington, IN), GoComo (Columbia, MO), and many others.

Additional resume details are available upon request. Both project manager and supervisory staff can be reached through our office line, (855) 463-6655.

No subcontractors will be utilized for this project.

Project Matrix		
Missy Mattson	Project Manager	Approximately 12.5% off her workload with be dedicated to TCTA
Dan Leathers	Technical Project Manager	45 hours
Dan Agerter	Customer Success Rep	TBD
Riley Morgan	Tier 2 Support	Unlimited
Tier 1 Support	Tier 1 Support	Unlimited

## Contractor Qualifications & References

*The proposal must describe the nature and outcome of projects previously conducted by the Contractor which are related to the work described within this RFP. Descriptions should include a client contact name, address, phone number, a description of the type of work performed, approximate date on which the work was completed and professional staff that performed the work. If a subcontractor is proposed, two or three similar qualifications and references should be provided for the subcontractor.*

*Please list references of at least three customers that are currently using this product/software under similar circumstance as Tuolumne County Transit proposes as well as one former customer. The TCTA may contact some or all of these references to better understand your services and performance levels. References should be comparable in size and complexity to the TCTA installation.*

*For each reference, the Contractor must include contact names, telephone numbers, and a brief description of the nature and outcome of each project. Reference information will be considered within the evaluation process in determining Contractor compliance with applicable criteria. The TCTA may contact references furnished by the Contractor, in addition to other individuals not furnished by Contractor. The TCTA is not limited to specific contacts at any reference company. The TCTA reserves the right to obtain and use, in its evaluation, information from sources not necessarily identified by Contractor.*

### ❖ Former Client

- Western Michigan University
- 1903 Western Michigan Avenue, Kalamazoo, MI 49008
- Lisa Knutson [lisa.knutson@wmich.edu](mailto:lisa.knutson@wmich.edu) (269) 387-3361
- Stacy Lindner-Travis [stacy.lindner-travis@wmich.edu](mailto:stacy.lindner-travis@wmich.edu)
- Western Michigan University
- Former Professional Staff
  - Project Manager: Rebecca Grivas
  - Tier Two Support: Olivia Frucci
  - Installation: Dan Leathers
  - Hardware Engineer: Sam Thomas
- Contract Time Period December 2013 - March 2017
- DoubleMap provided our CAD/AVL solution to Western Michigan University (WMU). WMU was approached with a different CAD/AVL solution which is free of charge and left DoubleMap to use the free offering.

### City of Rochester

Project Manager: Austin Dixon  
Tier Two Support: Chad Harding  
Installation: Dan Leathers  
Hardware Engineer: Sam Thomas  
Completed Installation: January 2016

### Kitsap Professional Staff

Project Manager: Missy Mattson  
Tier Two Support: Chad Harding  
Installation: Dan Leathers  
Hardware Engineer: Sam Thomas  
Completed Installation: End of 2017

### City of Eau Claire

Project Manager: Austin Dixon


Tier Two Support: Chad Harding  
Installation: Dan Leathers  
Hardware Engineer: Sam Thomas  
Completed Installation: August 2016



### CONTACT INFORMATION

Tom Wagener  
tom.wagener@eauclairewi.gov  
(715) 839-5111

203 S. Farwell Street  
Eau Claire, WI 54701



### FLEET BREAKDOWN

22 Vehicles for Eau Claire

### PRE-DOUBLEMAP OVERVIEW

Eau Claire Transit, ECT, provides the fixed and express routes to the City of Eau Claire, The University of Wisconsin - Eau Claire, and parts of Altoona. Eau Claire wanted to have vehicle tracking for its riders to know when the bus is arriving. Additionally, ECT wanted to be able to differentiate between passenger types and have accessible accurate reports.

DoubleMap's goal to assist the City of Eau Claire was to help provide real-time vehicle tracking for riders and dispatchers. DoubleMap also wanted to help drivers, who previously had to use pen and paper, with their passenger counting system.




### CITY OF EAU CLAIRE (WI)

#### EAU CLAIRE TRANSIT

### SERVICES OFFERED



DIGITAL PASSENGER COUNTER



AUTOMATIC VEHICLE LOCATOR

### POST-DOUBLEMAP RESULT

DoubleMap was able to help Eau Claire Transit by implementing its Automatic Vehicle Locator and a public facing application. The app not only allows riders and dispatchers to see their vehicle in real-time, but they can also view routes, stops, capacity, and ETA's. DoubleMap also implemented it's Digital Passenger Counter, which allows drivers to differentiate passengers by passenger type, such as child, senior, or student. Through the website administrators and dispatchers have been able to successfully plan and manage trips, as well as view numerous different reports.

Since implementation of the DoubleMap software in August of 2016, the Wichita Falls Transit System **HAS BEEN 100% COMPLIANT** with ADA accommodations.

## ROCHESTER PUBLIC TRANSIT



### CONTACT INFORMATION

Bryan Law  
blaw@rochestermn.gov  
(507) 328-2485

4300 East River Road NE  
Rochester, MN 55906



### FLEET BREAKDOWN

Buses for Rochester

### PRE-DOUBLEMAP OVERVIEW

Rochester Public Transit was struggling to meet riders' demands of knowing accurate pick-up and drop-off times and locations of the buses. DoubleMap worked to enhance the fixed-route program by providing a mobile, web and kiosk application for improved rider accessibility.

DoubleMap's goal was to give Rochester Public Transit the ability to provide its riders with accurate ETAs to decrease the amount of missed rides in the community. Rochester was also looking to gather reports from the transit data collected over time to analyze public transportation trends in the area.

### SERVICES OFFERED



PUSH  
NOTIFICATION



ADMINISTRATIVE  
REPORTS



TRANSIT  
PLANNER



ROUTE  
CREATOR



FARE-BOX  
INTEGRATION



HEADSIGN  
INTEGRATION

### POST-DOUBLEMAP RESULT

To enable accurate ETA's in Rochester's public transit system, DoubleMap implemented its CAD/AVL system along with the mobile application, administrative tools and custom reports. The software applied to Rochester Public Transit provided more organization toward routes and transit statistics such as passenger counts and on-time vehicle reports.

DoubleMap's custom reports have calculated that Rochester Public Transit has **OVER 140,000 AVERAGE MONTHLY RIDES AND OVER 1.7 MILLION RIDES COMPLETED** since the implementation in 2015.

**TIME REQUIRED TO COMPLETE THE PROJECT: THREE MONTHS.**



## KITSAP CLIENT REFERENCE



### CONTACT INFORMATION

Karl Farnsworth  
karlf@kitsaptransit.com  
(360) 824-4935

60 Washington Avenue, Suite 200  
Bremerton, WA 98337  
www.kitsaptransit.com



### FLEET BREAKDOWN

Vehicles for TapRide: **4**  
Vehicles for DoubleMap: **103**

### PRE-DOUBLEMAP OVERVIEW

Kitsap County, located an hour west of Seattle, is bordered by ferry ports. Many people who live in Kitsap County take ferries daily to and from work. To help these commuters, Kitsap County wanted an on-demand service that could take people to and from their home and the ferry ports so they could leave their cars at home. Kitsap also wanted a fixed route solution that could be accessible to riders through a public facing application.

DoubleMap's goal to help Kitsap Transit was to help solve the first and last mile problem commuters have for getting from home to the ferries. DoubleMap also wanted to provide a fixed route system that would be accessible to riders through a computer or mobile application and be straightforward for dispatchers so they can easily view reports and make schedules.

### SERVICES OFFERED

#### TapRide:



AUTO-ASSIGNMENT

#### DoubleMap:



AUTOMATIC  
VEHICLE LOCATOR



AUTOMATED VOICE  
ANNUNCIATION



INTEGRATED  
HARDWARE

### POST-DOUBLEMAP RESULT

DoubleMap was able to provide both a fixed route and an on-demand service, called TapRide. TapRide installed auto assignment, an UberPOOL like service, which is designed to pick up multiple riders if ride requests are along the same route and the drop off destinations are similar. DoubleMap also provided a public facing application, which gives riders the ability to track their bus, as well as see routes, stops, and ETA's. DoubleMap has also allowed dispatchers to easily create schedules and routes, as well as view specific reports. In addition, DoubleMap was able to integrate into the existing Automatic Passenger Counters and install Automatic Voice Announcements to help Kitsap be fully ADA compliant.

Since rolling out TapRide, Kitsap has been so pleased with the service, they have brought on DoubleMap **FOR THEIR 103 VEHICLE FIXED ROUTE FLEET.**

## Cost Proposal

*In addition to a Technical Proposal, the prospective Contractor shall prepare a detailed Cost Proposal for the work to be performed. The Cost Proposal shall itemize all items that will be charged to the TCTA including travel charges that will be involved in the project and included in the bid amount. Costs shall be segregated to show tasks within required and optional the scope of work, staff hours allocated to each task, rates, classifications, administrative overhead and a rate schedule for extra work. Cost proposals shall be submitted in a separate sealed envelope.*

*If subcontractors are to be used, the prospective Contractor must indicate any markup that the prospective Contractor plans to take on subcontracts. The same breakdown of subcontract costs shall be provided as is required for Contractor costs above. Failure to provide detailed cost breakdowns will be cause of rejection of the proposal.*

Please refer to the separately sealed pricing envelope.

## Fee & Method of Payment

*Progress payments will be made on a task and percent completed basis and no more frequently than at monthly intervals by the TCTA Executive Director. Invoices will be based upon the work completed by task at the close of the billing period. Progress payments will be limited to 90% of the budget for the tasks completed. The 10% retention will be released upon completion, presentation and approval of all tasks as identified within the Scope of Work. Payment for work completed can be expected within 30 days of invoice receipt and verification of work performed.*

DoubleMap is able to comply with these requirements.

## Policy

*The Contractor shall comply with Title VI of the Civil Rights Act of 1964, as amended.*

DoubleMap is able to comply with this requirement.

## Contract

*This RFP does not obligate the TCTA to award a contract to develop a Real Time Passenger Information System. The Scope of Work is subject to modification as work progresses on each element. All costs incurred in the preparation of a proposal are the responsibility of each proposer and will not be reimbursed by the TCTA.*

DoubleMap is able to comply with this requirement.

## Insurance Requirements

*The successful Contractor will be required to maintain, throughout the term of the agreement, insurance of the type and amount indicated in the TCTA's Standard Insurance Requirements, attached hereto as Exhibit B to the Draft Agreement*

DoubleMap is able to comply with this requirement.

## Form of Agreement

*A copy of the Draft Agreement to be executed between the parties is included in this RFP as Attachment B. It is imperative that the prospective Contractor familiarize themselves with each of the provisions contained in the Draft Agreement prior to preparing and submitting a proposal. If any changes to the contract will be proposed by the Contractor, if selected, these items/issues should be clearly specified in the proposal.*

If awarded the contract, DoubleMap would like to negotiate Section 35.

This Service Level Agreement (“**SLA**”) is incorporated by reference into the Master Subscription Agreement (the “Agreement”) and governs the provision of the Software Service by Vendor to Client pursuant to the Agreement. All capitalized terms not defined herein shall have the meanings given to them in the Agreement. “Service Levels” means Availability or Problem Resolution as specified below.

## **1. Service Availability.**

**1.1 Standards.** “Availability” means System Availability or Website Availability as specified below. The Software Service shall perform in accordance with the following standards:

<b>System Availability Measure</b>	<b>Standards</b>
Software Service monthly uptime	99.5%*

\*Excludes scheduled downtime (of which Vendor will give at least one (1) week notice and which Vendor will schedule during the weekend hours from 6:00 p.m. ET Friday to 3:00 a.m. ET Monday), not to exceed twenty-four (24) hours in any twelve (12) month period.

<b>Website Availability Measure</b>	<b>Standards</b>
Minimum twenty-four (24) hours am webpage connect time	2.0 seconds 90% of the time 4.0 seconds 100% of the time

## **2. Technical Support & Problem Resolution.**

**2.1 Technical Support.** Vendor will provide twenty-four (24) hours a day, seven (7) days a week (a) telephone assistance at 317-969-7898 and (b) email assistance at support@doublemap.com for general advice and technical support, as well as technical assistance and remediation for operational issues as further described below.

**2.2 Software Problem Resolution.** Vendor will correct all problems that are reported by Client or of which Vendor otherwise becomes aware in accordance with the following table. The priority level of the problems reported by Client shall be determined by Client.

<b>Priority Description Response and Fix Time</b>	<b>Description</b>	<b>Software Response and Fix Time</b>
1	The Software Service is not working, a significant function	Vendor will respond to and Vendor's senior engineers

	<p>of the Software Service is not properly working or a significant number of users are unable to access or use some functionality.</p>	<p>will commence efforts to fix Priority 1 problems no later than fifteen (15) minutes after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. Vendor will use best and continuous efforts, twenty-four (24) hours per day, seven (7) days per week to provide an acceptable work-around for the Priority 1 problem, and will provide a permanent fix for the Priority 1 problem no later than six (6) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier.</p>
2	<p>Functionality of the Software Service is impaired or some users are unable to access or use some functionality.</p>	<p>Vendor will respond to and Vendor's senior engineers will commence efforts to fix Priority 2 problems no later than two (2) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. Vendor will use reasonable and continuous efforts to fix Priority 2 problems during normal business hours, and if an acceptable work-around is provided, will provide a permanent fix of the Priority 2 problem no later than thirty-six (36) hours after Client's report of such problem or</p>



		Vendor's detection of such problem, whichever is earlier.
3	Low impact to users of the Software	Vendor will respond to Priority 3 problems within four (4) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier, during Client's regular business hours (or on the next business day, if the problem is reported outside of Client's regular business hours). Vendor will fix Priority 3 problems no later than seven (7) days after Client's report of such problem or Vendor's detection of such problem, whichever is earlier.

2.3 Hardware Problem Resolution. Vendor will correct all problems that are reported by Client or of which Vendor otherwise becomes aware in accordance with the following table. The priority level of the problems reported by Client shall be determined by Client.

<b>Priority Description Response and Fix Time</b>	<b>Description</b>	<b>Hardware Response and Fix Time</b>
1	The hardware is not working, a significant function of the hardware is not properly working or a significant number of users are unable to access or use some functionality.	Vendor will respond to and Vendor's senior engineers will commence efforts to fix Priority 1 problems no later than fifteen (15) minutes after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. Vendor will use best and continuous efforts, twenty-four (24) hours per day, seven (7) days per week to provide an

		<p>acceptable work-around for the Priority 1 problem, and will provide a permanent fix for the Priority 1 problem no later than twenty-four (24) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. If spare hardware is on-site a Priority 1 problem will be resolved no later than two (2) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier.</p>
2	<p>Functionality of the Software Service is impaired or some users are unable to access or use some functionality.</p>	<p>Vendor will respond to and Vendor's senior engineers will commence efforts to fix Priority 2 problems no later than two (2) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. Vendor will use reasonable and continuous efforts to fix Priority 2 problems during normal business hours, and if an acceptable work-around is provided, will provide a permanent fix of the Priority 2 problem no later than forty-eight (48) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. If spare hardware is on-site a Priority 2 problem will be resolved no later than two (2) hours after</p>

		Client's report of such problem or Vendor's detection of such problem, whichever is earlier.
3	Low impact to users of the Software	<p>Vendor will respond to Priority 3 problems within four (4) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier, during Client's regular business hours (or on the next business day, if the problem is reported outside of Client's regular business hours).</p> <p>Vendor will fix Priority 3 problems no later than seven (7) days after Client's report of such problem or Vendor's detection of such problem, whichever is earlier. If spare hardware is on-site a Priority 3 problem will be resolved no later than two (2) hours after Client's report of such problem or Vendor's detection of such problem, whichever is earlier.</p>

Priority	Time Limit Before Escalation	Escalated To
3	3 Business Days	Project Manager
2	1 Business Day	Project Manager
1	Immediate	Senior Management

# DoubleMap Inc. Implementation Plan

Automatic Vehicle Location Implementation

2/11/2019

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## **Summary**

The purpose of the Implementation Plan is to define the process that will be followed to install, configure, and deploy the DoubleMap system at TCTA. The Implementation Plan divides the project into phases with clearly stated objectives and tasks that must be met to successfully implement DoubleMap's solution. Along with defining tasks and individual responsibilities for each party involved in the implementation, the Implementation Plan is also useful for planning and as a tracking tool for measuring progress.

The Implementation plan describes the process and tasks that must be completed to bring the project to a successful conclusion. It does not address contractual responsibilities.

## **General Project Guidelines**

Throughout the project, several processes and procedures will remain consistent. These are described here.

### **Weekly Conference Calls**

Weekly conference calls will be held to discuss project status and determine action items for the following week. The conference calls also provide a forum for answering questions and addressing issues as they are identified.

### **Non-Conformance Reports**

Non-Conformance Reports are used to document deficiencies and ensure that sufficient detail is available to record and troubleshoot specific problems encountered with the implementation and operation of the DoubleMap system. When TCTA identifies a problem or deficiency, the problem will be entered into DoubleMap's tracking system to ensure consistent reporting and transparency for issue resolution. DoubleMap will determine what level of documentation is required and inform TCTA of the required course of action. The following possibilities exist for documenting Non-Conformities:

- a) The most common method used for reporting system deficiencies is through DoubleMap's Trello application. TCTA will be provided login information to their Trello account where all bugs specific to TCTA are tracked and updated. TCTA is encouraged to enter issues as separate 'cards' and provide as much information as possible to facilitate a quick resolution to the issue. DoubleMap's project manager will review each card and inform TCTA if additional details are required.
- b) Conference Call Summary provided by DoubleMap. If the problem was discussed during a scheduled conference call, DoubleMap will typically provide a Conference Call Summary. The problem will be noted in the Conference Call Summary along with any action items that have been assigned to resolve it.
- c) Full Documentation provided by TCTA. If the problem or deficiency is relatively complex and/or a significant level of detail is required to troubleshoot and resolve the issue, a full

written Non-Conformance Report must be submitted by TCTA. A template for generating the report will be provided by DoubleMap.

Note: For the Non-Conformance report to be accepted by DoubleMap, TCTA must provide at least the level of documentation indicated by DoubleMap. Should TCTA decide that more information should be included with the Non-Conformance report, TCTA has the right to submit the Full Non-Conformance report documentation ('c' above) in place of the lesser documentation.

## Critical Versus Non-Critical Issues

Throughout the document, the terms 'critical' and 'non-critical' are used when talking about troubleshooting issues. Critical Issues are those issues that affect more than 50% of the fleet and prevent the system from operating. This could be a systemic problem on the in-vehicle mobile application or it could be a central server problem that ultimately affects more than 50% of the fleet.

Critical issues must be resolved prior to moving forward with the project and do impact when the project will move into the Ongoing Support Phase. Non-Critical issues, will be addressed and resolved, however, these do not affect the progression of the project to the next phase, nor do they impact when the project will move into the Ongoing Support Phase. In certain cases, DoubleMap's project manager will discuss the severity of the issue with TCTA's project manager and in some instances, previously classified 'non-critical' issues may be converted to 'critical' issues.

## Primary Point of Contact

Throughout the project, DoubleMap requires a consistent Point of Contact with TCTA. As all communications, including technical issues, specifications and specific technical documentation, will be routed through the Primary Point of Contact, certain minimum qualifications apply. The Primary Point of Contact must possess:

- Access to email and Trello during regular business hours and the knowledge to communicate effectively by email (including how to save and open attachments).
- Basic to intermediate computer skills
- The authority to make decisions on behalf of the project and manage internal personnel and resource requirements.
- Enough time scheduled for the project to ensure that project objectives and tasks can be met according to the project timeline.
- A close working relationship with the Dispatchers, Drivers and Maintenance personnel so that issues may be effectively and accurately communicated and reported to DoubleMap. If the Point of Contact is removed from the Dispatchers, Drivers and Maintenance personnel (either by position or geographic location), then a secondary Point of Contact who is in direct contact with the Dispatchers, Drivers and Maintenance personnel should be appointed so that issues may be communicated directly.

# **Project Phases**

DoubleMap has identified several distinct phases that are involved in the development and implementation of the proposed solution. Dividing the project workflow into phases breaks the project into smaller, more manageable pieces and because there is a logical connection between one phase and the next, subsequent phases typically do not start until the earlier phases are completed. A brief description of each project phase is provided below. In the following sections, the project phases are further broken down into specific tasks and responsibilities.

## **Project Kick Off and Design Review Phase**

The Project Kick Off and Design Review Phase occurs at the start of the project. During this phase, the roles and responsibilities of each party are clarified and project critical tasks are initiated. Additionally, the timeline will be developed with estimated dates for the project (the estimated dates are updated and finalized at the beginning of each phase).

The Design Review process consists of creating the Implementation Plan, specific to TCTA. The Plan takes into account, all pertinent project specifications pertaining to the RFP, breaks them into specific tasks, and assigns responsibility of each task to key personnel. This includes all required testing, piloting, field testing, factory acceptance testing, and training phases that may be specific to TCTA. Subsequent phases will not commence until the Implementation Plan is agreed to by both parties.

## **Data Collection and Operational Review Phase**

In this phase, DoubleMap works closely with TCTA to fundamentally understand the existing operations. This may include interviews with Schedulers, Planners, Dispatchers, Maintenance, and Drivers. This ensures the workflow of DoubleMap's solution fits the existing operational workflow of TCTA.

In addition, TCTA will need to provide DoubleMap existing data pertaining to their operations. This data includes:

- Existing route information, which may include (note, this may also be provided via a GTFS export):
  - Stops
  - Route Traces
  - Patterns
  - Time Points
- Existing schedule information, which may include:
  - Trips
  - Runs
  - Blocks
  - Vehicle IDs
  - Employees

By the end of this Phase, a solid understanding of TCTA's transit operations should be known by DoubleMap. Nuances pertaining to TCTA's operations will have been discussed and resolution plans for how they will be handled in DoubleMap's system will be agreed to by both parties.

## **System Configuration and Functional Acceptance Test Phase**

During this Phase, DoubleMap will configure the application (in accordance with the data and workflow provided by TCTA in the previous phase) and create a controlled test environment. In addition, one vehicle will be configured with all specified hardware and software.

At this point, a date for the Functional Acceptance Test (FAT) will be set between DoubleMap and TCTA. Functional Acceptance Testing involves the complete end-to-end testing of the entire system against the requirements identified in the RFP. The purpose of the test is to ensure the system is working, functionally, as required and does not take into account the validity of TCTA data. As a result, this test is done using controlled data, not TCTA specific data.

During the FAT, each requirement in the RFP is tested and TCTA signs off on each requirement in the following fashion:

- Pass
- Fail (non-conformance must be documented with specific remedial action agreed to by both TCTA and Doublemap)
- Pass with existing modification (modification must be identified and agreed to by both TCTA and DoubleMap)
- Requirement Removed (TCTA and DoubleMap agree the requirement is no longer necessary and is struck from the requirements list)

It should be noted that this phase will only be considered complete when all items are identified as either Pass, Pass with existing modification, or Requirement Removed.

## **DoubleMap AVL Application Training Phase**

With the system up and running in a controlled environment, training will commence in preparation for the go live date. DoubleMap provides a 'train the trainer' format where key personnel are trained on the use and operation of the system. These personnel are then tasked with training the remainder of the organization. DoubleMap will work with TCTA to identify the individual groups within the organization to ensure all required parties understand the use and operation of the DoubleMap system. These groups may include (but are not limited to):

- Dispatchers
- Schedulers
- Planners
- Administrators
- Drivers
- Maintenance
- Management

Agendas and training materials specific to the identified groups will be provided ahead of time to TCTA for approval.

Additional onsite training, remote training, and webinars are available to TCTA should it be necessary.

## **Installation and Go Live Phase**

During fleet installation, the in-vehicle equipment is provided and vehicle installations continue. Vehicles will be brought on live as their installations are completed. DoubleMap will provide remote support for the solution during this phase. New issues identified must be disclosed to DoubleMap using the Non-Conformance options provided above so that a resolution plan may be developed. The conclusion of this Phase coincides with the “Completion” of the project. Following the Installation and Go Live phase, any known issues will be resolved according to the resolution plans previously developed. Any new issues will be addressed under the Ongoing Support Phase.

## **Ongoing Support Phase**

Following the “completion” of the project, support for the DoubleMap system is provided according to the terms of the Ongoing Support Agreement.

# Use of this Document

This document breaks each phase of the project into several objectives that must be completed to successfully implement the DoubleMap system. The following explains how to interpret the information associated with each obligation:

## Obligation a) Description of the Obligation

### Description:

A brief description of why the obligation is important and what is involved to meet it.

### Requirements to begin:

The list that describes the items that must be completed prior to starting this obligation.

### Criteria for completion:

The list that describes what tasks must be completed before the next obligation can be addressed.

### Tasks to be completed:

The task list that must be completed to meet the obligation.

### Completing the Tasks:

Required Parties	(a)	(b)	(c)	(d)
DoubleMap	✓			
TCTA		✓	✓	
[APC Provider]				
[Installer]				✓

1.



## **Project Kickoff and Design Review Phase**

The Project Kick Off and Design Review Phase occurs at the start of the project. During this phase, the roles and responsibilities of each party are clarified and project critical tasks are initiated. Additionally, the timeline will be developed with estimated dates for the project (the estimated dates are updated and finalized at the beginning of each phase).

### **Phase Obligations**

- a) Kickoff Meeting.
- b) Finalize Project Requirements.
- c) Update Implementation Plan
- d) Develop the Project Timeline.
- e) Identify Preliminary Equipment Installation Locations.

### **Requirements to Begin**

- Contracts between TCTA and DoubleMap must be finalized.

### **Obligation Details**

#### **Obligation a) Kickoff Meeting**

The Kick Off Meeting is held to make introductions, determine the weekly conference call schedule, provide an introduction to the project and assign initial tasks to the various parties involved. The Kick Off Meeting will usually take the form of a Conference Call.

#### **Tasks to be completed:**

- i. Identify primary points of contact. Specifically, IT primary contact, vehicle maintenance contact, TCTA Project Manager.
- ii. Determine an appropriate time for the weekly conference call.
- iii. Provide the conference call agenda.

<b>Required Parties</b>	<b>(i)</b>	<b>(ii)</b>	<b>(iii)</b>
DoubleMap	✓	✓	✓
TCTA	✓	✓	
[APC Provider]	✓	✓	
[Installer]	✓	✓	

#### **Obligation b) Finalize Project Requirements**

Before the project can be scheduled the complete project requirements must be understood and agreed to by all parties. This may be accomplished through an RFP, the **updated** RFP response, the contract, order or other document agreed to by all parties.

**Successful completion of this obligation will be determined by:**

- All parties reviewing the project requirements as determined by the agreed upon document (RFP, RFP response, contract, etc.)
- All parties agreeing to any changes, updates, or modifications to the project requirements document.

**Tasks to be completed:**

- i. Review project requirements. Discuss any discrepancies and document any changes.

Required Parties	(i)
DoubleMap	✓
TCTA	✓
[APC Provider]	
[Installer]	

**Obligation c) Update Implementation Plan**

The Implementation Plan documents each phase, task, and obligation for each step in the project's life cycle. DoubleMap's typical AVL implementation is used as a starting point and is then tailored to suit the specific needs of TCTA based on the agreed upon project requirements.

**Requirements to begin:**

- All parties have agreed to the project requirements in Obligation b.

**Successful completion of this obligation will be determined by:**

- All parties reviewing and agreeing to the updated Implementation Plan.

**Tasks to be completed:**

- i. Update DoubleMap's standard Implementation Plan based on changes identified in the project requirements.
- ii. Sign off on updated Implementation Plan

Required Parties	(i)	(ii)
DoubleMap	✓	
TCTA		✓
[APC Provider]		
[Installer]		

**Obligation d) Develop the Project Timeline**

The Project Timeline takes into account the tasks noted in the Implementation Plan and assigns completion dates to those tasks. It also serves as a means of tracking progress. At

the time of contract signing, there is not enough information to accurately determine specific timing for each task, however, the timing for completion for the overall project will be generally understood. As the project progresses, the timeline will be updated to note any delays and allow all parties to note the critical path for the overall project.

**Requirements to begin:**

- A project start date has been specified
- Implementation Plan has been finalized and agreed upon by all parties.

**Successful completion of this obligation will be determined by:**

- The Project Timeline has been created and agreed upon.

**Tasks to be completed:**

- Determine reasonable and acceptable target dates for each phase of the project.
- Create the Project Timeline.
- Commit to and agree upon the dates put forth in the timeline.

Required Parties	(i)	(ii)	(iii)
DoubleMap	✓	✓	✓
TCTA	✓		✓
[APC Provider]			
[Installer]			

**Obligation e) Identify Preliminary Equipment Installation Locations**

Early on in the project, it is important to gain a solid understanding of what vehicles are in the TCTA fleet so that appropriate installation considerations can be made. DoubleMap has extensive experience in dealing with most vehicle types, however, depending on the project requirements and pre-existing in-vehicle hardware, adjustments to where new equipment is installed may need to occur.

**Requirements to begin:**

- The Project Timeline has been formalized and agreed upon.

**Successful completion of this obligation will be determined by:**

- TCTA agreeing to the equipment installation locations and associated wire routing for each bus make/model identified.

**Tasks to be completed:**

- Provide *Pre-Installation Requirement* document to TCTA
- Fill out *Pre-Installation Requirement* document for each vehicle in the fleet.
- Provide schematic documents for each bus make and model
- Obtain internal pictures for each bus make and model, clearly identifying the locations of existing in-vehicle equipment.

- v. Determine suitable locations to install the new DoubleMap Mobile Data Terminal (MDT).
- vi. Provide power specification information for the MDT
- vii. Identify appropriate locations on the vehicle to power the MDT
- viii. Identify any auxiliary kill switches on the vehicles and ensure power connections to the MDT are not affected by them.
- ix. Update schematics with the location of power connections and hardware installation locations.

Required Parties	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
DoubleMap	✓				✓	✓	✓		✓
TCTA		✓	✓	✓	✓		✓	✓	
[APC Provider]									
[Installer]					✓		✓		

## 2. Data Collection and Operational Review Phase

In this phase, DoubleMap works closely with TCTA to fundamentally understand the existing operations. Nuances pertaining to TCTA's operations will have been discussed and resolution plans for how they will be handled in DoubleMap's system will be agreed to by both parties.

### Phase Obligations

- a) Hold Meetings with Key Agency Stakeholders
- b) Document Existing Operations
- c) Collect Existing Operational Data

### Requirements to Begin

- The Project Timeline must be updated. The Timeline will be updated near the beginning of each phase of the project and whenever an event forces a significant change in the target dates.

### Obligation Details

#### Obligation a) **Hold Meetings with Key Agency Stakeholders**

It is particularly important for DoubleMap to understand the existing operations of TCTA to ensure the successful implementation and continued use of the DoubleMap AVL solution by TCTA. Interviews with Agency Schedulers, Planners, Dispatchers, Maintenance, and Drivers ensures the workflow of DoubleMap's solution fits the existing operational workflow of TCTA.

#### **Tasks to be completed:**

- i. Agree to a date when personnel from each department can be made available for a phone call interview

- ii. Schedule the interviews and provide names of the personnel to conduct the interview with.
- iii. Conduct the interview.

Required Parties	(i)	(ii)	(iii)
DoubleMap	✓		✓
TCTA	✓	✓	✓
[APC Provider]			
[Installer]			

#### Obligation f) **Document Existing Operations**

Following the interviews with TCTA, DoubleMap will document the agency's major workflow process to ensure they understand TCTA's operations. Any noted discrepancies between the agency's existing workflow process and how the AVL solution addresses the agency's workflow process will be highlighted. Both parties will discuss the discrepancies and agree upon a resolution for each. This document will form the Functional Specification for the system.

#### **Requirements to begin:**

- Interviews with key stakeholders in each department have been completed.

#### **Successful completion of this obligation will be determined by:**

- A Functional Specification being created.
- Both parties agreeing to the resolutions put forth for any discrepancies between how the agency's current operations work and how they will work with the new AVL solution in place.

#### **Tasks to be completed:**

- i. Document agency's current workflow processes that will be affected by the DoubleMap AVL solution.
- ii. Document and highlight discrepancies between the agency's existing workflow process and how the AVL solution addresses the agency's workflow process.
- iii. Review the Functional Specification
- iv. Hold meeting to discuss discrepancies and resolutions.

Required Parties	(i)	(ii)	(iii)	(iv)
DoubleMap	✓	✓		✓
TCTA			✓	✓
[APC Provider]				
[Installer]				

## Obligation b) **Collect Existing Operational Data**

Many pieces of information are required from TCTA in order to build up the initial DoubleMap AVL database. A majority of this data may already exist in the General Transit Feed Specification (GTFS) format, allowing for automated imports, however, if GTFS data is not readily available, manual entry of this data must happen.

### **Successful completion of this obligation will be determined by:**

- All required transit data has been provided or created.

### **Tasks to be completed:**

- i. Provide list of required data
- ii. Create or obtain necessary data, either via a GTFS formatted file, or otherwise.

Required Parties	(i)	(ii)
DoubleMap	✓	
TCTA		✓
[APC Provider]		
[Installer]		

## 3. **System Configuration and FAT Phase**

During this Phase, DoubleMap will configure the application (in accordance with the data and workflow provided by TCTA in the previous phase) and create a controlled test environment. In addition, one vehicle will be configured with all specified hardware and software.

Using the RFP and the Functional Specification, a test plan will be created to validate all requirements. This is known as a Functional Acceptance Test (FAT). The FAT involves the complete end-to-end test of the entire system in a controlled environment (that being a single vehicle or a Bench Test unit). During the FAT, each requirement in the RFP is tested and TCTA signs off on each requirement in the following fashion:

- Pass
- Fail (non-conformance must be documented with specific remedial action agreed to by both TCTA and Doublemap)
- Pass with existing modification (modification must be identified and agreed to by both TCTA and DoubleMap)
- Requirement Removed (TCTA and DoubleMap agree the requirement is no longer necessary and is struck from the requirements list)

## **Phase Obligations**

- a) Finalize Dates for Bench Test Setup and FAT
- b) Install Bench Test or Test Vehicle Equipment



- c) Prepare Application for Functional Acceptance Test
- d) Complete Functional Acceptance Test
- e) Configure the Agency's Live DoubleMap Environment

## Requirements to Begin

- All parties involved in the project must understand and agree to their roles in the project.
- The Project Timeline must be updated. The Timeline will be updated near the beginning of each phase of the project and whenever an event forces a significant change in the target dates.

## Criteria for Completion

- The Functional Acceptance Test has been completed with every requirement signed off by TCTA as either a Pass, Pass with Existing Modification, or Requirement Removed.
- The TCTA DoubleMap site has been created and is ready to go live.

## Obligation Details

### Obligation a) Finalize Dates for Bench Test Setup and FAT

DoubleMap and TCTA will agree to a date to install the in-vehicle equipment or setup the Bench Test environment in order to perform the Functional Acceptance Test.

During the FAT, a primary point of contact from TCTA must be 100% available in order to supervise and sign off on each requirement of the test. Typically, the FAT will take one full day to complete.

#### Tasks to be completed:

- i. Agree to dates for equipment installation.
- ii. Agree to a date for the FAT.

Required Parties	(i)	(ii)
DoubleMap	✓	✓
TCTA	✓	✓
[APC Provider]		
[Installer]		

### Obligation b) Install Bench Test or Test Vehicle Equipment

In order to perform a FAT, a single set of equipment is brought online using a controlled set of data. The system is setup either in the office, or installed on one of the agency's vehicles. If setup in the office, the same peripherals and interfaces that exist on the agency's vehicles will be used in order to mimic a live bus environment.

If a Bench Test environment is preferred, TCTA must make available an area to setup the equipment. This setup may also be used as a training location in the future.

**Requirements to begin:**

- Equipment has been delivered.
- If needed, the selected test vehicle is not in service and is available for installation for an agreed upon timeframe.

**Tasks to be completed:**

- Agree to either an in-vehicle test setup or a Bench Test environment.
- Deliver test equipment
- Install equipment into vehicle, or create the Bench Test environment.

Required Parties	(i)	(ii)	(iii)
DoubleMap		✓	✓
TCTA	✓		
[APC Provider]			
[Installer]			✓

**Obligation c) Prepare Application for Functional Acceptance Test**

In accordance with the Functional Specification, DoubleMap will configure the AVL application to meet the requirements laid out. If needed, DoubleMap will develop additional functionality to meet the requirements agreed upon.

**Tasks to be completed:**

- Configure AVL application to meet the functionality described in the Functional Specification.
- If necessary, add additional functionality to the AVL application.
- Test new functionality against controlled dataset.

Required Parties	(i)	(ii)	(iii)
DoubleMap	✓	✓	✓
TCTA			
[APC Provider]			
[Installer]			

**Obligation d) Complete Functional Acceptance Test**

The FAT is an end-to-end test of the mobile, administrative, and dispatch components of the DoubleMap AVL application in a controlled environment. In accordance with the Functional Specification, DoubleMap will configure the AVL application to meet the requirements laid

out. If needed, DoubleMap will develop additional functionality to meet the requirements agreed upon.

**Requirements to begin:**

- Completion of Obligations 'a' and 'b' above.
- TCTA primary point of contact is available to supervise and sign off on each requirement of the FAT.

**Successful completion of this obligation will be determined by:**

- TCTA acknowledges that each requirement identified in the RFP has been tested and has either passed, passed with a modification, or the requirement has been removed and is no longer needed.

**Tasks to be completed:**

- Complete the FAT and note any deficiencies
- Document deficiencies and agreed upon resolution using a non-conformance report
- Troubleshoot and resolve issues identified during testing.
- Repeat (i) through (iii) iteratively until all items have successfully passed, or have been removed and are no longer required.

Required Parties	(i)	(ii)	(iii)	(iv)
DoubleMap	✓	✓	✓	✓
TCTA	✓			✓
[APC Provider]				
[Installer]				

**Obligation e) Configure the Agency's Live DoubleMap Environment**

In accordance with the Functional Specification, DoubleMap will configure the AVL application to meet the requirements laid out. If needed, DoubleMap will develop additional functionality to meet the requirements agreed upon.

**Requirements to begin:**

- Completion and TCTA sign off of the Functional Acceptance Test.

**Tasks to be completed:**

- Enter TCTA route, stop, schedule, service, and vehicle information into the DoubleMap AVL application.
- Configure application options to match those setup in the FAT application environment.
- Migrate any newly created functionality to the live environment.
- Test new functionality against TCTA dataset.

Required Parties	(i)	(ii)	(iii)	(iv)
DoubleMap	✓	✓	✓	✓

TCTA				
[APC Provider]				
[Installer]				

#### 4. **DoubleMap AVL Application Training Phase**

With the system up and running in a controlled environment, training will commence in preparation for the go live date. DoubleMap provides a ‘train the trainer’ format where key personnel are trained on the use and operation of the system. These personnel are then tasked with training the remainder of the organization. DoubleMap will work with TCTA to identify the individual groups within the organization to ensure all required parties understand the use and operation of the DoubleMap system. These groups may include (but are not limited to):

- Dispatchers
- Schedulers
- Planners
- Administrators
- Drivers
- Maintenance
- Management

Agendas and training materials specific to the identified groups will be provided ahead of time to TCTA for approval.

Additional onsite training, remote training, and webinars are available to TCTA should it be necessary.

### **Phase Obligations**

- a) Produce Training Agenda and Materials
- b) Train the Trainers
- c) Train Remaining Agency Personnel

### **Requirements to Begin**

- All parties involved in the project must understand and agree to their roles in the project.
- The Project Timeline must be updated. The Timeline will be updated near the beginning of each phase of the project and whenever an event forces a significant change in the target dates.
- DoubleMap AVL application is configured for TCTA and is populated with their agency data.

### **Criteria for Completion**

- Agency Trainers are confident in the use of all aspects of the DoubleMap AVL application.
- Trainers are able to successfully train other agency personnel in the use and operation of the DoubleMap AVL application.

## Obligation Details

### Obligation a) **Produce Training Agenda and Materials**

DoubleMap works had to ensure the right training is provided to the right departments and as a result, tailored training sessions and materials are put together with specific job functions in mind.

#### Tasks to be completed:

- i. Identify agency departments that require training
- xi. Identify department champions to take on the role of Trainer for their department.
- xii. Create department specific training materials
- xiii. Agree upon a training date.
- xiv. Produce training agenda and distribute it to all parties.

Required Parties	(i)	(ii)	(iii)	(iv)	(v)
DoubleMap			✓	✓	✓
TCTA	✓	✓		✓	
[APC Provider]					
[Installer]					

### Obligation b) **Train the Trainers**

Part of a successful implementation is ensuring TCTA has champions within the organization who are passionate about not only their jobs, but about technology and new systems. These are key candidates for the role of trainer as they will hopefully instill their excitement and enthusiasm on to the rest of the staff.

DoubleMap ensures Trainers are comfortable and confident in the use of the DoubleMap application prior to being asked to train other personnel. Further, DoubleMap observes new Trainers initially training TCTA staff to make sure material is relayed appropriately and all aspects of the application are taught accurately.

It should be noted that following the training sessions, additional onsite training, remote training, and webinars are available for follow up training in the future.

#### Requirements to begin:

- Champions for the agency have been identified.
- A training date has been agreed upon by all parties (agency must ensure trainers are available for the duration of the training).
- Training materials and agendas have been distributed.
- A training room located at the TCTA facility must be made available for any onsite training.

**Successful completion of this obligation will be determined by:**

- TCTA trainers are able to successfully train other personnel on the use and operation of the DoubleMap AVL application.

**Tasks to be completed:**

- Hold training sessions for each department ‘trainer’.
- Identify a select group of additional agency personnel to be trained by the agency’s trainers.
- Observe agency’s trainers training other personnel.
- Provide feedback and follow up training (if necessary) to agency trainers based on their performance.

Required Parties	(i)	(ii)	(iii)	(iv)
DoubleMap	✓		✓	✓
TCTA	✓	✓	✓	
[APC Provider]				
[Installer]				

**Obligation c) Train Remaining Agency Personnel**

DoubleMap is readily available to assist TCTA with any questions or problems that arise out of subsequent training sessions.

**Tasks to be completed:**

- Schedule training sessions for each department
- Train agency personnel
- Provide support for questions or problems that arise.

Required Parties	(i)	(ii)	(iii)
DoubleMap			✓
TCTA	✓	✓	
[APC Provider]			
[Installer]			

**5. Installation and Go Live Phase**

During fleet installation, the in-vehicle equipment is provided and vehicle installations continue. Vehicles will be brought on live as their installations are completed. DoubleMap will provide remote support for the solution during this phase. New issues identified must be disclosed to DoubleMap using the Non-Conformance options provided above so that a resolution plan may be developed. The conclusion of this Phase coincides with the “Completion” of the project. Following the Installation



and Go Live phase, any known issues will be resolved according to the resolution plans previously developed. Any new issues will be addressed under the Ongoing Support Phase.

## Phase Obligations

- a) Develop the Onsite Go Live Plan
- b) Install and Activate the In-Vehicle Equipment
- c) Complete the Field Test
- d) Provide Project Completion Notification

## Requirements to Begin

- All parties involved in the project must understand and agree to their roles in the project.
- The Project Timeline must be updated. The Timeline will be updated near the beginning of each phase of the project and whenever an event forces a significant change in the target dates.

## Criteria for Completion

- The Field Test has been successfully completed and all system critical issues have been resolved.

## Obligation Details

### Obligation a) **Develop the Onsite Go Live Plan**

The Onsite Go Live Plan describes the activities and resource requirements during the vehicle installation and equipment activation phase of the project. It will include schedules for when vehicles must be made available for installations, personnel availability and schedule requirements, and the scope and criteria for acceptance of the Field Test.

It should be noted that if TCTA cannot commit the required resources for the dates/times noted in the Plan, the onsite will need to be rescheduled.

#### Tasks to be completed:

- i. Determine personnel and equipment requirements during the onsite.
- xx. Identify personnel availability during the onsite.
- xxi. Determine a schedule for vehicle availability for installation.
- xxii. Define criteria for a successful Field Test.
- xxiii. Develop the Onsite Go Live Plan (schedule, resources, equipment, etc.).

Required Parties	(i)	(ii)	(iii)	(iv)	(v)
DoubleMap			✓	✓	✓
TCTA	✓	✓		✓	
[APC Provider]					

[Installer]					
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### Obligation b) **Install and Activate the In-Vehicle Equipment**

Once the Go Live Plan is created and the dates have been agreed upon (for both personnel availability as well as vehicle and equipment availability), DoubleMap will schedule the onsite date. TCTA personnel must be available to sign off on each vehicle, acknowledging that installations have been done as agreed upon.

#### **Tasks to be completed:**

- i. Ship all in-vehicle equipment
- ii. Ensure vehicles are made available as per the schedule outlined in the Go Live Plan.
- xxiv. Install in-vehicle equipment as per TCTA agreed upon vehicle schematic locations.
- xxv. Configure the in-vehicle equipment and perform final data connectivity tests.
- xxvi. Sign off on each vehicle installation via the vehicle installation checklist.

Required Parties	(i)	(ii)	(iii)	(iv)	(v)
DoubleMap	✓		✓	✓	
TCTA		✓			✓
[APC Provider]					
[Installer]					

### Obligation c) **Complete the Field Test**

The Field Test involves testing end-to-end operation of the Mobile Data System using the first few vehicles brought online. Typically this will be anywhere between 2 and 5 vehicles and will be agreed upon by both parties. Vehicles are brought “live” one at a time. As each vehicle is added to the system, proper operation is verified using test trips and any issues are addressed before additional vehicles are brought on line.

Upon completion of the Field Test it is necessary to determine where it was successful and where issues still exist. Any critical issues that will prevent a successful rollout of the remaining fleet vehicles must be addressed and resolved before the project may proceed. A resolution plan must be developed for non-critical issues. Once critical issues have been resolved and a plan is in place to resolve non-critical issues, the Field Test Acceptance document is generated and the project may proceed with the remainder of the fleet being installed.

#### **Successful completion of this obligation will be determined by:**

- All parties agree that all critical system issues that would prevent the successful rollout of the remaining fleet have been resolved.
- All parties agree to the resolution plans put forth for all non-critical issues.

**Tasks to be completed:**

- i. Complete end-to-end testing of the first Field Test Vehicle using test data and messaging.
- iii. Complete end-to-end testing of the remaining Field Test Vehicles using test data and messaging.
- xxvii. Operate Field Test Vehicles in a live environment. Document deficiencies in operation using a non-conformance report.
- xxviii. Troubleshoot issues identified with the in-vehicle equipment, in-vehicle software, and back end server application.
- xxix. Resolve critical issues identified and develop the plan for resolving non-critical issues.
- xxx. Complete the Field Test Acceptance document.

Required Parties	(i)	(ii)	(iii)	(iv)	(v)	(vi)
DoubleMap	✓	✓	✓	✓	✓	✓
TCTA	✓	✓	✓			✓
[APC Provider]						
[Installer]						

**Obligation d) Provide Project Completion Notification**

The Project Completion Notification is provided following the acceptance of the Field Test. Final retainage on the project is due 30 Calendar days after the signing off of the Field Test Acceptance document.

During this period, remote support and troubleshooting will be provided as required.

**Tasks to be completed:**

- i. Install in-vehicle equipment as per TCTA agreed upon vehicle schematic locations.
- xxxi. Configure the in-vehicle equipment and perform final data connectivity tests.
- xxxii. Sign off on each vehicle installation via the vehicle installation checklist.
- xxxiii. Provide DoubleMap with a non-conformance report for any issues that are identified (overall system issues or individual vehicle issues).

Required Parties	(i)	(ii)	(iii)	(iv)
DoubleMap	✓	✓		
TCTA			✓	✓
[APC Provider]				
[Installer]	✓	✓		

**6. Ongoing Support Phase**

Following the “completion” of the project, support for the DoubleMap system is provided according to the terms of the Ongoing Support Agreement.

## Phase Obligations

- a) Provide ongoing support for the DoubleMap AVL application.

## Requirements to Begin

- 30 calendar days have passed since the issuance of the Project Completion Notification.

## Obligation Details

### Obligation a) **Provide ongoing support on the DoubleMap AVL Application**

During Ongoing Support, DoubleMap will provide remote assistance for the overall AVL system. TCTA is required to produce non-conformance reports in the agreed upon format in order to successfully troubleshoot any issues.

#### Tasks to be completed:

- i. Provide support for the DoubleMap system as per the terms agreed upon in the contract.

Required Parties	(i)
DoubleMap	✓
TCTA	
[APC Provider]	
[Installer]	

<b>Customer Account</b>	<b>Contact Information</b>	<b>Organization Name and Address</b>	<b>Context (list work performed and what information organization can provide)</b>
Bryan Law <hr/> <b>Contact #1</b> Principal Transit Planner <hr/> <b>Title</b>	<b>Tel.</b> 507-328-2485 <b>E-Mail:</b> blaw@rochestermn.gov	Rochester Public Transit 4300 East River Rd. NE Rochester, MN 55906	CAD/AVL, push notifications, admin reports, transit planner, route creator, fare box integration, headsign integration
Tom Wagener <hr/> <b>Contact #2</b> Transit Manager <hr/> <b>Title</b>	<b>Tel.</b> 715-839-5111 <b>E-Mail:</b> tom.wagener@eauclairewi.gov	City of Eau Claire, WI 203 S. Farwell Street Eau Claire, WI 54701	CAD/AVL, digital passenger counter
Karl Farnsworth <hr/> <b>Contact #3</b> Access Service Coordinator <hr/> <b>Title</b>	<b>Tel.</b> 360-824-4935 <b>E-Mail:</b> karlf@kitsaptransit.com	Kitsap Transit 60 Washington Avenue, Suite 200 Bremerton, WA 98337	CAD/AVL, Automated Voice Annunciation, integrated hardware, on-demand solution, TapRide, auto assignment

## 8. Cost Proposal

In addition to a Technical Proposal, the prospective Contractor shall prepare a detailed Cost Proposal for the work to be performed. The Cost Proposal shall itemize all items that will be charged to the TCTA including travel charges that will be involved in the project and included in the bid amount. Costs shall be segregated to show specific tasks within required and optional the scope of work, staff hours allocated to each task, rates, classifications, administrative overhead and a rate schedule for extra work. Cost Proposals shall be submitted in a separate sealed envelope.

If subcontractors are to be used, the prospective Contractor must indicate any markup that the prospective Contractor plans to take on subcontracts. The same breakdown of subcontract costs shall be provided as is required for Contractor costs above. Failure to provide detailed cost breakdowns will be cause for rejection of the proposal.

## ADDENDA ACKNOWLEDGMENT

(To be submitted with qualifications packet)

Receipt of the following addenda is hereby acknowledged:

Addendum No. <u>Q&amp;A 1/18/19</u>	Proposer's Initials <u>IR IR</u>
Addendum No. <u>Q&amp;A 1/23/19</u>	Proposer's Initials <u>IR IT</u>
Addendum No. _____	Proposer's Initials _____
Addendum No. _____	Proposer's Initials _____