



## TripSpark's Fixed Route Technology Ecosystem

Software solutions for scheduling, dispatching, passenger information and in-vehicle technology





## WHO WE ARE

TripSpark was founded on July 7, 2014, evolving from long-time industry leader, Trapeze Group. We were created to bring the latest generation of transportation technology to our customers.

We have 30 years of experience creating fixed route, paratransit, NEMT, rideshare and K-12 transportation software solutions. Our founders began working from their homes in 1988, programming FX-DOS, the very first map-based automated scheduling product for fixed route operations. In another pioneering move, we were also one of the first to add CAD/AVL technology to our solutions.

Today, we work with transit agencies across North America to help them improve rider satisfaction, drive revenue, and overcome operational challenges. **Streets** is our core fixed route software solution. We also offer a range of add-on features for a complete Intelligent Transportation System, including passenger information systems, infotainment and other in-vehicle technology.

## CROSS-SYSTEM INTEGRATION

TripSpark's fixed route software is a fully integrated Intelligent Transportation System (ITS) solution that helps increase efficiencies across your entire organization. The core software platform provides computer-aided dispatch and automated vehicle location (CAD/AVL) together with scheduling capabilities. The software also works with faring systems and other on-board peripherals like mobile data terminals, automatic passenger counters and automated vehicle announcements to capture and disseminate real-time travel information, and create a great passenger experience.

Our integrated technology means that we offer transit agencies unmatched benefits across the industry, such as:

- Using a single MDT that works across both fixed route and demand response vehicles, increasing flexibility.
- A single MDT reduces overall cost of ownership with less hardware and fewer data plans.
- Monitor entire fleet including support vehicles from a single AVL screen.

### Fixed Route

Integrates with various technologies such as passenger information systems, automatic vehicle announcements, passenger counting, advanced scheduling, and driver management systems

### Demand Response Integration

- Track and manage all vehicles from one software system
- Vehicles can be used for either fixed route or demand response with dual boot MDT

### Integration

TripSpark is the only vendor on the market offering fixed route, demand response, fare collection and asset management solutions. When used together, they offer unmatched integration benefits.

### Passenger Information

- Mobile and web apps for route planning, news, real-time bus locations
- Infotainment to engage riders and provide a source of advertising revenue

### Asset Management

Communicate and update vehicle availability in the software system



# FIXED ROUTE ITS (STREETS)

TripSpark's fixed route software, Streets, incorporates a scheduling and routing system, and transit-grade in-vehicle mobile data terminals (MDTs) for real-time dispatching with a reliable CAD/AVL system. This allows agencies to effectively plan, monitor, and improve service delivery to their client base.



Automatic Vehicle Location (AVL) screens help dispatchers effectively monitor the fleet in real-time. AVL provides information displayed on a map that provides visual cues as to vehicle status.



Computer-Aided Dispatch (CAD) tools simplify daily work, streamlining absentee management and reassignment of runs, while configurable events enable dispatchers to pre-emptively resolve issues.



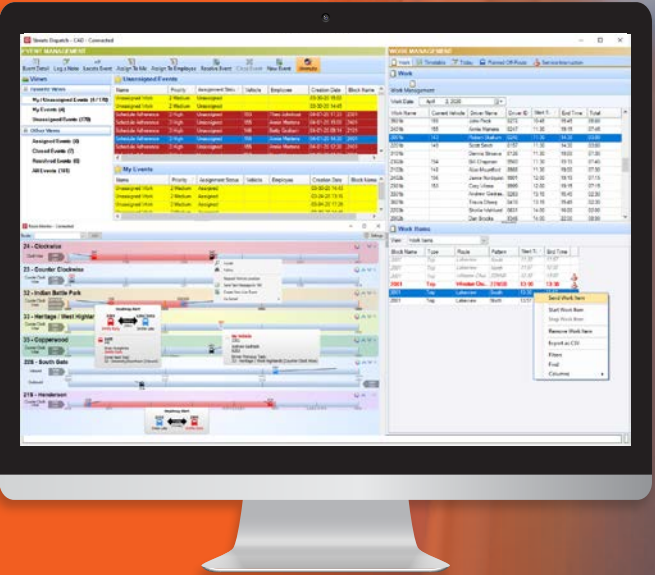
Comprehensive collection of available reports. Drag-and-drop interface to easily modify or create your own custom reports, without the need for database expertise.



Updates and new schedule information can be pushed out over-the-air to remotely update MDTs, reducing maintenance man hours.



Simplified bus stop and route creation, trip generation, blocking and run cutting, rostering and bidding through intuitive, visual tools.



Streets Dispatch set-up viewed on a dual monitor system. Includes Streets Automatic Vehicle Locator (AVL), Computer Aided Dispatch (CAD) and Route Monitor windows.



# IN-VEHICLE TECHNOLOGY

*(RANGER)*



Mobile data terminals connect the fleet with dispatch and act as a hard-wired hub for other on-board peripherals such as Automatic Passenger Counters and Automated Announcements. Designed for ease-of-use, MDTs provide drivers with the information they need to complete tasks on-time, manage events and safely communicate with dispatch.



Rugged in-vehicle computer is built to withstand the harsh transit environment.



Life cycle of 7+ years significantly lowers total cost of ownership.



Two-way text communication connecting drivers and dispatchers.



Streets software provides advanced visual and audible turn alerts.





# IN-VEHICLE TECHNOLOGY (PERIPHERALS)

TripSpark's software and MDTs integrate with most other third-party peripherals. Components are hired-wired to the Ranger for a reliable and tamper-proof connection.



**Fare Collection:**  
TripSpark's software integrates with fareboxes with a single sign-on to provide valuable insights into rider demographics, accelerate boarding and increase rider satisfaction.



**Automated Audio and Visual Announcements (AVA):**  
TripSpark's AVA solution presents stop, route, transfer point and other information both audibly and visually, providing riders with important travel information and ensuring agencies meet ADA requirements.



**Headsign Integration:**  
The Ranger integrates with headsigns, automatically changing route and destination information when interlining routes so drivers aren't relied upon to trigger signage changes.



**Wayside Signs:**  
LCD and LED wayside signs run automatically, displaying real-time information from Streets and helping guide riders at key points in their journey.



**Automatic Passenger Counter (APC):**  
APCs provide a cost-effective and accurate way to collect ridership data that can be used for reporting and identifying service improvements. A vehicle's current passenger load is also visible to dispatchers in Streets and can also be visible to riders through the passenger information system if desired.





# SERVICE INTERRUPTIONS MANAGEMENT

Service can be temporarily modified to address detours and service disruptions. Bus departure and temporary stop locations are automatically pushed out to dispatchers, drivers and riders without the need to post or print new routes and schedules. Detours are activated on top of the current production schedule and will return to the regular schedule automatically after expiration.



Communicate detoured route information to drivers and riders via on-board Ranger MDTs, automated voice announcements and signs, wayside signs, and the MyRide passenger information.



Have re-occurring detour patterns? Service Interruptions can accommodate that! With our 'Copy Detour' functionality, Service Interruptions just became even more efficient and quicker to deploy.



Same day emergency detour functionality - allowing for detours to be created and updated to Rangers and MyRide as they are happening in real-time.



Capture ridership and performance data for temporary stops to maintain NTD reporting accuracy.



Advanced turn alerts and visual cues remind drivers they are running a detour and help keep them on-route.



Text, phone or email alerts allow riders to plan around impacted routes in advance, and to be informed right away about emergency detours affecting their routes.

## Additional Modules That Make a Difference

**Route Monitor** offers dispatchers a linear view of overall vehicle spacing and schedule adherence for buses on their assigned routes so they can manage headway violations to maintain service quality.

**GTFS Real-Time** constantly sends real-time information about vehicle locations and updated departure times to Google Maps, enabling riders to plan trips and find up-to-date travel information.

With **Transfer Protection**, a driver can request a transfer and the software will use real-time data to assess connection feasibility. The holding bus is notified to wait at the transfer stop until the requesting bus arrives, improving transfer efficiency, reducing radio chatter between drivers allowing them to keep their focus on the road and reducing passenger wait times.



# PASSENGER INFORMATION (MYRIDE)

Our passenger information system helps riders plan trips and navigate routes by providing real-time information and timely subscription alerts about service updates and next bus information. Agencies can communicate to their riders and provide multiple access options with multilingual mobile apps, digital signage, online, text, and voice calls. Riders are also engaged by news with multimedia support that can be easily shared to agency Facebook and Twitter platforms—making it easier to communicate.



Using geolocation, MyRide can automatically detect a rider's location and provide accurate departure information, based on real-time information and advanced machine learning, for buses on routes serving nearby stops.



In-app trip planner and map with route schedules, real-time bus locations and service interruptions.



Keep riders up-to-date with an agency's news, daily bus status notifications and the traditional static schedule.



Seamless and automatic schedule changes—when the schedule gets posted in the Streets software, MyRide information, including bus stop and amenities, updates automatically—eliminating the need for an IT department or scheduler to update schedules manually.





# INFOTAINMENT

## (MYRIDE INFOTAINMENT)

An infotainment digital signage system helps improve the rider experience by providing up-to-the minute service updates, dynamic content and better wayfinding for passengers. During travel downtime, they can engage with news, sports highlights, social media updates, trivia, video content, live weather updates and the brands they love. Infotainment can be customised to meet an agency's needs – with an incredible wide range of hardware options available for onboard signage, interactive kiosks and transit properties.



Important real-time information that impacts a rider's trip such as route and destination information, connections, amenities, arrival/departure times, service changes and more is streamed from the fixed route software.



Information provided on-board to riders is reliable and accurate as a result of integration with the Ranger MDT. This integration also means that only a single data plan is required.



Agency policy and safety messaging, along with local public service announcements can be shared in a more engaging way to all riders.



Infotainment systems create new revenue streams for agencies by allowing businesses to advertise with targeted ads triggered by date, time, stop or external conditions. Other content like news, weather, and events can be displayed alongside travel information.



Multiple language support, and visual and audio announcements make transit accessible for all.





# FX/BLOCKBUSTER: COMPREHENSIVE ROUTING AND SCHEDULING FOR FIXED ROUTE TRANSIT

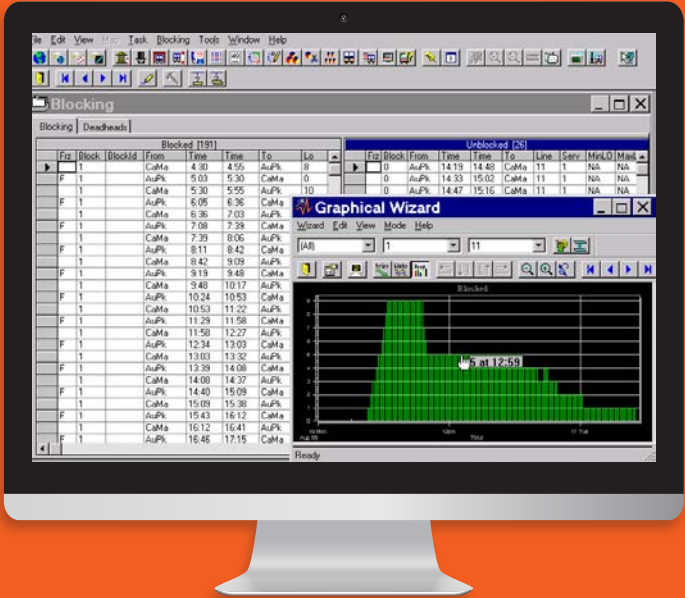
Build rider trust and crush your on-time performance (OTP) goals with FX/Blockbuster - TripSpark's advanced scheduling software for fixed route transit systems. FX/BlockBuster's comprehensive functionality automates time-consuming tasks and creates many efficiencies in the major stages of the scheduling process. The core features of FX/Blockbuster include Route Definition, Trip Building, Blocking, Rostering and Runcutting.

## Route Definition

- Build and modify routes by defining paths, patterns, nodes, relief points, and bus stops
- Geocode timing points, stops, yards/garages, etc., using the system map features
- Define variations to routes (i.e., patterns) to reflect passenger demand or traffic flow along routing at different times of day
- Calculate distances between nodes and stops, enabling run times to be extracted with greater ease
- Plan additional downstream routes

## Trip Building

- Build trips using pre-defined running time intervals and run times
- Analyze the effects that shifting a trip would have on the headway
- Manually insert variations to run times while adjusting schedules
- Build optimized schedules by specifying variables such as pattern, specific node, vehicle type, from and to times, frequency, and number of trips



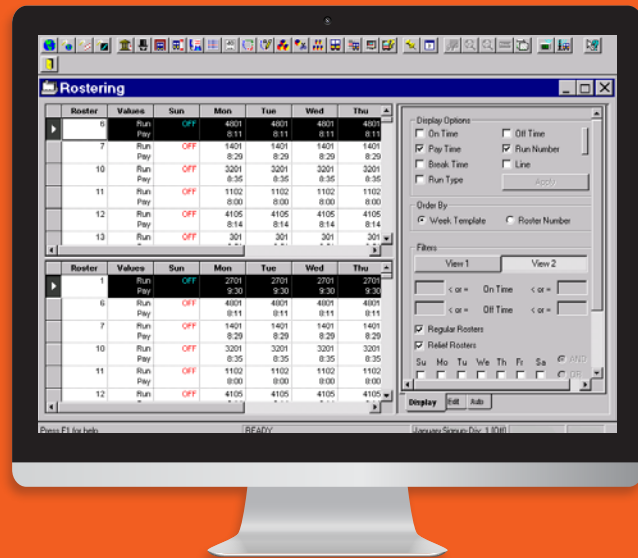
## Blocking

- Assign vehicles through manual, automatic, or heuristic methods, and verify the integrity of the blocks
- Use operation-defined costing parameters and values to assign vehicles and optimize the cost efficiency of the blocks
- Assign vehicle blocks to garages through a manual or automated process, minimizing deadhead distances and garage limitations
- Calculate deadhead times and distances and identify optimal deadhead routes
- Graphically view a block profile graph (histogram) that displays the vehicle requirements by time of day



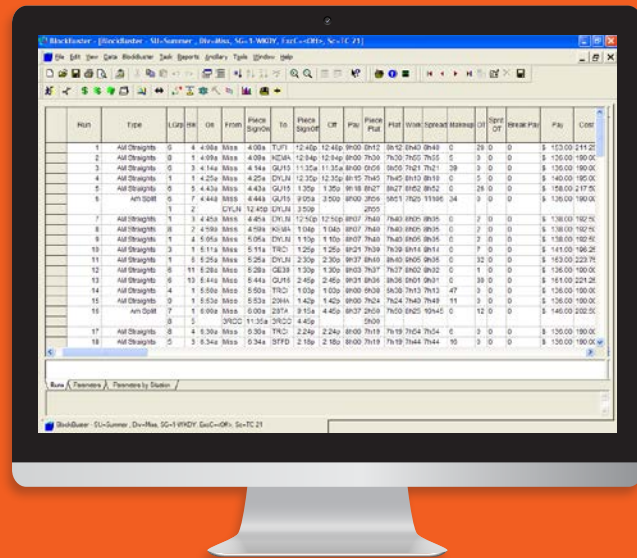
## Rostering

- Create any type of weekly work assignments required by the agency (e.g., four-day, five-day, six-day, rotating work weeks)
- Create rosters for regular and relief operators, and special rosters for part-time operators.
- Adjust costing parameters to build the most cost-effective rosters
- View the costing summary to determine if a roster violates union or agency rules
- Compare multiple roster scenarios for cost efficiency, adherence to rules, etc



## Runcutting

- Advanced Runcutting logic is proven to deliver the most cost-effective runcuts in the industry
- Develop scenarios within a workbench that enables you to alter parameters without affecting any other scheduler's work or parameter settings
- Evaluate allowance, rule, and policy changes, and see the cost impact of each
- Runcutting offers a powerful tool during the Union Negotiation process, where rule changes and alternatives can be quickly processed.



## Key Benefits to Your Agency:



## Return on Investment

Maximize your return on investment with scalable, extensible software that will support your organization's needs for the long term.



## Control Cost

Reduce operating costs by blocking vehicles and deploying operators. Reduce deadhead trips and maximize resources with better interlining – minimizing vehicle use.



## Better Service

Provide better service to the public through intelligent, well-planned routing and accurate, efficient schedules.



## Integration

Integrate FX seamlessly with software for planning, operations management, customer service, and demand response scheduling.



## Increase Efficiency

Increase the productivity of your scheduling department with automated scheduling and other intuitive, time-saving features.

## Reports

A wide variety of FX/Blockbuster standard reports are available. Configure to formats that best suit particular tasks and organizations or create ad hoc reports using the Report Wizard. Reports can be developed using SQL query, Crystal reports, Visual Basic and Visual C++, and ASCII (plain) text. Create any or all the following FX/Blockbuster reports:

- Run guide
- Driver's paddle
- Block paddle
- Block summary
- Graphical run analysis
- Line summary
- Turn list
- Vehicle pull in and pull out
- System statistics
- Headway sheet
- Roster report



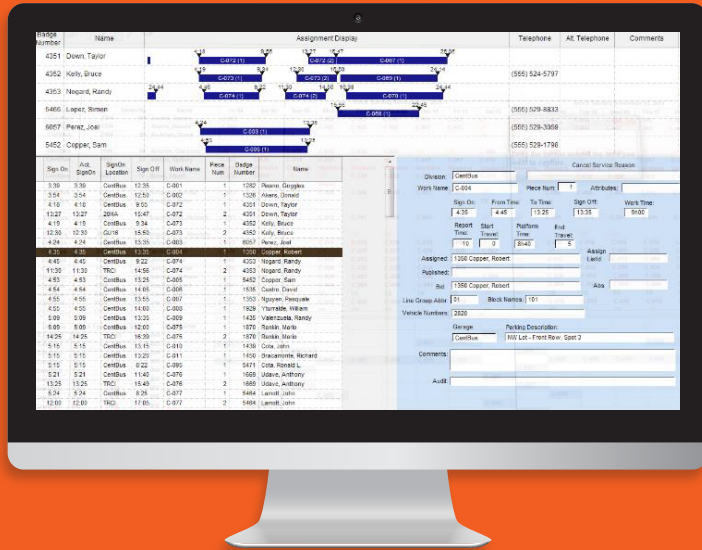
# OPS/WORKFORCE MANAGEMENT SOLUTION

As one of the most widely used, robust, and scalable solutions for managing all aspects of your workforce, TripSpark's Automated Operations Management solution (OPS) was built to simplify, streamline, and increase your operation's productivity. OPS is an integrated operations management solution that streamlines many frequently performed operational tasks, including bidding, dispatching, timekeeping, workforce management and yard management. Optional technologies include automated sign-in and an operator self service module. The core features of OPS/ Workforce Management are explained here:

**Bidding**  
BID is a module of OPS, TripSpark's modular Operations Management solution. BID automates bid configuration and the bidding process. In conjunction with TripSpark's Workforce Management module, BID enables transit agencies to record, report, and closely manage work assignments and to respect all rules of the organization.

**Timekeeping & Payroll**  
Timekeeping uses the information already prepared in the bidding and dispatch modules. This process will automatically apply your custom-configured timekeeping rules and generate the detailed timekeeping transactions. Once audited, these transactions are posted and made available for importing into the payroll system.

**Yard Management**  
The Yard Management module supports your vehicle inventory and parking grid definition. Additionally, this module automates the daily processes surrounding vehicle assignment tasks including the assigning/unassigning of vehicles, the definition of block requirements, configuration of rail consists, and entry of vehicle parking locations.



**Daily Dispatch**  
Dispatch automates daily processes surrounding the daily assignment of employees. These processes include the creation of unscheduled work, identification of open work, employee list (extraboard and/or overtime volunteers) rotation, and open work assignment. The Daily Dispatch module also includes features required to support various operational events that can occur daily. This includes absences, accidents, incidents, work manipulation and reassignment, and extra pay recording.



### Workforce Management

contains a variety of tools used to monitor and apply your organization's policies with respect to employee activities including accidents, incidents, and absences. This module is also integrated with the COM product to capture customer complaints and commendations.

### Reporting

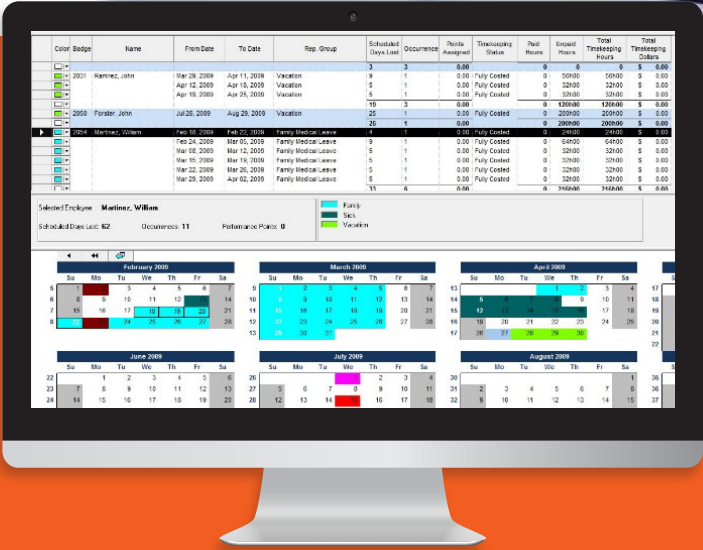
Reporting is a key element of the Operations Management solution that supports the dissemination of valuable operational data within your organization. You can also create ad hoc reports using the Report Wizard. Reports can be developed using SQL query, Crystal Reports and ASCII text.

### Interfacing

The flow of information within your transit agency is not restricted to just your transit operating divisions. Leveraging traditional interface methods like ASCII exports, database staging tables and web services, exchange of information to/from TripSpark, can help improve communication and efficiency.

### Optional OPS Components

- Sign-In Terminal
- Employee Self-Service Web Portal
- OPS-Notification Solution
- Yard Walker
- Employee Appraisals/ Scorecards
- Employee Accrual Generator



### Key Benefits

Overall, the OPS system can provide a transit organization with numerous important benefits:



#### Cost Control

Reduce/manage costs by automating work assignments while supporting union and organization rules. Enable staff to handle updates to operator and vehicle information in real time.



#### Integrate

Your operations management, scheduling/planning sources, ITS systems, commendations/ complaints, third-party payroll, human resources management, and other applications and data sources, are provided all in one solution.



#### Accuracy

Support accurate employee records, including seniority, absences, vacations, incidents, accidents, and administrative actions, and provide deployment flexibility through a thin-client architecture.



#### Increase Efficiency

Increase productivity by automating or simplifying many labor-intensive operational tasks, and dispatcher efficiency, with day-to-day management tools.



#### Protect & Adapt

Maximize the value of your organization's costly fleet, with adaptable vehicle and yard management tools.



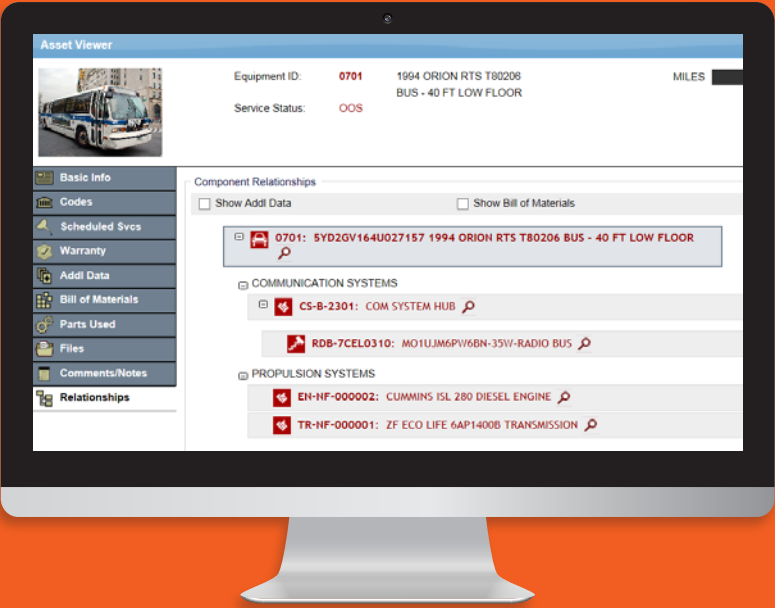
#### Save Time

Reduce deployment time with Workforce Management's thin client architecture.



# EAM SOLUTION

The complicated customizations that generic Enterprise Asset Management (EAM) systems require for transit, are standard features with TripSpark’s EAM solution. With out-of-the-box functionality to effectively manage all your assets and hierarchies, EAM has you covered from the top parent to the mechanical systems and serialized components, all the way down to the individual parts. TripSpark EAM is easy to deploy and maintain and our entire project team “speaks transit” fluently, allowing for a quick ramp up and smooth as silk deployment. Our laser focus on transit enables us to evolve our cloud and mobile-ready EAM, to stay ahead of industry trends—such as vehicle electromobility, asset reliability, and condition-based maintenance.



### Innovation

EAM’s base system provides transit asset management for all rolling stock, facilities, equipment, and infrastructure. Also experience EAM’s State of Good Repair/Capital Planning module for FTA ‘Final Rule’ compliance. The Asset Configuration Management feature manages complex assets and addresses Positive Train Control (PTC) legislation. Plus, the API module allows your IT team to write their own integrations and tools, using our EAM business functionality.

### Reduce Costs

Monitor your KPIs for inspection compliance, employee (technician) productivity, vehicles available for service, materials/inventory metrics (valuation on hand, stock-outs, party to order), and more. Business intelligence analytics help you understand your labor, parts, and fuel/fluid costs, so you can make decisions to increase efficiencies. The FuelFocus module reduces theft and errors through pump pre-authorization.

### Safety

Stay on top of asset inspection, service history, and perform failure analysis with EAM. Manage incidents with real-time notifications and automated work orders, and define and manage network restrictions (slow zones on a track) to maintain safety and comply with NTD reporting.

### Lifecycle

EAM lets you stay ahead of asset and facility maintenance and keep on top of warranty claims. Your agency will appreciate EAM’s preventive maintenance scheduling feature.



EAM Modules to Explore



**Shop Activity** provides comprehensive work management capabilities with role-based portals for supervisor, technician, and storekeeper. It includes comprehensive materials management functionality.



**MaxQueue** is an integration engine used to securely broker data between EAMS and all ATL external systems.



**MobileFocus** includes mobile asset, work and materials management applications for field worker and inventory warehouse data entry. Applications include work orders, service request/defect entry, asset condition assessment, test results, inventory cycle counts, parts issues, parts receipts, etc. MobileFocus supports ruggedized handheld or tablet form factors and works in a completely disconnected mode until network connectivity is regained.



**Reporting/Ad Hoc Query** is a crystal reports-powered, browser-based reports portal with over 300 out of the box reports for asset, work, and materials management. Ad Hoc Query offers a simple, browser-based tool for building quick queries and reports.



**Notifications** is a monitoring engine that triggers system alerts (emails, printouts) based on system event activity.



**Warranty/Reimbursement Management** is a warranty/reimbursement administration portal used by a warranty department to track all warranty claims automatically- generated by EAMS work orders along with screens for tracking warranty recovery from vendors (included in EAM's base system).



**Production Planning** screens for managing major rebuild (back shop) workflows, including generation of production runs and rebuild work orders when the number of cores of serialized components reaches the minimum levels required (included in EAM's base system).



**KPI/Dashboards** provide a real-time indication of Key Performance Indicators (KPIs) in graphical format.



**Incident Management** lets you track the details of FTA/FRA-reportable incidents and it gives you the ability to generate maintenance follow-up activities.

Warranty Claims

Actions

Manage Claims

Go to Claim ID

Go

Summary by

User

Manufacturer

Status

Days

Current Workload Summary by Days

Warranty Status	Claims
Red (0% to 10% of days remain)	0
Yellow (11% to 25% of days remain)	0
Green (26% to 100% of days remain)	2





[www.tripspark.com](http://www.tripspark.com)