TRANSIT ASSET MANAGEMENT SYSTEM

Executive Summary

The Federal Transit Administration's (FTA's) State of Good Repair (SGR) pilot initiative is an opportunity for public transit agencies to explore creative ways to address challenges with tracking, maintaining, and planning for capital assets. By awarding grant funds to agencies of different sizes and different demographic makeup, the FTA will receive useful information for agencies across the United States with regard to different inventory, system, planning, maintenance, and monetary needs.

Background

Valley Regional Transit is a Regional Public Transportation Authority in southwest Idaho with a 28-member board, made up of elected and appointed government representatives in Ada and Canyon Counties in southwestern Idaho. VRT was formed in 1998. It currently contracts for transit services within the city limits of Boise and Garden City, Idaho and the transit services in Nampa and Caldwell Idaho. Valley Regional Transit was created as a single authority to be responsible for providing, coordinating, and developing public transportation in Ada and Canyon counties, including financial review and facilitations of public transportation and its providers and providing public transportation by public modes of transportation. (Idaho Code, Title 40, Chapter 21). Valley Regional Transit may contract for services with public and private entities to carry out the purposes of Chapter 21 (40-2109[4]).

Valley Regional Transit owns the ValleyRide bus system and manages the system assets. The entire ValleyRide system is comprised of 26 transit routes and paratransit services. The VRT fleet includes 6 vans, 58 buses, and 11 support vehicles. In FY 2011, the bus system provided 1.37 million one-way trips and 40,825 ACCESS paratransit rides.

In assessing its asset management needs, VRT established that it needed an improved system for tracking its asset inventory. In particular, VRT determined it needed an improved system to help analyze its assets and prioritize investment needs, supplementing the functionality provided by its FleetNet system, which is used for basic accounting, work order processing, and inventory tracking. Realizing that there were limited available funds for implementing an improved asset management system, and noting that other local agencies faced similar challenges, VRT formed a regional partnership to implement a transit asset management system, and led the effort to apply for an FTA SGR grant on behalf of the partnership to fund the initiative. In their application, VRT outlined the phases in which each regional partner would participate to implement a system and develop a Regional Recapitalization Plan.

Valley Regional Transit has demonstrated how multiple smaller transit agencies and transit providers can work together to develop regional partnerships to help improve transit asset management. In 2011, VRT formed a regional partnership to compete for a FTA SGR grant and

is working with its local partners to pool resources in implementation of an asset management system.

The regional partnership consisted of the following members:

Agency	Demographics
Valley Regional Transit	Lead agency; fixed route and shuttle services with 58 buses, six vans, and 11 support vehicles
Boise State University (BSU)	University Shuttle System
Ada County Highway District (ACHD)	Division of ACHD, Commuteride provides ridematching services
Idaho Transportation Department (ITD)	Manages and distributes federal funds to a number of Idaho transit providers
Treasure Valley Transit (TVT)	Rural transit provider for the eight counties in ITD District Three; also provides Dial-a-Ride and Medicaid transportation
Mountain Rides	Full service provider for Blaine County; provides free town bus, commuter bus, commuter vanpool, ridematch services, safe routes to schools, and special needs demand response

VRT was successful in obtaining a $375,000 SGR grant. Upon receiving the funding, they have worked with partnering organizations on developing the Regional Recapitalization Plan and Transit Asset Management Program.

In establishing a regional partnership for improving asset management, VRT first approached stakeholders with common goals and similar assets. VRT led the effort to apply for the SGR grant and is managing the effort to design, select, and implement an asset management system using the grant funds. VRT will also manage the vendor relationship and information technology associated with the new system. Regular partnership meetings are held to provide each partner the opportunity to participate in the process and continue to provide input.

As part of the process, each partner organization agreed to participate in the capturing of the requirements for a regional system, inventorying its assets, and recording asset conditions. VRT evaluated the quality and consistency of the data in order to determine the information that still needs to be collected. Methods for future data collection will be developed to ensure that all of the organizations are using a consistent approach and have comparable data. The combined assets of the participating organizations include: transit buses, paratransit vehicles, vanpool and social service agency vans, university shuttle buses, support vehicles, park and ride lots, bus

shelters and benches, operations and maintenance facilities, and transit centers. Given the range of different assets in the inventory, it is important that the participants continue to be active in the planning process to ensure that the resulting system is flexible enough to account for each organization's needs.

VRT and its partners developed an asset management system in which all of the collected data will be stored and analyzed at an individual and regional level. VRT was particularly interested in developing a capability for performance analysis to determine what asset investments would be most cost effective in allowing the agency to best invest future funds.

The benefit of creating a regional system is that by pooling resources across multiple organizations, a group of partner agencies can implement state of good repair practices and systems more cost effectively than a single agency acting alone. Also, organizations can also apply for grants collectively, maximizing the impact of funding by concentrating on large-scale improvements across multiple agencies. The results of such cooperative efforts can be utilized by multiple organizations, allowing for improved analysis capabilities that benefit all of the participants.

The Regional Capitalization Plan is expected to establish a methodology for future efforts to improve data collection, analysis, and prioritization models for Idaho transit agencies and providers. This will help individual organizations to develop asset management strategies while providing an improved capability for regional analysis. The plan also has long-term potential for developing a protocol for sharing assets between agencies, which could yield further efficiency gains.

Lessons Learned

The importance of lessons learned for this project are the benefits other smaller regional transportation systems can get from this report. In the end, the project was planned, executed and was a success, but there are still a few items the team would like to highlight at the request of the FTA.

One of the first lessons on success is engagement. This needs to start at the top of each regional organization, establishing a message that this is important to us and to the region. Executives of all stakeholder agencies need to communicate that they are engaged team members and looking to improve the region as a whole. The success of a project like this can generate even more engagement if all of the regional players have funds at stake (we like to call it "skin in the game").

A second critical lesson is establishing and communicating measureable goals and objectives up front. Measurable goals and objectives help the entire team understand the project and what everyone is working towards.

A final lesson is to leverage and not recreate standards. The project team saved time and effort by leveraging the FTA hierarchy and codes already established. In addition to saving time and effort, the ease at which reporting to the FTA can occur is a large long-term benefit.

One of the important aspects of these lessons is that the scope is defined and established at the start of the project and run through project planning. The scope set the foundation for a successful project.

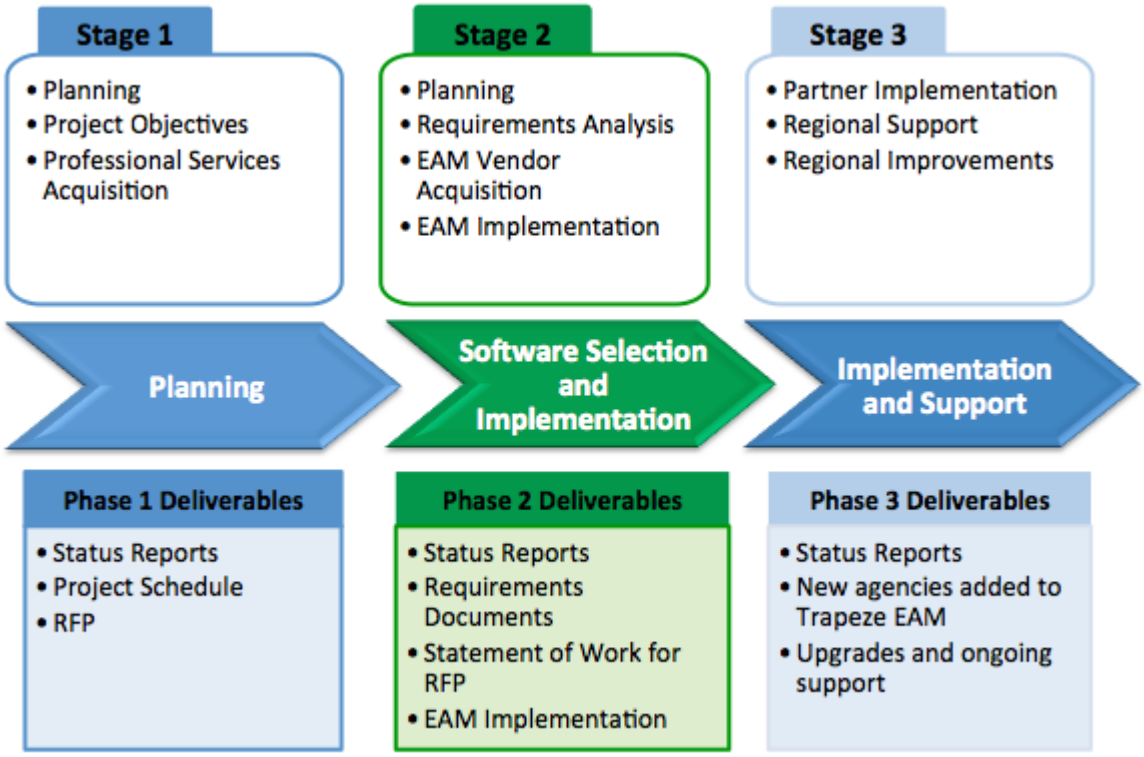
Approach

As the lead grantee agency, VRT continued to lead the project drafting a 2-year project plan. The initial plan would be to capture business requirements across all the regional partners and implement at the VRT first. Regional partners would be added to the system once VRT was up and running and stable. This strategy—and VRT providing the necessary communication, leadership, and guidance—for the duration of the project was critical to the project's success.

In early 2011, the VRT Project Manager finalized the project strategy and timeline. An important factor for the regional partnership was a sustainable asset management program and system that supported the needs of the agencies today and into the future. The following project guidelines were created as part of the strategy:

- Establish business requirements that align with the FTA requirements
- Establish business requirements that align to the individual regional transit agencies
- Select and implement a system that best meets the combined business requirements

With these guidelines the project was planned with a launch in September of 2013 and broken into three stages.



The stages were created to logically structure the entire project with planning, selection and implementation and followed by ongoing implementations and support for the new transit asset management solution. As the lead agency, VRT would take the role of mentor and support partner agencies as they added their assets to the system. This process will enhance regional reporting and analysis opportunities.

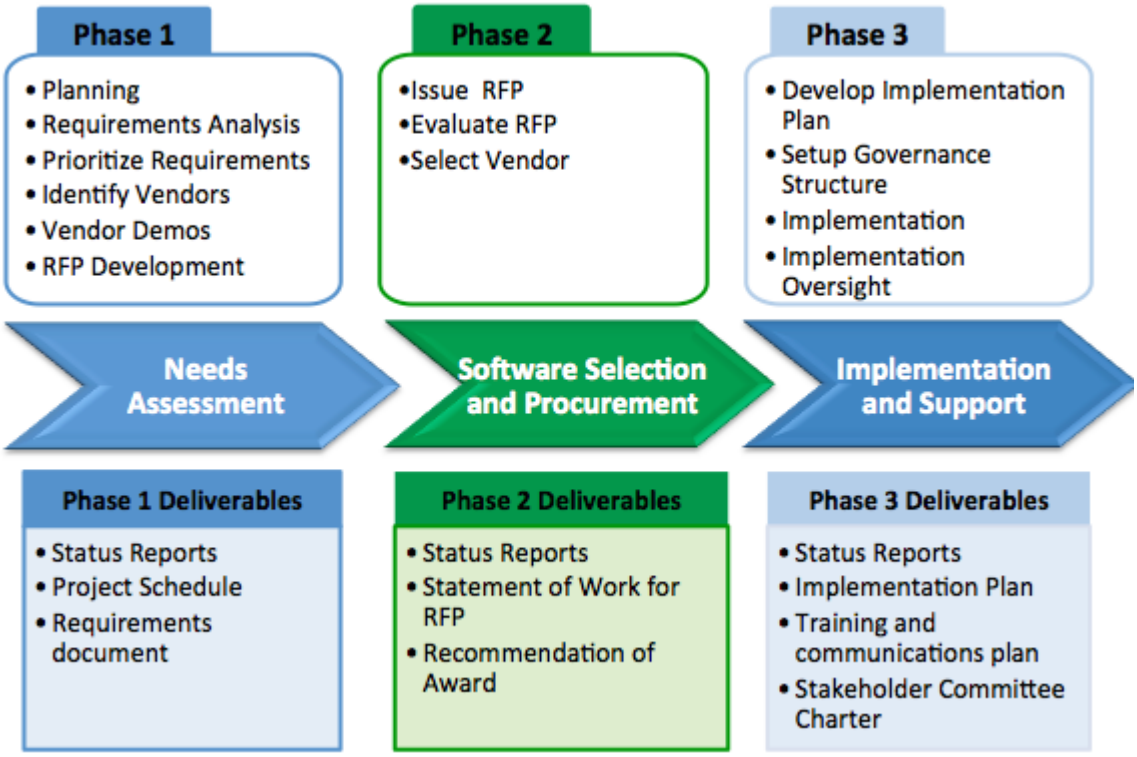
Stage 1 - Planning

During this stage of the project the regional partnership group established themselves as the governing body and developed a detailed 2-year project schedule to capture business requirements, identify team resources, identify potential system vendors, implement a system, and provide the necessary support and guidance for the region. The main activity during this stage was the hiring of a professional services firm to facilitate the analysis, selection, and implementation of an asset management solution. In early 2012, VRT executed a professional services agreement with CH2M HILL and Four Nines Technologies to provide these services.

Stage 2 - Selection and Implementation

VRT worked with CH2M HILL and Four Nines Technologies to detail the next activities and associated tasks. Project control activities were set up and included weekly project team meetings and a monthly status meetings to inform the regional partnership group. In addition, periodic working sessions were also established to ensure large milestones around business requirements, processes, expectations, and plan updates were properly agreed upon.

The project team's first activity was to finalize the Stage 2 approach and timeline. The team developed a three phase project approach, highlighted below.



With the overall strategy in place, and VRT driving the project, the team immediately started creating detailed project objectives. It was important to VRT and the regional partnership to document the project objectives and get approval from the team. With different agency needs across the region and FTA requirements making for a complex project, it was important to work together on a unified definition of project success.

Phase 1 - Needs Assessment

The Needs Assessment phase was designed to focus on capturing the complex requirements across the region. This phase started with defining project objectives:

- Provide a single point of reference of all assets (not just vehicles)
- Deliver reports to monitor and evaluate conditions of existing assets and future investment needs
- Support regional planners with information for cost benefits analysis and replacement planning
- Align with FTA Transit Asset Management (TAM) and SGR requirements
- Address four TAM Phases:
    - Procurement of new assets
    - Asset delivery and service performance
    - Asset condition assessment
    - Asset recapitalization

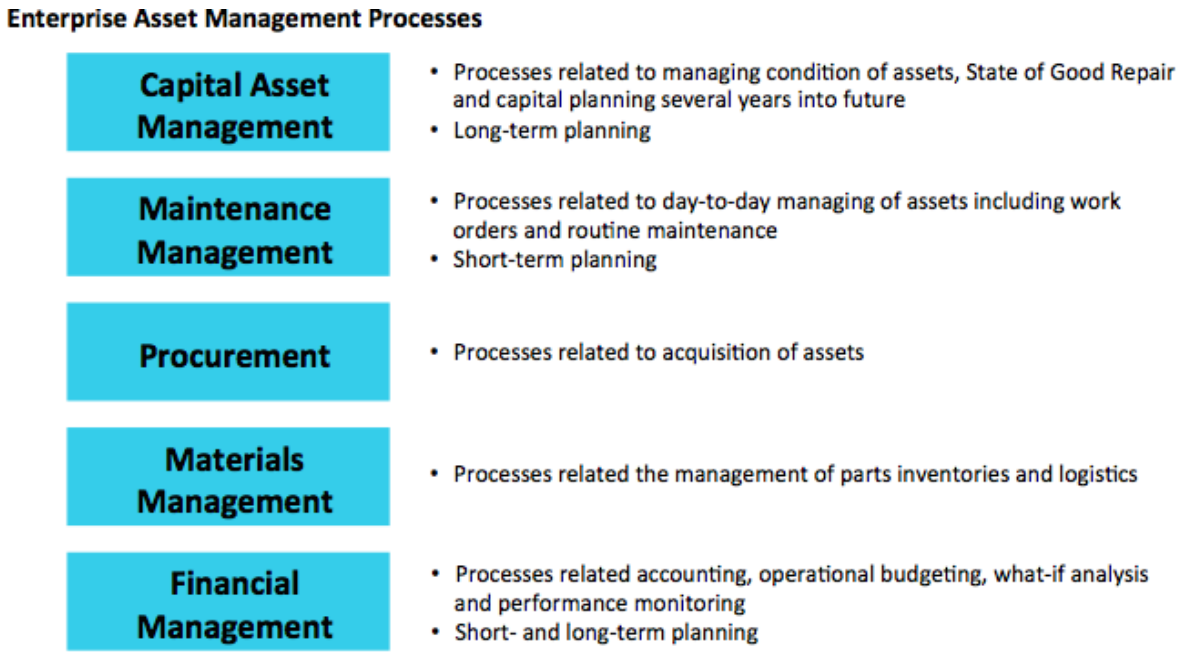
In addition to meeting FTA and grant requirements, VRT and the regional partnership sought to address additional needs across the entire region:

- Provide transit operations departments with a tool to manage assets from procurement to disposal lifecycle
- Combine the needs for capital planners and operations in one application
- Identify and deploy a scalable solution for the entire region

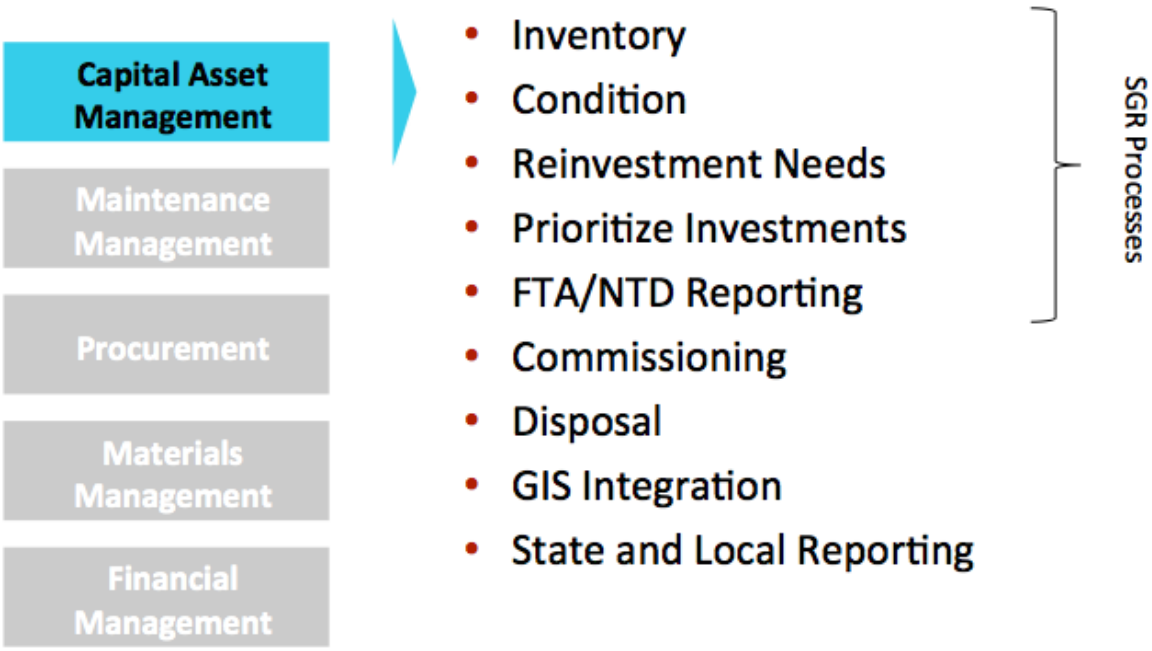
Even though the project objectives went above and beyond the initial scope of the FTA grant, VRT felt it was important to capture the true needs of the region to define and procure a system that would be sustainable and beneficial to the entire region.

During the needs assessment, effort requirements were captured in two categories: Tier 1 - SGR Reporting and Management (Mandatory), and Tier 2 - Maintenance and Operations. The team was able to gather requirements from seven different agencies. This information is included in Appendix B and Appendix C.

Requirements were grouped into five business process areas:



The first business process area, “Capital Asset Management” was categorized as Tier 1 and aligned specifically to the grant. This was done to ensure that the new system would, at a minimum, meet the FTA Grant requirements.



The organization of these requirements was very important to the process and structure of the RFP. When reviewing them, the most important requirements to all the agencies providing information were those in Maintenance Management and Materials Management. This directly corresponded to the agencies' missions of providing transportation to the community in a safe and timely manner, but these were secondary based upon the grant structure. By properly separating both and managing them, the project team could properly identify a solution that met both sets of requirements, even if the implementation of the Tier 2 requirements happened at a later date. The final requirements document included of the following:

- Functional requirements captured by process and Tier 1 and Tier 2 requirements, see Appendix B and Appendix C
- Asset and field matrix with all assets and their attributes mapped to FTA fields, see Appendix A
- Asset Hierarchy which mapped all regional assets to the FTA codes and hierarchy, see Appendix D
- Asset reports consisted of sample reports required by the agencies

This information provided the basis for the creation of the statement of work for potential vendors and a complete understanding of the detailed requirements for a regional asset management system.

As requirements were being reviewed and refined, the team performed an industry analysis to identify potential vendors. Vendors with an emphasis in transit operations were asked to demonstrate their product through an informal Request for Information (RFI). This process allowed the project team and stakeholders an important opportunity to better understand solutions in the marketplace that could meet their capital planning and maintenance requirements. This also allowed for the project team to understand the future direction of the

industry and plans to meet FTA, National Transit Database (NTD), SGR, MAP 21, and other requirements.

The following vendor list was established:

- Maximo
- Mincom
- Asset Work (Trapeze)
- FleetNet
- AgileAssets
- TMT Transman
- Infor
- Sunflower
- Loc8
- Route Match

Not all vendors elected to participate, but all were provided the option to respond to the RFI and show the team a demonstration. The RFI was also posted for the public to review or respond.

As part of the feedback process the team looked for those responding to the RFI and providing demonstrations to provide information on additions or clarifications that could improve the statement of work and information provided within the RFP.

Phase 2 - Software Selection and Procurement

As phase 2 started, a detailed Statement of Work (SOW) was created to capture the services and technology needed to select and implement an asset management system that met the needs of the region. The SOW, (see Appendix E) included details on the project management, implementing, training, and ongoing support services required. The SOW was accompanied by the detailed requirements providing potential vendors with a clear picture of the needs.

VRT and the regional partners elected to use a Best Value Method for the procurement of the asset management system. The team scored all factors except cost. The factors included the mandatory requirements, implementation and training services, prior work experience, key personnel, and future requirements within the vendor's proposal and the vendor’s demonstration. Once the scoring was completed by the evaluation team, the cost evaluation was performed by dividing the total proposed costs by points awarded to each written proposal. The vendor with the lower cost per point is selected. As this was a regional solution, the entire regional stakeholder group was part of the evaluation, even though the solution would initially only be deployed for VRT.

The Trapeze Enterprise Asset Management (EAM) solution was the selected vendor providing the best value to the region. Planning and negotiations started immediately with the VRT board approval on January 16, 2013.

Trapeze EAM solution is built for the transit industry with the core product integrating the capital asset and maintenance information seamlessly. The solution is a commercial off-the-shelf product, allowing the implementation team to focus on configuring the right attributes and processes, and not customizing a solution to meet business requirements. Using an off-the-shelf product allows the team to receive more timely updates from the vendor, focus software costs on additional modules and not customizations, interface with other users as managers, and more easily stay abreast of changes in the industry.

Phase 3 - Implementation and Support

The implementation began in December 2013 with Trapeze as the project manager, and the CH2M HILL/Four Nines Technologies team providing oversight. The implementation was grouped into four activities over a two-phase rollout. Phase 1 was core functionality to meet asset inventory and capital planning requirements. Phase 2 was the implementation of functionality for maintenance management. Each implementation phase had four activities to properly sequence the project.

1. Planning
2. Design
3. Configuration
4. Testing

During and at the end of each phase a milestone review was conducted to ensure that the requirements of the SOW were being adhered to, and that meetings were held to present the status to the regional stakeholder group.

Stage 3 - Support and Improvement

Today VRT is live with the all Tier 1 requirements and the Trapeze modules to support the Asset Lifecycle needed to manage assets according to the FTA requirements. VRT is able to generate the reports needed for the NTD, as well as the regional capital planning reports.

Ongoing activities include moving additional agencies in the region to the new asset management solution and planning for Tier 2 requirements in 2015. BSU and ACHD are currently in process, with more to come. This Asset Management program is ongoing and will continue to encourage other smaller agencies to leverage this robust tool. As stated in Phase 1 of the Needs Assessment, the team's goal was to establish:

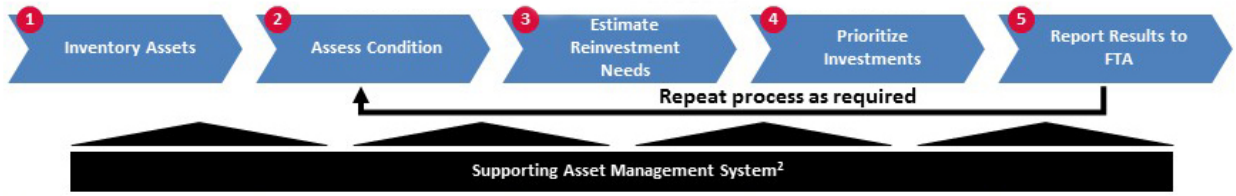
- A single portfolio of all regional assets
- Reports that allow capital planners to perform cost benefit analysis
- Reports that allow capital planners to prioritize asset replacement based upon regional needs

As the leading agency VRT continues to champion the solution and benefits on a regional level. VRT provides the support and contract management needed to facilitate smaller agencies

joining the program, as well as the addition of new processes and functionality as the capabilities grow.

Enterprise Asset Management Solution

The final solution is an EAM system that supports all stages of the Asset Lifecycle and the operations and maintenance of a public transit agency. As a smaller region, it is important to do more with less. The strategy of this project focused on meeting FTA requirements while also positioning VRT to take advantage of a leading EAM solution. Today, VRT has a maintenance system that can track the purchase of an asset, the required maintenance and warranties, materials needed and used and the capital planning all under one application. The importance of this to an agency the size of VRT is immense. And now, VRT's ability to provide these same features to these smaller regional providers allows them to focus on their needs (typically bus maintenance) while concurrently allowing regional planners to have access to the information they need for capital planning on a regional level.



As highlighted previously, VRT structured the implementation in two phases, with the first phase an implementation of Trapeze modules that specifically met the requirements of the FTA and grant application. This phase focused on an asset inventory and capital planning. The modules included in the first phase were:

Module	Function
Core Module	Captures vehicle inventory information
Capital Planning and State of Good Repair	Captures and monitors state of good repair information
Facilities and Stationary Assets	Tracking and monitoring of all non-vehicle assets
Web Reporting	Front end tool to enable reporting within a browser
Performance Measures and Metrics	Functionality to define and capture performance metrics over time
MAXQueue	Functionality to allow multiple reports to be run at the same time (especially important as more agencies join the program)

The first phase was completed in September 2013. VRT launched the EAM solution with:

- 59 motor buses
- 18 demand response
- 200 benches
- 50 shelters
- 3 facilities
- 200 pieces of equipment
- 900 bus stops
- 28 support vehicles

Upon the completion of Phase 1, VRT is now working with the operations team and Trapeze on Phase 2. The schedule for the operations and maintenance requirements is from January 2015 to September 2015.

As the importance of maintaining the assets of a transit system was VRT's mission, the team was eager to implement the additional modules and functionality. The maintenance functionality required the modules below and included some additional modules for more robust decision support. A plan is in place, but due to internal delays and priorities, these requirements have been pushed to 2015.

Module	Function
Shot Activity	Work order, job order, warranty management and paperless elements all managed in a portal for operations
KPI Dashboard	Reporting with green/yellow/red monitoring based upon metrics for performance; providers a visual way to look at the data
Notifications	Workflow notifications based upon business rules to monitor events or conditions
Action Map GIS Visualization	Basic GIS integration with stationary assets; ability to create maps, run queries and tie to existing GIS if necessary
Incidents Management	Functionality to capture and monitor incidents

Phase 2 will go live in September of 2015. With the current planned scope for Phase 2, VRT will be able to look at an asset from the highest level; date in service, total cost (purchase and maintenance), and expected useful life, and will also be able to drill down to the details of the warranty on each part and the details of when maintenance was performed by whom and when.

This end to end management in one system will provide VRT with the necessary capital planning tools, while also providing them with a modern solution to keep assets safe, and in the best condition possible for the community.

With the launch of Phase 2, VRT will add additional assets to the EAM solution, these will include:

- Social service agency buses and vans
- University shuttle buses (BSU)
- Vanpool vehicles (ACHD)
- Transit centers
- Park and ride lots

The additional assets will be coded directly to the FTA codes, providing simple regulatory reporting and leveraging the initial process developed by VRT for condition assessment, prioritization reporting, and health monitoring.

The EAM solution captures all the necessary attributes required of a public transit agency to support maintenance, operations, NTD reporting, capital planning and decision support. The Trapeze EAM solution has the following information for every asset:

- Asset type
- Location
- Condition
- Date built/acquired
- Rehabilitation history
- Replacement cost
- Quantity
- Expected Life

These attributes provide the details required by VRT to meet FTA reporting requirements and the core capital planning needs for the region.

In addition to these attributes the Trapeze EAM solution also captures the following information to support operational functions and additional reporting.

- Vendor Details:
    - Make, model, warranty, Asset Type serial numbers, preventative maintenance information, etc.
- Maintenance Details:
    - Vehicle type, mileage, insurance, preventative maintenance plan, manuals and other documents, weight, seating, etc.
- Accounting Information:
    - Purchase costs, book value, depreciation, sale/disposal, procurement, funding, etc.
- Parts Information:
    - Serial number, book value, quantity, reorder points, warranties, usage, install instructions, etc.

- Location and Ownership:
    - GIS map, agency ownership, agency maintenance, etc.

The Trapeze EAM solution provides VRT and the region with a comprehensive EAM solution out of the off-the-shelf program. The solution will have the additional benefit of future improvements through upgrades as Trapeze continues to work with other transit agencies on product improvements.

The Trapeze EAM solution has been implemented to allow other regional agencies to add their assets and leverage all the current processes and standards, while also being able to report and manage at a regional and individual agency level.

Conclusion

VRT has an end-to-end asset management solution that captures every asset and their required attributes. These attributes enable VRT to report to the FTA and maintain their assets, make informed capital planning decisions on a regional basis. VRT has a single repository for all asset information ranging from purchase data and costs, useful life, recent maintenance, condition, warranty, location, miles and performance. VRT can report on capital projects directly from the solution and has plans to improve reporting functionality in the future.

Without the SGR grant, VRT would not have a single repository for their asset inventory and the attributes to manage a healthy transit operation. Maintenance and reporting on assets would have continued to be a challenge and a highly manual process, and maintenance would continue in an antiquated system with manual process and limited reporting. From a regional perspective, the possibility of regional asset reporting would not be possible without this solution.

VRT is the only agency current on the process, with BSU and ACHD in the process of adding their assets. Two specific challenges in bringing on additional agencies has been their ability to secure funding for licenses/maintenance, and their concern about the level of effort to maintain a system over the long term. The VRT's leadership in supporting their smaller regional partners has been critical in allaying these concerns.

It is important for transit systems the size of VRT and the regional partners to receive FTA funding aligned to support both the capital planning and the maintenance. For future programs it is important to leverage all of the information provided by the FTA, including asset numbering, attributes, and the hierarchy, as well as have an understanding of TERM and TERM Lite.

Appendixes

A: Asset Field Matrix

B: Tier 1 Requirements

C: Tier 2 Requirements

D: Asset Hierarchy

E: Request for Proposal - Statement of Work

Appendix A: Asset Field Matrix

	A	B	C	D	E	F
1	**Valley Regional Transit**					
2	**RFP 2012-09-10 Asset Management System**					
3	**Appendix A – Capital Asset Management Tier 1 Requirements**					
4	**REF ID**	**Process**	**Process Group**	**Requirement**	**Vendor Can Meet Requirement (Yes/No)**	**If No how will you address the requirement, please describe. (example, through customization approximately 40 hours)**
5	5200	Capital Asset Management	Analysis (Reinvestment, Prioritization, Backlog)	The system shall provide the ability to perform cost benefit analysis to make "buy versus lease" and "buy versus repair" decisions. (see attached templates).		
6	5205	Capital Asset Management	Analysis (Reinvestment, Prioritization, Backlog)	The system shall provide a capital improvement program for maintaining a 10 year plan with a list of all assets and expected improvements by year.		
7	5255	Capital Asset Management	Analysis (Reinvestment, Prioritization, Backlog)	The system shall have the ability to generate analysis reports that prioritize asset investments based upon predetermined criteria and weights.		
8	5297	Capital Asset Management	Analysis (Reinvestment, Prioritization, Backlog)	Capability to perform multiyear (5 year and 10 year) asset recapitalization planning based upon asset condition, replacement value, in-service date and design life. The analysis should be able to estimate current asset backlog, investment required to bring asset inventory to a State of Good Repair over a predetermined period of years and allow for constrained funding analysis showing how the condition of the asset inventory will evolve over time based on various funding scenarios. This analysis should be similar to that done by the Federal Transit Administration's Transit Economics Requirements Model (TERM), Lite (local agency) version.		
9	1436	Capital Asset Management	Condition	The system shall track to-be-repaired assets at all locations including third-party repair vendors.		
10	1464	Capital Asset Management	Condition	The system shall track Inspection Data, for example track inspection activities, both mandated and nonmandated, all track inspections required by governmental agencies (e.g. a log verifying that these mandatory inspections have taken place, etc) Inspection fields and analysis should support condition ratings and decay curve analysis.		

	A	B	C	D	E	F
11	5207	Capital Asset Management	Condition	The system shall provide an analysis tool to assess the condition of their assets by tracking inspection checks, maintenance records and the age of the asset.		
12	5212	Capital Asset Management	Condition	The system shall provide the ability to create a step by step workflow process to assess condition, with date triggers, asset triggers, roles and inspection input forms.		
13	5252	Capital Asset Management	Condition	The system shall support the ability to track the condition of an asset with expected repair dates using a rating criteria (FTA or internal)		
14	5266	Capital Asset Management	Condition	The system shall have a standard condition rating system		
15	5267	Capital Asset Management	Condition	The system will have the ability to incorporate track FTA useful life and industry based on useful life.		
16	5324	Capital Asset Management	FTA/NTD Reporting	NTD Report A-30 - Revenue Vehicle Inventory:Instructions for From A-30 can be found on page 182 in the following document http://www.ntdprogram.gov/ntdprogram/pubs/ARM/2011/pdf/2011_Asset_Module.pdfBelow are the key elements of the report that must be generated by type of service:RVI ID# in FleetVehicle Type - see NTD codes in RFPOwnership Code - see NTD codes in RFPFunding Source Code - see NTD codes in RFPYear of ManufactureYear of RebuildManufacturer Code - See NTD Codes in RFPModel Number# of Years Active in Fleet# of ADA vehicles# of Emergency VehiclesFuel Type CodeVehicle lengthSeating and standing capacityTotal active milesTotal avg miles over vehicle lifetimeOptional "supports another mode"		
17	5256	Capital Asset Management	FTA/NTD ReportingAnalysis (Reinvestment, Prioritization, Backlog)	The system shall have flexible tools to generate reports that meet FTA/NTD reporting needs today and in the future. Allow the ability to submit reports that identify What kind of asset is it? Year built; Useful life; Replacement cost; Agency capital responsibility for the asset; Quality and Condition ratings		
18	1437	Capital Asset Management	Inventory	The system shall track disposal records of all repairable assets.		

	A	B	C	D	E	F
19	1449	Capital Asset Management	Inventory	The system shall provide the ability to track non-revenue vehicle usage data		
20	1450	Capital Asset Management	Inventory	The system shall provide the capability to add extensive search routines for locating equipment, parts, serial numbers and part numbers via wild cards with multi-field qualifiers.		
21	1451	Capital Asset Management	Inventory	The system shall provide for high-level user-defined overview of assets with drilldown functionality.		
22	1456	Capital Asset Management	Inventory	The system shall provide the ability to track reliability and failure data including shop repair data.		
23	1462	Capital Asset Management	Inventory	The system shall track and record incidents on all assets to include linkage to detailed accident data.		
24	5203	Capital Asset Management	Inventory	The system shall provide a tool to track funding sources and grants by type and grant numbers.		
25	5204	Capital Asset Management	Inventory	The system shall provide the ability to track assets by different legal entity with security access controlled by role		
26	5211	Capital Asset Management	Inventory	The system shall provide the ability to integrate with the general ledger and fixed asset applications in Fleetnet with the ability to identify which assets information is shared and which is not.		
27	5215	Capital Asset Management	Inventory	The system shall provide a report organized by type (capital and non capital asset), by location, by date/date range, and with the ability to summarize data.		
28	5216	Capital Asset Management	Inventory	The system shall provide a comprehensive inventory of assets. Assets should be flagged as date in service, out of service, in inventory, scrapped or sold.		
29	5226	Capital Asset Management	Inventory	The system shall be able to provide all asset information in a single solution.		
30	5241	Capital Asset Management	Inventory	The system shall track ownership type of all assets and equipment with labels to include (owned, leased, management, etc.)		
31	5249	Capital Asset Management	Inventory	The system shall support the ability to transfer assets and equipment between locations while still maintaining their entire history and date of transfer.		
32	5250	Capital Asset Management	Inventory	The system shall support a process to perform physical inventories of assets and equipment on a periodic and sample basis. Fields should track last physical count, who counted and comments		

	A	B	C	D	E	F
33	5257	Capital Asset Management	Inventory	The system shall provide the ability to add hierarchal categorization of assets with custom types as per FTA's asset hierarchy (provided as part of the RFP).		
34	5286	Capital Asset Management	Inventory	The system shall track the ability to capture funding source for each asset		
35	5287	Capital Asset Management	Inventory	The system shall provide the ability to track and manage impairments against fixed assets where federal funds were used to purchase the asset		
36	5288	Capital Asset Management	Inventory	They system shall provide a report to manage asset inventory and reconcile financial asset (book), physical and asset in the asset management system		
37	5289	Capital Asset Management	Inventory	They system shall provide the ability to generate reports to capture assets by different combinations of funding source, location, ownership and responsibility.		
38	5295	Capital Asset Management	Inventory	The application should be designed to support all required fields (see attachment, field mapping)		
39	5296	Capital Asset Management	Inventory	The system shall track vehicle miles, service miles and time in/out of service (deadhead)		
40	5303	Capital Asset Management	Inventory	Fleet Report - broken down by individual assets: buses, support vehicles, equipment and facilities. Have cumulative and individual asset data:a. To include mileage MTD, YTD and totalb.Make, model, year, seating capacity, standee capacity, wheelchair positions, serial number (VIN), license #, fleet #, warranty start and end or like to warranty page, GVWR, last PMI done, next PMI with link to completed PMI form, links to all major components or subsystems, active or inactive asset with date if inactive, useful life(years and mileage) and base location.c. Track by agency, division and location		
41	5259	Capital Asset Management	Management Reporting	The system shall support ad hoc analysis to allow users to create reports using a user friendly query or report tool.		
42	5260	Capital Asset Management	Management Reporting	The system shall support the ability to develop custom reports that allow for targeted investments focused on replace and rehabilitating aging transit infrastructure.		

	A	B	C	D	E	F
43	5285	Capital Asset Management	Management Reporting	The system shall have the ability to calculate and track performance metrics including but not limited to□□Asset Backlog: % of asset value that is past useful life (worse than 2.5 FTA condition rating)□□% of Assets in State of Good Repair % of asset value that is in state of good repair (better than x.x FTA condition rating)□□Average Condition of Assets: Condition weighted average based on FTA condition ratings□□Bus Fleet Availability: Average daily percent of fleet available for revenue service□□Bus Failure: Miles between reported bus service disruption due to equipment malfunction□□O&M Costs: O&M cost per revenue mile. Includes administrative, operations, maintenance (vehicle and non-vehicle) costs		
44	5314	Capital Asset Management	Management Reporting	Financial Data Reports□a. Track grants, projects, depreciation, fed/local percentages□b. Be able to report by asset and fleet□c. Budgeted assets□i. Report grant, project and when funds available, obligated and committed.□ii. Add RFB/RFP/RFQ dates, submittal dates, approved by Executive Director, approval by board(s), order date expected delivery date, PO #, actual delivery date and date in service.□		
45	5323	Capital Asset Management	Management Reporting	Asset report that can summarize the total vehicles into buckets for Directly Operated Modes and Purchase Transportation Modes that support NTD B-10 Report. The modes to note change much for VRT, currently Bus and Demand Response. In the future we will need additional modes, van pool, trolly bus and other.		
46	1454	Capital Asset Management	State and Local Reporting	The system shall provide the ability to conduct lifecycle management for buying, tracking and selling an asset.		
47	1422	General Functions	General	The system shall have interface with Financial Fixed Asset system - Fleetnet for depreciation and financial reporting.		
48	1427	General Functions	General	The system shall interface with the procurement system (Fleetnet) so procurement information can be found in the Asset Inventory (date of purchase, costs, vendor etc.)		

	A	B	C	D	E	F
49	5233	General Functions	General	The system shall have the ability to build security based upon roles.		
50	5234	General Functions	General	The system shall support exporting and importing functionality to Excel and MS Access		
51	5237	General Functions	General	They system shall support full web client accessibility from remote locations so IT does not need to install software on work stations		
52	5242	General Functions	General	They system shall support the ability to query asset, maintenance and other information in the system.		
53	1445	Maintenance Management	Failure Reporting	The system shall provide the ability to define and calculate Key Performance Indicators (KPIs) such as equipment failures.		
54	1441	Maintenance Management	Fleet Maintenance	The system shall provide the ability to track system performance and incidents related to usage parameters.		
55	1442	Maintenance Management	Fleet Maintenance	The system shall track individual system/component performance to assist in developing system improvements or identifying system problems.		
56	1416	Maintenance Management	Fleet Maintenance□Maintenance (Fleet, Facilities, Equipment)	The system shall provide maintenance histories for vehicles, major/minor systems, and critical components so that specific vehicle repairs can be tracked and repair/replacement trends can be reviewed.		
57	1423	Maintenance Management	Fleet Maintenance□Maintenance (Fleet, Facilities, Equipment)	The system shall provide for tracking of equipment maintained by outside maintenance contractors or in-house maintenance support organizations.		
58	1419	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall track maintenance history, for example all maintenance activities relating to specific vehicles, components and systems cross referenced to the previously defined maintenance histories to avoid duplication.		
59	5262	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall track fleet availability.		
60	5275	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall track equipment installed on assets (radios, fareboxes, camera's etc.) and cross reference from asset to equipment and equipment to asset.		
61	5312	Maintenance Management	Management Reporting	Asset Inventory Inspection Reporting□a. Confirm asset location□b. Confirm condition of asset by FTA or other standard method of determination.□c. Report by asset and fleet.□d. Track asset moves and disposals.□		

	A	B	C	D	E	F
62	5243	Maintenance Management	Preventive Maintenance Planning	The system shall provide the ability to define and maintain maintenance plans and schedules by asset type and frequency.		
63	5244	Maintenance Management	Preventive Maintenance Planning	The system shall support flagging of repairs and maintenance that are FTA required by asset type.		
64	5195	Maintenance Management	Warranty Management	The system shall automatically prompt a user if a work order is being issued for asset or component covered by warranty.		
65	1311	Materials Management	Item Master	The system shall have the capability to track parts/components,		

Appendix B: Tier 1 Requirements

Valley Regional Transit								
RFP 2012-09-10 Asset Management System								
Appendix B - Tier 2 Requirements								
REF ID	Process	Process Group	Requirement	Interface	Reporting	Requirement Ranking	Vendor Can Meet Requirement (Yes/No)	Requirement can be met with no additional costs as part of Tier 1
1309	Maintenance Management	Warranty Management	The system shall track warranty activity and link warranty records to all work orders where appropriate.			H		
1310	Materials Management	Inventory Management	The system shall provide for the reservation of parts in inventory.			M		
1314	Materials Management	Inventory Management	The system shall suggest cross reference parts when ordering material (e.g. when ordering a screw, the system might suggest ordering the matching nut).			H		
1316	Materials Management	Item Master	The system shall provide inventory catalogue electronically.			H		
1318	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide comment fields on work orders, purchase requests and other processes where annotation would be helpful.			H		
1319	Materials Management	Item Master	The system shall identify, track and manage Item lists. List can be labeled based upon the project need.			M		
1320	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide a graphically represented parts manual that allows the user to locate the desired part by drilling down from a top-level view to individual items.			H		
1322	Materials Management	Item Master	The system shall provide the ability to access parts and supplies through pre-built or custom-built catalogs.			L		
1323	Materials Management	Item Master	The system shall provide the ability to input vendor catalog data, including items like part numbers and a short description.			H		
1327	Materials Management	Inventory Management	The system shall maintain packing slip numbers and have the ability to link to an image database of packing slips for electronic content management purposes			L		
1328	Materials Management	Inventory Management	The system shall have the ability to provide historical transaction information for assets as well as all inventory items.			H		
1329	Materials Management	Inventory Management	The system shall allow data input by means of barcode scanning (currently in FleetNet).			H		

1330	Materials Management	Inventory Management	The system shall allow vendors to obtain information regarding descriptions or availability of inventory items via the intranet/internet.			L		
1331	Materials Management	Inventory Transfers	The system shall be able to manage (restrict, transfer, or issue) inventory by work order, job or project.			H		
1332	Materials Management	Inventory Management	The system shall be able to track inventory from multiple fund sources (GL code to be consistent but funding source can have multiple codes).			H		
1334	Materials Management	Item Master	The system shall be able to track different classes of inventory, such as repairable and should be able to post transactions for each class to the appropriate General Ledger Inventory account(s) as determined by original funding source. System shall track "new" or "repairable" separately.			M		
1335	Materials Management	Inventory Management	The system shall update inventory levels in real time, but must be coordinated with timing of upgrade to VRT IT scanners.			M		
1336	Materials Management	Inventory Management	The system shall provide the ability to update the Accounts Payable and General Ledger systems (interface with FleetNet required) for use and disposed of inventory.		Yes	L		
1337	Materials Management	Inventory Management	The system shall provide the ability to calculate standard inventory-related data such as holding cost, expected stockout date, turnover, stockout probability, and report actual stockout date for an inventory item.			L		
1338	Materials Management	Inventory Management	The system shall provide the capability for inventory adjustments of on-hand quantities based on the results of periodic or ad-hoc inventory counts.			M		
1340	Materials Management	Inventory Management	The system shall provide the status and estimated time of arrival of backordered inventory items as this data becomes available in the Procurement system.		Yes	H		
1342	Materials Management	Inventory Management	The system shall deliver a reorder notice and historical data to the inventory planner to complete analysis and prepare purchase requisition.			L		
1343	Materials Management	Inventory Management	The system shall accommodate different methods of inventory valuation, such as FIFO, LIFO, Last Cost or Average Cost.			M		
1344	Materials Management	Inventory Management	The system shall provide inventory stocking functionality with minimum reorder points at the warehouse and satellite storeroom locations and also indicate primary and secondary suppliers.			H		

1345	Materials Management	Inventory Management	The system shall provide on-hand quantities and bin locations.			H		
1347	Materials Management	Cycle Counting	The system shall support several blind cycle programs such as annualized daily counts, recounts and counts when storeroom reorder points are violated.			L		
1348	Materials Management	Inventory Management	The system shall maintain transactional audit history on-line for 36 months for inventory items to include reorder point changes, all transaction types, average unit prices and on-hand quantities changes.			M		
1350	Materials Management	Inventory Management	The system shall check warehouse back order status to provide projected delivery dates and notification to the customer or designated personnel when the part becomes available when a work order is deferred due to stock-out.			L		
1351	Materials Management	Inventory Management	The system shall provide the personnel the ability to track status of parts on order, to include email notifications of status changes upon request.			M		
1355	Materials Management	Inventory Management	The system shall have the ability to track receipts and issues of non-stocked items as separate from inventory.			H		
1358	Materials Management	Inventory Management	The system shall provide flexible reorder point programs that allow for different types of reorder point formulas to include seasonality, closed end production, critical stock or high variability using both forecasts and historical data as needed.			L		
1360	Materials Management	Item Master	The system shall have multiple part number fields including vendor, manufacturer and generic part number information.			H		
1362	Materials Management	Inventory Management	The system shall track stock number changes, transfer of item history to the combined or new stock number, and to maintain backward reference to the old number.			M		
1363	Materials Management	Inventory Management	The system shall provide real time update of receipts to the General Ledger inventory clearing account, and Accounts Payable system for returns to vendors and price edits.		Yes	M		
1364	Materials Management	Inventory Management	The system shall track inventory levels for shop repairable items - and send a work order request with the quantity required - when a reorder point is crossed.			L		
1368	Materials Management	Inventory Management	The system shall provide the ability to identify out-of-stock items, as well as make substitutions with alternate parts, vendor, and location tracking capabilities.			H		

1370	Materials Management	Inventory Management	The system shall track material in transit.			L		
1372	Materials Management	Inventory Management	The system shall have the ability to track item cost by last cost, average cost or user defined standard cost			H		
1374	Materials Management	Inventory Management	The system shall identify obsolete, use-to-deplete, critical, or protected stock.			M		
1378	Materials Management	Inventory Management	The system shall provide the ability to generate kit part lists			M		
1382	Materials Management	Inventory Management	The system shall have the ability to add the relevant replacement/repair cost of each part used, (whether parts are non-inventory or storeroom issue), to the work order.			M		
1385	Materials Management	Inventory Management	The system shall provide the ability to plan track parts usage and manage stock levels.			H		
1386	Materials Management	Inventory Management	The system shall have the ability to remind users to reorder parts and offer a user-friendly search process for finding needed supplies.			H		
1392	Materials Management	Inventory Management	The system shall provide the ability to calculate Economic Order Quantity (EOQ) on demand and the ability to adjust the criteria.			M		
1395	Materials Management	Inventory Management	The system shall provide the ability to identify vendor (or part) substitutes.			L		
1396	Materials Management	Inventory Management	The system shall be able to separate material by funding source, operating versus different capital funded types, without requiring physical separation, and allow for different general ledger impacts upon purchase and issue of differently funded items.			L		
1400	Materials Management	Inventory Transfers	The system shall provide the ability to create daily picks for transfers (warehouse).			L		
1401	Materials Management	Cycle Counting	The system shall track and archive "inspection" data including stock number, quantity, inspection requirement and date the inspection request is generated.			H		
1408	Materials Management	Inventory Management	The system shall have the ability to replenish stock in locations from other locations or from a vendor when quantities fall below minimum levels.			L		
1410	Materials Management	Inventory Management	The system shall have the ability to recalculate reorder points using customer forecasts.			L		
1412	Materials Management	Inventory Management	The system shall provide management control sorts by supplier or role, date, stock number and type.			H		
1413	Materials Management	Item Master	The system shall provide tracking of stock, non-stock and hazardous items.			L		

1414	Materials Management	Inventory Management	The system shall provide the ability to set alerts for atypical materials usage.			H		
1424	Maintenance Management	Work Order (Preventive and Corrective)	The system shall be able to track warranties, parts, and equipment being used by contractors, corrective and preventative maintenance.			H		
1428	Capital Asset Management	Inventory	The system shall provide the ability to store and access images (drawings, CAD, photos, illustrations, legal documents, pdf files) of assets, parts and equipment for all users of the system as part of an electronic content management system			H		
1429	Maintenance Management	Fleet Maintenance	The system shall have the ability to schedule equipment to be off-line prior to work being performed.			H		
1431	Materials Management	Inventory Management	The system shall have the ability to track and identify rebuilt parts with associated costs.			M		
1434	Maintenance Management	Preventive Maintenance Planning	The system shall calculate repair estimates based upon specific variables.			M		
1435	Capital Asset Management	Condition	The system shall provide a 'Used on/used with' capability for all assets			L		
1438	Capital Asset Management	Inventory	The system shall provide shop equipment usage.			M		
1439	Capital Asset Management	Condition	The system shall provide deferred repair tracking, for example incomplete repairs because of lack of parts (inventory vs. shop repairable) or other reasons. This should work with condition management			M		
1440	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide work flow tracking to include the ability to link work orders to track repair from original report through shop component repair.			L		
1443	Capital Asset Management	GIS Integration	The system shall provide the ability to receive remote real time monitoring of applicable equipment; vehicles, escalators, elevators, and operational data			M		
1446	Maintenance Management	Warranty Management	The system shall provide the ability to track asset warranties, process warranty claims, and alert system user that warranty is valid or nearing the end of it's duration.			H		
1447	Capital Asset Management	Inventory	The system shall provide a centralized reference information for equipment used for maintenance			L		
1448	Maintenance Management	Warranty Management	The system shall provide the ability to define multiple warranties for multiple pieces of equipment for all vehicles or facilities.			H		

1455	Maintenance Management	Preventive Maintenance Planning	The system shall provide the ability to incorporate or access special data and equipment monitoring/performance/calibration data to include ongoing test data.			M		
1457	Maintenance Management	Preventive Maintenance Planning	The system shall include an interactive system that can identify the root cause or suggest problem areas to the mechanic based on the failure data utilizing a database of common failures and a possible cause.			L		
1458	Maintenance Management	Preventive Maintenance Planning	The system shall determine when first time incident occurs and add these type of failures to system.			L		
1460	Materials Management	Item Master	The system shall review and track hazardous material when ordering and receiving the items.			H		
1463	Capital Asset Management	Condition	The system shall track incident investigations and follow up activity to include linkages to the detailed investigations and/or follow up activity.			M		
1465	Maintenance Management	Work Order (Preventive and Corrective)	The system shall track and provide notifications for: (a) preventive maintenance and record compliance; (b) system inspections and component replacements including inspections that may be performed by multiple crafts or multiple shops.			L		
1467	Maintenance Management	Preventive Maintenance Planning	The system shall provide the ability to budget, project maintenance operations, including fuel and supply costs, parts usage and manpower requirements.			L		
1468	Capital Asset Management	Condition	The system shall report and document steps or services within an inspection.			M		
1469	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide for Work/Job Order Generation: If a priority level threshold is exceeded an immediate work order is generated identifying the defect and its location.			L		
1470	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide the ability to duplicate job plans for modification and use as templates.			L		
1471	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide the ability to access assigned work orders the moment they are assigned.			H		
1472	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide the ability to track Work/Job Order Generation for a set of multiple inspection thresholds.			M		
1473	Maintenance Management	Work Order (Preventive and Corrective)	The system shall track modifications and control the authorization of modifications to Preventative Maintenance (PM) scheduled tasks.			H		
1475	Maintenance Management	Work Order (Preventive and Corrective)	The system shall be able to notify supervisor when Preventative Maintenance (PM) is due.			H		

1480	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide labor tracking for individual(s) by: (a) who works on what items; (b) type of work; (c) shop; (d) craft; (e) section; (f) asset; (g) vehicle; (h) system; and (i) subsystem.			H		
1481	Maintenance Management	Labor Management	The system shall track Contracted Maintenance/Work Data.			L		
1483	Maintenance Management	Preventive Maintenance Planning	The system shall have the ability to link job plans sequentially, each with its own parts, labor and tool estimates.			L		
1486	Maintenance Management	Fleet Maintenance	The system shall provide the ability to access specifications, for example drawings, maintenance history, procurement history and photos.			H		
1488	Maintenance Management	Fleet Maintenance	The system shall provide the ability to attach lists of maintenance standards or procedures to PM work order printout.			M		
1490	Materials Management	Item Master	The system shall provide a hyperlink to the item that is cross referenced to a text, figure, chart, diagram, table etc.			L		
1491	Materials Management	Item Master	The system should provide the ability to load or link to an Interactive Electronic Technical Manual (IETM) that contains at a minimum: an index, list of tables, list of illustrations, and a table of contents each of which should be linked to the appropriate item.			L		
1492	Maintenance Management	Work Order (Preventive and Corrective)	The system shall link incident reports to multiple work orders.			L		
1493	Maintenance Management	Fleet Maintenance	The system shall provide the ability to access drawings, service bulletins, photos and parts manuals with stock number cross reference capability; to assist in maintenance or in parts ordering.			M		
1496	Materials Management	Inventory Management	The system shall have the ability to update work orders with actual usage data.			H		
1497	Maintenance Management	Work Order (Preventive and Corrective)	The system shall have ability to record Bills of Material and manufacturer and interface with production planning.			M		
1498	Maintenance Management	Work Order (Preventive and Corrective)	The system shall track the status of outstanding/completed work.			H		
1499	Maintenance Management	Work Order (Preventive and Corrective)	The system shall identify special situations such as contract work or accident repairs.			M		
1500	Maintenance Management	Preventive Maintenance Planning	The system shall provide a projected return to service capability as a possible planning tool.			L		

1504	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide Work/Job Order Generation			H		
1505	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide the ability to link job plans sequentially, each with its own parts, labor and tool estimates.			L		
5175	Materials Management	Inventory Management	System will provide Integration with financial systems for inventory usage.		Yes	H		
5194	Maintenance Management	Warranty Management	The system shall provide the ability to generate a report with asset warranty status for all assets and sub components.	Yes		H		
5208	Capital Asset Management	Inventory	The system shall provide the ability to upload common industry regulations regarding, maintenance, environmental etc. rules and suggestions.			L		
5213	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	System shall create Work Order flow process with approval points as part of process.			L		
5218	Grant Management		The system shall provide a process to apply for grants.			L		
5230	Capital Asset Management	Inventory	The system shall provide interface between the purchasing system for purchases of assets to be sent to the EAM solution. The interface should allow for review, approval and the addition of additional information for all purchases sent over. In some instances the purchase may be for "smaller assets" that are not capitalized in the financial system.		Yes	M		
5231	Capital Asset Management	Inventory	The system shall provide a list of NB (not booked. assets not in the financial system) items			M		
5236	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall support email notifications for open tasks or tasks with due dates.			M		
5238	General Functions	General	The system shall support mobile devices so users can view work orders, reports and data on smart phones or other handheld devices.			M		
5239	Maintenance Management	Preventive Maintenance Planning	The system shall support queries or reports by asset with history and work performed.	Yes		M		
5245	Maintenance Management	Preventive Maintenance Planning	The system shall support the ability to establish different types of Preventative Maintenance (daily inspection, heavy overhaul, etc.).			H		
5246	Materials Management	Inventory Management	The system shall support the ability to generate a report that shows materials that must be in stock based upon the preventative maintenance schedule			M		
5247	Maintenance Management	Work Order (Preventive and Corrective)	The system shall be able to store each work order and related tasks in order of execution.			M		

5264	Maintenance Management	Work Order (Preventive and Corrective)	The system shall have the capability to link work orders to part SKUs in the Item Master.			H		
5265	Capital Asset Management	Analysis (Reinvestment, Prioritization, Backlog)	The system shall provide a report to analyze inventory usage and calculate inventory needs based upon usage			H		
5268	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall have a database of safety rules for equipment.			L		
5270	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The System shall provide vehicle availability/usage status information.			M		
5271	Capital Asset Management	FTA/NTD Reporting	The system shall have the capability to store Federal laws and regulations as documents for refrence.			L		
5272	Procurement	Payee (Vendor) Management	The system should support the ability to track vendor contracts and agreements.			H		
5273	Procurement	Payee (Vendor) Management	The system shall have the ability to track and rate parts and vendors			L		
5274	Maintenance Management	Preventive Maintenance Planning	The system shall allow for generating or modifying Preventative Maintenance Plans to better fit real life maintenance requirements for different types of vehicles.			H		
5276	Capital Asset Management	Commissioning	The system shall support the ability to create work flow for review, approval and activities that require human intervention. Including but not limited to a work flow from the integration from Procurement when an asset is purchased to all the maintenance team to put an asset and additional details into service			L		
5278	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)?	The system shall support the ability to track individual components for an asset. Example Vehicle could have brakes, engine, transmission etc.			H		
5279	Maintenance Management	Work Order (Preventive and Corrective)	The system shall support the ability to assign personnel to work orders.			H		
5280	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall track the status of both preventative and corrective maintenance - not started, started and complete.			M		
5281	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall have functionality to schedule maintenance by asset by maintenance type.			M		
5282	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall provide to the ability to label types of maintenance and type of work, for example: Preventative, corrective, preventative - manufacturer, preventative - warranty etc.)			H		

5283	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide tracking of costs, parts, labor by work order, by maintenance type. Calculated fields should be available for total labor costs for a work order, by maintenance, by asset by component , by facility, average maintenance cost per vehicle.			H		
5284	Maintenance Management	Maintenance (Fleet, Facilities, Equipment)	The system shall track failures by type.			M		
5291	Materials Management	Item Master	The system shall provide the ability to manage inventory and parts through an Item Master that track multiple part numbers, location, usage, order, manufacturer, quantity, cost etc.			M		
5292	Materials Management	Item Master	The system shall provide the ability to integrate the Item Maser with the financial system.		Yes	M		
5293	Materials Management	Cycle Counting	The system shall provide the ability to process physical counts and inspection with date, users, quantity found and condition.			H		
5300	Materials Management	Item Master	The EAM system shall integrate the Item Master with the Inventory Items in FleetNet		Yes			
5301			The system shall integrate with RouteMatch		Yes	M		
5302	Capital Asset Management	Inventory	The EAM system shall integrate with Fuel Master to capture fuel consumption information for each vehicle.		Yes	M		
5305	Materials Management	Item Master	Linked Components:a. To be tracked by asset and fleet.b. Track ID info and failures and calculate mileage and time between fails. c. Track warranty information	Yes		H		
5306	Maintenance Management	Warranty Management	Warranty Report - asset as well as components, with ability to run by by asset, fleet and all fleets for components.	Yes		H		
5307	Maintenance Management	Preventive Maintenance Planning	Tires by vehicle and fleet with the ability to run it by mileage and replaced, new or recap 1 or recap 2, supplier and reason for replacement	Yes		H		
5308	Materials Management	Item Master	Parts Inventory Reportinga. By fleet, supplier and alternative supplier(s). Include manufacture's or alt supplier's part numbers.b. Have ability to commit existing inventory to a work order, a job or a specific assetc. Track all parts ordered for assets, not only parts kept on hand.	Yes		H		
5309	Materials Management	Item Master	Parts reorder reporting - based on high/low inventory with the ability for human override. a. Show expected delivery dates for all parts.	Yes		H		

5310	Maintenance Management	Work Order (Preventive and Corrective)	Work Orders Reporting□a. Sort by numbers, mechanic, fleet and asset.□b. Allow global search for parts issued to work orders □c. Show parts needed but not on hand with link to parts information□d. Parts may be added only by parts specialists□e. Allow notes to be added by mechanic or supervisors□f. Track parts installed that have warranties. Warranty added by parts specialist.	Yes		H		
5313	Maintenance Management	Management Reporting	Preventative Maintenance Inspections (PMI)□a. Forms for each fleet type in system□b. Track dates, mileage and work orders□	Yes		H		
5316	Maintenance Management	Management Reporting	Incident Reports (Road Calls by fleet and asset and operator:)□a. Accidents□b. Include date and space for investigative notes□c. Mechanical failures by item□d. Have link or include space to store DVR data or at least a link to the recording.□□	Yes		H		
5318	Maintenance Management	Management Reporting	Insurance Reporting□a. Claims and info by asset and operator.□b. Include date and space for investigative notes□	Yes		M		
5319	Maintenance Management	Management Reporting	Asset assigned to Route and Trip, using both EAM system information and Route Match integration information	Yes		M		
5320	Maintenance Management	Management Reporting	Fuel usage reporting (information from Fuel Master integration)□a. By type, asset, fleet□b. Report amount used, date filled and mileage on asset.□	Yes		M		
5321	Maintenance Management	Management Reporting	Fluids by Asset Report□a. Type(s) by vehicle and fleet.□b. Linked to PMI forms.□	Yes		M		
5322	Capital Asset Management	Inventory	Integration with Laserfiche to capture documents and link asset, project notes, plans, photos and other documents to actual assets.		Yes	H		
1494□	Maintenance Management	Work Order (Preventive and Corrective)	The system shall provide the ability to track and manage work requests, labor, planning and scheduling to make the most of resources and improve productivity.			H		

Appendix C: Tier 2 Requirements

Valley Regional Transit
RFP 2012-09-10 Asset Management System
Appendix C - Tier 1 Requirements Asset Fields

Ref ID	Field	Sample Value	Capital Planning Requirement?	Cost Benefit Analysis Support?
	Basic Information			
1	Unique Asset ID	123456		
2	FTA Asset Category	Vehicles	Yes	
3	FTA Asset Sub-Category	Revenue Vehicles	Yes	
4	FTA Code	52504	Yes	
5	RVI ID (NTD Field)			
6	Asset Name	CNG New Flyer		
7	Asset Description	Motorbus (30 ft)		
8	Legal Description	Attached documents		
9	Unit of Measure	Each	Yes	
10	Quantity	5	Yes	
11	Date Purchased (year)	2005	Yes	
12	Year of Manufacture	2003	Yes	
13	In Service Date (year)	2005	Yes	
14	Out of Service Date (year)	N/A		
15	Disposal Date (year)	N/A		
16	Purchase Cost	$288,559		
17	Unit Replacement Cost	$310,000	Yes	Yes
18	Design/Expected Life (years)	12	Yes	
19	Condition Rating (1-5 FTA)	3.4	Yes	
20	Target State of Good Repair Condition Rating (1-5 FTA)	3.6	Yes	

21	Decay Curve Data	File with normalized decay curve data for subject FTA asset code	Yes	
22	Rehabilitation Program Required	Yes	Yes	
23	Annual Capital Maintenance Required	$5,000	Yes	
24	Capital Investment Soft Cost %	13.5%	Yes	
25	Capital Investment Contingency %	17.5%	Yes	
24	Vendor (purchased from)	Acme Inc		
25	Purchase Order Number	PO# 101		
26	Make	New Flyer		
27	Model	F-150		
28	Serial Number	5FYC2GP081U023543		
29	Warranty Date (year)	2020		
30	Warranty Documents	Attached documents		
31	Location	Bus Location (garage)		
32	City	Boise		
33	County	Ada		
34	Custodian	Operations		
35	Ownership Code (NTD - Agency, Company)	VRT		
36	Maintenance Responsibility (Agency, Company)	VRT		
37	Leased	Yes/No		
38	Year Last Major Renovation	2009		
39	Description of Renovation	Replaced engine		
40	Images	Picture of Assets		

41	Other Attachments	Lease, grant documents, etc		
42	Comments	Asset remarks		
43	Basic Information Field - Placeholder	N/A		
44	Basic Information Field - Placeholder for Future Use	N/A		
45	Basic Information Field - Placeholder	N/A		
46	Basic Information Field - Placeholder	N/A		
47	Basic Information Field - Placeholder	N/A		
	Vehicle-Specific Information			
48	VIN	5FYC2GP081U023543		
49	License Plate	XAC-123		
50	Vehicle Type (NTD Code)	08. Bus		
51	Vehicle Length (round to nearest foot)	30		
52	Vehicle Weight (lbs)	6,000		
53	Odometer Reading (miles)	34,568		
54	Odometer Reading date	12/31/2011		
55	Fuel Type Code (NTD Code)	04. DF		
56	Manufacturer Code (NTD Code)	STR		
57	NTD Fleet Group Number	xxxxx		
58	Seating Capacity (minus driver)	30		
59	Standing Capacity	15		
60	Wheel Chair Spaces	4		
61	Is vehicle ADA Accessible?	Yes		

62	ADA Lift or Ramp	Yes		
63	Registration			
64	Registration Expiration	2015		
65	Insurance Company	Allstate		
66	Insurance Policy Number	123456		
67	Insurance Policy Expiration Date	12/1/2012		
68	Title Ownership	VRT		
69	Operation Responsibility	Contractor		
70	Primary Service Mode	Fixed Route		
71	Primary Use of Vehicle			
72	Used in Interstate Service?	No		
73	FMCSA (Federal Motor Carrier Number)	9876543acb		
74	Safety Incident	None		
75	Vehicle Attachments	Title, inspection, lien, invoice, proof of insurance, manual, etc		
75	Failure Cause	Normal, Negligence		
76	Vehicle Specific Information Field - Placeholder			
76	Vehicle Specific Information Field - Placeholder			
77	Vehicle Specific Information Field - Placeholder			
77	Vehicle Specific Information Field - Placeholder			
78	Vehicle Specific Information Field - Placeholder			
	Accounting Information			

79	Annual O&M Cost	$60,934		Yes
80	Initial Book Value	$288,559		
81	Depreciation Method	Straight Line		
82	# Years to Full Depreciation	10		
83	Disposal Sale Price	$50,000		
84	Disposal Fair Market Value	$51,000		
85	Annual Depreciation Rate	$28,856		
86	Depreciated Amount to Date	$201,991		
87	Procurement Documents	Attached documents		
88	Source funding - Federal Percentage	50%		
89	Source funding - State Percentage	25%		
90	Source funding - Local Percentage	25%		
91	Grant number used to purchase Asset	1234ab		
92	Accounting Information Field - Placeholder			
93	Accounting Information Field - Placeholder			
94	Accounting Information Field - Placeholder			
95	Accounting Information Field - Placeholder			
96	Accounting Information Field - Placeholder			
	Parts Information			
97	Stock-keeping unit (SKU)	123456		

98	Item Description	Ball Bearing		
99	Location	Warehose X		
100	Book Value Each	$79		
101	Quantity on Hand	13		
102	Units Used Previous 12 Months	10		
103	Value	$1,027		
104	Asset Supported 1	CNG New Flyer		
105	Asset Supported 2	Other Asset		
106	Asset Supported 3	Other Asset		
107	Asset Supported 4	Other Asset		
108	Shrinkage Previous 12 Months (Units)	2		
109	Parts Information Field - Placeholder			
110	Parts Information Field - Placeholder			
111	Parts Information Field - Placeholder			
112	Parts Information Field - Placeholder			
	Maintenance Information			
113	Total maintenance cost (cumulative for facility)	$100,000		
114	Calculated average maintenance cost per vehicle	Not started / Started / Complete		
115	Cumulative preventative work orders	45		
116	Cumulative corrective work orders	12		

117	Individual vehicle cost rating to overall average	Metric relative to normal baseline		
118	Preventive maintenance plan	Document		
119	Maintenance Information Field - Placeholder			
120	Maintenance Information Field - Placeholder			
121	Maintenance Information Field - Placeholder			
122	Maintenance Information Field - Placeholder			
123	Maintenance Information Field -			
Note: The parameters listed below are not associated with individual asset records, but should be captured by the tool in support of its analysis and reporting capabilities.				
	Prioritization Parameters			
201	Prioritization Parameter 1	Safety	Yes	
202	Prioritization Parameter 1 Weight	20.0%		
203	Prioritization Parameter 2	Customer Service	Yes	
204	Prioritization Parameter 2 Weight	15.0%		
205	Prioritization Parameter 3	Cost	Yes	
206	Prioritization Parameter 3 Weight	25.0%		
207	Prioritization Parameter 4	Riders Impacted	Yes	
208	Prioritization Parameter 4 Weight	10.0%		
209	Prioritization Parameter 5	Cost	Yes	
210	Prioritization Parameter 5 Weight	30.0%		
211	Prioritization Parameter Field - Placeholder			

212	Prioritization Parameter Field - Placeholder			
213	Prioritization Parameter Field - Placeholder			
214	Prioritization Parameter Field - Placeholder			
215	Prioritization Parameter Field - Placeholder			
	Cost Benefit Parameters			
216	Discount Rate	4.0%		Yes
217	Term of Analysis (years)	20		Yes
218	Lost time per year (hrs)	1000		Yes
219	Lost time cost per hour ($/hr)	$12.00		Yes
220	Lease cost per year	$10,000		Yes
221	Cost Benefit Field - Placeholder			
222	Cost Benefit Field - Placeholder			
223	Cost Benefit Field - Placeholder			
224	Cost Benefit Field - Placeholder			
225	Cost Benefit Field - Placeholder			
	Operational Information			
226	Revenue miles (cumulative)	120,000		Yes
227	Revenue hours (cumulative)	14,000		Yes
228	Passenger miles (cumulative)	500,000		Yes
229	Fuel Consumption cumulative) (gal)	12,000		Yes
230	Out of Service Hours (cumulative)	100		Yes
231	Average lifetime miles per vehicle	11,000		Yes

232	Deadhead miles (garage to route - non revenue miles)	15,000		
233	Operational Information Field - Placeholder			
234	Operational Information Field - Placeholder			
235	Operational Information Field - Placeholder			
236	Operational Information Field - Placeholder			
237	Operational Information Field - Placeholder			

Appendix D: Asset Hierarchy

Valley Regional Transit
RFP 2012-09-10 Asset Management System
Appendix D – FTA Hierarchy

FTA Code	Mode	Asset Description	FTA Category	FTA Sub-Category	FTA Element	FTA Sub-Element	Units	VRT	BSU	ACHD	ITD
9999	All	Misc	-	-	-	-					
10000	All	Guideway & Trackwork	Guideway Elements	Guideway	-	-	Linear Feet				
13200	All	Bus Turnarounds	Guideway Elements	Bus Guideway	Turnaround	-	Linear Feet				
20000	All	Buildings, Yards, Shops & Equipment	Facilities	-	-	-	Each				X
21000	All	Buildings	Facilities	Buildings	-	-	Each				X
21100	All	Administrative Buildings	Facilities	Buildings	Administration	-	Each	X		X	X
21120	All	Administrative Buildings	Facilities	Buildings	Administration	Police	Each				
21200	All	Maintenance Buildings	Facilities	Buildings	Maintenance	-	Each				
21210	All	Bus Maintenance Buildings	Facilities	Buildings	Maintenance	Bus	Each	X			X
21211	All	Bus Maintenance Buildings Stratum 1	Facilities	Buildings	Maintenance	Bus Stratum 1 < 200 Vehicles	Each				X
21230	All	Utilities Maintenance Buildings	Facilities	Buildings	Maintenance	Utilities	Each				X
21300	All	Passenger Buildings	Facilities	Buildings	Passenger	-	Each				X
21400	All	Terminal	Facilities	Buildings	Terminals	-	Each				X
21401	All	Bus Terminal	Facilities	Buildings	Terminals	Bus	Each		X		X
21500	All	Building Utilities	Facilities	Buildings	-	-	Each				
21501	All	Building Utilities	Facilities	Buildings	Utilities	Electrical	Each				
21502	All	Building Utilities	Facilities	Buildings	Utilities	Fire Alarm	Each				
21503	All	Building Utilities	Facilities	Buildings	Utilities	Plumbing	Each				
21504	All	Building Utilities	Facilities	Buildings	Utilities	Drainage	Each				
21505	All	Building Utilities	Facilities	Buildings	Utilities	HVAC	Each				
21507	All	Building Utilities	Facilities	Buildings	Utilities	Roof	Each				
21508	All	Building Utilities	Facilities	Buildings	Utilities	Exterior	Each				
21509	All	Access and Parking	Facilities	Buildings	Utilities	Access and Parking	Space				
21510	All	Building Utilities	Facilities	Buildings	Utilities	Elevators and Conveying Systems	Each				
21511	All	Building Utilities	Facilities	Buildings	Utilities	Built-in Equipment and Specialties	Each				
21512	All	Building Utilities	Facilities	Buildings	Utilities	Generators	Each				
22300	All	Storage Yards	Facilities	Storage Yard	Bus	Park	Each	X			
22400	MB	Bus Turnaround Facility	Facilities	Buildings	Bus Turnaround Facility	-	Each				
23000	All	Office Furniture & Equipment	Facilities	Equipment	-	-	Each				
23100	All	Office Computers	Facilities	Equipment	Computers/Software	-	Each	X			
23101	All	Software	Facilities	Equipment	Software	-	Each	X			
23200	All	Office Furniture	Facilities	Equipment	Furniture	-	Each	X			
23300	All	Maintenance Equipment	Facilities	Equipment	Maintenance	-	Each				
23301	All	Bus Maintenance Equipment	Facilities	Equipment	Maintenance	Bus	Each	X			
23400	All	Pollution Treatment	Facilities	Equipment	Pollution Treatment	-	Each				
23402	Bus	Bus Washer	Facilities	Equipment	Maintenance	Bus Washer	Each	X			
23404	All	Vehicle Paintbooth	Facilities	Equipment	Maintenance	Vehicle Paintbooth	Each				
23405	Bus	Fuel Island	Facilities	Equipment	Maintenance	Fuel Island	Each	X			
23406	Bus	Dynamoneters	Facilities	Equipment	Maintenance	Dynamoneters	Each				
23407	Bus	Lifts - Portable	Facilities	Equipment	Maintenance	Lifts - Portable	Each	X			
23408	Bus	Lifts - Fixed	Facilities	Equipment	Maintenance	Lifts - Fixed	Each	X			
23409	All	Wheel truing machines	Facilities	Equipment	Maintenance	Wheel truing machines	Each				
23410	All	Brake Lathe	Facilities	Equipment	Maintenance	Brake Lathe	Each	X			
24000	All	Major Shops	Facilities	Major Shops	-	-	Each	X			
24200	All	Major Bus Shops	Facilities	Major Shops	Bus	-	Each	X			
30000	All	Communications, Revenue Collection & Utilities	Systems	-	-	-	Track Feet				
33000		Communications Systems	Systems	Communications	-	-	Track Feet				
33100	All	Communications Cable	Systems	Communications	Cable	-	Linear Feet Guideway				
33101	All	Fiber Optic Cable	Systems	Communications	Cable	-	Linear Feet Guideway				
33102	All	Fiber Optic Cable Node	Systems	Communications	Cable	Nodes	Each				
33103	All	MIS/IT/Network Systems	Systems	Communications	MIS/IT/Network Systems	-	Each	X			
33200	All	Station PA Systems	Systems	Communications	PA Systems	-	Per Station				
33300	All	Emergency Location Systems	Systems	Communications	Emergency Location System	-	Lot				

33400	All	PBX	Systems	Communications	PBX	-	Each				
33401	All	Phone System	Systems	Communications	Phone System	-	Each	X			
33500	All	Radio	Systems	Communications	Radio	-	Each	X			
33600	All	Bus Radio	Systems	Communications	Bus Radio	-	Each	X			
33700	All	Base Radio Station	Systems	Communications	Base Radio Stations	-	Each	X			
33701	All	Antenna System	Systems	Communications	Base Radio Stations	-	Each				
33800	All	Mobile Radios	Systems	Communications	Mobile Radios	-	Each				
33810	All	SCADA	Systems	Communications	SCADA	-	Each				
33850	All	Communications Huts	Systems	Communications	Communications Huts	Hut	Each				
33851	All	Communications Room	Systems	Communications	Communications Huts	Room	Each				
33900	All	Security/Surv Equipment	Systems	Security/Surv Equipment		-	Each				
33901		Bus On-Board Video System	Systems	Security/Surv Equipment	Bus On-Board Video System	-	Per bus	X			
34000	All	Central Revenue Collection	Systems	Central Revenue Collection	-	-	Total				
34100	All	Coin Counters	Systems	Central Revenue Collection	Coin Counters	-	Total				
34104	All	Bill Counters	Systems	Central Revenue Collection	Bill Counters	-	Total				
34105	All	Vault	Systems	Central Revenue Collection	Vault	-	Total				
35000	All	Systems	Systems	Revenue Collection	-	-	Station				
35100	All	In-Station Revenue Collection	Systems	Revenue Collection	In-Station	-	Station				
35104	All	Turnstiles	Systems	Revenue Collection	In-Station	Turnstiles	Each				
35110	All	In-Station Revenue Collection	Systems	Revenue Collection	In-Station	System	Station				
35115	All	In-Station Revenue Collection	Systems	Revenue Collection	In-Station	TVMs	Each				
35116	All	In-Station Revenue Collection	Systems	Revenue Collection	In-Station	Encoding Machine	Each		X		
35117	All	Parking Meters	Systems	Revenue Collection	In-Station	Parking Meters	Each		X		
35118	All	In-Station Revenue Collection	Systems	Revenue Collection	In-Station	Change Machines	Each				
35120	All	Fare Control System	Systems	Revenue Collection	In-Station	Fare Control System	Station				
35130	All	Passenger Counters	Systems	Revenue Collection	In-Station	Passenger Counters	Each				
35200	All	On-Vehicle Revenue Collection	Systems	Revenue Collection	On-Vehicle	-	Revenue vehicle				
35201	All	On-Vehicle Revenue Collection	Systems	Revenue Collection	On-Vehicle	Fareboxes	Revenue vehicle	X			
36000	All	System Utilities	Systems	Utilities	-	-	Linear Feet Guideway				
36100	All	Lighting	Systems	Utilities	Lighting	-	Linear Feet Guideway				
36102	All	Yard Lighting	Systems	Electrification	Lighting	Yard	Fixture				
36103	All	Station Lighting	Systems	Electrification	Lighting	Station	Fixture				
36200	All	Drainage	Systems	Utilities	Drainage	-	Linear Feet Guideway				
37000	All	ITS	Systems	ITS	-	-	Each				
37001	All	APC	Systems	ITS	APC	-	Per vehicle				
37002	All	AVL	Systems	ITS	AVL	-	Per vehicle	X	X		
37003	All	C.A. Dispatch	Systems	ITS	CAD	-	Per System	X			
37004	All	GPS	Systems	ITS	GPS	-	Per System				

40000	All	Rail & Bus Stations	Stations	-	-	-	Each				
42000	All	Bus Station	Stations	Motor Bus	-	-	Each				
42100	All	Ground Access-Bus	Stations	Motor Bus	Access	-	Each				
42200	All	Bus Station Building	Stations	Motor Bus	Building	-	Each	X	X		
42201	All	At-Grade / Center Platform / Building	Stations	Motor Bus	Building	At-Grade / Center Platform	Each				
42202	All	At-Grade / Side Platform / Building	Stations	Motor Bus	Building	At-Grade / Side Platform	Each				
42203	All	Elevated / Center Platform / Building	Stations	Motor Bus	Building	Elevated / Center Platform	Each				
42204	All	Elevated / Side Platform / Building	Stations	Motor Bus	Building	Elevated / Side Platform	Each				
42205	All	Building	Stations	Motor Bus	Building	Below-Grade / Center Platform	Each				
42206	All	Below-Grade / Side Platform / Building	Stations	Motor Bus	Building	Below-Grade / Side Platform	Each				
42207	All	Bus Shelter	Stations	Motor Bus	Building	Shelter	Each	X	X	X	
42300	All	Station Canopy-Bus	Stations	Motor Bus	Canopy	-	Each				
42400	All	Elevators-Bus	Stations	Motor Bus	Elevators	-	Each				
42500	All	Escalators-Bus	Stations	Motor Bus	Escalators	-	Each				
42600	All	Station Parking-Bus	Stations	Motor Bus	Parking	-	Space				
42601	All	Station Parking Garage	Stations	Motor Bus	Parking	Garage	Space		X		
42602	All	Station Parking Lot	Stations	Motor Bus	Parking	Lot	Space		X		
42603	All	Station PArk and Ride	Stations	Motor Bus	Parking	Park & Ride	Each			X	
42700	All	Pedestrian Walkway-Bus	Stations	Motor Bus	Pedestrian Walkway	-	Each				
42701	All	Pedestrian Walkway / Elevated	Stations	Motor Bus	Pedestrian Walkway	Elevated	Each				

42702	All	Pedestrian Walkway / Subway	Stations	Motor Bus	Pedestrian Walkway	Subway	Each				
42800	All	Bus: Platform	Stations	Motor Bus	Platform	-	Sq Foot				
42900	All	Signage & Graphics-Bus	Stations	Motor Bus	Signage & Graphics	-	Each	X	X		
42901	All	Electronic Signage & Graphics	Stations	Motor Bus	Signage & Graphics	Electronic	Each				
42902	All	Static Signage & Graphics	Stations	Motor Bus	Signage & Graphics	Static	Each		X		
50000	All	Bus, Rail & Non-Revenue Vehicles	Vehicles	-	-	-	Vehicles				
51000	All	Revenue Vehicles	Vehicles	Revenue Vehicles	-	-	Vehicles				
51400	All	Automobile	Vehicles	Revenue Vehicles	Demand Response	-	Vehicles				
51401	All	Automobile	Vehicles	Revenue Vehicles	Demand Response	AO	Vehicles				
51402	All	Motorbus (40 ft)	Vehicles	Revenue Vehicles	Demand Response	BA	Vehicles				
51403	All	Motorbus (35 ft)	Vehicles	Revenue Vehicles	Demand Response	BB	Vehicles				
51404	All	Motorbus (30 ft)	Vehicles	Revenue Vehicles	Demand Response	BC	Vehicles				
51405	All	Motorbus (<30 ft)	Vehicles	Revenue Vehicles	Demand Response	BD	Vehicles				
51406	All	School Bus	Vehicles	Revenue Vehicles	Demand Response	SB	Vehicles				
51407	All	Van	Vehicles	Revenue Vehicles	Demand Response	VN	Vehicles	X	X		
51408	All	Other	Vehicles	Revenue Vehicles	Demand Response	OR	Vehicles				
51409	All	Taxi Sedan	Vehicles	Revenue Vehicles	Demand Response	TS	Vehicles				
51410	All	Taxi Van	Vehicles	Revenue Vehicles	Demand Response	TV	Vehicles				
51411	All	Taxi Station Wagon	Vehicles	Revenue Vehicles	Demand Response	TW	Vehicles				
51412	All	Over-the-road bus	Vehicles	Revenue Vehicles	Demand Response	OTR	Vehicles				
51800	All	Jitney	Vehicles	Revenue Vehicles	Jitney	-	Vehicles				
51801	All	Jitney	Vehicles	Revenue Vehicles	Jitney	JT	Vehicles				
51802	All	Other	Vehicles	Revenue Vehicles	Jitney	OR	Vehicles				
51900	All	Motorbus	Vehicles	Revenue Vehicles	Motor Bus	-	Vehicles				
51901	All	Articulated Motorbus	Vehicles	Revenue Vehicles	Motor Bus	AB	Vehicles				
51902	All	Automobile	Vehicles	Revenue Vehicles	Motor Bus	AO	Vehicles				
51903	All	Motorbus (40 ft)	Vehicles	Revenue Vehicles	Motor Bus	BA	Vehicles	X			
51904	All	Motorbus (35 ft)	Vehicles	Revenue Vehicles	Motor Bus	BB	Vehicles	X			
51905	All	Motorbus (30 ft)	Vehicles	Revenue Vehicles	Motor Bus	BC	Vehicles	X			
51906	All	Motorbus (<30 ft)	Vehicles	Revenue Vehicles	Motor Bus	BD	Vehicles				
51907	All	Double Decked Bus	Vehicles	Revenue Vehicles	Motor Bus	DB	Vehicles				
51908	All	School Bus	Vehicles	Revenue Vehicles	Motor Bus	SB	Vehicles				
51909	All	Trolleybus	Vehicles	Revenue Vehicles	Motor Bus	TB	Vehicles				
51910	All	Van	Vehicles	Revenue Vehicles	Motor Bus	VN	Vehicles	X	X		
51911	All	Motor Bus - Other	Vehicles	Revenue Vehicles	Motor Bus	OR	Vehicles				
51912	All	Over-the-road bus	Vehicles	Revenue Vehicles	Motor Bus	OTR	Vehicles				
52300	All	Vanpool Vehicle	Vehicles	Revenue Vehicles	Vanpool	-	Vehicles				
52301	All	Automobile	Vehicles	Revenue Vehicles	Vanpool	AO	Vehicles				
52302	All	Van	Vehicles	Revenue Vehicles	Vanpool	VN	Vehicles			X	
52303	All	Vanpool - Other	Vehicles	Revenue Vehicles	Vanpool	OR	Vehicles				
52500	All	Automobile	Vehicles	Revenue Vehicles	Rural	-	Vehicles				
52501	All	Automobile	Vehicles	Revenue Vehicles	Rural	AO	Vehicles				
52502	All	Motorbus (40 ft)	Vehicles	Revenue Vehicles	Rural	BA	Vehicles				
52503	All	Motorbus (35 ft)	Vehicles	Revenue Vehicles	Rural	BB	Vehicles				
52504	All	Motorbus (30 ft)	Vehicles	Revenue Vehicles	Rural	BC	Vehicles				
52505	All	Motorbus (<30 ft)	Vehicles	Revenue Vehicles	Rural	BD	Vehicles				
52506	All	School Bus	Vehicles	Revenue Vehicles	Rural	SB	Vehicles				
52507	All	Van	Vehicles	Revenue Vehicles	Rural	VN	Vehicles				
52508	All	Other	Vehicles	Revenue Vehicles	Rural	OR	Vehicles				
52509	All	Taxi Sedan	Vehicles	Revenue Vehicles	Rural	TS	Vehicles				
52510	All	Taxi Van	Vehicles	Revenue Vehicles	Rural	TV	Vehicles				
52511	All	Taxi Station Wagon	Vehicles	Revenue Vehicles	Rural	TW	Vehicles				
52512	All	Over-the-road bus	Vehicles	Revenue Vehicles	Rural	OTR	Vehicles				
52520	All	Cuttaway	Vehicles	Revenue Vehicles	Rural	-	Vehicles				
52521	All	Heavy-Duty	Vehicles	Revenue Vehicles	Rural	HD	Vehicles				
52522	All	Super Medium-Duty	Vehicles	Revenue Vehicles	Rural	SMD	Vehicles				
52523	All	Medium-Duty	Vehicles	Revenue Vehicles	Rural	MD	Vehicles				
52524	All	Light-Duty	Vehicles	Revenue Vehicles	Rural	LD	Vehicles				
52525	All	Mini-Van	Vehicles	Revenue Vehicles	Rural	MV	Vehicles				
52526	All	Raised Roof Van	Vehicles	Revenue Vehicles	Rural	RR	Vehicles				
53000	All	Non-Revenue Vehicle	Vehicles	Non-Revenue Vehicles	-	-	Vehicles				
53001	All	Non-Revenue Vehicle: Car	`	Non-Revenue Vehicles	-	-	Vehicles	X	X		

53002	All	Non-Revenue Vehicle: Truck	Vehicles	Revenue Vehicles	-	-	Vehicles	X			
53003	All	Non-Revenue Vehicle: Special	Vehicles	Non-Revenue Vehicles	-	-	Vehicles				
54000	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	-	-	Lot				
54004	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	Demand Response	-	Lot				
54008	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	Jitney	-	Lot				
54009	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	Motor Bus	-	Lot	X			
54010	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	Light Rail	-	Lot				
54011	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	Trolley Bus	-	Lot				
54013	All	Vehicle Replacement Parts	Vehicles	Equipment/Parts	Vanpool	-	Lot				
60000	All	Land, Right-of-Way, Soft-Costs, etc.	Other Project Costs	-	-	-	Linear Feet				

Appendix E: Scope of Work

TIER 2 STATEMENT OF WORK

Valley Regional Transit

Trapeze Enterprise Asset Management (EAM)

September 23, 2013

Contents

Introduction

Trapeze is pleased to partner with the Valley Regional Transit (VRT) for a successful implementation of the Trapeze EAM solution, for both Tier 1 (Capital Asset Management) and Tier 2 (Enterprise Asset Management). This statement of work identifies the tasks and estimated costs required to meet VRT's Tier 2 requirements with the implementation of the Trapeze EAM commercial off the shelf (COTS) solution. This Statement of Work is based on Trapeze's current understanding of the requirements and Trapeze's previous experience with similar engagements.

The Trapeze EAM solution offers out-of-the-box functionality ranging from tactical elements of day in/day out work management to long-term, strategic elements of full life cycle asset management. Trapeze proposes to implement its full enterprise asset management solution (according to VRT's Tier 1 and Tier 2 schedule), including asset management, work management, materials management and asset condition and capital planning features. Among the modules to be implemented as part of this proposal is EAM'S State of Good Repair / Capital Planning module, a single solution for tracking all VRT's assets, their condition, and their capital replacement schedules, resulting in more efficient management of state of good repair (SOGR) data and easier reporting to federal regulatory agencies.

The Trapeze State of Good Repair / Capital Planning module (SGR/CapEx) is designed to be the single repository for managing all asset condition data, as well as all capital replacement projects over a user-definable time horizon (e.g., 10, 20, 30 years). Trapeze will work with the VRT to implement this solution and establish a framework for VRT's ongoing State of Good Repair analysis. The module is automatically "fed" by the asset and work event data being captured in EAM throughout the year (e.g., condition scores) as maintenance staff execute standard maintenance workflows. Asset Managers will use the system to organize candidate equipment replacements (for various asset types including rolling stock, facilities, etc.) into capital "projects" so they can be compared against each other factoring in project priority, costs, and other factors.

To best facilitate the implementation of the EAM enterprise asset management solution, Trapeze urges VRT to formally identify a focal point for each of the critical business groups who will participate in or be affected by the project implementation. This involvement must come from all parties. These focal points should be both technically qualified and knowledgeable of their groups' business practices. These individuals will be responsible for spearheading the system configuration, data mapping, and workflow tasks to ensure a feasible and effective production rollout.

A. Enterprise Asset Management Implementation (Tier 2)

WBS A.1 Project Management Services

Project management and oversight

Trapeze will provide project management and oversight services to execute the project plan. The Trapeze project manager will coordinate Trapeze project activities. Trapeze will provide the following project management services:

- Follow-up on action items and issues
- Work with VRT to manage risks throughout the project
- Serve as the main point of contact for the VRT Maintenance Lead and Project Manager
- Provide updates every month to the work plan and project budget

The Trapeze Project Manager will ensure that sufficient resources are available to implement the system in accordance with the project requirements. The Trapeze Project Manager will monitor the project resources to ensure quality delivery of services and that the deliverables are completed in accordance with the project requirements.

Trapeze will assign a Professional Services Manager and senior-level Program Manager to provide additional subject matter expertise, monitor the project resources and budget, and ensure quality delivery of services. The Professional Services Manager is VRT's first escalation point for any issues arising during the project while the Program Manager will provide executive level communication and support.

Deliverable for Project Management Services

- Revision of project plan and schedule
- Update to relevant status report
- Management of action items, issues and risks
- Facilitation of status meetings.

VRT is responsible for all deliverables not specifically included above.

WBS A.2 Functional Design Services

Trapeze will perform a high-level Business Process Assessment (BPA) of VRT maintenance activities at the beginning of the EAM (Tier 2) engagement. The best practice workflows discussed during the Trapeze will be discussed in the context of the specific features and functionality that will be available to VRT Staff using the EAM solution. Ultimately the Trapeze BPA process will allow the team to identify the critical practices and procedures that can be improved using the EAM solution to provide a more efficient transit maintenance operation.

Conduct Workshop Sessions

Trapeze will provide questionnaires for relevant VRT personnel. The initial interview sessions will provide the Trapeze project team with the opportunity to assess the current VRT business practices. The Trapeze project team will observe efficiencies and redundancies in the system, and propose new processes. The interviews and sessions will provide Trapeze with the following:

- Awareness of how VRT works and processes data
- Ability to define information processes, functions, and functional areas
- Assessment of the likely adoption of TO BE processes and recommendations

Trapeze will conduct interview sessions for the following VRT functional areas.

- **Equipment Maintenance Management**, which will address topics including asset acquisition/disposal, warranty administration, opening work orders, work assignment, labor hour tracking, indirect time, reviewing work orders, requesting parts, and other shop activity functions such as PM scheduling, PM programs, and the development of PM checklist items
- **Materials Management**, which will address topics including inventory management, charging out materials, creating purchase requests, handling parts warranties, dealing with serialized parts, and other inventory management functions

After completing the interview sessions, Trapeze will compile the results of the interview and document the recommended TO BE (future state) processes and workflows related to capital asset management,

Trapeze will revise the functional EAM TO BE report and submit the final version to VRT. This report will be a document of approximately 20 pages.

Deliverable for Business Process Assessment

- Deliverable materials will include the following:
- Functional EAM “TO BE“ Report

VRT is responsible for all deliverables not specifically included above.

WBS A.3 System Set-up Consulting Services

System Setup Consulting

Trapeze recommends VRT appoint a project lead and a small project team to complete this project. VRT should involve every department, and each department should participate and provide input on these critical implementation decisions. Decisions made during this phase of the project will have a ***direct effect*** on the work flow in the roll-out of EAM.

This group must have the authority and charter to make appropriate decisions regarding the EAM implementation. The group representatives should have complete knowledge and familiarity with the operation, including maintenance, engineering, parts inventory, and procurement. The group members should be familiar with the current processes and systems.

Trapeze will lead multiple sessions for each functional business unit to complete the coding conventions for, repair codes, PM schedules, PM parameters, PM checklists, and other items. We will also finalize the work flow for all job functions, including work order management and parts inventory management. System setup consulting is very much a dialogue and exchange of information where the VRT project team will plan the overall integration of EAM into VRT operation under the guidance of Trapeze's application experts.

VRT's preparation for this engagement includes the assimilation and distribution of relevant inventory, purchasing, operations, and maintenance data prior to the meeting. The goal for these meetings is to achieve at least 90% of the standard coding schemes and business practices required for system rollout.

Finalize data definition, and processes

VRT will take action items from the System Setup Consulting to finalize the definition of all relevant EAM data elements and work processes, including maintenance, parts management, procurement, and other job functions. VRT's deliverable for this task is complete documentation of VRT's definitions for all applicable EAM data elements. This deliverable is a critical prerequisite to the development of the training material for the roll-out. Trapeze will work with VRT to prepare this documentation.

Trapeze will work with the team to configure EAM per the discussed work flow. This configuration will build on the setup defined with the VRT core team and will focus on specific decisions, such as location options, department settings, etc. This task will occur as soon as possible after the System Setup Consulting engagement.

Configure Modules

Trapeze will provide an orientation for the following EAM (Tier 2) modules:

- Shop Activity (Supervisor, Technician, Storekeeper, and Rebuild portals)
- Reporting
- Ad Hoc Query Tool
- Dashboards
- Notifications
- Service Requests/Defects portal
- Customer Access -
- Replacement Analysis
- Equipment Planning
- Warranty Administration portal
- Performance Measures and Monitors

- MobileFocus (handheld) software

In addition, Trapeze will consult with VRT to configure the modules to facilitate the workflows for the shop floor and back office functions. Configuration includes, but is not limited to:

- Assigning user groups for specific shop floor and back office functions
- Creating automatic report schedules and distribution lists
- Assisting with Dashboard layout and design
- Create custom, reusable ad hoc queries
- Creating custom menus for specific user groups

WBS A.4 Data Conversion Services

Data Load Preparation

The Trapeze standard procedures for developing Data Load Plans include the following:

- Create a specification/data conversion plan
- The VRT project team reviews the specification/data conversion plan
- The VRT project team provides final approval of the specification/data conversion plan
- Trapeze converts data in accordance with the specification
- Trapeze and VRT review converted data
- Trapeze provides documentation and a schedule and date ranges for conversions
- VRT gives final acceptance

The objective of these data conversion services is to process extracted data from the applicable VRT legacy systems and map the extracted data into EAM. VRT will provide a sample of the legacy data as soon as possible. Using this sample, the team will define exactly what data will be converted from the current system and define a mapping of data into EAM. Trapeze will help VRT finalize the data mapping and identify the specific sources for each data element. Trapeze and VRT will define which information will be loaded into EAM.

Data Conversion Process and Assumptions

Trapeze will determine the necessary data required to make the system operational (e.g., asset data, current inventory levels, etc.) and then identify, in conjunction with VRT staff, what data will be available from current systems, and what data VRT may have to develop. Once the data conversion specifications are completed, VRT will extract the data from its current systems. Trapeze will be responsible for populating EAM with approved and "clean" VRT data, which VRT will provide.

Format of Converted Data

Trapeze assumes that all VRT data files are formatted to facilitate uniform electronic conversion. Trapeze requires that VRT supply all conversion data in text documents (flat file ASCII format, according to Trapeze specifications) with appropriate documentation.

Trapeze will provide Microsoft Excel templates to assist in loading data into EAM. Trapeze will convert only the data fields that map into EAM. Data fields that do not map into EAM will not be converted. Only data elements that can be entered on an EAM screen are part of this conversion.

VRT will provide the data in the properly formatted files (per Trapeze's specification) for loading into EAM. Trapeze makes the following assumptions about the data from the legacy system(s):

- Trapeze will use default values for any data element that EAM requires that is not in the data file
- VRT will provide each test data file and each production data file in exactly the same format
- Trapeze will not be responsible for "scrubbing" or "cleansing" legacy VRT data
- VRT will provide a single ASCII file from each legacy application included in the scope.
- Trapeze will not be responsible for converting or keying hard copy data records.

Conversion of Specific Data

Trapeze and VRT will jointly resolve issues arising out of the data translation, including codes (if any) to be changed. Trapeze will help VRT finalize the data mapping and identify the sources for each data element. Trapeze and VRT will identify cost information that will be loaded into EAM. VRT will be responsible for mapping old codes into new codes (i.e., translating) within the data set to be converted.

Data Conversion Testing and Validation

After Trapeze and VRT have jointly documented the data mapping and data load process, Trapeze will test the results from VRT's data extractions. These tests will validate the data migration strategy that the team defined in earlier stages. This process will require involvement from VRT Information Technology personnel supporting the existing systems. Upon completion, Trapeze will provide all testing results to VRT for acceptance.

Trapeze will convert samples of the data for review and validation purposes. Trapeze will assist the VRT Project Manager in the validation process. Trapeze will convert the data based on the rules defined earlier in the project. Data will be converted into the development environment and validated before being converted into the production environment.

Data Conversion Scope

Trapeze makes the following assumptions about the scope of data migration from the legacy system(s):

- The data files for equipment (bus/non-revenue, facilities assets) master records will be text-based flat files with one row of data per asset
- The data files for parts master records will be text-based flat files with one row of data per part
- The data files for employee master records will be text-based flat files with one row of data per employee
- The data files for active vendor master records will be text-based flat files with one row of data per vendor
- The data files for active account master records will be text-based flat files with one row of data per account

Upon completion of conversion to the development environment, Trapeze will test the conversion process once by working with the VRT project team to move the data (dry run) into the EAM database. Data validation will occur, followed by one live conversion of data into the production environment.

Deliverable for Data Conversion Services

Trapeze will provide the following deliverables:

- Data Mapping Document for data conversion
- Data loading support

VRT is responsible for all deliverables not specifically included above.

WBS A.5 System Testing Services

Prepare System Test Plan

Trapeze will prepare a System Test Plan to ensure the system configuration meets the TO BE functional design outlined in the BPA report. The Test Plan will consist of the following functional and data validation tests:

- Verify the security and access control functions for several User Groups
- Add and modify parts primary information
- Open a repair order and a PM order for an equipment unit
- Charge labor to the work orders and verify the charges/credits of hours and costs
- Charge inventory parts to the work orders and verify the charges/credits of quantity and cost as well as proper inventory relief
- Charge commercial charges to the work orders and verify the charges of labor and parts
- Close the repair and PM orders
- Execute test result functionality
- Verify work order charges
- Adjust parts inventory both upward and downward
- Generate a sampling of standard reports
- Verify a sample of vehicle maintenance history
- Verify a sample of part master records
- Verify interfaces are transferring data as designed

Execute System Test Plan

Trapeze will use sample VRT data (where possible) to demonstrate the EAM system features and to display the converted data in the test environment, according to the above test plan. This test plan will be executed according to the schedule in the project plan. Trapeze will also conduct end-to-end testing of the business processes, interfaces and reports to confirm the entire solution is production ready.

Document and provide test results

Trapeze will provide documented test results that include the test criteria and note the outcome of each test. This document will be approximately 20-30 pages in length.

Deliverable for System Testing Services

Trapeze will provide the following deliverables:

- Written System Test Plan
- Test scripts for EAM system testing
- Test results for EAM system testing

VRT is responsible for all deliverables not specifically included above.

WBS A.6 Operational Training Preparation Services

The Trapeze project team will develop and deliver a training program to provide training for various types of VRT EAM users. The training will be role-based and will differ for trainees from the various organizational and functional areas. Each VRT trainee will have the basic skills in the overall use of EAM and strong knowledge of how to use the application in his or her specific job function or area of expertise. The deliverables will not include remedial training for computer skills or any computer-based training.

Develop Training Plan

Trapeze will develop a training plan that describes the required training to ensure a successful implementation and operation of the new system. Trapeze will develop a formal Training Plan, of approximately 10-15 pages in length that addresses the following topics:

- Training curricula, including a listing of each course
- Course descriptions, intended audience, and length of each course

Develop Training Materials

Once VRT approves the Training Plan, Trapeze will complete the role-based training materials and begin scheduling and planning for the training. Trapeze training materials assume all users are familiar with a Windows environment; the Trapeze training will not include any Windows or remedial computer training.

The training will cover work order functions; parts and labor posting functions; and other common features and transactions. The topics and work flows included in the training will be those finalized by the VRT team during the system setup and follow-up tasks. Any deviations in the defined and agreed upon work flow could cause delays and added costs to the training.

Trapeze will provide a master electronic version for the VRT Project Manager. VRT will produce and provide copies (across all roles) of the final training materials for use during the training sessions. VRT will be authorized to reproduce and use any training materials for ongoing training within VRT Training materials (Base)

Deliverable for Operational Training Preparation Services

Trapeze will provide the following deliverables:

- Written Training Plan
- Electronic role-based training materials

VRT is responsible for all deliverables not specifically included above.

WBS A.7 Training Delivery Services

Training Delivery

Trapeze will provide training in a class room environment. Trapeze will provide Trainer training to designated VRT "trainers" for the roll-out of EAM. Trapeze assumes the VRT trainers will have been involved in the prior tasks, including the BPA and all configuration tasks, so as to be familiar with the system set-up and business rules. Trapeze will provide Trainer training (in a single week) for up to twelve users (assuming VRT's training facility has a sufficient number of workstations for these concurrent training sessions).

These trainees will be responsible for training all VRT end users in the use of EAM on an ongoing basis (new hires, promotions, new functionality, etc.). The topics and work flows included in the training will be those finalized by the VRT team during the BPA, system setup, and follow-up tasks. Any deviations in the defined and agreed upon work flow may cause delays and added costs to the training.

Trapeze will provide IT training for up to twelve users (assuming VRT's training facility has a sufficient number of workstations for this training). These trainees will be responsible for supporting the EAM application from a technical or "back office" perspective. The training will cover the following areas of EAM:

IT Staff/System Administrator Training

IT Staff/System Administrator	
System Login	Setup Options
Application logging and troubleshooting	Mobile device hardware and software
Batch Processing	Ad Hoc Query Reporting Tool
Notifications/Dashboard Configuration	End of Period Processing/Table Management
Application Security Settings	User and User Group Maintenance
Application installation and upgrades	Interface troubleshooting

VRT Trainer Training

Trapeze will provide Trainer training to designated VRT "trainers" for the roll-out of EAM. Trapeze will provide Trainer training for up to ten Trainers per class (assuming VRT's training facility has a sufficient number of workstations for these concurrent training sessions). These trainees will be responsible for training all VRT end users in the use of EAM for the roll-out and on an ongoing basis. The training will cover the following areas of EAM:

Trainers	
EAM overview and orientation	Work order management functions
Labor and time entry	Materials and parts request functions for technicians
Use of selected standard reports	Basic troubleshooting and administrative functions

End User Training

VRT will provide Operational training to the following end users. The topics and work flows included in the training will be those finalized by the VRT team during the system setup and follow-up tasks. VRT should remain especially sensitive to necessary last-minute procedural changes or clarifications based on end user feedback.

Maintenance (Technicians)	
System login	MobileFocus handheld training for mobile technicians
Labor and time entry	PM/Inspection check-off functions
Work order look-up functions	Basic troubleshooting
Materials and parts request functions for technicians	Use of selected standard reports

Maintenance Supervisor	
System login	Materials and parts request functions for managers
Labor and time entry and management	Basic troubleshooting
Work order management functions	Use of selected standard reports
PM/Inspection services due functions	

Materials Management	
System login	Part Requests
Part Primary Records and cross-references	Enterprise Purchasing & Requisitions
Use of selected standard reports	Other parts features

The VRT team will identify a few “super user” in the shop or parts location to closely support the cutover, particularly after the training concludes. This individual will be responsible for answering initial end user questions and, most importantly, implementing subsequent changes or alterations to the documented procedures.

Deliverable for Training Services

- Trainer and end user training delivery

VRT is responsible for all deliverables not specifically included above.

WBS A.8 Support Live Operations

Prepare for Cut-over

Trapeze will provide services to stage and prepare for the system roll-out/cutover. This time includes final data conversions, site testing of hardware and system readiness and review of procedures with user personnel.

Cutover support

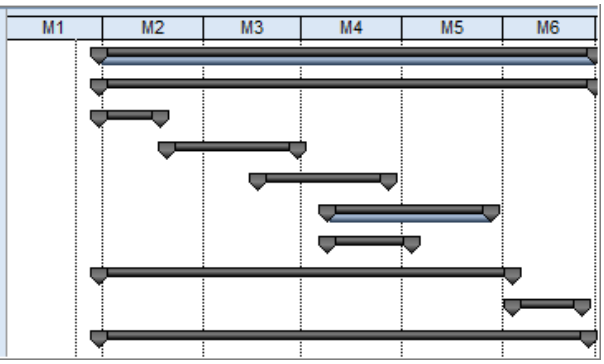
When VRT commences live operations using EAM, Trapeze will be on-site to provide “go live” assistance for the VRT maintenance management operation at each of the locations. This step is critical to success. The Trapeze and VRT team will provide refresher training and help on the shop floors and offices to make sure the transition is as smooth as possible. This support could include data imports, report development, hands-on help for the users, etc.

VRT is responsible for all deliverables not specifically included above.

Preliminary Schedule

Trapeze proposes the following schedule to accomplish the EAM implementation tasks described below.

WBS	Task Name	Duration
A	Enterprise Asset Management Implementation (Tier 2)	110 days
A.1	Project Management and Support	110 days
A.2	Functional Design (Blueprint) Services	15 days
A.3	System Setup Consulting	30 days
A.4	Data Conversion	30 days
A.5	System Testing	36 days
A.6	Training Preparation	20 days
A.7	Training Delivery	91 days
A.8	Support Live Operations	15 days
A.9	Travel Costs	108 days



Schedule is subject to change and will be finalized once project begins.

Assumptions

The following general assumptions apply to this proposal:

1. - This is a fixed fee effort.
2. - Trapeze's consulting estimates do not include installation and/or configuration of any computer hardware and peripheral equipment. The end user will be responsible for installing and configuring computer hardware and peripheral equipment such as printers and bar code equipment (if applicable)
3. - VRT will purchase all hardware and software necessary for implementation
4. - VRT will have all of the necessary and appropriate personnel at all of the meetings for the purpose of defining the requirements of the system
5. - VRT is responsible for TCP/IP connectivity from all client workstations to the EAM servers.
6. - VRT will appoint a single point of contact for the duration of the project. This person should have project management responsibilities and decision-making authority. This person will be the focal point of contact for Trapeze's Customer Support department
7. - VRT will make appropriate technical resources available to Trapeze's consultants
8. - VRT will implement this solution using a single EAM database
9. - Trapeze will provide on-site training to VRT (as outlined above) in a classroom environment suitable for training. VRT will be responsible for providing and preparing the training facility
10. -This proposal does not include any interfaces between EAM and other systems other than those listed. Trapeze will provide estimates for interfaces as may be required on an as-needed basis for additional system
11. -This proposal does not include any data conversion services other than those specifically described
12. -This Statement of Work includes implementation support for only those optional modules listed in the task list
13. -VRT will be responsible for deploying access to the Web Application and providing all supporting software, hardware, and connectivity for the Web server. The Web server must use Microsoft IIS and have Microsoft Windows as the operating system
14. -Subject to any applicable state and/or local sales tax

PART 4—SCOPE OF WORK

1.1 Introduction

VRT is interested in a software and service vendor to provide an Enterprise Asset Management (EAM) software and implementation services for the deployment of an Asset Management System under an FTA Grant for State of Good Repair. The EAM software shall include functionality to meet core capital asset management capabilities under the FTA State of Good Repair initiative while also providing VRT with future functionality options (for example, modules) that include maintenance management, materials management, and interfacing with VRT's financial and other operational systems. In addition VRT is interested in services that include gap analysis, blueprint, system design, build, customization, integration, reporting, conversions, data migration, testing, implementation, software and hardware planning and deployment, training, and possibly hosting. The selected Proposer is responsible for delivering the software and services that meet the mandatory requirements and services highlighted below. **The project timeline from Notice to Proceed, assumed to be February 1, 2013, to "go-live" is estimated at 7 months with a go-live date of September 1, 2013.**

Highlighted in the following sections are VRT's mandatory (Tier 1) and future (Tier 2) requirements; however, as mentioned above, VRT is looking for software and services that position the VRT for future growth. Figure 1 highlights the Tier 1 and Tier 2 requirements.

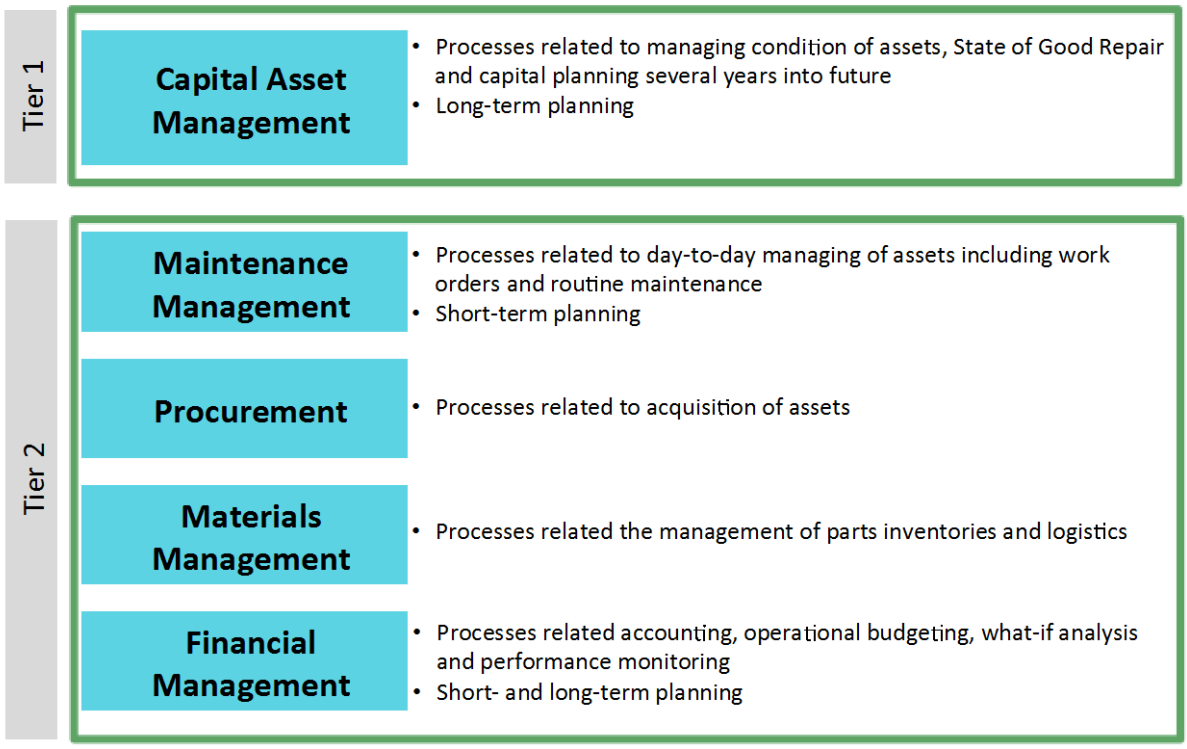


FIGURE 1
Asset Management Processes

Mandatory Tier 1 Requirements

VRT is interested in the Proposers completing the full scope of services as further described in the following bullet points as part of their mandatory software requirements and initial

implementation of an asset management system that complies with the requirements of the FTA grant awarded to VRT (See Attachment H):

- Capital Asset Management Tier 1 Requirements
  - Attachment A
  - Attachment C
  - Attachment D
  - Attachment E
  - Attachment F
- Implementation and Services
- Technology
- Prior Work Experience
- Key Personnel

Tier 2 Requirements

VRT plans future functionality rollouts that meet their growing needs and is requesting interested Proposers complete Section 4.7: Tier 2 Software Requirements (with details in Attachment B). The Tier 2 requirements are associated with the "Tier 2" processes highlighted in Figure 1 Asset Management Processes.

Hosting Services

VRT requests Proposers to provide information and estimated costs associated with a hosted solution in Section 4.8.

The Proposer should ensure successful completion of the project deliverables in terms of scope, quality, and schedule. VRT and the Proposer will mutually agree upon the full list of tools to be used for managing the project and providing deliverables. The Proposer shall provide all tools, work products, and deliverables in immediately usable and acceptable condition. Written deliverables shall be easy-to-read documents that clearly communicate findings and/or recommendations. All deliverables shall reside in the appropriate project shared repository. VRT will participate in formal reviews of deliverables and shall have the final approval.

1.2 Capital Asset Management Tier 1 Requirements

The requirements in this section are mandatory and are focused on the Capital Asset Management process from Figure 1. It is expected the Proposer will provide a written response on their software's ability to meet the functionality and reporting requirements highlighted in this section along with the completion of Attachment A which requires the Proposer to identify requirements that could be met "off the shelf" and highlight how the Proposer will meet requirements that need enhancement or customization for those that are not met "off the shelf."

The FTA has made State of Good Repair one if its highest strategy priorities, and, therefore, the EAM should be designed to help VRT comply with this FTA requirement. Having capital assets in marginal and poor condition can lead to poor and unreliable transit service. Bus breakdowns, elevator outages or system underperformance because of equipment problems are some of the problems that occur when capital assets are not properly maintained or replaced. The end effect is that riders are inconvenienced and become less willing to choose public transportation because they find it slow, unreliable, or, in the worst conditions, unsafe. To mitigate these risks, VRT will use the EAM tool to support the asset

management process shown in Figure 2.

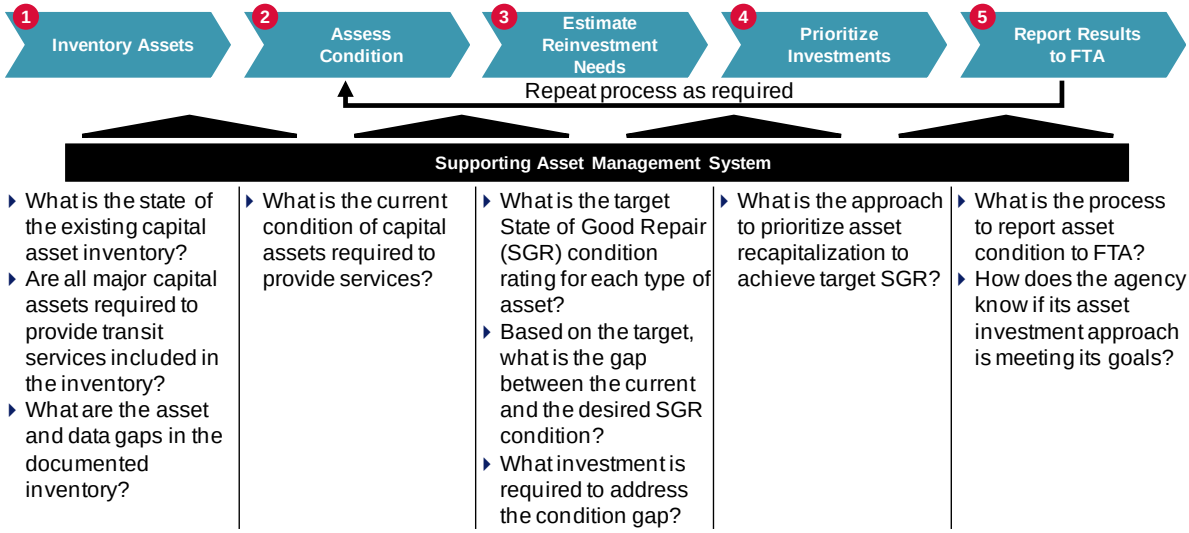


FIGURE 2
Capital Asset Management Process

1.2.1 Required Fields

The list of minimum required data fields that the EAM must support is made up of seven categories:

- Basic required fields
- Vehicle-specific information
- Accounting information
- Parts information
- Maintenance information
- Prioritization parameters
- Cost-benefit parameters
- Operational information

The detailed field list was developed to support anticipated VRT asset management analysis and reporting needs. The list, attached in Attachment C, is self-explanatory and includes an example value for each field for added clarity. Please confirm that your proposed asset management system can meet these requirements.

1.2.2 Functionality

As a minimum, the proposed EAM should be able to:

- House asset inventory data, including condition rating.
- Estimate capital reinvestment needs over a multiyear period to achieve and maintain a State of Good Repair.
- Produce reports to support VRT management needs and FTA information requests.

An Excel file in Attachment A represents required functionality of the system and supplements this section of the proposal. The requirements in the file cover multiple process areas but place most of their emphasis on Capital Asset Management. Detailed instructions for Proposer response are in the front of the Attachment.

An important data field that must be captured for all capital assets is condition rating. The intent of the VRT is to follow FTA's guidance as listed in Table 4.

TABLE 1
FTA Asset Condition Rating Definition Guidance

Condition	Definition
Excellent 4.8 to 5.0	• New asset • No visible defects
Good 4.0 to 4.7	• Asset showing minimal signs of wear • Some (slightly) defective or deteriorated component(s)
Adequate 3.0 to 3.9	• Asset has reached its mid-life (condition 3.5) • Some moderately defective or deteriorated component(s)
Marginal 2.0 to 2.9	• Asset reaching or just past the end of its useful life (typically reached between condition 2.75 and 2.5) • Increasing number of defective or deteriorated component(s) and increasing maintenance needs
Poor 1.0 to 1.9	• Asset is past its useful life and should be prioritized for repair or replacement

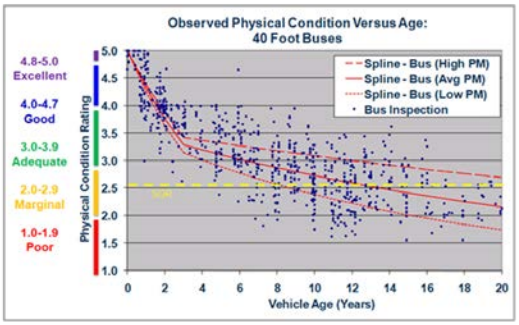
The asset condition rating, along with replacement value, in-service date and design life, will be the basis for performing multiyear (5- and 10-year) asset recapitalization planning based upon asset condition. The analysis should be able to estimate current asset backlog, investment required to bring asset inventory to a State of Good Repair over a predetermined period of years and allow for constrained funding analysis showing how the condition of the asset inventory will evolve over time based on various funding scenarios. This analysis should be similar to that done by the FTA's Transit Economics Requirements Model (TERM), Lite (local agency) version. Please note that TERM Lite (please see http://www.fta.dot.gov/13248_13251.html) makes use of asset condition decay curves and VRT intends to follow this approach as well (see aside). The proposed EAM should include its own capital reinvestment needs engine or incorporate TERM itself in a seamless manner.

In terms of reporting needs, the EAM should be able to leverage its asset database to produce regular metrics reports for VRT management including:

- **Asset Backlog.** Percentage of asset value that is past useful life (worse than 2.5 FTA condition rating)
- **Percentage of Assets in State of Good Repair.** Percentage of asset value that is in State of Good Repair (better than x FTA condition rating)

FTA Asset Decay Curves

The FTA has developed "generic" transit asset decay curves for major asset types using condition data collected from transit agencies nationwide. These curves predict asset physical condition as a function of age, maintenance history and other factors on an FTA 5 to 1 rating scale. The figure below illustrates a typical decay curve for a 40-foot bus. The "best fit" curves in red (there are three curves based on the level of preventive maintenance) predict the expected physical deterioration of a 40-foot bus over time.



Using the decay curve approach, asset condition is estimated on an empirically derived continuum of physical condition, as opposed to age. There are several advantages to using decay curves:

- Provides more accurate predictions and distributions instead of using a life cycle proxy
- Provides an asset class-specific rating prediction
- Is consistent with field observation condition rating criteria definitions

- **Average Condition of Assets.** Condition weighted average based on FTA condition ratings
- **Bus Fleet Availability.** Average daily percent of fleet available for revenue service
- **Bus Failure.** Miles between reported bus service disruption due to equipment malfunction
- **O&M Costs.** O&M cost per revenue mile. Includes administrative, operations, maintenance (vehicle and non-vehicle) costs

Other asset metrics suggested by the vendor that might be useful for VRT management and staff should be included as well.

Furthermore, beyond predetermined metrics and VRT management reports, the tool should be capable of producing ad hoc reports based on user-designed data queries.

In support of the FTA National Transit Database (NTD) data call, the EAM should be able to easily produce the NTD-required data needs by leveraging the asset information stored in its database. A list of the NTD reporting and coding requirements is located in Attachment F.

Beyond the multiyear asset recapitalization planning analysis, the EAM tool should also be able to perform analysis of alternatives calculations following the template provided in Attachment E. These analyses compare one-time and ongoing lifecycle costs associated with two or more alternatives to identify the preferred alternative. At a high-level, the model compares one-time purchase/rehab costs and ongoing operating and maintenance costs associated with each alternative over a period of several years to determine the most cost effective system based on discounted cash flows. The types of analysis of alternatives VRT is expecting to perform are as follows:

- Lease versus buy decisions
- Rebuild versus buy decisions

1.2.3 Reporting

Reports are a critical component of VRT's ability to operate and provide decision support. Table 5 contains a list of reports that must be provided at a minimum as well as functionality that allows VRT to generate ad hoc and future reports when needed.

TABLE 2
Reporting Requirements

Service	Description
Mandatory Tier 1 Requirements	Please see the list of required reports in Attachment A. With samples provided for some in Attachment E. NTD needs are highlighted below.
Reporting Functionality	Ad Hoc – the software system should allow VRT users to create both ad hoc queries and reports. Queries are temporary reports used to pull specific data out of the system at any given time and ad hoc reports are reports that VRT might need to create, save and share for normal use during business operations on a regular basis. Metrics – the software system should allow for VRT to define and track key metrics. These metrics should include but not be limited to Asset Backlog, Percentage of Assets in State of Good Repair, Average Condition of Assets, Bus Fleet Availability, Bus Failure, and O&M Costs. Analyses – the software system should allow VRT to enter parameters to provide analysis reports that include asset recapitalization planning, costs benefit of lease vs. buy, and cost benefit of buy vs. repair. Samples are provided in Attachment E.

TABLE 2
Reporting Requirements

Service	Description
NTD	VRT is required to submit monthly and annual reports to the FTA through the NTD website. Attachment F provides details. The asset management system must be able to provide all information required by the FTA.

One of the biggest challenges VRT has today with its current solution is reporting and gathering the information necessary to support capital plans and asset investment prioritization. Please confirm your asset management solution can meet these reporting requirements.

1.3 Implementation and Services

VRT is interested in the Proposer providing the services listed in Table 6 associated with the implementation of the EAM system. These are meant to be core services required as part of the implementation and used for evaluation. VRT is also requesting the Proposer list any additional services necessary for the implementation of the EAM system.

TABLE 3
Required Services

Service	Description
Project Management	This task shall be led by the Proposer's Project Manager. VRT requires that the Proposer manage the project effectively to ensure that the deliverables and schedule are met. This task encompasses project governance, status reporting, communications with management, deliverable and schedule management, work planning, issue and problem management, risk management, and all other tasks that VRT and the Proposer consider essential to effective project management.
Knowledge Transfer	The Proposer shall provide formal and informal knowledge transfer throughout the project to VRT functional and technical staff working on the project. The knowledge transfer must encompass design documents, process flows, exception processing, troubleshooting techniques, systems administration, configuration management, data management, security administration, database administration, and the development and maintenance of system interfaces.
Requirements Management	The Proposer shall conduct Requirements Validation workshops to confirm that the Proposer understands the VRT requirements. The requirements specified in this RFP shall constitute the minimum requirements and must be managed, configured, tested and deployed in the new Asset Management System. Additional requirements identified by a joint VRT and Proposer team can also be added based upon resource availability, these requirements, along with the minimum must be managed by the Proposer for the project duration.
Technical Management	This task shall be led by the Proposer's Technical Lead. VRT requires that the Proposer manage the project effectively to ensure that the technical requirements are adhered to. This task shall encompass design, development, integration, data migration and conversion, environment installation and setup, configuration management, security, and all other tasks that VRT and the Proposer consider essential to effective technical management.

TABLE 3
Required Services

Service	Description
IT Infrastructure Environment Assessment	It is anticipated that the new Asset Management System may place different demands on VRT's IT infrastructure (for example, larger volume of transactions, etc.), and may pose new application performance requirements (for example, more real-time online reporting, etc.). The Proposer shall evaluate the existing IT hardware and software environment to determine if it is adequate to support the future state software systems and operations. The Proposer shall evaluate the current state; develop performance benchmarks; define future needs; and perform verification and validation to ensure that the functional business performance requirements are met. Additionally, while VRT is not specifically seeking to change the current environment (with the exception being additional services to support the asset management system), the Proposer shall make recommendations if and where they believe such a change is either necessary or to achieve the business objectives, or represents a significantly superior value. Since VRT is also looking at optional services for the Hosting of the Asset Management system (for example, "Off Premise"), estimates from technical management must be clearly identified so they can be accounted for during evaluation and negotiations.
Core Implementation Services	The Proposer shall perform the activities identified based on the methodology proposed in the proposal. The core implementation tasks are gap analysis, blueprint, system design, customization, interface build, reporting, conversions, data migration, testing, implementation, software and hardware planning and deployment, training, and possibly hosting. See Section 4.4 for interfaces information. See Attachment A for reports. Conversions - Proposer must provide VRT with a template that captures all required fields based upon VRT's field requirements and any additional vendor requirements to populate asset data with limits on field length, characters etc. Proposer is responsible for loading data into their software and providing the reconciliation back to VRT's data.
Software Testing	Thorough testing of all configurations, custom development, interfaces and report work is vital to the success of the Asset Management project. The Proposer is responsible for testing all these aspects prior to working with VRT for testing and acceptance. In addition to these, system security/user profiles and workflows must be tested by the Proposer and then tested by VRT prior to acceptance. The Proposer is expected to incorporate system testing, VRT testing, and VRT acceptance into the project schedule.
Quality Assurance	VRT requires that the Proposer implement effective quality assurance (QA)/ quality control (QC) processes, including configuration control of requirements, appropriate software documentation, quality control of deliverables, and all other tasks that the Proposer considers essential to effective quality management.
Training	VRT requires that the Proposer provide a Training Lead to manage the training program effectively and ensure VRT staff have appropriate training deliverables in a format that can be adjusted should future business processes change or additional functionality be added at a later date. VRT requires that the Proposer provide training on the EAM system to key VRT management and end-users. This task may include developing the training curriculum, developing and delivering instructor-led classroom and web-based training courses, facilitating a train-the-trainer program, and developing on-the-job training materials. VRT will work with the Proposer to select the most appropriate and effective method(s) of training necessary.

TABLE 3
Required Services

Service	Description
Cutover, Go-Live and Production Support	The Proposer's Project Manager shall be responsible for planning and executing the cutover activities. The Proposer shall be responsible for providing 90 calendar days post Go-Live support (with a minimum of 10 business days on-site support immediately after Go-Live), for resolving production issues. Production issues shall be classified as Severity 1, 2 and 3 based on impact to VRT business operations. The Proposer shall provide its criteria for issue classification and its proposed response time to resolve these issues under various categories.

1.3.1 Deliverables

Table 7 lists the deliverables required by VRT. Additional deliverables recommend by the Proposer are welcomed, please highlight them in your response with a clear description.

TABLE 4
Deliverables

Service	Deliverable Number	Description
Project Management	1	**Project Kick-off Meeting**. The Proposer shall conduct a Project Kick-off Meeting with VRT.
	2	**Schedule.** The Proposer shall develop and maintain a project schedule in Gantt chart format. Project Risk Management Plan: The Proposer shall develop a Risk Management Plan that details how project risks will be managed. Particular emphasis should be placed on the Risk Register and the risk handling strategies (e.g., mitigate, avoid, transfer, accept) to be used to "burn down" each risk on the register from a critical to a low rating. **Weekly Status Reports.** The Proposer shall submit a written Weekly Status Report to the VRT Project Manager on an agreed weekly schedule. At a minimum, the report, which should not exceed three (3) pages, should describe overall status in terms of time/scope/Budget, the past week's activities, planned activities for the coming week, risk register updates and outstanding issues. Additionally, the VRT may request a weekly phone call to discuss the written progress report.
Requirements Management	3	**Requirements Validation and Requirement Traceability Matrix.** The Proposer shall conduct requirements validation workshops to confirm their understanding of the requirements, baseline requirements and create a requirement traceability matrix. Should the Proposer have this capability within their EAM system that is an acceptable validation tool.
Technical Management	4	**Data Migration Plan.** The Proposer shall develop a detailed data Migration Plan that implements its proposal's approach for data conversion and migration from existing systems to the new EAM system.
	5	**Configuration Management Plan.** The Proposer shall develop a Configuration Management plan applying Configuration Management practices to the project.

TABLE 4
Deliverables

Service	Deliverable Number	Description
Software Testing	6	**Test Management Plan.** The Proposer shall develop a plan that addresses all of the Proposer's planned testing activities in detail including: • Integration Testing • Systems Testing • Acceptance Testing • Performance Testing • Acceptance Test Criteria
Training	7	**Training Curriculum and Manual.** The Proposer shall develop a training curriculum and a comprehensive Training Manual for key and end-users that will be used as a foundation for knowledge transfer and retooling the workforce. The Training Manual should be designed with chapters for each asset management business processes highlighted in Figure 1 Section 4.1.
Cutover, Go-Live and Post Go-Live Support	8	**Cutover Plan.** The Proposer develop a cutover plan that details activities related to transitioning the system into a production state, sequencing of the activities and cut-over checklist.
	9	**Go-Live (Production)**. The fully functioning system in the Production environment. This is not a deliverable but is a key project milestone.
	10	**90 days Post Go-Live Support.** The Proposer shall provide 90 days of Post-Production support including process, system and ad-hoc end-user support. The Proposer shall be responsible for resolving Production. This is not a deliverable but is a key project milestone.

On major deliverables VRT will implement the following approval process:

- **Draft Deliverable.** A draft should be submitted to VRT no fewer than 5 business days before the deliverable is due. VRT will evaluate the draft for compliance with scope, content and usability and will confirm acceptance with either no additions or requested additions.
- **Requested Additions.** Proposer has up until the due date to agree or disagree on the requested additions. Should they disagree a review will be held with the VRT and Proposer Project Managers to determine an acceptable compromise.
- **Final Deliverable.** The Proposer shall submit the final deliverable to VRT for acceptance. VRT will have 5 business days to review the deliverable and either provide acceptance or reason for rejection. If after 5 business days VRT fails to notify the Proposer of any issues with the deliverable, it will be deemed accepted.

1.4 Technology

VRT has limited resources for technology and currently runs a small IT department. VRT required services are shown in Table 8. The EAM system should require minimal technical support and be available over any Internet browser.

TABLE 5
Technology Requirements

Service	Description
Interfaces	Highlighted in the background section VRT has systems for financial management, fuel and route scheduling and planning. All interfaces should be designed to move information from/to the respective systems with effort correction functionality on all inbound interfaces. VRT will require the following interfaces: • FleetNet: This interface will need to be two way. The inbound integration to the EAM system will be from procurement with a purchase order for the purchase of an asset. Once in the new EAM system, workflow should walk the VRT user through the process of properly entering the asset(s) into the EAM with all the appropriate details required by the EAM. In addition, the contract, manual and other legal documentation should come over, making the EAM the system of record for all asset details. The outbound interface should interface with the Fixed Asset portion of FleetNet so all improvements (extended life of assets) are properly tracked in the financial system. • Fuel Master – Fuel Master keeps the VRT's fuel consumption information and provides information on diesel consumed by bus, driver, amount of gallons, time it was pumped and cost associated with consumption. The Fuel Master system, including software and hardware, has been operational since 2005 without any significant upgrades. • Route and Schedule information – VRT is currently reviewing solutions to capture route and schedule information. This information will be used to capture vehicle information for miles, routes, hours in service etc. This solution will need to send information into the new asset management solution at the vehicle level to facilitate reporting.
Security	The software system should provide functionality to enable role level security where access can be managed by role for business process, add, update view and delete and by organization at a minimum. Security must also support the ability to manage access by level entity (transit agency) while also allowing for access across agencies for analyses and reporting.
Business Continuity and Disaster Recovery	The EAM software should have functionality to allow the creation of disaster recovery backups.
Technology Support	Please provide information on the current versions of Microsoft's operating system and applications support and the number of version you support backwards at any given time. Although VRT has plans to upgrade, some of the regional stakeholders may be on older versions of Microsoft. Please provide information on your ability to support web based access, including browsers and versions.
Environments	VRT requires a minimum of two functioning environments at the time of go-live. • A production environment • A training environment

VRT runs Microsoft and is currently migrating all computers to Windows 7 and Office 2010. VRT currently uses HP and Dell computers and most of VRT's servers are Dell products. VRT databases, FleetNet and RouteMatch, run on SQL Server. FleetNET requires Microsoft Access on each user's machine.

1.4.1 Deployment and Management Options

Describe the minimum software and hardware requirements that VRT must meet for all deployment options highlighted in the pricing section. Include possible database, web services, operating system, software, etc., that the VRT might need to purchase should your system be selected. See Attachment G for estimated needs and to provide pricing.

1.5 Prior Work Experience

Proposers shall have at least 5 years of experience with the implementation, system administration, configuration, and use of the asset management software application proposed. Proposers shall describe their firms experience in providing services described in the Scope of Work Section 4 for agencies similar to VRT in size and complexity. Please provide a list of specific examples of appropriate experience with relevant projects. Proposers shall list a minimum of three references: name, phone, title, organization and project role and not more than five sample projects of its most recent contracts with public or private organizations. Proposers should include at least one agency receiving federal grant funding and at least one public transportation agency; these can be the same entity. Proposers are encouraged to describe challenges faced on projects and how the team overcame those. For each sample project, provide the following information:

- Name of project, project location, and project organization
- Agency size in terms of assets and vehicle fleet
- Description of the work or services provided including specific software modules implemented
- Project results, benefits, improvements etc.
- Dates the contracts were signed, completed or terminated
- Total dollar amount of the contract
- Scheduling and/or cost overruns
- Time durations from project kick off to “go-live”

VRT reserves the right to verify this information, including contacting the referenced clients to verify information and/or to solicit comments. All information stated in the statement of qualifications shall be factual, truthful and should not be fabricated, embellished, extended or misrepresented.

1.6 Key Personnel

Describe the professional capabilities, project experience, education, training and present office location of the key members of your project team. For each team member, provide a list of specific examples of experience in providing services described in the Scope of Work for agencies similar to VRT in size and complexity. Describe each project in detail, including when the project was completed and where it is located, the name of the owner and the owner's representative. Also identify other key personnel, including sub-consultants and provide specific examples of appropriate experience.

Brief biographical information for other project staff may be included.

Include resumes that are no longer than two pages for each key staff person, and brief (half page maximum) biographical information for other project staff.

1.7 Tier 2 Software Requirements

VRT is interested in hearing from Proposers on their ability to provide Tier 2 requirements as part of the estimated budget in Section 2.2. VRT understands that there is some overlap

on processes and requirements needed to meet the Tier 1 requirements for Capital Asset management and therefore would like to see if there are any Tier 2 requirements that can be addressed at no additional cost in terms of services. This information should be captured in Attachment B where the Proposer is asked to identify functionality that can be met by their solution "off the shelf". Proposer should also identify the module and where applicable highlight if the functionality is part of the "base modules" needed to meet Tier1 and therefore no additional cost to VRT. Be sure not to include any cost information in Attachment B, all cost information should be captured in the Propose Price Workbook.

Tier 2 software requirements have been identified to position VRT for future growth; the VRT is looking for an EAM system that both meets the specific needs today related to the State of Good Repair but also meets future needs as a growing agency. With this in mind VRT developed additional business requirements related to future needs. A summary of those business process areas and lower level processes is shown in Figure 3, and Attachment B contains a list of those requirements. The Proposer software's ability to meet future requirements is part of the evaluation.

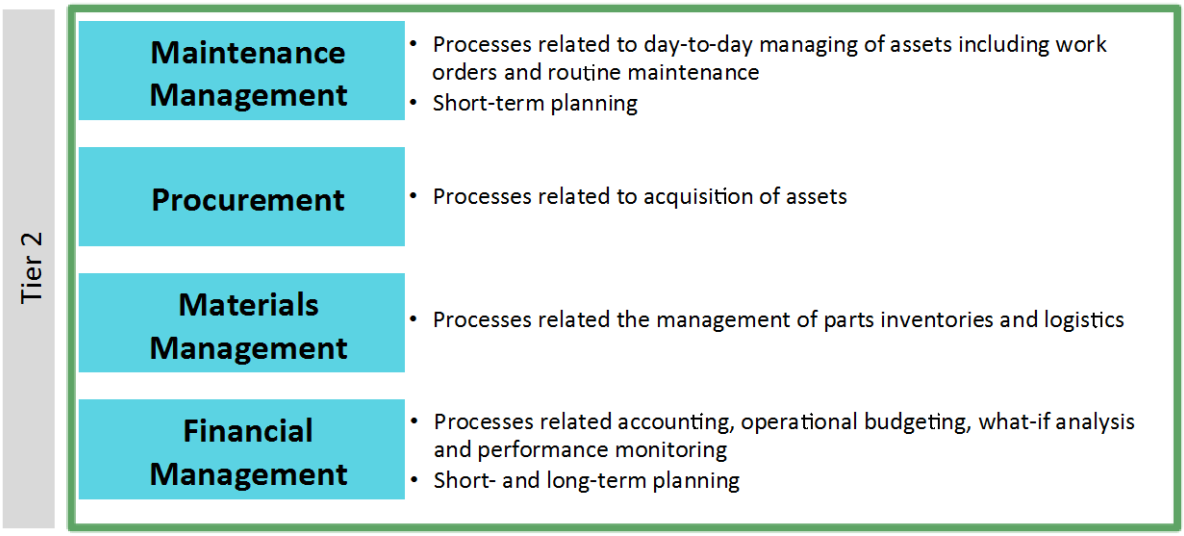


FIGURE 3
Tier 2 Asset Management Processes

Each process area can be broken down further as follows:

- **Maintenance Management**
  - Fleet Maintenance
  - Warranty Management
  - Fuel Management
  - Lease Management
  - Preventive Maintenance Plan
  - Preventive Work Order Management
  - Corrective Work Order Management
  - Issue Materials to Work Order
  - Failure Reporting
- **Procurement (Integration)**
  - Purchase Requisitions
  - Request for Quotation

  - Purchase Order
- **Materials Management**
  - Inventory
  - Cycle Counting
  - Inventory Transfers
  - Receiving
- **Financial Management (Integration)**
  - Accounting (integration with procurement, inventory and general ledger)
  - Human Resources (Labor)
  - Operational Budgeting
  - Investment Modeling and Tradeoff Analysis
  - Short and Long Term Planning
  - Performance Monitoring
  - GASB 34 Reporting

Maintenance management is the process VRT uses to keep its assets fully operational healthy and safe. VRT riders depend on safe, secure, reliable, and timely transportation. Therefore, the management of the VRT fleet is essential. In order to do this properly, all the moving parts of work order management shall work together to optimize resources while also keeping the fleet in service. Its core processes include the management of preventive and corrective work orders for the fleet.

Please be sure to address each process area and sub processes with a write-up and each requirement in Attachment B individually. VRT would like to hear about the Proposers ability to support VRT business operations as well as each piece of specific functionality within your EAM system.

1.8 Hosting Services

Please describe your capabilities, service level agreements and the pros and cons for hosting and managing your EAM system on behalf of VRT ("Off Premise" option). Please describe the different levels of service and associated pricing (within the price models) available to VRT. Pricing for these services should be captured in the price proposal and be priced for the VRT's organizational size including information on how you will raise pricing based upon additional users and/or agencies as well as any escalation you have for the hosting agreement.