

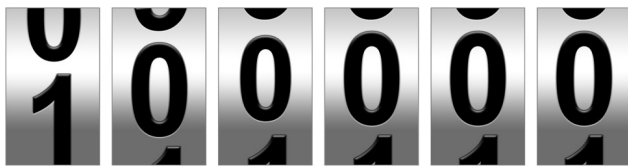


Kansas RTAP Fact Sheet

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Transit Asset Management Systems: What Are They and How Do They Apply to Rural Transit?

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Vehicle mileage, age and condition are factors in developing a transit asset management plan.

The Federal Transportation Administration (FTA) is expected to release new standards for transit system administration in requirements included in MAP-21. These standards are a part of a focus on Transit Asset Management Planning, including life cycle and safety of equipment, vehicles and other assets and infrastructure used by transit agencies, such as buses and vans, buildings and other assets. Transit Asset Management, or TAM for short, is already practiced by many transit providers, but is expected to become mandatory and regulated by the FTA for its grant recipients and sub-recipients. This article will familiarize you with the basic components of TAM and give ideas of how TAM principles can be applied to improve system performance and prepare for the future.

The information in this article does not represent final rules or regulations, but is meant to give general, preparatory knowledge about TAM.

The pillars of TAM

In a recent webcast, the FTA outlined five basic tenets or “pillars” of TAM that would be emphasized when final rule-making is rolled out. These are: 1) “state of good repair,” 2) performance measures, 3) plan development and certification, 4) FTA assistance, and 5) data reporting to the National Transit Database or Rural National Transit Database.

Because data reporting is already regulated, requirements for Pillar 5 for TAM plans will be issued by the FTA in a separate rule, and will not be covered in this article.

Pillar 1: State of good repair

“State of good repair” is the crucial theme and first pillar of TAM planning. Basically, the aim of transit asset management is to keep assets and equipment in transit systems in a state of good repair so that they contribute to the safety and integrity of the system as a whole. The idea of a vehicle being in a state of good repair is akin to the idea of *minimizing risk and maximizing safety*, which is the vision of implementing TAM plans on a national scale.

Four approaches to determining “state of good repair.” MAP-21 requires FTA to define the term “state of good repair” and to create objective standards. FTA is considering one of four possible approaches for measuring state of good repair, based on vehicle age, condition, performance, or a combination of these. The measures are progressively more labor intensive to document, but also become more accurate. FTA is considering how to scale potential definitions to be more applicable to different sizes of operations. The following are descriptions of each approach:

Age based: This the most simple and intuitive approach to measure, and places the least burden on transit agencies. It ranks transit assets by age and schedules them to be replaced, based on an amortization schedule, at a predetermined time once the vehicle in question reaches a certain age.

Condition based: This approach places more responsibility on the transit agency to collect information and evaluate condition. This strategy suggests replacement of assets based the condition of the components of the asset, regardless of age. Assets or components in poor or deteriorating condition are replaced, repaired, or scheduled to be replaced based on one or several measures of good repair.

Performance based: This approach is more time-intensive than the previous two, but is also considered the most accurate. It requires performance to be measured based on objective criteria related to state of good repair, which might include efficiency, reliability, or on-time performance. This approach is more

burdensome, because it requires thorough and intensive performance monitoring, and the most accurate because it directly targets lack in performance and safety.

Comprehensive approach: This approach uses a combination of two or more of the above-mentioned approaches to evaluate state of good repair.

Pillar 2: Performance measures

The second pillar, performance measures, will regulate how state of good repair will be determined. These will be based on objective measures to be established by FTA. Each recipient (in the case of urban agencies, or the state DOT in the case of rural agencies) will be required to set its own targets for these performance measures. FTA will require each recipient to report its progress towards the targets, but will not require targets to be met. Rather, FTA will require an annual report on how the agency is performing relative to its targets.

Pillar 3: Plan development and certification

Each TAM plan has three components: 1) an asset inventory, 2) investment priorities (based on state of good repair), and 3) certification to FTA. As sub-recipients of KDOT, most rural transit providers in Kansas will not have to certify directly with FTA, but will fall under KDOT's plan. FTA has emphasized its desire to make the planning process "scalable and flexible" for small providers, so that undue burdens are not placed on providers with few resources. FTA also emphasized a "risk-based" approach to oversight. This means FTA's priority in oversight is not enforcement of the plan, but on minimizing risk associated with asset operation.

Pillar 4: Technical assistance

FTA has promised to provide technical support to grant recipients in the form of a decision-support tool for "investment prioritization," which is the order in which funds are allocated to maintain a state of good repair. FTA also plans to release an analytical process for capital investment, which FTA has said will be similar to TERM-lite software it has already released to help some agencies with asset management. FTA also mentioned the FTA

Rating	General Description
Bad	In sufficiently poor condition that continued use presents potential problems.
Poor	Requires frequent major repairs (less than 6 months between major repairs).
Fair	Requires frequent minor repairs (less than 6 months between repairs) or infrequent major repairs (more than 6 months between major repairs).
Good	Elements are in good working order, requiring only nominal or infrequent minor repairs (greater than 6 months between minor repairs).
Excellent	Brand new, no major problems exists, only routine preventive maintenance.

Figure 7.

Rating	General Description
Bad	The inspection unit has significant shortcomings in its ability to support its function.
Substandard	The inspection unit has shortcomings in its ability to support its intended function that are deemed by the operator to be below industry standards. These deficiencies impact the efficiency and/or effectiveness of the operation.
Adequate	The inspection unit has shortcomings in its ability to support its intended function, but these do not significantly impact transit performance.
Good	The inspection unit meets most reasonable requirements, but may have some less than optimum characteristics.
Excellent	The inspection unit exceeds the reasonable requirements based on its intended function.

Figure 8

Types of whole systems in a fleet of buses (i.e. mechanical, electrical, hydraulic) can be treated as a single inspection unit. Individual inspection units are then evaluated based on physical condition or functional rating, as shown in Fig. 7 and 8 from TCRP Report 5, above.

TAM Guide as well as general TAM educational courses available through several avenues.

Begin with best practices

The best place to begin with transit asset management, especially in a rural context, is to evaluate how you are already managing your assets. Transit asset systems are simpler for smaller systems, and it should be relatively easy for many rural Kansas providers to begin following a TAM plan. Some basic transit asset principles can be found in *TCRP Report 5: Guidelines for Development of Public Transportation Facilities and Equipment Management Systems*.

Create and organize a master inventory

Asset inventory is the lynchpin of TAM. *TCRP Report 5* recommends viewing your assets as inspection units. This can include individual items such as buses and facilities, as well as groups of items such as a fleet of similar items. Likewise, single assets can be further broken down into its individual parts.

For example, a bus can be broken down into inspection units such as engine, wheels, chassis, cab, and so on. Types of whole systems in a fleet of buses (i.e. mechanical, electrical, hydraulic, etc.) can also be treated as a single inspection unit. The individual inspection units are then evaluated based on physical condition or functional rating, such as in Fig. 7 and 8 from *TCRP Report 5* (see previous page).

Report 5 also suggests recording the life-cycle rating, which is an assessment of the remaining life of the asset



Photo courtesy Ed Suba, Jr./Akron Beacon Journal

Basically, the aim of transit asset management (TAM) is to keep assets and equipment in transit systems in a state of good repair so that they contribute to the safety and integrity of the system as a whole. The idea of a vehicle being in a state of good repair is akin to the idea of minimizing risk and maximizing safety, which is the vision of implementing TAM plans on a national scale.

before replacement, and the descriptive rating, which is a detailed description of deficiencies found during inspection of the asset.

Prioritize assets

The master inventory is combined with prioritization to guide decisions about what actions should be taken. Typical considerations of prioritization are the condition of the asset and the asset's direct effect on system performance and safety. Based on these factors, remedial actions are scheduled to reduce the backlog of assets not in a state of good repair. Common remedial actions to reduce backlog are maintenance and repair, refurbishment of assets, rehabilitation, overhauling assets or system, or replacement.

Evaluating your assets is a good way to begin to prepare for new regulations when they are released by FTA and implemented by KDOT.

Impact on Kansas rural transit providers

While it is still too early to know what the requirements will be, rural Kansas providers, as sub-grantees, can expect to have their TAM planning requirements set by KDOT. FTA has emphasized the potential for TAM requirements to be tailored to agencies based on their size, but it remains to be determined exactly what shape it will take for the smaller agencies. Requirements for small providers will likely be in line with best practices of the industry, and are expected to be reproducible for different provider sizes.

As with other program requirements, KDOT's Office of Public Transportation staff will work with agencies to implement the program as it takes shape. As State KDOT Public Transit Manager Josh Powers reminded us, some elements of transit asset management reporting to the State are already in place through data collected from monthly "TRACK" reports completed by Kansas transit agencies, as well as data collected during annual vehicle inspections. Staff will review additional requirements as they are implemented and work with agencies to determine any additional needs.

Conclusion

The American Public Transportation Association lists several benefits of TAM in its document, *Creating a Transit Asset Management Program*. Benefits include more reliable equipment, better customer service, and improved on-time performance. It is possible you are already managing your assets as a good business practice. If not, many resources are online to help you get started. Implementation of some form of transit asset management will be beneficial not only for the safety of your passengers, but also for the efficiency and effectiveness of your agency.

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Sources

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