FEDERAL TRANSIT ADMINISTRATION

Decision Support at CDTA

The 2016 Transit Asset Management (TAM) regulation requires that agencies document the decision support tools and analytical processes that they use to prioritize investments in their TAM plans. CDTA in Albany, New York developed its own decision support tool without having to acquire new software or put significant effort into collecting new data.

TRANSIT ASSET MANAGEMENT

Many agencies, especially small and medium-sized agencies, find the decision support tool requirement in the TAM rule daunting, but the Capital District Transportation Authority (CDTA) in Albany, New York has shown that it is possible to develop a simple and effective tool without purchasing complicated or expensive new software or creating significant new internal processes. CDTA is a Tier I agency with about 300 service vehicles, 225 of which are fixed route vehicles. CDTA developed an Excel tool that uses data already collected through its work order management system to give assets a maintenance score. CDTA calculates maintenance scores based on different attributes for each asset class. Scores for age, performance, condition, and level of maintenance are weighted for each asset and used to create a final score for that asset. Final scores for individual assets are aggregated to the asset class level and are used to measure the effectiveness of asset management decisions. Scores for individual assets are used to inform decisions about asset replacement.

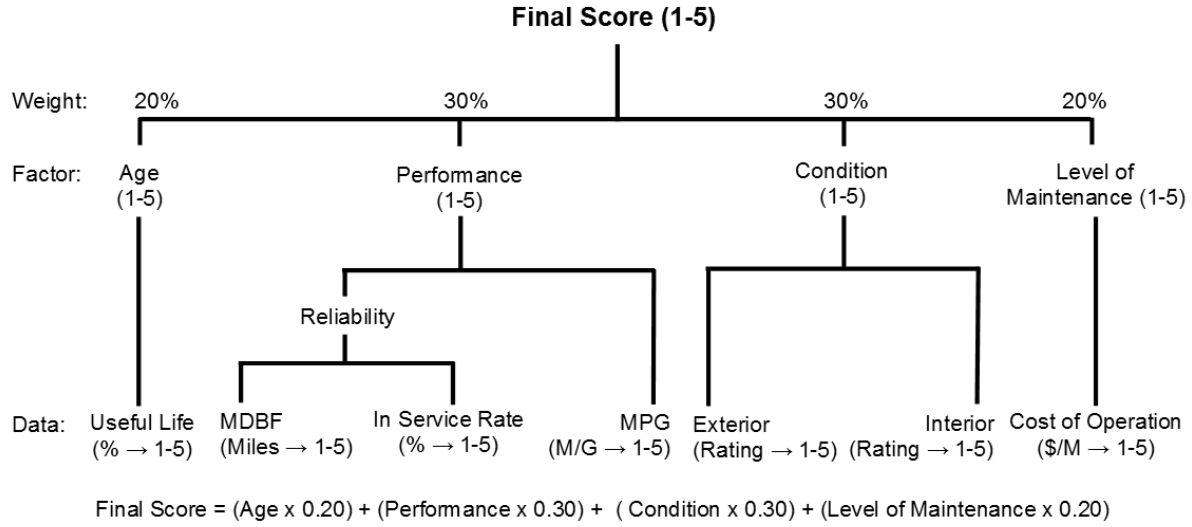

Figure 1: The diagram above shows how each data point contributes to the scoring factors and then is weighted in the final score for fleet assets.

The scoring rubric uses a scale from 1 to 5, which is calculated based on four factors: age, performance, condition, and level of maintenance. Information for each of these factors is pulled from work orders in CDTA's enterprise asset management system (EAM), which were being created long before the decision support tool was conceived. Each of the factors carries a different weight that informs the final score.

The data used to inform the factors, as well as the weight that each factor is given, is different for each type of asset, but the final score for each asset and each asset class is a single number. Having a single score for each asset and each asset class allows comparisons across all asset categories and classes.

The Development Process

The impetus for CDTA to develop the tool was a New York State audit of transit agencies' maintenance practices in 2015. Prior to the audits, CDTA relied primarily on institutional knowledge in the maintenance department to make decisions about asset use and retirement. While these decisions were largely regarded as effective and well-informed, the agency lacked documentation of a systematic process to make the decisions. Fortunately, their staff included several people with a clear vision for a simple yet effective tool that would inform and document the decisions, while also reflecting the maintenance department's expertise and priorities. The tool development team consisted primarily of three members representing budget, grants management, and resource planning/IT interests.

Through regularly scheduled meetings with the fleet maintenance, facilities, and IT departments, the tool development process documented the criteria already being used to inform asset management decisions. This coordination relied on mutual respect for the work being done in different departments: the team developing the tool relied on the expertise of those working with specific assets on a daily basis and designed a tool that augmented, not replaced, the current decision-making process. The maintenance and facilities staff saw the value in a new decision support tool and bought into the development process.

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Work orders being created as a part of day-to-day operations already contained the majority of information (e.g. condition and reliability data) that was being used to inform those decisions, and with a few minor tweaks a process was put in place to collect all of the necessary data and regularly Excel to pull the data. Though CDTA collected the data through work orders in its EAM, an EAM is not a prerequisite. Agencies have different ways of collecting and storing information from work orders, and could use other data sources effectively, depending on circumstances. By focusing on information already gathered in daily operations, CDTA was able to integrate the decision support tool into existing processes without creating significant new responsibilities for staff. The tool designers created a series of sheets in Excel that stored the relevant information, converted it into scores for each of the four factors mentioned above, and weighted those factors to create a final score for each asset. The data collected in the scoring process is used to set performance targets as well as in planning for asset replacement and capital project planning.

Why it Matters

CDTA's tool development process offers a counterpoint to concerns about the cost and complexity of developing a decision support tool. Rather than completing an arduous acquisition and creating additional tasks for operations staff, CDTA designed a tool in-house using software and processes already in use. The tool was perfectly suited to the agency's needs because it was designed internally, and it augmented existing processes rather than creating new ones. The tool itself is an indication that CDTA already had all of the expertise it needed on staff to create and document its decision analysis process in a way that is both useful for the agency and that satisfies the TAM rule.