

Revised 2001

RTAP: A Rural Transit Assistance Program of the Federal Transit Administration

VEHICLE PROCUREMENT



One of the most crucial tasks for community transportation providers is obtaining the highest quality and most suitable vehicles for their operations. Your vehicles will define your system's capacity and its ability to meet the mobility needs of your community. These same vehicles are the "face" of your system, shaping your public image and subsequent ridership.

Choosing appropriate vehicles requires careful thinking about your system's resources, needs and future.

Effective vehicle procurement follows five basic steps:

1. Define the kind of vehicle your system needs.
2. Learn what is available on the market.
3. Write specifications that accurately describe your requirements.
4. Announce your Invitation for Bids.
5. Develop a Quality Assurance checklist.

1. DEFINING THE VEHICLE YOU NEED

The old carpenter's axiom of "measure twice, cut once" is useful here. Do your research. Analyze your system's ridership, routes and budget to define the kind and quantity of vehicles that best suit your needs. Create a comment file to record input from riders, operators, mechanics, and others about your current vehicles. This information will provide a valuable "snapshot" of your system, showing areas requiring attention. Consider what your system's needs will be over the life-span of the new vehicle(s). You will want to acquire vehicles that can satisfy your anticipated needs for the foreseeable future.

Review your research carefully. Confirming your selection parameters before making your decision will enable you to choose the best piece of equipment for your system needs. Consider the following key questions in your decision-making process.

National Transit Resource Center

Technical Assistance Brief No. 2

Prepared by the
**Community
Transportation
Association of
America**

For more information,
call the National Transit
Resource Center at
800.527.8279, or
access our Web site at
www.ctaa.org/ntrc

What size vehicle do your riders need?

How much seating capacity is required? One quick and simple way to estimate the capacity you need is by determining the lowest and highest number of riders your vehicles carry and selecting the mid-point or median. You can always operate a bus that is half full, but it is more cost effective to fill the seats a majority of the time with minimal seat vacancies. If you are buying vehicles to expand services rather than to replace vehicles, questions of appropriate size will require more time to answer. You will need to consider potential rather than actual use.

Wheelchair placements require special attention. Lifts and placements must be installed first and will affect overall capacity. How many wheelchair placements are necessary? Where should the placements be in the vehicle? You will need to consider the following:

- Do you want the lift in the front or the rear of the vehicle? A front lift allows the driver to use the rear view mirror to easily monitor any special needs of wheelchair users and makes for a smoother ride for the passenger. However, a front lift may limit the aisle space for ambulatory people walking from the entry door to seats in the rear. A front lift also raises the issue of emergency exit from the vehicle. A rear emergency door could be accessible if the wheelchair could reach it, but this would affect the number and placement of other seats and the aisle width. It would also present challenging evacuation procedures for wheelchair users. Be sure to check with the Federal Transit Authority (FTA) and your state regulations on proper lift placement.
- The Americans with Disabilities Act requires forward-facing or rear-facing wheelchair placements. The majority of literature, crash tests and accident investigations show forward-facing placements to be significantly safer for wheelchair users. If you are considering installing rear-facing wheelchair placements, be sure to consult the Department of Transportation's guidance in 49 C.F.R. Part 38.24, Sub-part (4). Side-facing wheelchair placements are prohibited.

What size vehicle is most effective for the system's routes?

Will the vehicle be used for short local trips, making frequent stops? Is it needed for long high-demand routes? What are your drivers' capabilities and limitations? Take a look at the planned use for the vehicle, especially the duration and demand of its expected routes. A smaller vehicle may make more sense if it is being used on trips with low demand, while a larger vehicle may be more practical for high-demand routes. Keep in mind that size will determine whether or not your drivers will need a CDL in order to operate the new vehicle. If a CDL is required, you need to determine how many of your drivers have a CDL or have the ability to obtain one. If the selected vehicle requires a CDL and only some of your drivers have one, you will have to arrange your drivers' schedules accordingly. This should be taken into consideration before the purchase decision is made.

Try to arrange for field-testing of the prospective vehicles by your drivers and mechanics, and include your clients if at all possible. Once a vehicle has been chosen, arrange for a prototype to be examined by your drivers, mechanics and clients.

Are there specific service area characteristics that impact operations?

Will the vehicle be used on narrow streets, winding roads, cul-de-sacs or unpaved roads? Is the terrain difficult? Is the climate extremely cold, hot or otherwise harsh? If your system has operated vehicles for any period of time, you hear from the drivers and mechanics what problems exist. Are the vehicles too long to turn around on the streets they travel? Do they lack sufficient engine horsepower to get up hills when fully loaded with passengers? Is the engine consistently struggling when the air conditioning is on? Do they sustain numerous dents that you can't afford to repair? Are certain features maintenance headaches? Can your current maintenance operation (mechanics and equipment) service the proposed new vehicle(s)? Would diesel vehicles require a place to be plugged in during cold weather? Will you be able to obtain needed repairs and parts replacement for specialized vehicles without unacceptable down time?

Some of these issues, such as requiring the name(s) of local repair/parts companies, can be dealt with in the bid specifications, but if a crucial element (such as a diesel mechanic) is not readily available you may want to consider this in your choice of vehicles.

What is your budget?

While your system's capacity is largely defined by your vehicle inventory, building that inventory is dictated by your budget. Do you have access to federal funds? If so, how will you meet non-federal match requirements? What funds do you have for operations or maintenance over the life of the vehicle? How many drivers will you need (for example, two drivers for two small vehicles or one driver for a larger vehicle)?

Vehicles are expensive to buy, and if you have limited local match money, the types of vehicles available within your budget may be limited. Make some phone calls to local distributors to get an idea of a base price, or contact your state Department of Transportation for recent bid prices on other vehicles purchased.

The vehicle's purchase price alone is not your only budget consideration. Other priorities, such as safety, maintenance, comfort and delivery time, must be considered. Operating and maintenance costs will vary greatly. The "affordable" vehicle that comes in as the low bid may be very expensive to maintain, and your operating assistance may not always be sufficient to repair or replace damaged or worn-out parts. If a quoted price for a vehicle seems low, find out what shortcuts may have been taken to achieve that figure (such as no

roll-over cage in the driver's area, wheel wells made of plywood, multiple electrical systems on one fuse, etc.).

2. WHAT'S ON THE MARKET

After you have determined the best vehicle for your operation, take a look at what's available. Over the last several years, a number of new vehicle types have entered the community transportation market:

- Purpose-built (special) - any custom vehicle built for special use, including small three-to-five passenger vehicles.
- Purpose-built (conventional) - small transit-style buses specifically designed and built as buses.
- Vans - any standard (generally 7-15 passenger) vehicle available from one of the automobile manufacturers.
- Modified van - a standard van that has been altered by an aftermarket manufacturer to include a raised roof, lowered floor or other major modifications.
- Body-on-chassis - any bus body mounted on standard van or truck chassis (body and chassis are usually manufactured by two different companies).
- School bus type - often body-on-chassis, designed to transport school children. These vehicles are often used in community transportation operations to increase capacity without incurring the cost for a transit-style vehicle.

A list of vehicle models and manufacturers is provided in the annually published *Community Transportation Buyer's Guide*. Copies are available through the National Transit Resource Center at 800.527.8279.

3. WRITING SPECIFICATIONS

After you have determined the type of vehicle you need and what's available on the market, you are ready to put pen to paper and list the requirements for a vehicle. If you instead use state DOT-provided specifications, review to ensure that they meet your operating needs.

Begin the technical specifications with a statement on how the vehicle will be used, such as, "The vehicle(s) described in these specifications will be used to transport elderly, disabled and general public passengers for local work, medical and shopping trips." This tells potential bidders the type of use - in this case, stop-and-go in-town service - so they can match an appropriate vehicle to your needs.

Requirements and compliance

Know what is required by state and federal law and review all specifications - with your own requirements and questions in mind - before you begin the bid process. Is there a state purchasing office? Are there state and federal or other specifications you must meet? Which vehicles meet Buy

America requirements? Have you met Americans with Disabilities Act (ADA) requirements? Have you addressed Disadvantaged Business Enterprise (DBE) requirements? Thorough specifications will reduce the risk of receiving a multi-thousand dollar piece of equipment that is inappropriate or problematic.

If any federal funding will be used in your purchase, you will have to comply with federal guidelines for receiving assistance, including:

Pre-Award/Post-Delivery Audits

The FTA requires all recipients of federal funding to perform pre-award and post-delivery audits to ensure compliance with all pertinent federal regulations. The pre-award audit is performed once the low bidder has been identified and before any contract is awarded. The post-delivery audit occurs after the vehicle has been delivered and verifies that the contractor met all the necessary requirements. Do not pay 100% of the vehicle purchase price until you are certain the vehicle meets your specified requirements. (See section V and VI of this brief.)

Americans with Disabilities Act (ADA)

A central provision of this act requires that anytime federal money is involved in a project (such as procuring a vehicle), there must be full accessibility for disabled individuals. Vehicles purchased with federal assistance MUST be in compliance with the ADA requirements for accessibility by disabled passengers or FTA will withdraw federal funding. Include the ADA-compliance requirement in your specifications, along with a disclaimer that any additions, deletions, omissions or interpretations of ADA relating to the vehicle(s) in question is the responsibility of the contractor.

Buy American Audit

As part of the pre-award audit you must be sure that the contractor is in compliance with the Buy American Audit. Prior to signing a contract, request a certificate stating that sixty percent of the parts supplied in the vehicle are made in America and that the vehicle's final assembly took place in America. If you cannot verify this information, select another contractor. Failing to comply with this audit can result in a loss of federal funding.

Vehicle description

There are two extremes to avoid in writing vehicle specifications. Vague, two-page specifications that list only basics, such as "Transmission-automatic; Seating-12 passengers," will make bidders wary because it gives them no clear idea of what you really need. Be specific.

On the other hand, potential bidders may balk when they see 22-page specifications that tell them what color the ribbed rubber floor should be and the type of metal fasteners to use

to attach the body exterior to the frame. This detailed approach forces them to repeatedly ask the operator's permission for approved equals (substitutions that do not alter the vehicle significantly but satisfy the performance requirements). You don't want to unnecessarily eliminate vendors. Having to repeatedly seek approved equals permission can transform a vehicle purchase into a long, tedious affair for everyone involved.

Try to find a happy medium that covers the important elements but does not go into extensive detail. When writing vehicle specifications, there are five general areas to cover:

1. Chassis: vehicle dimensions, engine, cooling system, transmission, gross vehicle weight, axles (how many and what type), shock absorbers, springs, tires, electrical system and ventilation.

2. Body (exterior): structure, support members, roofing materials, insulation, doors, step-wells and windows.

3. Body (interior): seating, grab rails, barriers, paneling, flooring, floor plan and ventilation.

4. Equipment (standard): mirrors, lights, heaters, windshield wipers and fans.

5. Equipment (special): back-up alarm, rustproofing, first-aid kit, wheel wrench and jack, fire extinguisher, emergency reflectors, air conditioning, wheelchair lift, wheelchair securement devices and farebox.

Technical Specifications vs. Performance Indicators

Use performance indicators whenever possible. These will define your expectations of each component as minimums for specifications rather than specifying brand names, size dimensions or other measurements.

Example 1: Heater

Technical Specification: "An inline cutoff valve shall be installed in the engine compartment and red-tagged. The combined BTU rating of all heaters shall be a minimum of 140,000 BTUs."

Performance Indicator: "Heater will sustain 60 degrees F (plus or minus 3 degrees) inside the vehicle when outside temperature is 0 degrees F ambient."

Example 2: Air conditioner

Technical Specification: "Air conditioner must be 2,000 BTUs with skirt-mounted condenser."

Performance Indicator: "Air conditioner must be sufficient to reduce temperature inside the vehicle from 90 degrees F

(plus or minus 3 degrees) to 75 degrees F (plus or minus 3 degrees) within 30 minutes."

If you decide to use performance specifications, you will need a method for determining that the specifications have been met. Specifications will vary depending on the type of vehicle you choose. Once you have decided to write specifications, do not feel as if you have to re-invent the wheel: there are full sets of specifications for all types of vehicles available for your review. It is invaluable to be able to refer to someone else's specifications when writing your own. The American Association of State Highway and Transportation Officials (AASHTO) Multi-state Technical Assistance Project (MTAP) can provide state vehicle specifications for ten types of vehicles, and The American Public Transportation Association has a manual on purchase guidelines. This information, along with sample specifications used by other systems, can be obtained from the National Transit Resource Center at 800.527.8279. You can also check the FTA's web page at <http://www.fta.dot.gov/ntl/index.html>.

Consider your entire fleet when determining specifications. The more uniform your fleet, the more control you will have over mechanics' training and maintenance and parts costs.

Involving your system insurer may provide additional criteria. A discussion of safety and risk management issues can further define your best options.

4. THE BID PROCESS

Once your specifications are finalized, you will need to determine appropriate vehicle suppliers. (If you are not familiar with suppliers, you can begin with CTAA's Buyers Guide, available from the National Transit Resource Center, 800.527.8279). With a compiled list of qualified suppliers, you are ready to announce your Invitation for Bids (IFB). The IFB should include an overview of your organization's purpose, plus definitions for all relevant terms used throughout the document. It should detail for prospective bidders all requirements, including vehicle specifications, instructions for preparing responsive bids, the date of any scheduled pre-bid meeting, the closing date for bid submission, and your organization's evaluation process.

If your vehicle purchase will use federal funds, required procurement methods are dictated by purchase price. Micro-purchases that do not exceed \$2,500 may be made without obtaining competitive quotations if you determine a fair and reasonable price. These lower-cost purchases are also exempt from Buy America requirements. Small purchases that cost more than \$2,500 but do not exceed \$100,000 require price bids from an adequate number of qualified sources.

It is in your best interest to coordinate your efforts with your State Department of Transportation and other agencies. "Piggybacking" onto existing specs and bids will enhance your buying power by combining dollars for a more efficient trans-

action. You can thus improve the quality and quantity of the bid and obtain a lower per-unit cost. This type of coordination might also enable you to increase your long-range planning by incorporating multi-year bids, which could also result in lower costs by providing guaranteed business to the successful bidder.

Process for approved equals, clarifications and/or exceptions

Each manufacturer has a different way of producing a vehicle and certain items may not fit your specifications. You may find that different options are acceptable. A pre-bid meeting provides the opportunity for bidders to fully understand what you want, and for you to fully understand what the bidders can provide. In this forum, the issue of “approved equals” can be addressed and resolved, ensuring that all bidders are bidding on the same end product - the vehicle you want!

Protest/appeal procedures

Be prepared for protest of your decisions on approved equals or on contract awards, and design a procedure for submitting and resolving them. Allow enough time to review the protest and resolve it before bids are opened. Contract award protests use similar procedures. It is mandatory that you have an appeal process in place. Your agency should hear the first appeal, with any subsequent appeals referred to the county or state transportation authority if you are using their funds. Allow ample time in your procurement timetable for protests and appeals to be heard.

Delivery schedule

Include a clear schedule of when you expect to receive the vehicles. Late-delivery penalties may encourage timely delivery of your vehicle, but be sure your schedule is realistic.

Bid sheet

A form should be included that briefly describes the vehicle (if you are purchasing more than one vehicle include an item number) with spaces for the bidder to fill in the unit price, total price and total amount of the bid. This sheet results in an easy-to-read summary for comparison to other bids. The bid sheet should include a space to describe options that may be available on the vehicle.

Performance bond

You may require that a performance bond be posted by the successful bidder. An agreed-upon amount of money is then set aside by the supplier as collateral - your guarantee of fulfillment of the contract. Although this is an effective way to determine if the bidder can fulfill your contract, it is expensive for the vendor. Some vendors cannot afford one, so you may be eliminating vendors in your area who are capable of building the vehicle you want. Be sure that a performance bond will truly benefit your system before you decide to make it a requirement of the bid process.

If your request for bidding results in just a single bid being submitted, request that the bidder supply a cost analysis document from prior sales of like or similar vehicles. This will provide you with some comparison data that you will lack in the absence of competing bids.

The right to reject

You should reserve the right to reject all bids if you think none of them are responsive. A bid can be rejected as non-responsive for many reasons, including:

- Failing to submit a required part of your bid package.
- Making changes in your specifications without prior approval.
- Imposing special conditions, such as charges for delivery or discounts for meeting certain conditions.
- Not delivering the vehicle(s) within the time frame you have established.

Consider your bids carefully before you reject them all. If you do have to reject all bids, review your specifications. Re-advertising the same specifications will probably result in receiving the same type of insufficient bids.

Reviewing bids requires care and attention to detail. First, open your bids at the time and place specified in your Invitation for Bids, and make sure that they comply with your package. Next, compare the bids with your technical specifications to determine if the bidder is providing the vehicle you specified. Finally, check the price. Re-calculate all of the figures. Do not assume the bidder has added them correctly. If the bidder has met all of your qualifications and evaluations and has offered the lowest price, then you have found your successful bidder.

5. QUALITY ASSURANCE: PLANT AND DELIVERY INSPECTIONS

Quality Assurance begins with specification writing. When you leave as little as possible open to interpretation, you enhance the likelihood that you will get the vehicle that you want. Keep in mind that if an item is not in your specification it will be difficult, costly and perhaps even impossible to ask the vendor for it during the Quality Assurance stage.

If your budget allows, conduct a plant inspection before your vehicles have been delivered. Inspecting vehicles at this stage will allow you to see items that are not accessible once the vehicle has been delivered (such as the rollover cage in the raised roof of a van or the steel structure in the body of a small bus). You may also find some items that are unacceptable. It will be easier and far less costly to the vendor to make changes at this stage. A note to grant recipients: If you are utilizing FTA funds in the purchase of 10 or more vehicles at one time, an in-plant inspection is mandatory during production.

The ideal time for a plant inspection is when one of your vehicles has been completely finished and others are on the assembly line in various stages of production. You can see how your vehicles are built from chassis to completed product. Conducting a plant inspection in this manner will take you two or three days. Even if you do a plant inspection, it is still vitally important to conduct a thorough inspection of your vehicle once it has been received at your location. Hoses may have worked loose en route from the plant, or the vendor may not have corrected everything you considered unacceptable. Be certain your vehicle is in road-worthy condition by performing a thorough inspection once the vehicle is delivered to you.

If your budget does not allow for a plant inspection, don't be overly concerned. By signing the contract, the vendor has certified that the vehicle will meet your specifications. Do not pay for the vehicle until it has passed your rigorous Quality Assurance inspection. Every item on your inspection checklist must be verified as acceptable before you complete payment for the vehicle.

To develop your Quality Assurance checklist, begin by listing the make of vehicle, model year, vehicle identification number, color of vehicle, name of inspector, delivery date, acceptance date (not always the day you receive the vehicle) and mileage. This step will help you account for which vehicles have been inspected and will provide you with an accurate record for each vehicle. For the next step, simply go through your specifications and briefly list each item. Leave room for comments; they are quite valuable, and once you have returned to your desk, you may not remember what you saw that was unacceptable.

Inspection

When doing the inspection, make certain that:

- All auxiliary components, such as wheelchair lifts/securements and air conditioners, are on the vehicle and working properly.
- The seating configuration is as specified, including designated mobility-aid seating areas.
- All chassis components are as specified.
- The vehicle is properly undercoated and rustproofed.
- All manuals and warranty information are included.
- The vehicle does not leak from windows, doors or seams.
- The vehicle meets all ADA requirements.

Once again, make use of all the information that is currently available. Contact state and federal resource offices. Ask manufacturers for their specifications. Contact transit systems that are currently using vehicles of the types you are considering and solicit their feedback. Don't be shy about

doing everything you possibly can to make the best possible decision for your system and your customers.

The original Technical Brief was written by Connie Garber and Joe Seitz; it was revised by the RTAP National Review Board, APWA staff and CTAA staff in 2000.

RESOURCES

The National Transit Resource Center maintains a peer-to-peer technical assistance network, tapping into a wealth of experience from professionals in the community transportation field. For more information, visit the CTAA website at www.ctaa.org/ntrc/services/, or contact the National Transit Resource Center at 800.527.8279.

Analyzing the Costs of Operating Small Transit Vehicles (Transit Cooperative Research Program, 2000, Report 61). This User's Guide and enclosed computer disk provide a model for small systems to use in making informed vehicle purchase decisions. It includes information on capital, operating and maintenance costs, a description of vehicles, purchase prices and maintenance costs, mechanic wage rates, and non-financial factors to consider. Order on the web at <http://208.212.49.23/davdynvir/TCRPPubIndex.asp>.

Best Practices Procurement Manual (Federal Transit Administration 1996) This guide outlines the requirements a grantee must adhere to in the solicitation, award and administration of its third-party contracts. An extensive document covering procurement planning and organization, types of specifications, methods of solicitation and selection, and award procedures. Find it on the web at <http://www.fta.dot.gov/library/admin/BPPM/>.

Bus Inspection Guidelines (Transportation Research Board, June 1987) A review of bus inspection and maintenance practices at a variety of transit agencies, mostly in large urban areas. The report's findings are synthesized into a set of guideline practices appropriate to any agency, urban or rural. Available by calling the National Transit Resource Center at 800.527.8279.

Handbook for Purchasing a Small Transit Vehicle (Pennsylvania DOT, October 1988). This handbook resembles Indiana's earlier work (see below) but goes into more detail concerning features, options, accessories and some of the language used in the specification writing and bidding process. Pennsylvania's handbook also has concise appendices on life-cycle costing, seating diagrams and accessibility requirements. Available from the National Technical Information Service (NTIS), PB 89-228803/AS, price code AO7; 800.553.6847.

The Role of Rehabilitation in Transit Fleet Replacement (Puget Sound Council of Governments, March 1983). Describes the process and data used by transit providers in Washington state in determining whether to rehabilitate or replace their

vehicles, from small vans to inter-city style commuter coaches. Available from NTIS, PB 84-156082, price code AO6; 800.553.6847.

Seitz, Joseph E. *So You Want to Buy a Transit Vehicle* (Community Transportation, February/March 1998). A step-by-step guide to vehicle specifications. Available on-line at http://www.ctaa.org/ct/febmar98/bus_specs.shtml.

Small Transit Vehicles: How to Buy, Operate and Maintain Them (Transportation Research Board, January 1985). A classic in the industry, this manual provides step-by-step procedures for evaluating potential vehicles, and for 'life-cycle costing' to determine whether or not to replace a vehicle. Includes worksheets to facilitate your own system analysis. Available by calling the National Transit Resource Center at 800.527.8279.

Specification Guide for Small Transit Vehicles (Indiana DOT, February 1984). Contains a wealth of ideas for vehicle types and configurations (seating arrangements, wheelchair placements and the like). Also contains suggested steps for specification development. Available from NTIS, PB 85-204436, price code AO4; 800.553.6847.

Third-Party Contracting Requirements (Federal Transit Administration, Circular 4220.1D, April 1996). This FTA circular outlines requirements that a grantee of federal funds must adhere to in the solicitation, award, and administration of third-party contracts. Available from the FTA website at <http://www.fta.dot.gov/library/policy/TPCR/TPCR.html>.

Vehicle Procurement Procedures (Virginia Department of Rail and Public Transportation, 1998). Specified procedures for transit providers to follow when acquiring new vehicles. Contact Virginia DRPT, at 804.786.1154.

The Technical Assistance Series is a product of the Federal Transit Administration's National Rural Transit Assistance Program (RTAP). RTAP is funded through 49 U.S. Code 5311, formerly Section 18(h) of the Federal Transit Act of 1979. National RTAP was created in 1987 and is administered by the American Public Works Association (APWA) in a consortium arrangement with the Community Transportation Association of America (CTAA). The views and opinions expressed in the Technical Assistance Series do not necessarily reflect the views and opinions of FTA, APWA or CTAA. More information on the Rural Transit Assistance Program is available by calling the National Transit Resource Center at 800.527.8279.