

# Establishing Contractual Relationships for Demand-Responsive Transportation Services

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As interest in demand-responsive transportation systems has grown, increased attention has focused on making use of the experience and resources of the private sector in providing these services. Recent experiences have shown that establishing satisfactory relationships between public agencies that want to foster these services and private operators may be difficult because of the different constraints and objectives that characterize the public and private sectors. An important part of such relationships is the contract that binds the two parties. The authors review recent contracting experiences; identify the goals, objectives, and constraints that characterize each sector; and suggest a contract framework that seeks to reconcile potentially conflicting objectives of the two sectors.

It is widely recognized that demand-responsive transportation (DRT) is not a new service concept. Private taxi operators have been providing demand-responsive service for a considerable number of years. It is only during the last decade, however, that there has been increased attention to DRT within the public sector. DRT is being viewed as a cost-effective alternative to conventional fixed-route transit services in certain contexts and as an effective means of meeting the needs of those whose mobility is restricted.

Traditionally the taxicab, which generally serves a single passenger group at one time, has not been considered a form of mass transportation. But even ride sharing is not a new concept. The jitneys might be considered an early example of a shared-ride service with some demand-responsive characteristics. The regulations that forced the jitneys off the road at the behest of the street railway companies have influenced the regulation of taxicab companies to this day. With a few exceptions—including Davenport, Iowa; Little Rock, Arkansas; Nassau County, New York; Madison, Wisconsin; and Lowell, Massachusetts (1, 2, 3)—prohibitions against ride sharing exist in most U.S. cities at the present time. Such regulations have hindered those taxi operators who are both interested in using taxis in other ways than the premium-service mode and able to put up the necessary risk capital to establish an innovative form of taxi service. They also constrain any natural evolutionary tendencies within the private sector.

The recent interest in shared-ride DRT service has primarily come from the public sector. Although in some

cases there has been a desire to operate a break-even service, in most cases the objectives associated with the implementation of a DRT system have focused on the quality of service rather than on economic self-sufficiency. During the earlier phases of DRT development, it was generally felt that these public-service objectives could best be attained through direct public control over the operation. Furthermore, a sometimes unsubstantiated belief prevailed that the public sector could provide DRT service efficiently and, because of a lack of the requirement to show a profit, inexpensively. As a result, public authorities seeking to implement DRT services generally sought to provide the service directly rather than through contracts with the private sector. For their part, private taxi operators, traditionally a conservative group and a group whose objectives were logically based on economic factors, were typically only too willing to stay clear of these DRT innovations. Indeed, of the major new DRT services implemented during the late 1960s and very early 1970s, only the Buffalo Model Cities system was operated by a private taxi company under contract to a public authority (2).

In August 1970, a completely taxi-based DRT system was implemented in Merced, California; that system is now publicly operated (2). In the implementation of the Ann Arbor, Michigan, system in mid-1971, the local taxi companies declined to bid on a contract for operating the service and instead chose to seek an injunction against the service. In that case the judge dismissed the suit, ruling that because a single passenger did not control the DRT vehicle "these vehicles are expressly exempted from the definition of taxicab" (4).

During the years since the early new-generation DRT systems were implemented, there has been a shift in attitude on the part of both the private and public sectors. In general, the changing economic climate and, in particular, the sharp increase in costs experienced by taxi operators have made that industry more sensitive to factors that have a potential impact on revenue. The past few years have seen the emergence of national taxicab organizations that are representative of a much wider taxicab constituency. These factors have combined to make taxi operators more interested in exploring new sources of revenue and more aggressive in seek-

ing new opportunities. The earlier lack of interest in the development of DRT displayed by the taxi industry has been replaced by a keen awareness of these developments and their potential and an awareness of such related factors as the overall regulatory framework of urban transportation that could influence the taxi business. The taxi industry is now proclaiming that it has always provided demand-responsive services, that it can and does provide such services at a much lower cost than the public service, and that it has the necessary experience and expertise to operate future paratransit services (5).

The public sector, for its part, has by necessity become more concerned with making the most efficient use of its own resources. Some costs within the public sector, in particular labor costs, have risen at a faster rate than have costs within the private sector. As a result, the public sector may be more willing to consider using the economies possible within the private sector in a free-market competitive system. Also affecting the public sector's decision on public or private operation of DRT services has been the growing set of regulations, on both the federal and state levels, that restrict the use of public capital to compete with private transportation operators. Although these restrictions have traditionally been interpreted to apply to private mass transportation or bus operations, there has been growing pressure to include the private taxicab operations within the protection of these statutes (6). Finally, there has been growing recognition that existing taxicab services may be seriously affected by the introduction of a subsidized DRT service. The extent of that impact is a function of the characteristics of the taxi and DRT services involved, and there are opposing arguments that state that taxi service actually benefits from the introduction of any new (marketed) transportation service. Nevertheless, the potential for a negative impact on taxicab operations does exist.

Because of all of these factors, a number of the major DRT services implemented in the past few years have involved private taxi companies contracting with the public sector to provide the service. If present trends continue, we can expect this form of contractual relationship to become even more prevalent during the next few years. However, some of the factors that inhibited the development of these relationships just a few years ago have not completely disappeared. Specifically, the development of contractual relationships between public agencies and private operators is complicated by the conflicting objectives of the private and public sectors. Economic efficiency and service quality are generally sought by the public sector. These objectives are often in conflict with the profit maximization and risk-avoidance objectives present in the private sector. This conflict may be intensified in the case of DRT, where the quality of service is highly sensitive to transportation supply and hence to cost.

If a satisfactory relationship between the private and public sectors is to develop, it is important that each side understand the concerns of the other side. The forum for expressing these concerns and protecting the interests of each side is in the development of the actual contractual arrangements. There are a number of possible contractual relationships between the private and public sectors. The purpose of this paper is to discuss these contractual relationships and suggest contract forms that can reconcile the conflicting objectives of the public and private sectors.

## OBJECTIVES

### The Public Sector

Before entering into a contractual relationship with a private operator, the public agency responsible for a transportation system must identify and define its own objectives. Typically the public sector will be concerned with economic efficiency and quality of service, as noted above. However, there are other factors to be considered. For example, is the public sector willing to subsidize a transportation service? If it is not, it must be prepared to identify a methodology for ensuring unsubsidized operations, which is not a simple task given present cost levels. If it is willing to subsidize a transit system, there remains the question of how large a subsidy the public is able and willing to provide. Another set of objectives might deal with who is to be served. If there is interest in serving a particular target group—for example, the elderly and handicapped—it might make more sense to subsidize that group directly rather than to subsidize the system. This, in fact, is a concept being pressed by segments of the taxi industry at this time (7), and the Urban Mass Transportation Administration (UMTA) is currently sponsoring such a subsidy program in Danville, Illinois, to determine its impact. Any subsidy to users that involves a simple direct subsidy for regular taxi service, however, would be in direct conflict with the objective of economic efficiency; the fact that regular taxi service serves only one passenger at a time implies that such a service does not make maximum use of its resources.

One of the underlying reasons for contracting with a private operator is to keep costs at a minimum. The taxi industry has been quick to note that it currently provides service at a cost per passenger that is significantly below that of most publicly operated DRT systems (5). This, of course, is less the result of inherent efficiencies in taxi operation (the productivity of taxis is generally lower than that for most DRT systems and productivity for shared-ride taxis is not significantly different from that for public DRT systems) than the present basic differential between wages for taxi and public transit personnel.

This differential is largely attributable to two factors: an unaccounted (and largely untaxed) wage received by drivers in the form of tips and true differences in the quality and productivity of the labor force. The (untaxed) cash flow to drivers in the form of tips is often overlooked in evaluating wage differentials between the sectors. The labor force for taxis is frequently part-time and of exceptionally uneven quality, which may not meet the performance standards for public-sector operators. When taxi drivers are suddenly placed in the context of public-service DRT operators, performance expectations are increased significantly and the untaxed cash flow is eliminated. This should eliminate the difference in wages over the long run. Short-run wage differentials may continue to exist in the near-term planning period.

One of the reasons for contracting with a private operator is that the profit motive can help keep costs at a minimum. By contracting with the private sector for a service that makes more efficient use of its resources (e.g., a shared-ride service) and by requiring certain levels of service, the public sector can attempt to obtain a given level and type of public transportation service at the least possible cost. In addition, since taxi companies are at present generally profitable, it is conceivable that a more efficient shared-ride service, using either an existing fleet of passenger cars or a fleet of larger van vehicles, can be developed through the natural

evolution of existing taxi services with no continuing public subsidy required.

### The Private Sector

The private sector, due to entirely natural circumstances, may have a different orientation toward the provision of service than the public sector. The private sector's concerns center on protection or enhancement of any equity interests it may have as a result of existing operations, as well as on a realization of fair and equitable wages and benefits for services performed. Other concerns focus on adequate return on investment and long-range economic security. The private sector will also be concerned with maintaining the satisfaction of customers and the labor force and keeping labor demands and costs at a reasonable level. Quality of service is recognized as a key ingredient to successful operation in the freely competitive market, but it is probably not as important a consideration to the private operator as it is to the public sector, since it is viewed more as a means than an end. In an area where there is a single operator or where an operator works under a safe and secure contract or franchise from a public agency, the natural incentive to maintain high-quality service that exists in a competitive market may be diminished.

### Reconciling the Objectives

The private sector has a natural concern about its economic security; given the marginal nature of many small taxi operations, this may translate into a vested interest in the status quo. If the public sector wishes to modify that status quo, it must recognize these concerns about security and deal with them adequately. However, this will frequently bring the two sectors into conflict. The public sector cannot and should not guarantee the existence of a private operator. However, without certain guarantees pertaining to his future economic security, the private operator may not be interested in cooperating with the public sector at all. Conversely, the public sector normally (and properly) resists the creation of a monopoly situation that would destroy the advantage of the free marketplace.

An important and parallel corollary to these points is the entire concept of risk management. As the private sector evaluates opportunities, it will balance risk against return on investment; the greater the risk involved, the greater will be the anticipated returns necessary to draw out participation by the private sector. However, the public sector would like to place as much risk as possible on the private operator, while holding down the price of purchasing services to the minimum. Clearly, these two goals are in conflict, and it may prove difficult to satisfy both simultaneously.

The public sector must also be prepared for different levels of cooperation with different private operators. Some private operators may view DRT as a way of expanding their markets and, hence, of increasing their profits. Others will view participation with the public sector as a necessary evil—necessary in order to prevent the public sector from providing competitive service. These attitudes will also affect the contract terms that will be sought by the private sector.

Can a contractual relationship between private operators and public authorities be structured in a way that reconciles these conflicting objectives satisfactorily? We believe that a middle ground can be found. Contract structures that appear to satisfy these requirements are currently being proposed in applications for the UMTA Service and Methods Demonstration Project

filed by two public transit agencies. These structures are based on the concept of minimum levels of service (established as a condition of payment) and financial incentives for maximizing efficiency of service.

### ELEMENTS OF CONTRACTUAL RELATIONSHIPS FOR DRT SERVICES

#### Minimum Levels of Service

A fundamental component for any contract between the public and private sectors for the provision of demand-responsive service is the definition of minimum standards of service quality that must be met if the contractor is to be in compliance with the provisions of the contract. This component should be structured so that failure to meet these standards could result either in penalties being imposed on the contractor or in complete withholding of payment. Logical provisions for the standard of service will relate to such elements as the average waiting time, the average riding time, and the statistical variance in those factors; the driver's courtesy, safety, and appearance; the vehicle's safety, comfort, and cleanliness; and so forth. The public sector should realize, however, that the imposition of such standards will increase the risk perceived by the private contractor. In order for that risk to be acceptable, the standards must be reasonable and the private contractor must have the management flexibility to meet them without penalizing himself financially. Additional profit incentive may also be required in some cases.

#### Types of Contractual Arrangements

As a prelude to introducing the contract form that has been proposed to deal specifically with the problems raised earlier in this paper, it is appropriate to briefly review certain characteristics of the most generally applied contract forms. Standard contracts for procuring services can be divided into three general classifications—fixed fee, cost plus fixed fee, and fixed cost per unit of service. As we shall see, each of these traditional approaches has serious deficiencies in this context.

The fixed-fee contract form offers the advantage of allowing a public authority to know exactly the total cost of providing service in advance of signing the contract. This is clearly desirable from the standpoint of fiscal control and budgetary planning. However, a fixed-price contract based on specified standards for the level of service implies that all risks are borne by the private operator. This may be acceptable where service is ongoing and the costs and level of resources required to meet the demand and any service standards can be accurately predicted. However, in the context of starting up new services it may be extremely difficult to predict the demand for DRT service, which makes it very difficult to accurately predict costs beforehand. Thus, at best, a very steep price would be necessary to induce the private operator to take such a risk. It is more likely that an operator would simply not accept this type of arrangement or that the cost of such arrangements would be viewed as excessive by the public sector.

A contract for cost plus fixed fee is one of the most common types of contractual forms under which the public sector purchases services from the private sector. The cost-plus nature of this contract form significantly reduces the level of risk that must be borne by the private entrepreneur. This, in turn, would reduce the risk-based profit that must be paid to the private operator. The fixed fee might be just that (a fixed amount) or it might be a fixed percentage of costs. In the latter

case, unless a ceiling is placed on the fee, the operator is provided a clear incentive to increase the cost base on which his profit is calculated, an undesirable situation from the public sector's point of view. Even in the former case, however, there is no incentive for the operator to keep costs at a minimum, since his fee is not contingent on efficient performance. Thus, the public sector's objective of attaining maximum efficiency is not directly promoted.

Probably the most common type of contractual arrangement that has been used by the public and private sectors for the provision of demand-responsive services falls into the third category, fixed cost per unit of service. In this case, the profit is built into the fixed cost. Since a transportation operator frequently figures his costs on the basis of a unit of service (e.g., cost per distance traveled), this is a natural structure to establish.

There are two basic ways to establish this type of contract. First of all, the operator may be reimbursed for his services on the basis of distance or time. This type of arrangement is in effect in a number of communities in California, including La Mesa (8), and in a number of communities in Michigan, including Livonia (9, 10). Revenues in these systems may be collected by the operator or be passed directly to the public sector. This type of approach minimizes the level of risk experienced by the private sector; unless costs rise significantly above the expected level, the operator will make a profit. However, under this framework there is no incentive for the operator to provide the most efficient service. In fact, the reverse is true; the greater the distance or time recorded, the greater the profit for the private operator. This type of approach, therefore, does not meet certain efficiency objectives of the public sector.

An alternative methodology would be to pay the private operator on a per-passenger basis. This approach, essentially a form of indirect subsidy to the user, is currently being used in a number of communities, including Huntington Park and El Cajon, California (11). The approach increases the risk to the private operator somewhat, since the operator may be required to keep a minimum number of vehicles and drivers in operation at all times, even if ridership is fairly low. Of course, the operator can make adjustments to his operation once ridership levels are known, so this should not be a severe problem. This fact serves as the incentive (missing in the earlier approaches) for the operator to provide the most efficient service and thus to keep his costs at a minimum. As long as requirements concerning the level of service are imposed on the operator, this contracting approach should result in a fairly efficient high-quality service.

Perhaps the major problem with this approach, from the public sector's point of view, is that any cost reductions are not passed on to the public. The risk level perceived by the operator may make it necessary to set an arbitrarily high cost per passenger and, if subsequent economies are achieved through efficient operation, only the private operator benefits. In Orange, California, a combination of cost plus fixed fee and cost per unit of service is employed. The private operator is provided a fixed percentage fee, plus a fixed subsidy per passenger to serve as an incentive. Above a certain level of patronage, a higher rate would be provided. As a control on total costs, there is a ceiling on the total cost plus fee that will be provided. The incentive fee is paid only until the total cost level is reached. Thus the operators do have some incentive to keep costs down. Of course, if the operating contract is awarded on a competitive basis each year, the operator is pro-

vided with an additional incentive to keep costs down, and economies will be passed on to the public sector.

The most desirable contracting form would simultaneously

1. Assign to the private operator risks that are commensurate with anticipated return,
2. Provide incentives to the private operator to maintain acceptable service levels,
3. Provide incentives to the private operator to maximize the efficiency of the service, and
4. Provide a mechanism whereby economies in operation pass through to both the public and private sectors.

One approach that offers the potential for meeting these criteria is a variation of the cost-plus-fixed-fee contract that might be described as a cost-plus-variable-fee approach. Since the public sector seeks accessibility, quality, and efficiency of service, while the private sector seeks profit maximization and avoidance of risk, it seems logical that the fees be directly tied to vehicle productivity, number of passengers carried, and quality of service. These three factors can be used to determine profits to the private sector through the establishment of profit incentives tied directly and independently to these factors. Profit can be simultaneously determined as a function of productivity and passenger volume; profit can be paid for each passenger carried, while the rate of profit per passenger can be determined by the system's productivity. In other words, the fee per passenger would increase with increasing productivity. Factors of service quality can be used as criteria that must be met for full payment of profit bonuses. The cost-plus nature of the contract minimizes the risks for the private operator and therefore allows the profit incentives to be offered at a level that is reasonable from the perspective of the public sector.

Since all costs (as verified by the public sector through a postaudit) are reimbursed, the risk to the private sector is minimized under this approach. The scheme differs from a cost-plus-fixed-fee contract because incentives are inherent elements of the fee structure. By awarding the fee on a per-passenger basis, the private operator has the incentive to attract more passengers. By tying the rate of fee to productivity (i.e., increasing the rate with increased productivity), the operator is provided with an incentive to maximize productivity and therefore to minimize the cost per passenger of operating the service. Since the public sector pays only the actual cost of operation, economies achieved in operations are passed through to the public sector. Under this strategy, higher productivity or higher ridership will each, independently, increase the profit available to the private operator while simultaneously allowing for improved operating ratios within the public sector's accounting. An extension of this approach would be to tie the rate to the number of passengers, with the fee per passenger decreasing with increasing ridership. This would serve to protect both the private and public sectors. At very low levels of ridership, the private sector would receive an increased profit per passenger, which makes the system more worthwhile for them; at very high levels of ridership and productivity, the public sector would not have to provide quite as high a profit margin.

This approach sets up a structure whereby benefits from economies and gains in productivity achieved through efficient management are split between the private entrepreneur and the public sector. Through a careful structuring of the fee schedule, the private operator will have an incentive to fine tune the operations of the system to the point of maximum productivity.

The most difficult element in this approach is establishing the fee level, as well as the curve of fee versus productivity. The fee must be high enough to attract the private operator who fears that the profits from his existing service will be diminished. The fee levels may be negotiated after an operator is chosen. One approach that could be used in a competitive bidding situation would be to solicit bids on the maximum cost per passenger; i.e., the operator would be guaranteed reimbursement (per passenger) up to a maximum level. To keep the level of risk low, this limit could be maintained for a specified time period and then increased if conditions warranted it. For example, the bid on maximum cost per passenger could be binding on the bidder for six months and then adjusted upward (or downward) automatically in direct proportion to changes in the Consumer Price Index (CPI) or specific components of the CPI, based on a negotiated formula in the contract. Once experience has been gained in operating the demand-responsive service, it will be easier to establish both cost-reimbursement levels and the fee schedule.

A similar type of incentive structure can be established for drivers. Taxi drivers who work on lease or commission are well known to hustle for extra work. DRT services can similarly be structured to reward drivers with productivity bonuses. Experience in the taxi industry suggests that the presence of such an incentive structure significantly improves a driver's productivity. The workability of such an incentive program would clearly be contingent on the faith of the drivers in the equity of the control room's dispatching decisions.

Of course, under this approach, as well as any of the other approaches, the payment of profit or fee should be tied directly to the quality of service through minimum criteria for service standards. This is necessary protection for the public, particularly when the operator will have an incentive to maximize productivity, since one of the characteristics of demand-responsive systems is that, beyond certain levels, increases in productivity may be obtainable only through deterioration in the quality of service. The public sector should be prepared to monitor such measures of the quality of service as waiting time and traveling time and to establish reasonable minimum levels of service. If service deteriorates below these levels, the fee should be reduced accordingly. Therefore, specification of procedures for collecting data on the level of service, including the identification of statistical levels of confidence, confidence intervals, and testing procedures, will be a necessary and appropriate component of a contract. In any contract the public sector should also specify the basic requirements for liability insurance, driver qualifications, vehicle maintenance and cleanliness, and vehicle safety that will be binding on the private sector.

#### APPLICATIONS OF COST-PLUS-VARIABLE-FEE CONTRACTS

To date there have been, to our knowledge, no actual applications of the cost-plus-variable-fee contracting relationship described in the preceding section for the provision of DRT services. However, there are plans to employ different versions of this procedure in two areas; in each case, the contract framework is included in applications for UMTA Service and Methods Demonstration Projects. The two projects in which the cost-plus-variable-fee contracts have been proposed are based on different objectives of the public sector.

In one area, the public sector wants to provide a less expensive public transportation service to the community by increasing the efficiency of an existing shared-

ride taxi system, but it does not wish to provide a continuing transit subsidy (there is already a substantial subsidy for fixed-route bus operations). The public agency involved hopes to increase the efficiency of the existing service by (a) purchasing larger vehicles (seating 10 to 12 passengers) and leasing them to the operator, (b) introducing automated dispatching equipment, (c) reducing fares and providing a seed subsidy until a break-even operation is achieved (fares would be set at the break-even level after 1 year of operation), (d) marketing the service, and (e) providing incentives to the operator to maximize productivity at all times. (At present, shared riding is used primarily in a many-to-one, rather than many-to-many, mode.) The cost-plus-variable-fee contract is to serve as the major incentive to the operator to maximize productivity, given the constraints on the quality of service. By maximizing productivity and therefore reducing the cost per distance traveled, the public sector hopes to reduce the (unsubsidized) average fare for shared-ride service from \$2.25 to \$1.35. Local social service agencies that are currently paying for taxi service for their clients have agreed to provide a subsidy per user to make the new service less expensive for those clients. At present, the local taxi companies have agreed to join together and bid for this operation as a consortium. In this manner, no single operation stands to be hurt by the competition provided by the new service.

In the second area, the contract framework is incorporated into an overall integration plan that seeks to bring together fixed-route bus services and a range of shared-ride and route-deviation paratransit services that are offered by a number of different operators. The plan seeks service integration through the development of a comprehensive range of complementary system components. The great majority of services will be offered through contracts with the private sector, with the public agency serving as a kind of glue that can coordinate and integrate a complex set of services offered by a number of private entrepreneurs. This demonstration is also unique in its attempt to consolidate a multioperator environment (two taxi companies, two social-service-agency DRT services, and a private school bus operator) into a single centralized control room and operating plan (12).

The centralized control concept has been put forward as a strategy for improved overall system performance for many years. However, a principal stumbling block to its implementation has been the issue of equity and how the public sector can protect the equity rights of the private sector as it moves toward centralization of control-room services. The proposed solution is based on the formation of a new private corporation that would operate all the private-sector services to be contracted for by the transit district. Equity in the new corporation—actually a transportation company to be formed to provide a range of DRT services—is to be divided among the existing private operators on the basis of their existing market shares. These operators will then be free to sell this new equity to other interested parties. Since this equity represents the rights to guaranteed service contracts with low risks and a reasonable return, it should be a marketable asset. It should be noted that this strategy is workable because of the marginal economic nature of the existing taxi operations in the area. The use of service contracts appears more favorable to the private sector than the current environment, which makes this evolutionary process possible. In other contexts, where private operators have a greater existing equity, additional protection or compensation may be necessary to induce such an evolution within the private sector.

## PERSPECTIVE

This paper has addressed itself to the ways in which contracts may be structured between the public and private sectors for the provision of demand-responsive services. Since this is a narrow subject area, we have not dealt with a range of crucial issues and questions that need to be addressed concerning the efficacy and impact of the integration of the private sector in the provision of demand-responsive service.

What impact does the introduction of a publicly operated or subsidized DRT service have on existing taxi services? Can federal funds be used to subsidize a DRT system in an area served by private taxi companies, given the present urban mass transit legislation? Should public subsidies to private operators who provide DRT systems under contract to the public sector include vehicle purchase? What are the implications of such a strategy on the federal capital assistance program?

Is it in the public interest to foster competition for contracts to operate demand-responsive service or is it better to develop a single operator representative of all local operators? If a single operator is not obtained, what are the implications of the competition between the contract service and regular taxi service? What impact will new DRT service have on regular taxi service that may still be provided by the DRT operator(s)? What impact will such service have on the existing equity of the private operator, particularly those with equity in licenses or medallions?

What is the role of taxicab owner-operators (as opposed to fleet owners) in DRT service? How will they be affected? What will be the short-term impact on private-sector labor? What impacts will changes in work rules and elimination of tipping have on wage rates and the quality of the labor force?

None of these questions is easily answered; each will be addressed as more and more communities introduce demand-responsive services operated by the private sector.

This paper has focused on the reconciliation of often conflicting objectives prevailing within both the public and private sectors. It is our contention that this type of conflict can be resolved if the parties involved recognize and understand their counterparts' needs and objectives, accept them as rational behavior patterns, and seek a mutually acceptable common ground. We hope that this discussion has shed some light on the path toward that common ground.

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