

National Institute
of Justice

Issues and Practices

Lease-Purchase Financing of Prison and Jail Construction

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U.S. Department of Justice
National Institute of Justice

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- Tests and demonstrates new and improved approaches to strengthen the justice system, and recommends actions that can be taken by Federal, State, and local governments and private organizations and individuals to achieve this goal.
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James K. Stewart

Director

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Lease-Purchase Financing of Prison and Jail Construction

by

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November 1987

Issues and Practices in Criminal Justice is a publication of the National Institute of Justice. Designed for the criminal justice professional, each *Issues and Practices* report presents the program options and management issues in a topic area, based on a review of research and evaluation findings, operational experience, and expert opinion in the subject. The intent is to provide criminal justice managers and administrators with the information to make informed choices in planning, implementing and improving programs and practice.

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Foreword

Rapid increases in incarcerated populations over the last few years have placed major strains on Federal, State, and local correctional systems. More than twenty states are currently under court order to improve their prison systems, and many jurisdictions are specifically required to reduce overcrowding in jails or prisons. In this climate, correctional administrators are examining many options for dealing with their population problems, while at the same time meeting their responsibilities for both public safety and prudent use of public resources. The choices they face are complex and not easily resolved. Those who decide to construct new correctional facilities never do so lightly, because substantial expenditures are often involved, and lengthy delays may be incurred in preparing voter referenda and construction plans. These delays, in turn, can increase costs significantly.

The National Institute of Justice has undertaken a broad range of activities to help correctional managers learn about the latest research thinking and practices in other jurisdictions for dealing with these difficult problems. We have held national and regional conferences and have sponsored publications on construction design principles for prisons and jails, privatization of corrections, and financing of jail and prison construction.

We prepared this brochure so that correctional administrators could gain greater confidence in dealing with some of the complex financing schemes that have recently been developed. Traditionally, nearly all state and local governments have financed correctional construction through cash ("pay as you go") or general obligation bonds. While voters in some states continue to approve levels specifically for construction of correction facilities, in many states and localities over the past few years, the combination of rising construction costs, insufficient cash reserves, cut-backs in grant programs, constitutional and statutory limitations, and the "taxpayers' revolt" have severely limited the ability to finance construction through these conventional methods. They are turning instead to financing alternatives not subject to debt ceilings or referendum requirements.

According to an NIJ study *The Privatization of Corrections*, the most widely adopted alternative financing arrangement is the lease-purchase bond. While comparatively new to corrections, it is not a dramatic departure in government financing. It has been used successfully in the past for financing the purchase of computers, motor vehicles, office buildings, and telecommunications equipment. However, the details of lease-purchase financing are not easy to understand, and new twists are constantly introduced

by underwriters in response to changes in tax legislation, financial markets, and court decisions. Without expert financial advice, most correctional administrators would have difficulty making even an approximate cost comparison between lease-purchase financing and general obligation bond financing.

This brochure explains lease-purchase financing in clear, understandable terms, leaving out many confusing details that make little difference in the final analysis. The authors are completely impartial researchers, neither proponents nor opponents of lease-purchase financing. They lead you through simplified examples of financing facility construction, complete with all the necessary cost calculations, and show you how and when lease-purchase financing will be more expensive or approximately the same cost as traditional bond financing. When you have finished reading this brochure, you will know what information you need to collect or determine before you can meaningfully evaluate the potential of lease-purchase financing in your own jurisdiction.

James K. Stewart,
Director
National Institute of Justice

Table of Contents

	<i>Page</i>
Foreword	iii
What is a Lease-Purchase Agreement?	1
Advantages and Disadvantages	2
How do LPs Work?	4
Minimizing the Disadvantages of LP Bonds.....	6
Comparing Lease Purchase and GO Bond Financing.....	9
\$50 Million Example	10
Delays in Construction	14
Evaluating a Lease-Purchase Project	19
Acknowledgments	21
 Appendix A: Listing of Corrections Facilities Funded by Lease-Purchase Bonds	 23
 Appendix B: Underwriters with Experience in Lease-Purchase Financing for Prison and Jail Construction	 25

List of Figures and Tables

	<i>Page</i>
Figure 1: Parties to a Lease-Purchase Agreement	5
Figure 2: Historical Arbitrage on Debt Service Reserve	7
Figure 3: Flow of Funds for a Lease-Purchase Bond	9
Figure 4: Flow of Funds for a General Obligation Bond	11
Figure 5: Lease-Purchase Project with a One-Year Head Start Compared with a GO Bond Project	15
Figure 6: Municipal Bond and Construction Indices	18
Table 1: Comparison of Lease Purchase and General Obligation Bonds	12
Table 2: Comparison of Lease Purchase and General Obligation Bonds Assuming a One Year Additional Delay Before Construction for the GO Bonds and an 8% Rate of Inflation in Construction Costs	16

Lease-Purchase Financing of Prison and Jail Construction

Tax-exempt lease-purchase agreements have been widely discussed as creative vehicles by which state and local governments may finance the purchase of prisons, jails, and other large institutional facilities. This report explains how these lease-purchase agreements operate and describes their advantages and disadvantages compared to conventional financing methods based on general obligation bonds. While lease-purchase agreements are generally more expensive than general obligation bonds for the same project, they offer the ability to undertake construction in situations where general obligation bonds may be impractical or may impose unacceptable delays.

Lease-purchase bonds are often thought to be some form of "privatization" of corrections, similar to such private sector activities as ownership or operation of correctional facilities, or provision of services to state and local correctional agencies under contract. But lease-purchase agreements are not intrinsically related to these kinds of privatization; they are solely concerned with how governments raise money to finance correctional facility construction. Private-sector investors' involvement in lease-purchase agreements is not substantially different from their traditional involvement as purchasers of general obligation bonds. Sometimes lease-purchase agreements are offered as part of a combined package involving site selection, facility design, financing, construction, and perhaps also facility operation, but the financing aspects of the package can well be considered as independent of the parts of the package that may involve privatization.

What is a Lease-Purchase Agreement?

A tax exempt lease-purchase (LP) agreement is a way for a state or local government to buy property with installment payments. Strictly speaking a lease-purchase is a lease in name only; depending on details of state law it is actually a "conditional sale" or an "installment sale." (In a true lease or rental agreement, the tenant does not end up owning the property.) The term lease is used mainly because the government usually does not get a clear title to the property until it has completed making a series of payments which are sufficient to buy the property and pay interest to the lenders who financed the purchase. If at any time the legislature chooses not to appropriate funds to continue the payments, then — as with a lease — the agreement is terminated.

Unlike a general obligation (GO) bond, an LP agreement is typically not backed by the Full Faith and Credit of the government and thus is not technically a debt obligation. By contrast, a GO bond carries with it a pledge to raise sufficient funds through taxes to pay debt service. The courts can enforce this pledge against the taxpayers of a state or locality.

LPs are not unfamiliar funding vehicles for state and local governments; only their use for facility construction is new. Over the last ten years LPs have been used by nearly all the states, and dozens of cities and counties, to finance the purchase of equipment such as computers, motor vehicles, fire apparatus, and telecommunications systems. These LPs were typically issued for a few hundred thousand to a few million dollars. They are convenient methods for governments to purchase equipment without having to commit blocks of tax revenue to a cash purchase or going through the complexities of seeking voter approval for a comparatively small bond issue.

Advantages and Disadvantages

In recent years LPs have begun to be used for financing large capital projects such as the construction of jails. (See Appendix A.) This trend toward large scale projects has come about despite the typically higher cost of LP funding and can be attributed to a growing number of obstacles to conventional funding methods. Among the reasons for the decline of conventional methods based on GO bonds are the following:

- **Debt limits.** Some communities have reached the legal limit of their permissible public debt. These debt limits may have been set at levels much lower than the community can prudently bear, perhaps reflecting obsolete standards established many years ago. In these cases LP bond issues may serve as an interim method of raising capital until community charters or state constitutions can be revised to reflect current financial conditions. In other jurisdictions, debt limits recently approved by the voters effectively prevent the government from issuing new GO bonds.
- **Restrictions on incurring new debt.** In some jurisdictions, recent legislation or voter initiatives have imposed new procedures or limitations that make the process of incurring added debt much more complex or burdensome than in the past.
- **Voter resistance.** The "taxpayers' revolt," whether already expressed at the polls or only a potential for the future, is a consideration in the minds of many politicians who wish to avoid proposing new debt. In recent years under half of jail construction bond issues have been approved nationwide.¹ Proposed bond issues for prison or jail construction are particularly subject to taxpayer resistance against "coddling criminals."

1. Reported by John Peterson in *Corrections and the Private Sector: A National Forum*, proceedings of a conference, National Institute of Justice, forthcoming 1987.

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- **Need for a special election or referendum.** Approval of a bond issue typically requires submitting the issue to the voters, and thus entails expenditure of time and resources to qualify the ballot measure and to provide appropriate information to the voters in conjunction with the election.
 - **Pressures of litigation.** Some corrections agencies, under court order to improve conditions in their prisons or jails by a specified date, do not have adequate time to prepare a bond issue and qualify a ballot measure. Or, fines that would be imposed by a court on the corrections agency for failure to act promptly may more than offset the added cost of lease-purchase financing. Even the savings achieved by bringing expensive litigation to a close may justify added costs in financing.

Lease-purchase issues can be designed to avoid many of these obstacles. Depending on details of state law, jurisdictions may be able to issue LP bonds despite having reached their legal debt limit, or without following cumbersome administrative procedures associated with GO bonds or with construction projects funded by GO bonds. LP bonds can often be issued much faster than general obligation bonds, especially in jurisdictions that require voter referenda for general obligation bonds. For this reason, funds for court-ordered improvements may possibly be secured through LP bonds when voter approval of GO bonds cannot be timely obtained.² In some situations, speedy issuance can also allow a community to save money by taking advantage of favorable interest rates or by avoiding anticipated increases in construction costs.

These potential cost savings may be offset by a higher interest rate for LPs and by higher legal and underwriter expenses. Because LP bonds are inherently riskier than GO bonds, they will tend to carry an interest rate typically three-tenths of a point to somewhat over one point higher than a GO bond in the same jurisdiction. The size of the difference depends on municipal bond market conditions (which change over time) and unique credit features of each jurisdiction. Special devices (described below) may be used to enhance the security of the LP issue and thereby lower the interest rate. If so, LP bonds can become such close substitutes for GOs that they will be evaluated in the bond market as having nearly equal risk.

2. Under some states' laws, this advantage of LP bonds is not present because the circumstances of a court order would permit bypassing the requirement of voter approval even in the case of GO bonds. In other states, local governments may require action by the state government before they can issue LP bonds, in which case LP bonds cannot necessarily be issued rapidly.

From an investor's viewpoint, LP bonds can be as attractive as general obligation bonds. The LPs are generally exempt from federal, state, and local income taxes on their interest payments. (As with GOs, investors are usually subject to income taxes on any gains which they might realize from the sale of the LPs.) Although LP bonds are riskier than GO bonds (because they are not backed by the issuer's full faith and credit), bond rating services consider them to be much less risky than "moral obligation" bonds, such as those that were issued (principally by New York State) several years ago and subsequently fell into default. LP bonds are backed by collateral, namely the facility whose construction they finance and any associated land.

While LP bonds can be viewed as ingenious methods for financing the purchase of urgently needed facilities, their use to fund large capital projects may in some cases be a symptom of other problems. Spendthrift government may be trying to evade the normal and proper scrutiny of taxpayers, taxpayers themselves may be refusing to authorize unavoidable capital improvements, the courts may be ordering capital expenditures which are directly contrary to the will of the people and their legislators, or state law may be unnecessarily limiting some technical aspects of GO bond issues, thereby making them less attractive. The appropriateness of using LP bonds is thus partially a political issue which cannot be addressed strictly in financial terms.

How Do LPs Work?

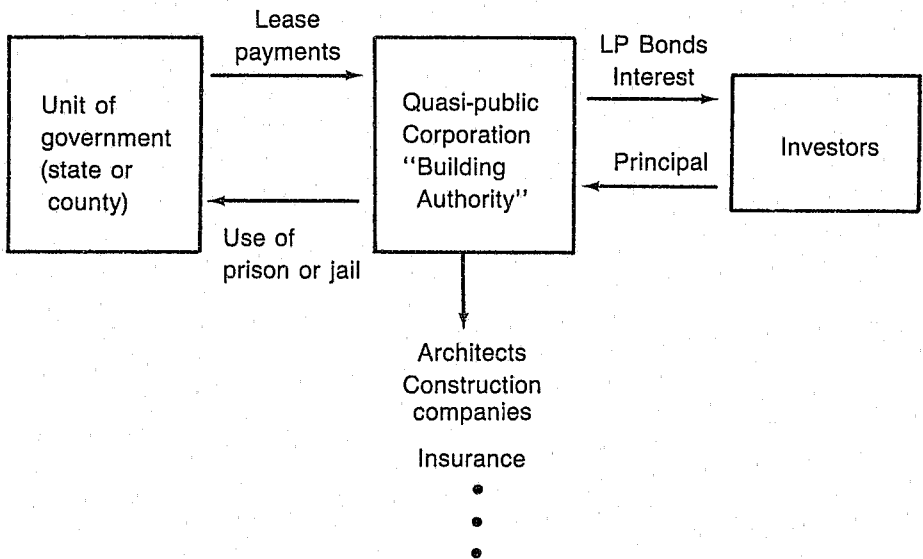
There are three main parties in a lease-purchase agreement, shown in Figure 1. These are 1) the government unit seeking to acquire some property or capital facility; 2) a quasi-public corporation (e.g., a building authority) that will borrow money, contract to build a facility, and finally pay off its debts using the lease payments received from the government unit;³ and 3) the private investors. Also involved are hired parties such as underwriters who market the debt obligation, construction companies who may build or renovate a facility, architects, engineers, and legal counsel.

LPs work much like general obligation bonds. In the example shown in Figure 1, the government uses the Building Authority to act as a middleman in issuing debt and building the prison or other capital facility. The government unit agrees with the Authority to make lease payments for the capital facility (subject to legislative appropriation). The Building Authority then issues lease-purchase bonds (in some cases technically known as Certificates of Participation (COPs)), which typically do not include a full

3. Instead of a quasi-public corporation, the issuing entity could be a trustee bank or other profit-making organization.

Figure 1

Parties to a Lease-Purchase Agreement



When lease payments end, the state or county owns the prison or jail.

faith and credit guarantee.⁴ Funds raised through the sale of LP bonds are used by the Authority to pay for expenses related to construction of the prison or other capital facility. The Authority holds title to the facility until the government unit has made lease payments sufficient to pay off the LP bonds. When the LP bonds are paid off, the Authority surrenders title to the government unit which then owns the facility.

Under lease-purchase agreements established prior to the 1986 Tax Act, the Building Authority could use as much as 15 percent of the proceeds of the LP bond issue for investment in a Reserve Fund. If the authority encountered favorable market conditions, it might reinvest the Reserve Fund in obligations with higher yield than the LP bond itself, thereby lowering the effective cost to the taxpayers of the LP bond issue. This key attractive

4. The LP bonds may be sold to institutional investors in any denomination, but typically they have a par value of, say, \$5,000 and they pay interest in some fixed amount on a regular schedule (e.g., semi-annually). A Certificate of Participation technically gives the investor a fractional portion of the lease payments, while an LP revenue bond is a written promise to pay back the investor's principal plus periodic interest.

feature of LP agreements prior to September, 1986, is no longer applicable under current tax legislation—the Reserve Fund is now permitted to earn interest at the same rate or lower rates than the LP bond itself.

In any event, Reserve Funds began having difficulty finding favorable investment opportunities (“positive arbitrage”) well before the change in the tax law. As Figure 2 shows, during two lengthy periods (before 1983, and from mid 1983 to early 1985) the interest rate for investing Reserve Funds was well above the cost of a typical municipal bond issue, so that meaningful positive arbitrage could be achieved. In early 1986, the two lines in Figure 2 cross, indicating that positive arbitrage was no longer readily available. Reserve Funds are nonetheless included in lease-purchase agreements, because they protect the investors against non-appropriation by covering at least a portion of the next year’s lease payment.

Minimizing the Disadvantages of LP Bonds

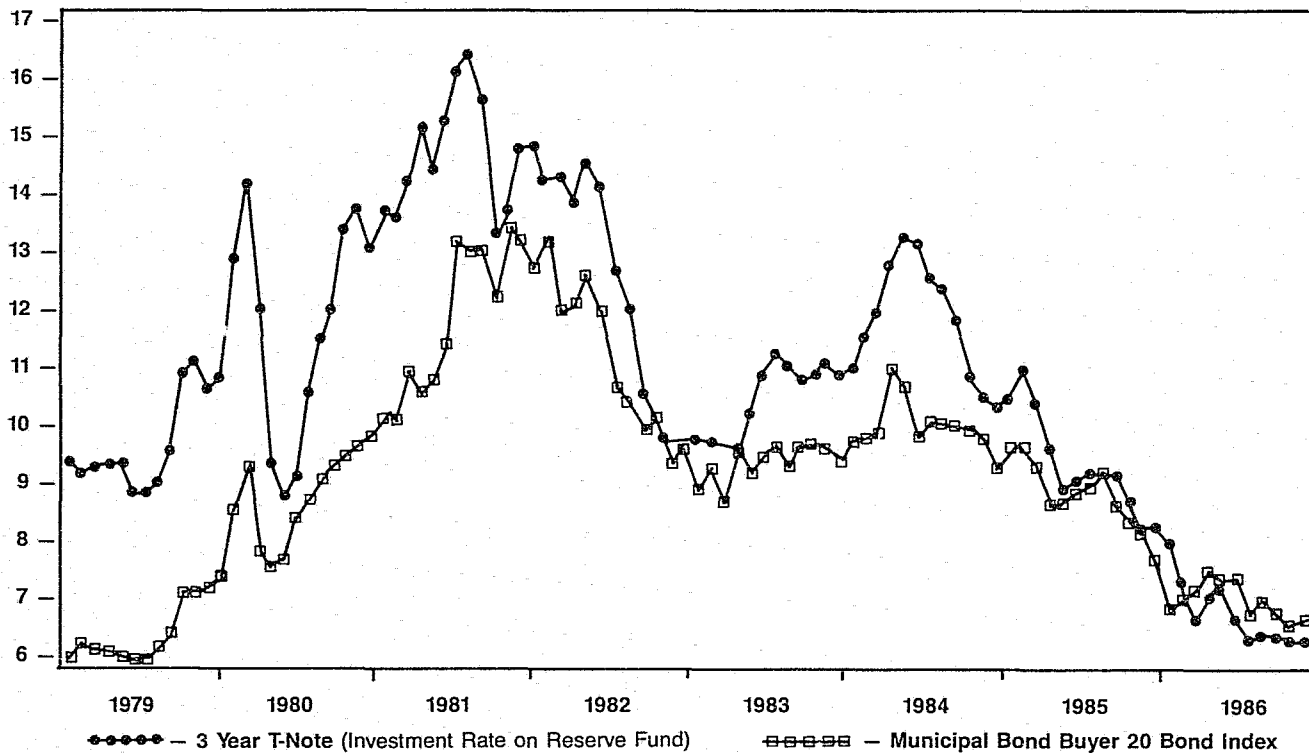
Unless special underwriting devices are used, LP bonds typically have to pay an interest rate which is 0.3 to 1.1 percentage points higher than what the government unit would have had to pay for an equivalent general obligation bond. This occurs because investors demand a higher interest payment to compensate for the risk of non-appropriation that could occur for the LP. In designing an LP issue, underwriters try to narrow the interest rate difference between GOs and LP bonds as much as possible. Among the special devices that are used for this purpose by underwriters, many are intended to minimize the possibility that the legislature will not appropriate the annual lease payments.

Non-substitution clauses are one such device. A non-substitution clause states that if the legislature fails to appropriate funds to pay the LP obligation, the government unit may not, for some designated period of time, contract with any other party who might be willing to supply a similar capital facility service. The period of time may be as short as a month or as long as several years. The intention of this clause is to make it very unattractive for the legislature to fail to make the appropriation because doing so would cause an area to lack a prison or some other essential public facility. Non-substitution clauses are only occasionally used in LP arrangements, because their legality is untested. It is not clear that a unit of government has the authority to abridge its power to provide an essential service.

A second device for reducing the investors’ risk of not receiving their periodic payments is to strengthen the *non-appropriation* clause in the LP contract. This clause can stipulate that the government unit will not cancel the contract for convenience, for unsatisfactory performance by the facility, for lack of need for the facility, or for any reason other than non-appropriation of funds by the legislature or other governing body.

Figure 2

Historical Arbitrage on Debt Service Reserve Fund
Spread Between Cost of Funds and Investment Rate on Reserve Fund Bonds
January 1979–December 1986



Third, LP bonds often contain a *best effort* clause which requires the unit of government to make its "best effort" to get the legislature to appropriate the funds. Some underwriters recommend that the language of this clause be very specific to discourage half-hearted efforts.

In addition to these formal devices, another powerful factor discourages a legislature from failing to appropriate funds for a lease-purchase payment: any non-appropriation is likely to harm the jurisdiction's credit rating. The consequences of a bad credit rating can haunt a government for decades.

Other ways of lowering the investors' risk on LP bonds, and thus narrowing the interest rate differential between GOs and LPs, involve compensating the investors for legislative non-appropriation of funds, should it occur. One increasingly popular mechanism is **bond insurance**, which for an added initial payment guarantees that the investors will receive their annual lease payments. In jurisdictions that have GO bond ratings of AA or lower, the premium for bond insurance will usually be more than offset by the lower cost of insured bonds with better ratings.

Another way of lowering the interest rate on LP bonds is to increase the *attractiveness of the leased property for private use*. While this may seem improbable in the case of prisons and jails, in fact some minimum security facilities can be so located and designed that they would be suitable office buildings. Further, land or adjacent property can be included along with the prison or jail facility in the lease-purchase contract. The land alone, even if the facility were to be demolished, could equal in value the amount of the investment by bondholders.

In some jurisdictions, LP bonds can be issued using financing structures or techniques that are not permitted for GO bonds. For example, LP issues may be permitted to include variable rate financing or zero coupon bonds. Depending on bond market conditions, these may be attractive or unattractive features to include in an LP issue.

These various devices for improving the attractiveness of LP bonds to investors have frequently been successful. There have been recent cases where LP bonds have sold at a cost nearly equal to that of GO bonds, simply because the LP was being issued by an agency with a good credit rating and the lease payments for the facility were sufficiently secured.

However, there is a danger in adding *too many* guarantees to the LP issue, and advice of a competent bond counsel is necessary to avoid structuring the LP agreement inappropriately. If the guarantees are so strong that the legislature actually has no legal alternative other than to appropriate the annual lease payment, then the courts may rule that the LP issue was in effect a GO bond issue and that the procedures and constraints that pertain to GO

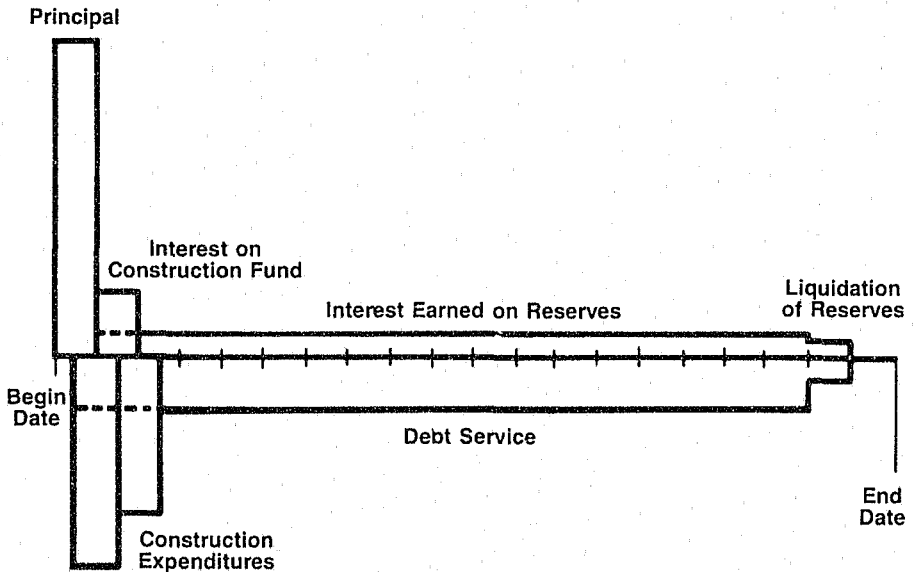
issues must be retroactively applied. Such a ruling could possibly place the entire construction project in jeopardy.

Comparing Lease Purchase and GO Bond Financing

This section examines how lease-purchase financing works and how it compares with the more common situation of financing through general obligation bonds. Let's begin by first reviewing the flow of funds associated with an LP bond or "Certificate of Participation." Figure 3 shows how this operates. The horizontal line in the diagram measures time from the date when the bond is first issued to when it is paid off. Blocks which appear above the line represent revenues — that is, funds obtained from the bond issues by the Building Authority — while blocks below the line represent expenditures — payments by the Building Authority to construction contractors and to bondholders.

Figure 3

Flow of Funds for a Lease-Purchase Bond



NOTE: Diagram is not to scale. Annual debt service is much smaller than construction expenditures.

For simplicity, our diagram shows only those Building Authority revenues that come from principal and interest on the LP bond. Of course, the Building Authority also receives revenue from the taxpayers' yearly lease payments. The first revenue flow in the diagram is the initial influx of cash (principal) that is obtained from the sale of the LP bond. Second is the subsequent inflow of revenues from interest that is earned on both the Construction Fund and the Reserve Fund. Interest earnings on the Construction Fund do not last very long, since the fund is designed to be exhausted by the construction process. (That part of principal which is placed in the fund plus the interest which it earns while construction is going on will exactly equal total planned construction costs.) Interest earnings on the Reserve Fund continue for almost the entire life of the bond issue. In the diagram, we show the case where the Reserve Fund is invested in a secure debt obligation. In this case, the fund earns a fixed rate of interest until it is finally liquidated at the end of the bond issue. Interest earnings from the Reserve Fund help to offset the debt service, so that the net debt service paid by taxpayers will be lower by this amount.

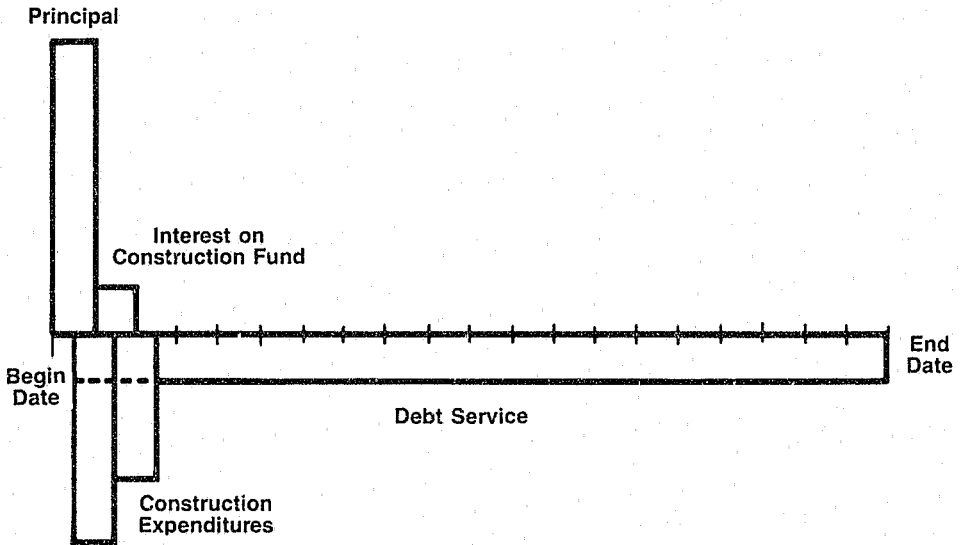
Expenditures in the diagram are caused by construction expenses early in the project and by the payment of principal and interest — "debt service" — over the remaining lifetime of the bonds. Note that the blocks below the line for the payment of debt service are larger than the corresponding blocks above the line which represent the interest earned by the Reserve Fund. The difference between these revenues and expenditures is the Net Debt Service, i.e., the money that must ultimately be paid by taxpayers in the form of the annual lease payments. The Reserve Fund is limited to no more than 10 percent of the size of the LP bond issue and is not permitted to earn interest at a higher rate than is being paid to the bond's investors.

The revenues and expenditures involved in an LP bond are more complicated than are those in a General Obligation bond as illustrated by Figure 4. For a GO bond, there is no Reserve Fund which is able to earn interest. This means that after construction is completed, taxpayers are the sole source for meeting principal and interest payments.

\$50 Million Example

To better illustrate the differences between LP and GO bonds, let us consider how a \$50 million prison construction project might be financed with the two methods. Our discussion will ignore some of the finer points of bond issue finance, and the numbers may not be realistic for market conditions at the time you are reading this report. But the comparison, shown in Table 1, illustrates the main factors that must be taken into account. Our basic assumptions are that both types of bonds would run for the same period

Figure 4
Flow of Funds for a General Obligation Bond



of time (20 years), they are both priced to sell at par value, and they both require equal annual debt service payments. These assumptions correspond to standard practices.

In order to finance a \$50 million construction project with LP bonds, the Building Authority will have to raise \$54,105,000 as proceeds of its bond issue. The bonds in this example are marketed to pay an interest rate of 7.1 percent.⁵ Note that, in contrast, a GO bond offering for the same project would need proceeds of only \$48,575,000, because in this example we assume it could be marketed at the lower interest rate of 6.6 percent. The larger size of the LP issue is primarily due to the fact that some extra money is being borrowed to establish the reserve fund.

5. Some details of bond issues are being simplified for purposes of clarifying the illustration. A 20-year LP bond issue would ordinarily be structured as 20 serial bonds, each with its own maturity date and its own coupon interest rate — higher rates for the long-term bonds and lower rates for the short-term bonds in the issue. The cited interest rate of 7.1 percent is an overall effective interest rate for the entire issue. For bond issues smaller or larger than the \$50 million example in the text, the costs would not be exactly proportional to those in the illustration. Smaller issues would be slightly more expensive than a proportional calculation would suggest.

Table 1
Comparison of Lease Purchase and General Obligation Bonds

	Lease Purchase	General Obligation
Total Bond Issue	\$54,105,000	\$48,575,000
Uses of Proceeds:		
Underwriter Expenses	703,365	485,750
Other Issuance Expenses	150,000	120,000
Reserves	5,284,877	- 0 -
Rounding/contingency	1,611	4,103
Construction Fund	47,965,147	47,965,147
Construction Cost	50,000,000	50,000,000
Met by:		
Construction Fund	47,965,147	47,965,147
Interest Earnings on Fund	2,034,853	2,034,853
Total Debt Service	104,049,002	90,146,870
Components:		
Principal	54,105,000	48,575,000
Interest	49,944,002	41,571,870
Sources of Debt Service		
Interest on Reserve Fund	12,781,254	- 0 -
Taxpayer's Net Debt Service	91,267,748	90,146,870
Present Value of Net Debt Service (6.6% discount)	50,577,990	48,575,000
Terms:		
Coupon Rate	7.1%	6.6%
Years of Repayment	20 (1988-2008)	20 (1988-2008)
Payment Rule	Level Debt Service	Level Debt Service

About \$850,000 of the proceeds of the LP bond issue will go to underwriter and marketing expenses, \$5.3 million will be placed in the Reserve Fund and will earn interest (assumed here to be at 6 percent — the Reserve Fund is not permitted to earn interest at a rate higher than the 7.1 percent on the LP bonds themselves), and another very small round off entry (\$1,611) occurs simply because bonds are being sold in multiples of \$5,000. Most of the money (\$47,965,147) raised by the LP bond issue will be put into the Construction Fund. In our example, the fund is gradually drawn down over the construction period. Money in the fund earns interest (over \$2 million) sufficient to fully fund the total construction cost of \$50 million. The corresponding GO bond will have slightly lower underwriting and marketing expenses due to the decreased size and complexity of its bond issue. Its

Construction Fund operates identically to that of the LP bond. Note that there is no interest-earning Reserve Fund for the GO bonds.

Paying off the LP bonds will require a total of \$104 million over the life of the bond issue. Of this, principal payments equal the initial proceeds (\$54.1 million); all the rest (\$49.9 million) goes to interest payments. Since the Reserve Fund earns interest of \$12.8 million over its lifetime, these earnings help to lower the lease payments which taxpayers must make on the correctional facility. Lease payments by taxpayers will thus amount to only \$91.3 million. To pay off the corresponding GO bonds, taxpayers would simply pay all of the principal and accumulated interest, since there is no Reserve Fund. Total payments by the taxpayers (\$90.1 million) will be lower for the GOs than for the LPs due to the lower interest rate on the GOs.

In comparing revenue and expenditure flows which extend over a period of time, one should properly examine the "present value" of each of the flows.⁶ In this example, we computed the present value of Total Debt Service and of Net Debt Service for both the LP and the GO issues using a 6.6 percent annual discount rate. This discount rate corresponds to the interest rate on the GO bond. We use it because taxpayers who are considering the use of LPs should compare them to the alternative of traditional GO financing.⁷ The present value of taxpayer's Net Debt Service is the key point for comparison because this is what taxpayers have to pay after taking account of any offsetting interest earnings. (Net Debt Service is the same as Total Debt Service for the GO bonds because there is no interest-earning Reserve Fund for GOs.)

When measured by the present value, LPs are more expensive than GOs for the same construction. In our example, the GOs have present value of Net Debt Service of \$48.6 million and the LPs' present value is \$50.6 million, a difference of \$2 million.

Depending on market conditions, some LP issues may face less favorable earning opportunities for their Reserve Funds, and thus not fare as well in comparison with GO bonds as in this example. Governments that choose to use LPs may find that they have to wait for the right moment in

6. The calculation of present value takes account of the value of money over time. Money to be received or spent in the future is discounted to a lower value, while money to be received or spent in the present is given full value. The idea here is that one could be earning interest on any money that one has to wait for; hence future money is less valuable than money in the present.

7. Although there are no commonly accepted principles for choosing the discount rate in a present-value calculation, a suitable choice in this context is the interest rate you would get on a GO bond.

market conditions in order to achieve favorable financial terms. Waiting may take several months and it will inevitably increase underwriting costs.

Another complication faced by some jurisdictions is that local laws will not permit making lease payments on a facility that is not yet constructed. In this case, the LP bond issue must be larger than illustrated in Table 1, in order that initial annual payments to the investors can be made out of the proceeds of the bond issue. For example, if it is necessary to "capitalize" interest payments in this way for eighteen months, the LP issue illustrated in Table 1 would have to be modified to generate initial proceeds of \$60.7 million, and the net cost to the taxpayers over 20 years would be \$96.2 million instead of \$90.1 million. Capitalizing interest always results in a higher cost to the taxpayers; in the example the difference is \$6.1 million. Nonetheless some jurisdictions may prefer to capitalize interest because then they can defer appropriations for the construction project until subsequent budget cycles.

Delays in Construction

One of the advantages of a lease-purchase arrangement occurs when it can be started more rapidly than can a GO bond issue. This means that construction may possibly begin earlier for an LP, and some inflation in building costs can be avoided.

To illustrate the effect of delays in construction, suppose that in the previous example the LP-financed project began one year earlier and this one-year speedup permitted construction costs to be only \$46 million. This would be correct if the prevailing annual rate of inflation on construction costs were about 8 percent, corresponding with recent experience for correctional facilities.⁸ The comparative revenue and expenditure flows of the two projects are pictured in Figure 5.

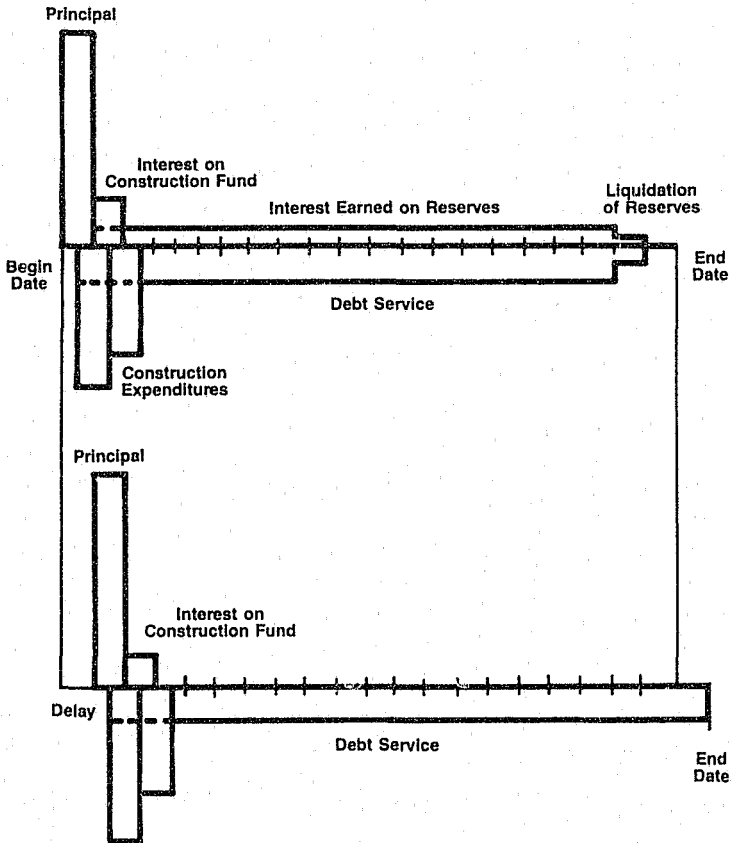
Table 2 presents a financial comparison of these two projects. The column for the GO project is unchanged from the previous example in Table 1. For the LP project, the size of the total bond issue (\$54.1 million) is smaller than previously due to the lower construction costs associated with an earlier start. This in turn reduces the costs of debt service, and in fact the net debt service on the LP bond turns out to be about \$6 million less than for the GO bond issued one year later.

In comparing the LP and the GO projects in this context, it is especially important to consider the present values of their Net Debt Service, because the revenue and expenditure flows occur at different points in time. Even

8. The rate of inflation in construction costs has tended to be higher than the general rate of inflation in the economy.

Figure 5

Lease-Purchase Project with a One-Year Head Start
Compared with a GO Bond Project



though construction costs are lower on the LP project due to its earlier start, this may not be entirely beneficial to taxpayers since they will have to start making the corresponding lease payments one year earlier. Earlier starts are only beneficial to taxpayers in a financial sense if the rate of inflation in construction costs turns out to be greater than the taxpayers' discount rate.⁹

In our example, the LP project continues to be more expensive than the GO project in terms of the present value of Net Debt Service. For the LP and GO projects, the present values are respectively \$46.5 million and

9. Of course, if bond interest rates are expected to rise, then an earlier start can be financially beneficial quite apart from inflation in construction costs.

Table 2

**Comparison of Lease Purchase and General Obligation Bonds Assuming
a One Year Additional Delay Before Construction for the GO Bonds and
an 8% Rate of Inflation in Construction**

	Lease Purchase	General Obligation
Total Bond Issue	\$49,790,000	\$48,575,000
Uses of Proceeds:		
Underwriter Expenses	647,270	485,750
Other Issuance Expense	150,000	120,000
Reserves	4,863,205	- 0 -
Contingency	1,590	4,102
Construction Fund	44,127,935	47,965,147
Construction Cost	46,000,000	50,000,000
Met by:		
Construction Fund	44,127,935	47,965,147
Interest Earnings on Fund	1,872,065	2,034,853
Total Debt Service	95,750,890	90,146,870
Components:		
Principal	49,790,000	48,575,000
Interest	45,960,890	41,571,870
Sources of Debt Service		
Interest on Reserve Fund	11,761,457	- 0 -
Taxpayer's Net Debt Service	83,989,432	90,146,870
Present Value of Net Debt Service (6.6% discount)	46,544,511	*45,567,542
Terms:		
Coupon Rate	7.1%	6.6%
Years of Issue	20 (1987-2007)	20 (1988-2008)
Payment Rule	Level Debt Service	Level Debt Service

* Note this is the same payment stream as in Table 1, but it is discounted one more year due to the delay in construction.

\$45.6 million, a difference of \$0.9 million. Since our assumed inflation rate (8%) was larger than the discount rate (6.6%), the difference in the present values of Net Debt Service is less than in the previous example, but it has

not reversed the relative costs of the two financing methods.¹⁰

If we had chosen to illustrate a much faster inflation rate for construction costs in this example, the LP could have turned out to be cheaper than a GO bond, even when evaluated according to the present value of net debt service. Since LP bonds can generally be issued more rapidly than voters can approve a GO bond issue, the higher interest rate which the LP must pay investors may potentially be more than offset by savings on construction costs. Underwriters tend to emphasize this argument because construction costs have tended to rise more rapidly (and cool more slowly) in the last few years than have prices in general. But the jurisdiction considering an LP issue should evaluate this argument in terms of the inflation and interest rates actually being experienced at the time of the decision.

The possibility that LP bonds can save on construction costs because they can be issued more quickly than GO bonds deserves careful scrutiny. First, this argument points out the importance of careful long-term planning for capital improvements. LP bonds may be superior to GOs in an emergency situation where a building is needed quickly, voters are recalcitrant, and construction costs are rising rapidly. However, it is a truism that a given project can be scheduled to start construction "on time" with lower cost GO financing if the process of approaching the voters is started early enough.

It should also be noted that changes in interest rates are more volatile than changes in construction costs, and not closely correlated. This is shown by Figure 6, which compares monthly levels of construction costs and municipal bond prices starting with a base of 100 in 1979 and continuing through the middle of 1987.¹¹ The municipal bond interest rates in this figure are identical to those in Figure 2, except for the standardization to a base of 100 in Figure 6.

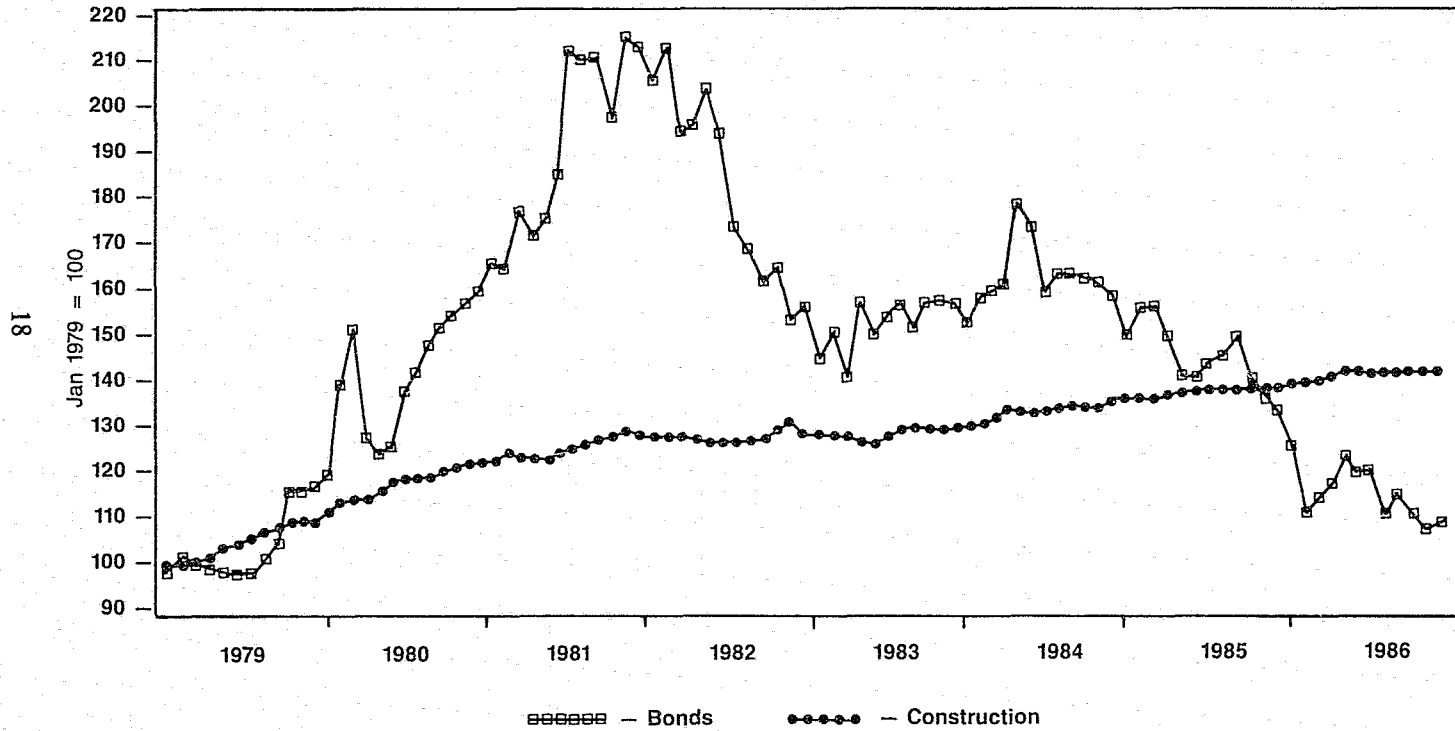
Since bond prices are volatile, the best strategy for a government agency is probably to get a bond issue ready for sale and then be prepared to wait (if necessary) for a favorable interest rate movement. Large and favorable interest rate movements may be sufficient to offset a smaller and less favorable movement in construction costs. Neither LPs nor GOs appear to have an advantage in terms of implementing this strategy.

10. Note that the present value of Net Debt Service reported for GOs is lower in Table 2 than in Table 1, even though the GO example remains otherwise unchanged. This happens because we are now evaluating the GO project's present value from the vantage point of the LP project which starts one year earlier. This revaluation can be computed very easily by simply dividing the present values reported for the GO project in Table 1 by the one-year discount factor of 1.066.

11. Construction costs are measured by the Department of Commerce Composite Construction Cost Index; municipal bond prices are measured by the Bond Buyer 20 Bond Index. See the U.S. Department of Commerce *Survey of Current Business* for details.

Figure 6

Municipal Bond and Construction Indices
January 1979–December 1986



Evaluating a Lease-Purchase Project

As shown by the examples in this report, under most circumstances where a jurisdiction has the option of issuing GO bonds for prison or jail construction, the GO option will be less expensive than the LP option in terms of present value of net debt service. However, many jurisdictions do not have a realistic option of issuing GO bonds, or at least they have to be careful to review other options first. In order to make a realistic appraisal of the cost of a project involving lease-purchase bonds, the jurisdiction's financial planners must take into account (or try to anticipate) the factors which entered into the calculations in the Tables shown in this report:

- The current rating of GO bonds in the jurisdiction (from which the interest rate on both GO bonds and LP bonds can be estimated),
- Whether the payoff schedule should be in equal yearly installments or on some other schedule,
- The size of the reserve fund on the LP project,
- How risky an investment strategy should be pursued for the reserve fund, and the interest rate that can be anticipated,
- The timing of the start of both projects,
- The total construction costs for each project, and
- The discount rate to be used in the calculation of the present value of net debt service.

Once these data have been assembled, calculations similar to those in the illustrative tables in this report can be made by any brokerage firm that deals in LP bonds. Names and addresses of firms with experience in lease-purchase financing are given in Appendix B. The investment firm will be able to provide the necessary information on other associated expenses as appropriate in the financial markets faced by the jurisdiction at that time.

As illustrated in this report, your jurisdiction's financial planners should obtain estimates of the present value of net debt service under a variety of possible funding options. These calculations are easily made using computer software available to financial investment firms, but are too complex for most non-specialists. Armed with meaningful, quantitative comparisons among financing options, you will be well positioned to choose one that is appropriate to the project being funded and current market conditions.

Acknowledgments

The authors of this report were fortunate to have the assistance of Shearson Lehman Brothers and Morgan Stanley & Company in preparing the estimates shown in our graphs and tables. Two anonymous reviewers of an earlier draft provided helpful guidance concerning government finance and bond issues.

Appendix A

Listing of Corrections Facilities Funded by Lease-Purchase Bonds

The following are examples of state prison projects funded by lease-purchase financing prior to the 1986 tax reform act. These LP issues benefit from positive arbitrage on their Reserve Funds, which is no longer allowed.

New York (nine projects)	\$295 million
California	104 million
Louisiana	156 million
Ohio	104 million
Alaska	45 million
Rhode Island	30 million
Michigan	20 million
Alabama	10 million

These state prison projects are being funded by lease-purchase financing after September, 1986:

California	\$345 million
Missouri	55 million
Michigan	101 million
Texas	300 million

The following jail facilities, or combination justice center/training center/jail facilities were funded by lease-purchase bonds prior to the 1986 tax reform act:

Jefferson County, Colorado	\$30 million
Philadelphia	50 million
San Bernardino County, California	59 million
Lee County, Florida	49 million
Portland, Oregon	15 million
Kentucky	32 million
Los Angeles County, California	18 million

The following jail facilities, or combination justice center/training center/jail facilities were funded by lease-purchase bonds after September 1986:

Hudson County, New Jersey	\$40 million
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Appendix B

Underwriters with Experience in Lease-Purchase Financing for Prison and Jail Construction

Any local financial investment firm will be able to assist you in evaluating a lease-purchase project. However, they or you may want to contact one of the major national underwriters who have successfully completed lease-purchase bond financing for prisons or jails in the past. Listed below are examples of such underwriters; they cooperated with the authors in preparing this brochure and agreed to have their addresses and telephone numbers listed here:

E. F. Hutton
1700 Broadway
Denver CO 80920
(303) 863-4382

Merrill Lynch
Capital Markets
World Financial Center
North Tower
250 Vesey Street
New York, NY 10281
(212) 449-0613

Morgan Stanley and Company
1251 Avenue of the Americas
New York, New York 10020
(212) 703-5713

Shearson Lehman Brothers
Correctional Facilities Financing
World Finance Center
American Express Tower
New York NY 10285
(212) 298-3679

Related Publications of the National Institute of Justice

For further information about lease-purchase financing, including case studies and details of variable-rate financing, contact the Construction Information Exchange at (800) 851-3420, or in the metropolitan Washington, D.C. area and Alaska, (301) 251-5500. Publications on these topics already available in 1987 include:

- *Ohio's New Approach to Prison and Jail Financing.*
- *Building on Experience: A Case Study of Advanced Construction and Financing Methods.*