

\$5,000 indicates a low tax burden on local residents. Both of these characteristics will make a GO bond appear less risky to investors.

If a municipality has a high number of senior residents, the higher demand for social services might negatively affect property tax revenue, which can reduce the amount of revenue available to make GO bond payments. Finally, if the estimated real value of local property is not much higher than the assessed value, the community is most likely not growing very quickly. This will result in a ratio of net debt to assessed value that is not much higher than the ratio of net debt to estimated real value. A community that is not growing quickly is unlikely to generate as much confidence as a community that is experiencing a period of growth.

2. **Answer: A.** The net direct debt of Smithville is \$200 million in GO bonds – \$50 million in cash and reserves = \$150 million. The overlapping debt is \$100 million, so the net overall debt is \$150 million + \$100 million = \$250 million.

Recall that the formula for net overall debt per capita is:

$$\frac{\text{net overall debt}}{\text{population}}$$

So

$$\frac{\$250 \text{ million}}{150,000} = \$1,666.67$$

Revenue bond debt is self-supporting, so it is not considered when determining net overall debt per capita.

3.2. ANALYZING REVENUE BONDS

The overall health of the municipality is less critical to investors when analyzing revenue bonds, though it is still important. Because they are not backed by taxes, the creditworthiness of revenue bonds depends more on the financial viability of the project being funded than the financial health of the municipality. At the heart of whether a project is financially viable is its ability to generate sufficient revenue to pay off the bonds. The feasibility study is the initial place to look for an understanding of the importance of the project to its users and the level of competition it faces. Revenue and cash flow expectations may be found in the protective covenants of the bond indenture. Finally, the quality of project management can be particularly important in a competitive environment.

3.2.1. FEASIBILITY STUDY

The purpose of a **feasibility study** is to assess the project's financial and structural



viability and its need within the community. The study will evaluate the existing system and how the project is expected to improve it. The study should describe any competition it faces for the services it will provide and the project's potential alternatives. Engineers will evaluate whether the project is structurally sound, and their reports will be included in the study. The study will analyze a project's expected costs and revenue. It will also analyze the sources of the revenue, whether they are usage fees, concessions, or special taxes. It should also compare the project's expected costs to the costs of similar projects elsewhere and to the municipality's overall debt structure.

3.2.2. BOND INDENTURE

The **bond indenture** is the legal document that specifies the scope and features of the revenue bond and holds the issuer to its obligations. The issuer must appoint an independent trustee to protect the bondholders' rights as stated in the indenture. This third party trustee, usually a bank or trust company, is responsible for authenticating the bonds and ensuring that the issuer complies with all of the covenants specified in the indenture. Specifically, the indenture must identify the:

- Purpose of the bond issue and its features
- Conditions under which the bonds may be redeemed before maturity
- **Covenants**, or promises, that the issuing company makes with respect to its behavioral obligations over the life of the bond
- Flow of funds, prioritizing the use of incoming revenue
- Procedures and remedies should the issuer default
- Rights and duties of the trustee

The bond indenture must be signed by both the issuer and the trustee.

Protective covenants are limitations agreed to by the issuer to provide protection for the bondholder from a deterioration of value and default. A few of these covenants are particularly important for evaluating credit risk.

3.2.3. RATE COVENANT

The **rate covenant** requires an issuer to set rates or fees at levels sufficient to generate revenue at some designated threshold. This threshold should be sufficient to cover the project's operating expenses and debt service, plus a reserve cushion. A satisfactory threshold typically ranges between 110% and 125% coverage for revenue bonds that operate as monopolies in their service area, such as utilities. The threshold will be higher for revenue bonds with a less certain revenue stream. The designated threshold level is known as a coverage ratio.

3.2.4. **ADDITIONAL BONDS COVENANT**

The bond indenture will stipulate whether or not the issuer may sell additional bonds that share equal claims to the issuer's pledged revenue. An **open-end indenture** allows them; a **closed-end indenture** does not. With an open-end indenture, an **additional bonds covenant** is attached, requiring the issuer to ensure that its expected revenue stream from the existing bond is sufficient to cover *both* existing and proposed debt service. Before issuing a new bond, the issuer must provide a financial statement that demonstrates its ability to fund the new bond without deteriorating the value of its existing bonds. Like the rate covenant, the additional bonds covenant is usually expressed as a percentage. Revenue must be sufficient to cover, for example, 125% of current and future debt service. The intent of this covenant is to ensure that future debt issuance does not create too great a burden on the issuer's revenue stream.

3.2.5. **NON-APPROPRIATION CLAUSE**

Some bond proceeds are used to pay a lease on a property. In order to prevent a lease from being considered a long-term debt instrument, many municipal leases and bond indentures include **non-appropriation clauses**, which allow a municipal entity to stop making rent payments if it does not have sufficient funds. The municipal entity usually must demonstrate that it attempted to appropriate the funds but was denied by the legislative or other appropriating body whose approval is required.

3.2.6. **OPERATIONS & MAINTENANCE (O&M) COVENANT**

An **operations and maintenance covenant** requires the issuer to maintain the facility financed by the bond in good working order throughout the bond's life. The covenant may commit the issuer to hire an independent engineering firm to review the project annually and comply with its recommendations.

3.2.7. **OTHER PROTECTIVE COVENANTS**


An **insurance covenant** is a promise to bondholders that the issuer will carry enough insurance to protect the project against damage or destruction to the facility. A **financial reports covenant** requires the issuer to keep financial reports and have them audited annually by an outside certified public accountant.

3.2.8. **REVENUE PLEDGE COVENANT AND FLOW OF FUNDS**

The **flow of funds requirement** is a statement showing the process by which pledged revenue is distributed into the various accounts established by the bond indenture. Revenue is usually deposited immediately upon receipt into a **revenue fund** or general fund,

from which it is disbursed to the other funds. Depending on the type of commitment made in a **revenue pledge covenant**, funds are distributed first to fund either its debt service fund or its operations and maintenance expenses.

The flow of funds is distributed according to either a net revenue or gross revenue structure. A **gross revenue pledge** allocates funds to debt service before any other expenses are paid. A **net revenue pledge** requires that funds flow first into the operations and maintenance (O&M) fund before any funds are allocated to debt service. The net revenue pledge is more common, as covering operations and maintenance helps to ensure that the facility continues to be able to create revenue.

 **Mnemonic:** Remember that in a gross revenue pledge, funds go to debt service before operations and maintenance, which might make the facility *gross*.

For any remaining revenue, term bonds generally have a **sinking cost fund** to set money aside to buy back callable bonds or to buy back non-callable bonds in the open market. Serial bonds do not need a sinking fund, since part of the bond issue comes due every year. Instead, they use a **debt service reserve fund** to set money aside in case the debt service fund is insufficient to make a future payment. If the debt service reserve fund is used, issuers are usually required to replenish the fund from their first available revenue. The reserve fund for the funding of a water treatment plant, for example, might be replenished by a city's or county's general fund or by excess cash reserves from another project.

After the debt service reserve fund, money goes to the **renewal and replacement fund**, which is a reserve to pay for project repairs and the replacement of worn-out equipment over the life of the project. Bonds may also have a **reserve maintenance fund**, which protects against unanticipated maintenance costs. In case any money remains to be distributed, a **surplus fund** is set up to be used for any purpose, such as early redemption or a reduction of user payments.

GROSS REVENUE PLEDGE FLOW OF FUNDS

