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A CONNECTION CHARGE FOR THE  
CITY OF CORVALLIS

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The wastewater treatment plant now under construction has been designed to provide service for a population approximately 60 percent larger than the present population of Corvallis. Capital and overhead costs of the new facility are therefore larger than they would have been for a smaller facility designed to serve only the present population. As a consequence, if the sewer system is financed solely by monthly rates, sewer charges must initially be higher than if a smaller plant had been constructed. Eventually the annual charges with the large plant will be less than with a small plant because total costs can be shared among the growing population that can be served by the large plant.

Figure 1 presents estimates of the annual charge required on a per capita basis to cover capital and overhead costs for the large and small plants. The large plant is estimated to cost \$8.8 million, the small plant \$3.26 million.<sup>1</sup> Non-capital overhead costs with the large plant are estimated to be \$633,000 but only \$533,000 with a small plant and no growth.<sup>2</sup> Inflation in overhead

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<sup>1</sup>Capital cost estimates were kindly provided by Mr. Alton F. Andrews, Utilities Engineer, City of Corvallis.

<sup>2</sup>Estimates based on professional judgement and data presented in the Bartle Wells Associates, Sewer Rate Study - City of Corvallis (October 1975), pp. 16-21, especially Table 10.

costs and population growth in Corvallis are assumed to be 6 and 3 percent per year, respectively.<sup>3</sup>

With sewer service financed entirely by monthly rates, Figure 1 reveals that the large plant involves higher initial costs but ultimately benefits current residents who remain in Corvallis. For them the higher initial costs may be regarded as an investment to secure lower rates in the future. Of course, the benefits of lower future rates are small or non-existent for current residents who die or move away from Corvallis.

To determine whether the typical current resident of Corvallis would reap a net benefit from the large plant, it is necessary to convert the streams of future annual service charges in Figure 1 to a common frame of reference called "present value." The determination of the present value of each stream of sewer charges is accomplished through the use of a discount rate. The appropriate discount rate in this case is the product of the effective interest rate on the City's sewer bonds (6.37 percent), the estimated rate of Corvallis resident out-migration (13.1 percent per year over 1965-70), and the Corvallis death rate (4.8 percent in 1973).<sup>4</sup> When this

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<sup>3</sup>Conservative estimates based on national forecasts and predictions currently used in City planning.

<sup>4</sup>Out-migration rate estimated from 1970 Census data for the Corvallis population 30 or more years old. This conservative procedure was adopted in order to assure that the transitory college student population of Corvallis would not impart an upward bias to my estimated out-migration rate and, hence, the connection charge needed to equate the present values of anticipated future sewer charges with the large and small plants. The death rate was obtained from the Benton County Health Department.

discount rate (26.0 percent) was applied to the two streams of charges in Figure 1, the present value of the charges with the large plant greatly exceeded the present value of the charges associated with the small plant. Therefore, if the sewer system with the large plant is financed solely by monthly rates, the typical current resident of Corvallis would be rather heavily burdened by the costs of a large plant designed to serve future growth of the City.

If a monthly rate and a one-time connection charge were used to finance the sewer system, monthly rates could be reduced. In fact, the connection charge could be set at a level such that the present values of streams of annual charges with the large and small plants would be equal. If this were done, the typical current resident of Corvallis would not be burdened by the larger plant, and in one important sense growth would pay for itself.

Accepting the cost estimates and assumptions given above, I estimate that a connection charge of \$110 per capita would equate the present values of the streams of annual sewer charges associated with the large plant to serve growth and a small plant that could serve only the current Corvallis population. The impact of this connection charge is shown in Figure 2. The connection charge of \$110 per person would reduce the monthly charge to assure that the typical current resident of Corvallis bears no greater burden with the large treatment plant than he (she) would have borne with a smaller facility that could not have accommodated growth in the City's population. In addition, since a newly introduced connection charge increases the value of already connected properties by an amount approaching the value of the connection charge, the \$110 per person connection charge would also provide the owners of already connected properties with small capital gains when and if they sell their property.

Therefore, I suggest that a connection charge of \$110 per person would mean that:

- (1) the typical current user of the Corvallis sewer system would not be "taxed" by his monthly sewer payments to support future City growth; and
- (2) the typical current user of the sewer system would not be levying a "tax" on new development to reduce his monthly sewer payments below the payments he would have made if no future growth occurred in the City of Corvallis.

Figure 1.  
ANNUAL SEWER PAYMENTS PER CAPITA,  
NO CONNECTION CHARGE

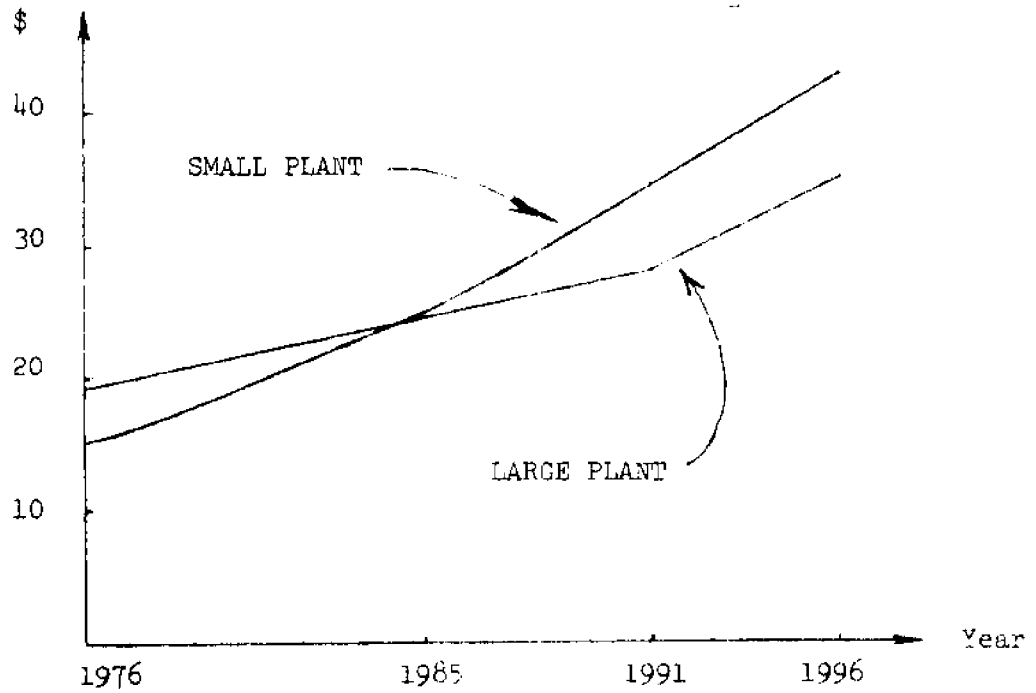


Figure 2.  
ANNUAL SEWER PAYMENTS PER CAPITA

