

Depreciation

Key questions:

What is depreciation?

Is it a "real" cost?

What is different about depreciation for a non-profit municipal utility?

What Is Depreciation?

Depreciation represents the cost of using up or wearing out your investment in capital equipment. However, it does not come at the same time you make the capital investment. It comes afterwards. In that sense, it is not a "cash cost" of doing business. It shows up on your book keeping, but you are not forking money over to anyone. Its major impact is in reducing taxes and presenting a balanced financial view of the business. The following examples (very simplistic examples) illustrate what depreciation does. The basic assumptions for all these examples are:

An investment of \$1 million for equipment is required to start the business. This has to be spent before there can be any sales.

At the end of 10 years the equipment is worn out.

The annual sales and costs are shown at the top. For simplicity, the manufacturing cost is all rolled up into one line.

Example #1 = Cash Flow Accounting

| <u>Joe & Jane's Little Shop On The Corner</u> | | |
|---|--------------|----------|
| sell | 10,000 | units/yr |
| price | \$50 | per unit |
| cash cost | \$35 | per unit |
| | | |
| <u>Cigar Box Accounting</u> | | |
| investment | \$1,000,000 | (year 0) |
| revenue | \$500,000 | /yr |
| Cash costs | \$350,000 | /yr |
| pre tax profit | \$150,000 | /yr |
| taxes @ 25% | \$37,500 | /yr |
| Net profit | \$112,500 | /yr |
| | | |
| <u>Ten Year Cash flow</u> | | |
| Capital Investment | -\$1,000,000 | |
| Net profit | \$1,125,000 | |
| Total Cash Income | \$125,000 | |

We call the above table "Cigar Box Accounting" It might represent a roadside vegetable stand where the operator keeps the sale proceeds in a box. At the end of the day whatever is in the box represents his profits for the day. This is not the way a business should be run, but it illustrates the following points:

The business looks reasonably profitable. It is making an after tax profit of \$112,500/year. Not too shabby, right?

But, what about that initial \$1 million investment? The bottom part of the table summarizes the cash flows over the ten year life of the equipment. When the cost of the investment is considered, you only have \$125,000 to show for it.

If, instead, you had put that million dollars into a savings account that paid 5% interest, you would have earned \$375,000 in interest (after tax) and still have the original million dollars.

Can you see how Joe and Jane's business would not be a big winner if run on a "Cigar Box" basis?

Example #2 = "Normal" Profit Accounting

| <u>Joe & Jane's Little Shop On The Corner</u> | | |
|---|--------------|----------|
| sell | 10,000 | units/yr |
| price | \$50 | per unit |
| cash cost | \$35 | per unit |
| | | |
| <u>"Normal" Accounting</u> | | |
| investment | \$1,000,000 | (year 0) |
| revenue | \$500,000 | /yr |
| Cash costs | \$350,000 | /yr |
| Depreciation | \$100,000 | /yr |
| pre tax profit | \$50,000 | /yr |
| taxes @ 25% | \$12,500 | /yr |
| Net profit | \$37,500 | /yr |
| | | |
| <u>Ten Year Cash flow</u> | | |
| Capital Investment | -\$1,000,000 | |
| Net profit | \$375,000 | |
| Depreciation | \$1,000,000 | |
| Total Cash Income | \$375,000 | |

The above table is the same business showing the impact of depreciation. It illustrates the following points:

There is a new \$100,000/yr cost for depreciation. This is what tax laws allow to be added as a cost for wearing out your manufacturing equipment. The actual cash was spent before your business started, but you expense it year by year. Therefore, this is a book keeping expense, not a real cash outlay.

That \$100,000/year cost really hits profitability. What was \$112,500/year is now only \$37,500. But, also notice that the tax bill has been reduced considerably. This is important because taxes are cash out the door.

However, the ten year cash flow summary shows a big improvement. At the end of ten years you have triple the amount of cash. This is the effect of depreciation reducing the taxes you have to pay.

Now does this look like a good business? Not really. You started with a million dollars and ten years later all you have to show for it is \$375,000. The original million dollars worth of equipment is now useless scrap.

This kind of cost accounting should be used to estimate long term profitability before investing in equipment and starting the business. The following table shows what the potential profit could be **IF** the price could be increased \$10/unit and the cost reduced \$10/unit.

| <u>Joe & Jane's Little Shop On The Corner</u> | | |
|---|--------------|----------|
| sell | 10,000 | units/yr |
| price | \$60 | per unit |
| cash cost | \$25 | per unit |
| <u>"Normal" Accounting</u> | | |
| investment | \$1,000,000 | (year 0) |
| revenue | \$600,000 | /yr |
| Cash costs | \$250,000 | /yr |
| Depreciation | \$100,000 | /yr |
| pre tax profit | \$250,000 | /yr |
| taxes @ 25% | \$62,500 | /yr |
| Net profit | \$187,500 | /yr |
| <u>Ten Year Cash flow</u> | | |
| Capital Investment | -\$1,000,000 | |
| Net profit | \$1,875,000 | |
| Depreciation | \$1,000,000 | |
| Total Cash Income | \$1,875,000 | |

In this case you have earned back your original investment plus an additional \$875,000. That is a reasonable return on your investment.

So, Is Depreciation A Real Cost?

As the examples above show, the major impact of depreciation is on income taxes. That is important for any business.

Depreciation may not represent money being spent right now. But, it does capture money that was previously spent.

Bottom line = depreciation is real and important.

Depreciation For A Non-Profit

Municipal non-profit utilities are normally managed on a cash flow basis. But...but...but you may ask what about depreciation. Any water or sewer utility is going to have large investments and the substantial depreciation that goes along with the investment.

The answer is in taxes. A non-profit does not pay income taxes. And, since depreciation's impact is on income taxes, it fades in importance. The following two tables illustrate this:

| <u>Joe & Jane's Little Shop On The Corner</u> | | |
|---|--------------|----------|
| sell | 10,000 | units/yr |
| price | \$50 | per unit |
| cash cost | \$35 | per unit |
| <u>Cigar Box Accounting</u> | | |
| investment | \$1,000,000 | (year 0) |
| revenue | \$500,000 | /yr |
| Cash costs | \$350,000 | /yr |
| pre tax profit | \$150,000 | /yr |
| taxes @ 0% | \$0 | /yr |
| Net profit | \$150,000 | /yr |
| <u>Ten Year Cash flow</u> | | |
| Capital Investment | -\$1,000,000 | |
| Net profit | \$1,500,000 | |
| Total Cash Income | \$500,000 | |

| <u>Joe & Jane's Little Shop On The Corner</u> | | |
|---|--------------|----------|
| sell | 10,000 | units/yr |
| price | \$50 | per unit |
| cash cost | \$35 | per unit |
| <u>"Normal" Accounting</u> | | |
| investment | \$1,000,000 | (year 0) |
| revenue | \$500,000 | /yr |
| Cash costs | \$350,000 | /yr |
| Depreciation | \$100,000 | /yr |
| pre tax profit | \$50,000 | /yr |
| taxes @ 0% | \$0 | /yr |
| Net profit | \$50,000 | /yr |
| <u>Ten Year Cash flow</u> | | |
| Capital Investment | -\$1,000,000 | |
| Net profit | \$500,000 | |
| Depreciation | \$1,000,000 | |
| Total Cash Income | \$500,000 | |

The bottom line total cash in the above examples is the same. In most cases the accountants for a municipal utility will calculate depreciation and prepare a Profit and Loss Statement. But, to really understand the financial health of that utility you want to look at the Cash Flow Statement and the Cash Reserve - preferably over several years.

Conclusion

If you are seeking to make a profit, depreciation is a real cost of doing business. When you operate a business, things wear out and have to be replaced. Depreciation reflects that cost on a regular basis. And, it reduces the income tax bill.

As some of the above illustrations show, ignoring depreciation can give you a false sense of how well your business is performing. However, a non-profit utility is different in how it finances its capital needs and is not impacted by the income tax reduction provided by depreciation. So, depreciation is less important.