

Steps to Condition Index and Funding Index Calculation:

Since reserve fund study reports already provide a cash flow plan for years 0 to 30 including both the expenditures and the required contributions to meet the repair costs over the same period, reserve fund study plans make the ideal tool for this analysis.

Consultants and owners using the cash flow plans from reserve fund studies can compute the CI and FI values following these steps.

1. Convert the future values listed in the cash flow plan for both expenditures and contributions to present values using the inflation rate assumed by the planner to initially calculate the future values.
2. Sum the calculated present value expenditure amounts for the first three years; sum the expenditures for the years 3 to 10; and sum the expenditures for the full 30 years. These are used to compute the $CI_{(3)}$ and $CI_{(3-10)}$.
3. Similarly, sum the calculated present value contribution amounts for the first three years; sum the contributions for the years 3 to 10; and sum the contributions for the full 30 years. These are used to compute the $FI_{(3)}$ and $FI_{(3-10)}$.

Example:

Step 1: Present Value Calculation

Removal of inflation from costs requires the following calculation:

$$\text{Present Value Cost} = \frac{\text{Cost at Year 'n'}}{(1 + \text{Inflation Factor})^n}$$

This is simply the reverse of the inflation of the present value to the future cost at year "n". Thus, as shown in the example table opposite, if the total calculated cost at year 10 is \$14,849, the present value assuming an annual inflation rate of 2.5% would be \$11,600 calculated as follows:

$$\text{Present Value Cost} = \frac{\$14,849}{(1.025)^{10}}$$

$$\text{Present Value Cost} = \$11,600$$

This would be calculated for each of the 31 years 0 to 30.

Step 2: CI Calculation

Using the cash flow data opposite, the CI values are calculated:

$$(1) \quad CI_{(3)} = [1 - \frac{(\sum_{0-2} \$e)}{(\sum_{0-2} \$e)}] \times 100\%$$

$$(2) \quad CI_{(3-10)} = [1 - \frac{(\sum_{3-10} \$e)}{(\sum_{0-30} \$e)}] \times 100\%$$

$$\text{Where: } \sum_{0-2} \$e = \$3,300 + \$3,000 + \$0 = \$6,300$$

$$\sum_{3-10} \$e = \$4,000 + \$37,500 + \$10,600 + \$6,000 + \$0 + \$5,000 + \$231,700 + \$11,600 = \$305,700$$

$$\sum_{0-30} \$e = \$936,900$$

Using these values:

$$CI_{(3)} = [1 - (\$6,300 / \$936,900)] \times 100\% = 99.3\%$$

$$CI_{(3-10)} = [1 - (\$305,700 / \$936,900)] \times 100\% = 67.4\%$$

Step 3: FI Calculation

Using the cash flow data opposite, the FI values are calculated:

$$(3) \quad FI_{(3)} = [1 - \frac{(\sum_{0-2} \$c)}{(\sum_{0-30} \$c)}] \times 100\%$$

$$(4) \quad FI_{(3-10)} = [1 - \frac{(\sum_{3-10} \$c)}{(\sum_{0-30} \$c)}] \times 100\%$$

$$\text{Where: } \sum_{0-2} \$c = \$24,000 + \$32,693 + \$33,939 = \$90,632$$

$$\sum_{3-10} \$c = \$35,342 + \$36,751 + \$36,246 + \$38,721 + \$41,760 + \$45,015 + \$48,403 + \$41,123 = \$323,361$$

$$\sum_{0-30} \$c = \$1,203,146$$

Using these values:

$$FI_{(3)} = [1 - (\$90,632 / \$1,203,146)] \times 100\% = 92.4\%$$

Year	Expenditures		Contributions	
	Future Value	Present Value	Future Value	Present Value
0	\$3,300	\$3,300	\$24,000	\$24,000
1	\$3,075	\$3,000	\$33,510	\$32,693
2	\$0	\$0	\$35,647	\$33,929
3	\$4,308	\$4,000	\$38,059	\$35,342
4	\$41,393	\$37,500	\$40,555	\$36,741
5	\$11,993	\$10,600	\$41,010	\$36,246
6	\$6,958	\$6,000	\$44,904	\$38,721
7	\$0	\$0	\$49,639	\$41,760
8	\$6,092	\$5,000	\$54,846	\$45,015
9	\$289,362	\$231,700	\$60,449	\$48,403
10	\$14,849	\$11,600	\$52,640	\$41,123
11	\$0	\$0	\$55,382	\$42,209
12	\$8,069	\$6,000	\$59,222	\$44,035
13	\$0	\$0	\$63,079	\$45,759
14	\$460,488	\$325,900	\$67,151	\$47,524
15	\$31,283	\$21,600	\$48,637	\$33,582
16	\$7,423	\$5,000	\$50,904	\$34,290
17	\$0	\$0	\$54,066	\$35,532
18	\$9,358	\$6,000	\$58,011	\$37,195
19	\$245,393	\$153,500	\$61,950	\$38,752
20	\$13,601	\$8,300	\$53,843	\$32,859
21	\$6,718	\$4,000	\$57,192	\$34,051
22	\$0	\$0	\$61,338	\$35,629
23	\$0	\$0	\$65,551	\$37,148
24	\$87,723	\$48,500	\$70,269	\$38,850
25	\$27,995	\$15,100	\$71,143	\$38,374
26	\$0	\$0	\$74,535	\$39,223
27	\$7,791	\$4,000	\$79,813	\$40,976
28	\$0	\$0	\$85,295	\$42,722
29	\$10,232	\$5,000	\$90,890	\$44,414
30	\$44,678	\$21,300	\$96,592	\$46,050
	Total	\$936,900		\$1,203,146