DMA
Interactive Reserve Analysis

# CASH FLOW VERSUS THE COMPONENT METHOD

## GENERAL

A properly prepared Reserve Study should consist of a physical analysis and a financial analysis:

The physical analysis should identify all common elements for which the Association is responsible by means of an inventory of all common elements for which the Association is responsible. The physical analysis should also provide for considerations of the useful life, remaining useful life, replacement cost(s) and future dates for full replacement or interval dates for repairs and partial replacements depending upon the type, characteristics and nature of the component.

The financial analysis should compare those future expenditures against a time line of funding contributions. The analysis might include a comparison of the current funding contributions to the forecast expenditures but must always include a plan to fully fund the expenditures over a given time or study period.

Component Method

The component method develops a projection of funding needs by considering the annual depreciated cost of each individual component. The annual depreciated cost is simply the current replacement cost of the component divided by its expected useful life. At the end of the components useful life it is expected that contributions will be made to offset those annual costs to the extent that enough funds are available to repair or replace that component. The term “fully funded” refers to the condition when enough money has been set aside to replace the component when needed. Often the Component Method is referred to as the “Full Funding Method”. The goal of the Component Method is to provide enough money, or “full funding” for the repair or replacement of each individual component when it is needed. So, for example, if an Association has a component with a 10 year useful life and a present worth cost of replacement of $10,000 then they must provide $1.000 each year from the time the component was first put into service to fully fund the component by the end of its’ projected useful life. The same must be done for each component. The annual deprecation cost for each of the components is then added together and this is the total amount that the Association must contribute each year to be in compliance with the goal of the Component Method of funding.

If the Association finds that the reserve account(s) falls short of the balance of funds required to be on hand in a given year in accordance with the depreciation schedule then the reserve account is underfunded. When the reserve account is underfunded the Association must play catch up and accelerate the annual funding until the component or components are again fully funded in the year projected for repair or replacement. So, for instance, the same component cited above required that a $1,000 of funding be contributed every year to be fully funded. However, in the fifth year after the component was placed into service there was only $3,000 in the reserve account for that component. At that point the Association would be behind by $2,000 and would have to make up for the $2,000 over the next five years at the rate of $400 per year plus the $1,000 already required for a total of $1,400 per year. In the eleventh year and only after the component was replaced the Association could return to the annual $1,000 funding level.

Cash Flow Method

Of course the goal of the Cash Flow Method is the same - to have available enough funds to repair or replace the components when needed. The Cash Flow Method provides an analysis of funding needs over a selected time period usually ranging from 20 to 30 years. Although the Cash Flow Method relies on the same data as the Component Method it analyzes the annual funding requirement in a completely different manner. In the Cash Flow Method the projected replacement costs for each component are added together

in every year. This gives the Association the benefit of being able to meet the funding needs by looking out to a critical year or years when the projected balance of funds in the reserve account falls below zero or a predetermined minimum threshold balance. By "pooling" the funds years in which there will be a high accumulation of funds in the reserve account can be redistributed to fund those shortfall years. You may hear the terms "zero balance funding" or "threshold funding" which simply refers to the balance conditions applied to the reserve account. The Cash Flow Method results in a level funding contribution or an annually escalated funding contribution.

The Primary Drawbacks of the Component Method

The primary drawbacks of the Component Method when compared to the Cash Flow Method include:

1. The Component Method must be conducted every year to account for changes in the required contribution amounts that might be required to "catch up" when the reserve account is underfunded for all or some of the components.
2. The Component Method does not readily accommodate interest earnings on deposits and the effects of inflation on costs for repairs and replacements in future years.
3. The annual required funding contribution can go up ***or down*** in any successive year.
4. It almost always results in an initial higher contribution rate then the "Cash Flow Method".
5. It almost always results in "over funding" in future years.
6. The methodology is cumbersome when there are a large number of components being considered.
7. It does not take advantage of the benefit of the "pool" of funds available under the "Cash Flow Method" to be distributed to fund shortfall years.

The Component Method does offer certain advantages. These include:



1. The Component Methods' characteristic to overfund could be considered a conservative approach.
2. The Component Method is relatively simple and easy to understand.
3. Because of the simplicity of the methodology many providers can provide Reserve Studies at a reduced cost.
4. The simplicity of the methodology makes it easy to compute and program into standard spreadsheet software.
5. It does provide a historical perspective on how well the Association has performed in providing funding for its Capital Reserves. That is why we at DMA renamed the methodology the "Historical Funding Analysis" and use it in our Reserve Studies in conjunction with the Cash Flow Method.

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**A SUMMARY STUDY EXAMPLE**

DMA provides both methodologies in the Reserve Studies that we prepare. The preferred Cash Flow Method to set the required funding amount and the Component Method (Historic Funding Method) to simply illustrate the Associations funding performance history. To that end we offer the following example of the results for a given set of components.

Schedule Of Components Example

Both methodologies use the following data from the Schedule of Components:

| ITEM | IN SERVICE OR LAST REPLACEMENT YEAR | REPLACEMENT OR REPAIR INTERVAL, (YEARS) | THE NEXT EXPECTED REPLACEMENT YEAR | REMAINING USEFUL LIFE OR (YEARS PAST DUE) | REPLACEMENT COST, PER OCCURRENCE |
|---|---|---|---|---|---|
| | | | | | |
| Component 1 | 2002 | 9 | 2011 | -2 | $10,000 |
| Component 2 | 2002 | 10 | 2012 | -1 | $15,000 |
| Component 3 | 2002 | 15 | 2017 | 4 | $20,000 |
| Component 4 | 2002 | 20 | 2022 | 9 | $25,000 |
| Component 5 | 2002 | 25 | 2027 | 14 | $30,000 |
| | | | | | |
| | | | | TOTAL | $100,000 |

You can see in this example a common occurrence in many communities that Components 1 and 2 are past due their replacement dates.

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Component Method Analysis

The Component Methodology yields the following results:

| COMPONENT | ANNUAL COMPONENT DEPRECIATION REPLACEMENT COST | EXPECTED COMPONENT FUND BALANCE | EXISTING COMPONENT FUND BALANCE | FUNDING DEFICIENCY | REQUIRED CONTRIBUTION |
|---|---|---|---|---|---|
| | | | | | |
| 1 | $1,111.11 | $10,000.00 | $7,505.63 | $2,494.37 | $2,494.37 |
| 2 | $1,500.00 | $15,000.00 | $11,258.44 | $3,741.56 | $3,741.56 |
| 3 | $1,333.33 | $14,666.67 | $11,008.26 | $3,658.41 | $914.60 |
| 4 | $1,250.00 | $13,750.00 | $10,320.24 | $3,429.76 | $381.08 |
| 5 | $1,200.00 | $13,200.00 | $9,907.43 | $3,292.57 | $235.18 |
| | | | | | |
| TOTALS | $6,394.44 | $66,616.67 | $50,000.00 | $16,616.67 | $7,766.80 |

| | |
|---|---|
| Actual Account Balance: | $50,000 |
| Divided By The Required Balance: | $66,616.67 |
| Equals the Per Cent Funded: | 75% |

The Component Method is also referred to as the Full Funding Method. Again, we at DMA has renamed the Component Method the Historical Funding Analysis Method as it only reflects on how well the Association has met its funding needs over the course of time since the first component was placed in service.

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Cash Flow Method Analysis

The recommended funding under the Cash Flow Method would be as follows:

Analysis Inputs:

| | |
|---|---|
| Inflation rate historical period; select year: | 5 |
| Anticipated annual construction inflation rate: | 1.84% |
| Annual income rate on reserve account balance: | 0.10% |
| Budgeted contribution for study year: | $5,000 |
| Balance on account: | $50,000 as of 1/1/2013 |

Minimum Acceptable Reserve Account Balance Based On:

| | |
|---|---|
| Total expenditures for the next 20 years, times 5% equals: | $9,078 |

5 Year Summary:

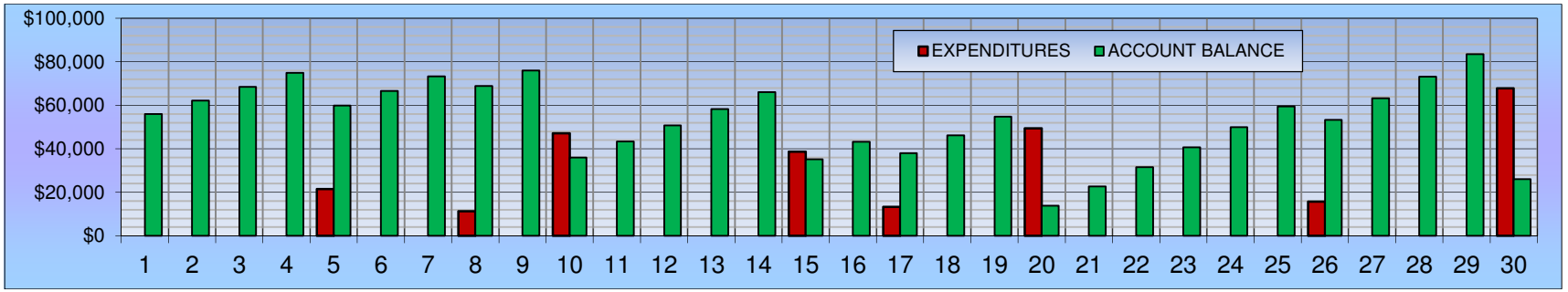
The Cash Flow Method indicates the budgeted contribution amounts for the next five (5) years and the annual escalation to the contribution amount, if any:

Contribution Escalation Rate: 1.9%

Total Recommended Annual Contribution in Year:

| | |
|---|---|
| 2013 | $6,000 |
| 2014 | $6,114 |
| 2015 | $6,230 |
| 2016 | $6,349 |
| 2017 | $6,469 |

Here is the funding graph for the next 30 years for the Cash Flow Method illustrating adequate funding to the end of the study period:



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**THE REAL DIFFERENCE**

The result is that the Component Method shows the Association to be only 75% funded. The normal contribution in the study year had the Association not been underfunded would be $6,394 under the Component Method. The actual “catch up” funding illustrated by the example would be $7,767 in the first year due to the fact that Components 1 and 2 were not replaced when scheduled. The model would have to be re-run each year to account for replacement of the past due components and the corresponding reduction in the “catch-up” amount and to account for interest earnings and inflation.

The Cash Flow Method required a first year funding contribution of $6,000 escalating at a rate of 1.9% each succeeding year. Plus the Cash Flow Method maintains a threshold balance of $9,078 in the first year which is escalated for inflation in subsequent years.

The results are clearly in favor of the Cash Flow Method!