



COLONIAL GREEN COMMON AREA MASTER

ROANOKE, VA

INTERACTIVE RESERVE ANALYSIS



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DMA does not support the validity of this report until a Working Session has been conducted with the Board of Directors and the final report issued.



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This is a printout of a dynamic reserve analysis that will change over time. The analysis is made up of information sheets and spreadsheets, whose contents may change each time the analysis is updated. If comparing this report to other copies, verify the latest issue date on the front cover. Summary descriptions of the spreadsheets are provided below. Some spreadsheets, which are continuous in Excel, are divided up into several pages in this report for legibility.

STANDARDS, LIMITATIONS AND LEGAL INFORMATION <i>Contains Community Associations Institute (CAI) National Standards, limitations and legal restrictions on the use of information in this document and legal disclosures.</i>	3
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Interactive Reserve Analysis
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STANDARDS, LIMITATIONS AND CONDITIONS DISCLOSURE AND LEGAL RESTRICTIONS

STUDY STANDARDS

This study was conducted in accordance with the Community Associations Institute National Reserve Study Standards. A summary of the standards is contained in our information article entitled “National Standards” which is included in the Appendix.

The data and analysis information that forms a part of this report was formatted in Microsoft Excel but contains proprietary programming and program coding that is not available for distribution to outside parties. Copies of the data and analysis information have been made available in Adobe's Portable Document Format and included as part of this report. Limited program versions can also be provided, upon request, in Excel format for easier viewing and navigating through the data.

STUDY LIMITATIONS AND CONDITIONS

1. No destructive testing, lab analysis or other investigative methods were used to determine the condition of the components. Due to these limitations, as set forth in the reserve study guidelines that we subscribe to, the limited visual observations that were made are not sufficient to be considered a qualified architectural or engineering assessment of the state or condition of the components.
2. All common areas on the property were observed unless access was limited or not made available to us at the time of the inspection. The observations and opinions expressed herein with regard to the useful life of the components are based on our general professional knowledge of construction and our knowledge of the typical replacement experience of many communities and other entities with the same component types.
3. The inventory included taking field measurements, measurements from aerial and satellite imagery, digitized measurement over photo imagery and takeoffs and measurements from design and as-built drawings as there were deemed to be reliable. In the case of a Level II Update the quantities provided by the Client from previous studies was utilized when it was deemed to be reliable and accurate. In the case of a Level III Update all inventory data from previous studies provided by the Client was deemed accurate and reliable.
4. Our projections of remaining useful life are not architectural or engineering recommendations for executing specific projects. As the end of the remaining useful life approaches, as set forth in this study, the association should seek professional architectural, engineering, contractor, service providers or qualified product manufacturer or supplier assistance, as appropriate, and as to the need for and the scheduling of each specific replacement project. Particularly those of any significant magnitude.
5. An asset can be made up of several components that need to be maintained, repaired and replaced. Other elements of the asset may be considered permanent with respect to the asset. The schedule of components provided herein, is based upon information received from the client regarding the common elements and/or assets that the client is responsible for. It is the client's responsibility to verify that the schedule of components is complete.
6. Financial information including the present fund balance, interest from funds on deposit, and recent capital expenditures, were provided by the Association and are deemed reliable and complete by Design/Management Associates, Inc.

7. Information provided by the Association about prior reserve replacement projects is considered to be reliable and complete. No inspection by Design/Management Associates, Inc. should be interpreted as a project audit or quality inspection.
8. Industry Life Expectancy is based on printed product literature, product or material warranties, industry standards literature, and on the opinions of manufacturers, installers, or maintenance contractors based on their experience with these products and materials.
9. Unit prices are based on published unit price standards such as R. S. Means "Residential Cost Data", Facilities Maintenance and Repair Cost Data, and "Facilities Construction Cost Data", latest editions, and on pricing obtained from contractors, installers, or manufacturers. All prices are given in present dollars unless noted otherwise. Prices listed are not guaranteed as exact quotes for work included.
10. This analysis incorporates assumptions about the future rate of inflation, and the future interest income on your account deposits. If significant changes occur in either of these rates, this calculation should be re-run with current information.
11. The results of this analysis are predicated on your contributing the recommended amount in each previous year and on expenses occurring generally as predicted. The Reserve Study should be updated at least every 3 to 5 years, which may depend on statutory requirements, to correct for normal variations. However if significant changes occur in your present funding or in major expenses, in a shorter period of time, the account should be re-run.
12. DMA's Capital Replacement Reserve Studies are designed to be used as planning tools. They are a reflection of information provided by the Association and our analytical inputs, and are assembled for the Association's use. This reserve study should not be used for the purpose of performing an audit, quality/forensic analysis, or for background checks of historical records.

DISCLOSURE

DMA does not have any financial interest in this community, its management company or any vendor mentioned or used in this study beyond this work. This study represents all facts known to DMA at the time of its preparation that if purposefully omitted would cause a distortion of the Association's situation regarding its capital reserve plan.

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EXECUTIVE SUMMARY

COLONIAL GREEN COMMON AREA MASTER

RESERVE SPECIALIST AND STAFF RESPONSIBLE FOR THIS ANALYSIS

This study was prepared under the direct supervision of:

Lynette Wuensch, a Reserve Specialist certified by the Community Association Institute and a registered Professional Engineer in Virginia, Florida and North Carolina. Ms. Wuensch holds a BS degree in Civil Engineering.

The field survey, inventory, and condition assessment was conducted by:

Lynette Wuensch, a Reserve Specialist certified by the Community Association Institute and a registered Professional Engineer in Virginia, Florida and North Carolina. Ms. Wuensch holds a BS degree in Civil Engineering.

The cost estimating data was prepared by:

Tim R. Gebott, who has over 40 years construction contract estimating and programming experience. Mr. Gebott holds a BS degree in Civil Engineering.

COMMUNITY INFORMATION

COLONIAL GREEN COMMON AREA MASTER

Study Level:	II
Association Name:	Colonial Green Neighborhood Association
Community Location / Address:	Roanoke, Virginia
Community Size (Number of Units):	41
Unit Type(s):	Common Area Master
Management:	Hall Associates, Inc.
Represented by:	Christina L. Greene, CMCA, AMS, PCAM
Telephone and E-mail:	540-982-0011, ext. 155; Chrissy Greene <cgreene@hallassociatesinc.com>
Year(s) constructed:	2006
Scope of Reserves:	

FINANCIAL SUMMARY

Current Reserve Account Balance Information:

Average annual income rate on reserve deposit accounts:	<u>3.00%</u>		
Balance on account:	<u>\$3,894</u>	as of	<u>12/31/2017</u>
Less contributions already made this year:			
Plus expenditures already made and/or scheduled:			
Money held in investment accounts:	<u>\$0</u>		
Total balance:	<u>\$3,894</u>	as of	<u>1/1/2018</u>

Reserve Account Contribution in Study Year:

Current budgeted contribution for study year:	<u>\$483</u>	for	<u>2018</u>
Recommended contribution for study year from Reserve Funding Navigator worksheet:	<u>\$483</u>		
Remaining contribution to be made for study year:	<u>\$483</u>		

INTERACTIVE ANALYSIS - WORKING DRAFT

This document is a draft print-out of the spreadsheet analysis for your community's capital reserve account. It illustrates your current fund balance, current funding level, investment income and projected annual expenditures - all in current dollars. **NOTE: THIS DRAFT REPORT DOES NOT CONTAIN A FUNDING SOLUTION!** The next step in the completion of this analysis is a **working session** conducted with representatives of the community. The working session will review all input information and assumptions made in the analysis. We will then look together at alternate funding plans, from which the community can select a model to become the recommended working in the report. For the session to be most successful, participants should include management, association board members and/or budget committee members. The working session can be conducted online via an internet link or in person. A complete explanation of the working session is available in our information article entitled "DMA's Working Session" included in the Appendix. Upon completion of the interactive working session(s) the primary results of the analysis will be shown below.

CASH FLOW FUNDING MODEL (current as of the latest date on the cover of this report):

Projected Inflation and Escalation Rates (from Reserve Funding Navigator):

The projected inflation rate used in this printout is:	<u>2.49%</u>
The projected annual contribution escalation rate in this printout is:	<u>20.00%</u>

Reserve Funding Projections for next Four Years (from Reserve Funding Navigator):

<u>Amount</u>	<u>Year</u>
<u>\$579.60</u>	<u>2019</u>
<u>\$695.52</u>	<u>2020</u>
<u>\$834.62</u>	<u>2021</u>
<u>\$1,001.55</u>	<u>2022</u>



BASIC COMPONENT INFORMATION			SITE VISIT INFORMATION			AGE
LINE NUMBER	COMPONENT NAME	LOCATION	FIELD MEASURED QUANTITY OR COUNT	UNITS	% QUANTITY TO BE REPLACED EACH OCCURRENCE	LAST IN-SERVICE DATE
1.00	COMMON AREA MASTER RESERVE					2006
1.01	Brick Work At Entrance		136	SF	3%	2006
1.02	Sign Monument Structure		1	EA	100%	2006
1.03	Sign Lettering		13	EA	100%	2006
1.04	Wood Pillars		48	VLF	100%	2006
1.05	Timber Pergolas		152	SF	100%	2006
1.06	Wood Pillars		48	VLF	100%	2006
1.07	Timber Pergolas		152	SF	100%	2006
1.08	Ground Level Flood Lights	One Light is broken	2	EA	100%	2008
1.09	Brick Paving and Wall Overlook		1,480	SF	3%	2008
1.10	Pergola Structure - Overlook		900	SF	25%	2008
1.11	15" RCP from curb inlets to 72" CMP	Green Space - Common Area	385	LF	15%	2005
1.12	15" RCP	Green Space Near rowhouses	75	LF	15%	2005
1.13	24" CMP	Green Space Near rowhouses	10	LF	15%	2005
1.14	72" CMP Piping (Detention)	Alley behind Row Houses	310	LF	25%	2005
1.15	72" CMP Piping (Detention)	Green Space - Common Area	315	LF	25%	2005
1.16	Detention - 30"cmp risers with frame and grates	Green Space - Common Area	1	EA	100%	2008
1.17	Detention - 30"cmp risers with frame and grates	Green Space - Common Area	2	EA	100%	2008
1.18	Detention - 30"cmp risers with frame and grates	Alley behind Row Houses	2	EA	100%	2008



COMPONENT LIFECYCLE AND COSTING COLONIAL GREEN COMMON AREA MASTER

BASIC COMPONENT INFORMATION			LIFE CYCLE				REPLACEMENT COST				
LINE NUMBER	COMPONENT NAME	LOCATION	CURRENT ESTIMATED USEFUL LIFE (EUL)	REPLACEMENT INTERVAL AFTER FIRST REPLACEMENT	REMAINING USEFUL LIFE OR YEARS PAST DUE	NEXT REPLACEMENT YEAR	LOCATION CCI	86.1	BASE CCI		87.3
			DEFAULT	DEFAULT	2018	AUTO CALC	% OF TOTAL QUANTITY TO BE REPLACED	UNITS	QUANTITY OR COUNT	UNIT COST	REPLACEMENT COST, PER OCCURRENCE
1.00	COMMON AREA MASTER RESERVE										
1.01	Brick Work At Entrance		50	5	38	2056	3%	SF	136	\$111.84	\$380.26
1.02	Sign Monument Structure		25	25	13	2031	100%	EA	1	\$1,524.24	\$1,524.24
1.03	Sign Lettering		25	25	13	2031	100%	EA	13	\$108.55	\$1,411.15
1.04	Wood Pillars		30	30	18	2036	100%	VLF	48	\$69.98	\$3,359.04
1.05	Timber Pergolas		26	25	14	2032	100%	SF	152	\$35.21	\$5,351.92
1.06	Wood Pillars		31	31	19	2037	100%	VLF	48	\$69.98	\$3,359.04
1.07	Timber Pergolas		27	26	15	2033	100%	SF	152	\$35.21	\$5,351.92
1.08	Ground Level Flood Lights	One Light is broken	20	20	0	2018	100%	EA	2	\$306.64	\$613.28
1.09	Brick Paving and Wall Overlook		50	5	40	2058	3%	SF	1,480	\$111.84	\$4,138.08
1.10	Pergola Structure - Overlook		26	5	16	2034	25%	SF	900	\$35.21	\$7,922.25
1.11	15" RCP from curb inlets to 72" CMP	Green Space - Common Area	50	5	37	2055	15%	LF	385	\$53.05	\$3,063.64
1.12	15" RCP	Green Space Near rowhouses	50	5	37	2055	15%	LF	75	\$53.05	\$596.81
1.13	24" CMP	Green Space Near rowhouses	30	5	17	2035	15%	LF	10	\$67.46	\$101.19
1.14	72" CMP Piping (Detention)	Alley behind Row Houses	30	5	17	2035	25%	LF	310	\$154.39	\$11,965.23
1.15	72" CMP Piping (Detention)	Green Space - Common Area	30	5	17	2035	25%	LF	315	\$154.39	\$12,158.21
1.16	Detention - 30"cmp risers with frame and grates	Green Space - Common Area	40	40	30	2048	100%	EA	1	\$14,793.81	\$14,793.81
1.17	Detention - 30"cmp risers with frame and grates	Green Space - Common Area	40	40	30	2048	100%	EA	2	\$11,835.05	\$23,670.10
1.18	Detention - 30"cmp risers with frame and grates	Alley behind Row Houses	40	40	30	2048	100%	EA	2	\$11,835.05	\$23,670.10



Interactive Reserve Analysis

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2018

Sum of 2018

LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.08	Ground Level Flood Lights	One Light is broken	\$613
Grand Total			\$613

**EXPENDITURE SUMMARY
COLONIAL GREEN COMMON AREA MASTER**

2019

Sum of 2019

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2020

Sum of 2020

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2021

Sum of 2021

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2022

Sum of 2022

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2023

Sum of 2023

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2024

Sum of 2024

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2025

Sum of 2025

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2026

Sum of 2026

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2027

Sum of 2027

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2028

Sum of 2028

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2029

Sum of 2029

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2030**Sum of 2030**

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2031**Sum of 2031**

LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.02	Sign Monument Structure	(blank)	\$1,524
1.03	Sign Lettering	(blank)	\$1,411
Grand Total			\$2,935

2032

Sum of 2032			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.05	Timber Pergolas	(blank)	\$5,352
Grand Total			\$5,352

2033

Sum of 2033			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.07	Timber Pergolas	(blank)	\$5,352
Grand Total			\$5,352

2034

Sum of 2034			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.1	Pergola Structure - Overlook	(blank)	\$7,922
Grand Total			\$7,922

2035

Sum of 2035			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.13	24" CMP	Green Space Near rowhouses	\$101
1.14	72" CMP Piping (Detention)	Alley behind Row Houses	\$11,965
1.15	72" CMP Piping (Detention)	Green Space - Common Area	\$12,158
Grand Total			\$24,225

2036**Sum of 2036**

LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.04	Wood Pillars	(blank)	\$3,359
Grand Total			\$3,359

2037**Sum of 2037**

LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.06	Wood Pillars	(blank)	\$3,359
Grand Total			\$3,359

2038

Sum of 2038			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.08	Ground Level Flood Lights	One Light is broken	\$613
Grand Total			\$613

2039

Sum of 2039			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.1	Pergola Structure - Overlook	(blank)	\$7,922
Grand Total			\$7,922

2040**Sum of 2040**

LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.13	24" CMP	Green Space Near rowhouses	\$101
1.14	72" CMP Piping (Detention)	Alley behind Row Houses	\$11,965
1.15	72" CMP Piping (Detention)	Green Space - Common Area	\$12,158
Grand Total			\$24,225

2041**Sum of 2041**

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2042

Sum of 2042

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2043

Sum of 2043

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2044

Sum of 2044			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.1	Pergola Structure - Overlook	(blank)	\$7,922
Grand Total			\$7,922

2045

Sum of 2045			
LINE NUMBER	COMPONENT NAME	LOCATION	Total
1.13	24" CMP	Green Space Near rowhouses	\$101
1.14	72" CMP Piping (Detention)	Alley behind Row Houses	\$11,965
1.15	72" CMP Piping (Detention)	Green Space - Common Area	\$12,158
Grand Total			\$24,225

2046

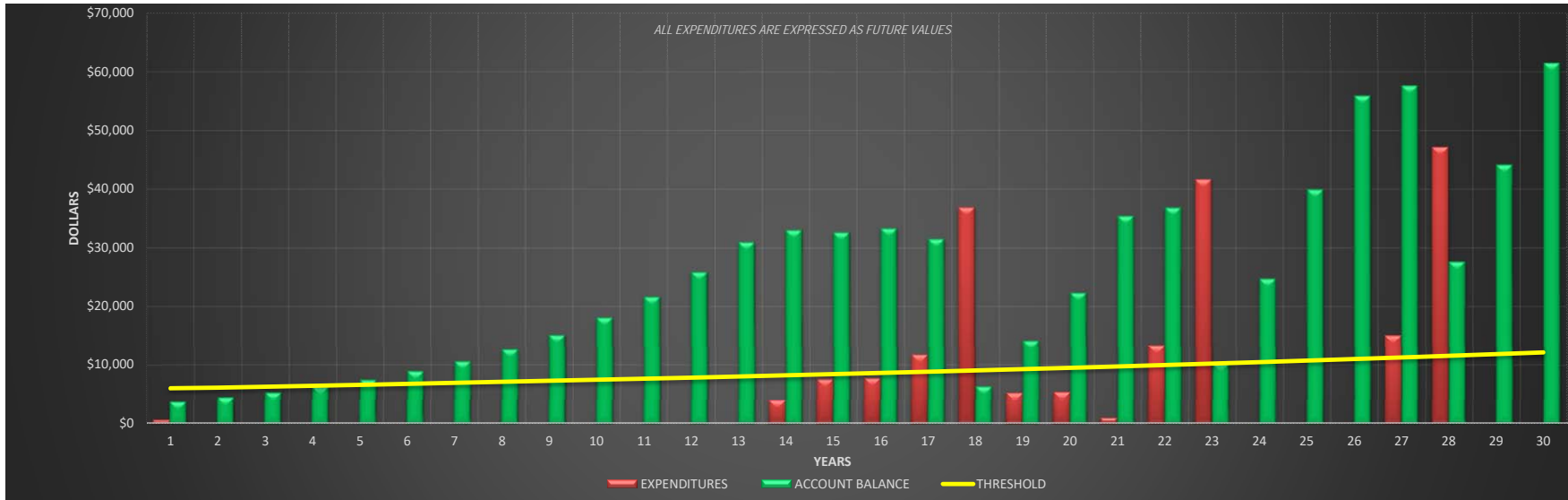
Sum of 2046

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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2047

Sum of 2047

LINE NUMBER	COMPONENT NAME	LOCATION	Total
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EXPENDITURE | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047

Inflation rate historical period; <u>select year</u>:	10 years	Annual escalation to the contribution per year, if any:	20.0%	200
Anticipated annual construction inflation rate:	2.49% per year			
Threshold Balance to be Maintained in Account:		Annual Contribution in Year:		
A selected minimum balance of:	\$0 OR	2018	\$483	\$483
Total of the next 30 years of expenditures, times:	5.0% 50	2019	\$580	\$580
		2020	\$696	
		2021	\$835	
		2022	\$1,002	

The graph above is a pictorial representation of the cash flow funding model used for this analysis. It illustrates the projected reserve account balance in each of the next 30 years (green bars) as it is impacted by the projected reserve expenditures over the same period (red bars). The yellow line is a designated threshold or "floor" of the reserve account - a line that allows the plan to keep the account balance equal to or greater than in the lowest balance year(s). It essentially represents a contingency balance that the account will always be available over and above the amounts required to fund all of the components when the funding model projects them to be replaced. This threshold value is not prescribed by law or standards, and can be adjusted to a level desired by the community.

The graph is called a "navigator" because the funding model can be adjusted from this sheet to react to varying inflation rates, interest rates, actual adjusted account balances, and variations in reserve expenditures and project schedules based on your community's actual experience, and in response to changes in priorities. These adjustments are typically performed in real time during a live working session, where the participants can see the impact of any and all changes on the account, and determine how to respond to them.

If this navigator shows an inflation rate of 0.0% and an annual escalation to the contribution of 0.0% then all numbers in the analysis shown are in current dollars only. These rates will be adjusted in the live working session.



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CASH FLOW SPREADSHEET COLONIAL GREEN COMMON AREA MASTER

YEAR	1	2	3	4	5
CALENDAR YEAR	2018	2019	2020	2021	2022

PROGRAMMED EXPENDITURES, PRESENT WORTH VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$613	\$0	\$0	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0

BEGINNING YEAR BALANCE	\$3,894	\$3,764	\$4,457	\$5,286	\$6,279
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FINANCIAL ANALYSIS SUMMARY

INCOME					
CONTRIBUTION TO RESERVES	\$483	\$580	\$696	\$835	\$1,002
LOAN DEPOSITS	\$0	\$0	\$0	\$0	\$0
PLUS SPECIAL ASSESSMENTS	\$0	\$0	\$0	\$0	\$0
PLUS OTHER FUNDS COMING DUE	\$0	\$0	\$0	\$0	\$0
PLUS INVESTMENT INCOME ON PRIOR YEAR'S ENDING BALANCE	\$0	\$113	\$134	\$159	\$188
INVESTMENT 1	\$0	\$0	\$0	\$0	\$0
INVESTMENT 2	\$0	\$0	\$0	\$0	\$0
TOTAL INCOME	\$483	\$693	\$829	\$993	\$1,190

EXPENDITURES, FUTURE VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$613	\$0	\$0	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0
FINANCIAL LOAN PAYMENT	\$0	\$0	\$0	\$0	\$0
OTHER DISBURSEMENTS	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENDITURES	\$613	\$0	\$0	\$0	\$0

END OF YEAR BALANCE	\$3,764	\$4,457	\$5,286	\$6,279	\$7,469
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MINIMUM ACCOUNT THRESHOLD					
CALCULATED THRESHOLD AS A % OF TOTAL 30 YEAR COSTS	\$5,901	\$6,048	\$6,199	\$6,353	\$6,512
FUNDING OBJECTIVE MET?	NO	NO	NO	NO	YES
MINIMUM REQUIRED CASH TRANSFER	\$2,137	\$1,592	\$913	\$74	\$0

ESCALATION, INFLATION, EARNINGS RATES					
ANNUAL CONTRIBUTION ESCALATION:	N/A	20.00%	20.00%	20.00%	20.00%
ANNUAL CONSTRUCTION COST ESCALATION:	N/A	2.49%	2.49%	2.49%	2.49%
ANNUAL RESERVE ACCOUNT INCOME RATE	3.00%	3.00%	3.00%	3.00%	3.00%



YEAR	6	7	8	9	10
CALENDAR YEAR	2023	2024	2025	2026	2027

PROGRAMMED EXPENDITURES, PRESENT WORTH VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$0	\$0	\$0	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0

BEGINNING YEAR BALANCE	\$7,469	\$8,895	\$10,604	\$12,653	\$15,109
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FINANCIAL ANALYSIS SUMMARY

INCOME					
CONTRIBUTION TO RESERVES	\$1,202	\$1,442	\$1,731	\$2,077	\$2,492
LOAN DEPOSITS	\$0	\$0	\$0	\$0	\$0
PLUS SPECIAL ASSESSMENTS	\$0	\$0	\$0	\$0	\$0
PLUS OTHER FUNDS COMING DUE	\$0	\$0	\$0	\$0	\$0
PLUS INVESTMENT INCOME ON PRIOR YEAR'S ENDING BALANCE	\$224	\$267	\$318	\$380	\$453
INVESTMENT 1	\$0	\$0	\$0	\$0	\$0
INVESTMENT 2	\$0	\$0	\$0	\$0	\$0
TOTAL INCOME	\$1,426	\$1,709	\$2,049	\$2,456	\$2,945

EXPENDITURES, FUTURE VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$0	\$0	\$0	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0
FINANCIAL LOAN PAYMENT	\$0	\$0	\$0	\$0	\$0
OTHER DISBURSEMENTS	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENDITURES	\$0	\$0	\$0	\$0	\$0

END OF YEAR BALANCE	\$8,895	\$10,604	\$12,653	\$15,109	\$18,055
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MINIMUM ACCOUNT THRESHOLD					
CALCULATED THRESHOLD AS A % OF TOTAL 30 YEAR COSTS	\$6,674	\$6,840	\$7,011	\$7,185	\$7,364
FUNDING OBJECTIVE MET?	YES	YES	YES	YES	YES
MINIMUM REQUIRED CASH TRANSFER	\$0	\$0	\$0	\$0	\$0

ESCALATION, INFLATION, EARNINGS RATES					
ANNUAL CONTRIBUTION ESCALATION:	20.00%	20.00%	20.00%	20.00%	20.00%
ANNUAL CONSTRUCTION COST ESCALATION:	2.49%	2.49%	2.49%	2.49%	2.49%
ANNUAL RESERVE ACCOUNT INCOME RATE	3.00%	3.00%	3.00%	3.00%	3.00%



YEAR	11	12	13	14	15
CALENDAR YEAR	2028	2029	2030	2031	2032

PROGRAMMED EXPENDITURES, PRESENT WORTH VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$0	\$0	\$0	\$2,935	\$5,352
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0

BEGINNING YEAR BALANCE	\$18,055	\$21,587	\$25,823	\$30,904	\$32,957
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FINANCIAL ANALYSIS SUMMARY

INCOME					
CONTRIBUTION TO RESERVES	\$2,991	\$3,589	\$4,306	\$5,168	\$6,201
LOAN DEPOSITS	\$0	\$0	\$0	\$0	\$0
PLUS SPECIAL ASSESSMENTS	\$0	\$0	\$0	\$0	\$0
PLUS OTHER FUNDS COMING DUE	\$0	\$0	\$0	\$0	\$0
PLUS INVESTMENT INCOME ON PRIOR YEAR'S ENDING BALANCE	\$542	\$648	\$775	\$927	\$989
INVESTMENT 1	\$0	\$0	\$0	\$0	\$0
INVESTMENT 2	\$0	\$0	\$0	\$0	\$0
TOTAL INCOME	\$3,532	\$4,236	\$5,081	\$6,095	\$7,190

EXPENDITURES, FUTURE VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$0	\$0	\$0	\$4,042	\$7,553
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0
FINANCIAL LOAN PAYMENT	\$0	\$0	\$0	\$0	\$0
OTHER DISBURSEMENTS	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENDITURES	\$0	\$0	\$0	\$4,042	\$7,553

END OF YEAR BALANCE	\$21,587	\$25,823	\$30,904	\$32,957	\$32,594
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MINIMUM ACCOUNT THRESHOLD					
CALCULATED THRESHOLD AS A % OF TOTAL 30 YEAR COSTS	\$7,548	\$7,736	\$7,929	\$8,126	\$8,329
FUNDING OBJECTIVE MET?	YES	YES	YES	YES	YES
MINIMUM REQUIRED CASH TRANSFER	\$0	\$0	\$0	\$0	\$0

ESCALATION, INFLATION, EARNINGS RATES					
ANNUAL CONTRIBUTION ESCALATION:	20.00%	20.00%	20.00%	20.00%	20.00%
ANNUAL CONSTRUCTION COST ESCALATION:	2.49%	2.49%	2.49%	2.49%	2.49%
ANNUAL RESERVE ACCOUNT INCOME RATE	3.00%	3.00%	3.00%	3.00%	3.00%



YEAR	16	17	18	19	20
CALENDAR YEAR	2033	2034	2035	2036	2037

PROGRAMMED EXPENDITURES, PRESENT WORTH VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$5,352	\$7,922	\$24,225	\$3,359	\$3,359
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0

BEGINNING YEAR BALANCE	\$32,594	\$33,272	\$31,455	\$6,306	\$14,124
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FINANCIAL ANALYSIS SUMMARY

INCOME					
CONTRIBUTION TO RESERVES	\$7,442	\$8,930	\$10,716	\$12,859	\$13,116
LOAN DEPOSITS	\$0	\$0	\$0	\$0	\$0
PLUS SPECIAL ASSESSMENTS	\$0	\$0	\$0	\$0	\$0
PLUS OTHER FUNDS COMING DUE	\$0	\$0	\$0	\$0	\$0
PLUS INVESTMENT INCOME ON PRIOR YEAR'S ENDING BALANCE	\$978	\$998	\$944	\$189	\$424
INVESTMENT 1	\$0	\$0	\$0	\$0	\$0
INVESTMENT 2	\$0	\$0	\$0	\$0	\$0
TOTAL INCOME	\$8,419	\$9,928	\$11,660	\$13,048	\$13,540

EXPENDITURES, FUTURE VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$7,741	\$11,745	\$36,808	\$5,231	\$5,361
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0
FINANCIAL LOAN PAYMENT	\$0	\$0	\$0	\$0	\$0
OTHER DISBURSEMENTS	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENDITURES	\$7,741	\$11,745	\$36,808	\$5,231	\$5,361

END OF YEAR BALANCE	\$33,272	\$31,455	\$6,306	\$14,124	\$22,302
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MINIMUM ACCOUNT THRESHOLD					
CALCULATED THRESHOLD AS A % OF TOTAL 30 YEAR COSTS	\$8,536	\$8,749	\$8,967	\$9,190	\$9,419
FUNDING OBJECTIVE MET?	YES	YES	NO	YES	YES
MINIMUM REQUIRED CASH TRANSFER	\$0	\$0	\$2,660	\$0	\$0

ESCALATION, INFLATION, EARNINGS RATES					
ANNUAL CONTRIBUTION ESCALATION:	20.00%	20.00%	20.00%	20.00%	2.00%
ANNUAL CONSTRUCTION COST ESCALATION:	2.49%	2.49%	2.49%	2.49%	2.49%
ANNUAL RESERVE ACCOUNT INCOME RATE	3.00%	3.00%	3.00%	3.00%	3.00%



YEAR	21	22	23	24	25
CALENDAR YEAR	2038	2039	2040	2041	2042

PROGRAMMED EXPENDITURES, PRESENT WORTH VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$613	\$7,922	\$24,225	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0

BEGINNING YEAR BALANCE	\$22,302	\$35,347	\$36,771	\$10,165	\$24,668
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FINANCIAL ANALYSIS SUMMARY

INCOME					
CONTRIBUTION TO RESERVES	\$13,379	\$13,646	\$13,919	\$14,197	\$14,481
LOAN DEPOSITS	\$0	\$0	\$0	\$0	\$0
PLUS SPECIAL ASSESSMENTS	\$0	\$0	\$0	\$0	\$0
PLUS OTHER FUNDS COMING DUE	\$0	\$0	\$0	\$0	\$0
PLUS INVESTMENT INCOME ON PRIOR YEAR'S ENDING BALANCE	\$669	\$1,060	\$1,103	\$305	\$740
INVESTMENT 1	\$0	\$0	\$0	\$0	\$0
INVESTMENT 2	\$0	\$0	\$0	\$0	\$0
TOTAL INCOME	\$14,048	\$14,707	\$15,022	\$14,502	\$15,221

EXPENDITURES, FUTURE VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$1,003	\$13,283	\$41,628	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0
FINANCIAL LOAN PAYMENT	\$0	\$0	\$0	\$0	\$0
OTHER DISBURSEMENTS	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENDITURES	\$1,003	\$13,283	\$41,628	\$0	\$0

END OF YEAR BALANCE	\$35,347	\$36,771	\$10,165	\$24,668	\$39,889
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MINIMUM ACCOUNT THRESHOLD					
CALCULATED THRESHOLD AS A % OF TOTAL 30 YEAR COSTS	\$9,654	\$9,894	\$10,141	\$10,393	\$10,652
FUNDING OBJECTIVE MET?	YES	YES	YES	YES	YES
MINIMUM REQUIRED CASH TRANSFER	\$0	\$0	\$0	\$0	\$0

ESCALATION, INFLATION, EARNINGS RATES					
ANNUAL CONTRIBUTION ESCALATION:	2.00%	2.00%	2.00%	2.00%	2.00%
ANNUAL CONSTRUCTION COST ESCALATION:	2.49%	2.49%	2.49%	2.49%	2.49%
ANNUAL RESERVE ACCOUNT INCOME RATE	3.00%	3.00%	3.00%	3.00%	3.00%



YEAR	26	27	28	29	30
CALENDAR YEAR	2043	2044	2045	2046	2047

PROGRAMMED EXPENDITURES, PRESENT WORTH VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$0	\$7,922	\$24,225	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0

BEGINNING YEAR BALANCE	\$39,889	\$55,857	\$57,577	\$27,594	\$44,097
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FINANCIAL ANALYSIS SUMMARY

INCOME					
CONTRIBUTION TO RESERVES	\$14,771	\$15,066	\$15,368	\$15,675	\$15,989
LOAN DEPOSITS	\$0	\$0	\$0	\$0	\$0
PLUS SPECIAL ASSESSMENTS	\$0	\$0	\$0	\$0	\$0
PLUS OTHER FUNDS COMING DUE	\$0	\$0	\$0	\$0	\$0
PLUS INVESTMENT INCOME ON PRIOR YEAR'S ENDING BALANCE	\$1,197	\$1,676	\$1,727	\$828	\$1,323
INVESTMENT 1	\$0	\$0	\$0	\$0	\$0
INVESTMENT 2	\$0	\$0	\$0	\$0	\$0
TOTAL INCOME	\$15,968	\$16,742	\$17,095	\$16,503	\$17,312

EXPENDITURES, FUTURE VALUES					
SCHEDULE OF REPAIRS AND REPLACEMENTS	\$0	\$15,022	\$47,078	\$0	\$0
CAPITAL IMPROVEMENT PROJECTS	\$0	\$0	\$0	\$0	\$0
FINANCIAL LOAN PAYMENT	\$0	\$0	\$0	\$0	\$0
OTHER DISBURSEMENTS	\$0	\$0	\$0	\$0	\$0
TOTAL EXPENDITURES	\$0	\$15,022	\$47,078	\$0	\$0

END OF YEAR BALANCE	\$55,857	\$57,577	\$27,594	\$44,097	\$61,408
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MINIMUM ACCOUNT THRESHOLD					
CALCULATED THRESHOLD AS A % OF TOTAL 30 YEAR COSTS	\$10,918	\$11,190	\$11,468	\$11,754	\$12,047
FUNDING OBJECTIVE MET?	YES	YES	YES	YES	YES
MINIMUM REQUIRED CASH TRANSFER	\$0	\$0	\$0	\$0	\$0

ESCALATION, INFLATION, EARNINGS RATES					
ANNUAL CONTRIBUTION ESCALATION:	2.00%	2.00%	2.00%	2.00%	2.00%
ANNUAL CONSTRUCTION COST ESCALATION:	2.49%	2.49%	2.49%	2.49%	2.49%
ANNUAL RESERVE ACCOUNT INCOME RATE	3.00%	3.00%	3.00%	3.00%	3.00%



Interactive Reserve Analysis
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ASSESSMENT ALLOCATION COLONIAL GREEN COMMON AREA MASTER

TOTAL BUDGET

Year	Common Area Reserve Assessment	Shared Reserve & Operating Budget Assessment*	Total Assessment	Reserves as a Percentage of Total Assessment	Annual Increase In Total Assessment	Special Assessments
2018	\$483.00	\$1,470.12	\$1,953.12	24.73%		\$0.00
2019	\$579.60	\$1,506.75	\$2,086.35	27.78%	6.82%	\$0.00
2020	\$695.52	\$1,544.29	\$2,239.81	31.05%	7.36%	\$0.00
2021	\$834.62	\$1,582.76	\$2,417.38	34.53%	7.93%	\$0.00
2022	\$1,001.55	\$1,622.19	\$2,623.74	38.17%	8.54%	\$0.00

* Operating budget is increased annually at the projected inflation rate.

ALLOCATION CALCULATIONS

Total Number of Units	<u>52</u>
Unit Type	All Homes
Percentage Allocation To Unit Type	100.00%
Number of Units of This Type	52

Annual Contribution Per Unit Type

Year	Reserve Assessment	Operating Budget Assessment	Total Assessment	Special Assessments
2018	\$9.29	\$28.27	\$37.56	\$0.00
2019	\$11.15	\$28.98	\$40.12	\$0.00
2020	\$13.38	\$29.70	\$43.07	\$0.00
2021	\$16.05	\$30.44	\$46.49	\$0.00
2022	\$19.26	\$31.20	\$50.46	\$0.00

Monthly Contribution Per Unit Type

Year	Reserve Assessment	Operating Budget Assessment	Total Assessment	Special Assessments
2018	\$0.77	\$2.36	\$3.13	\$0.00
2019	\$0.93	\$2.41	\$3.34	\$0.00
2020	\$1.11	\$2.47	\$3.59	\$0.00
2021	\$1.34	\$2.54	\$3.87	\$0.00
2022	\$1.61	\$2.60	\$4.20	\$0.00



HISTORIC COST INDICES

Source: R.S. MEANS

Year	Index	Difference	% Increase	Direct Cost Multiplier	Period in Years	Average Annual Escalation	Month
2016	207.2	0	0.00%	1.0000	0	n/a	Estimated as of January
2015	206.2	1	0.48%	1.0048	1	0.48%	As of January
2014	204.9	2.3	1.12%	1.0112	2	0.56%	As of January
2013	201.2	6	2.98%	1.0298	3	0.98%	As of January
2012	194.6	12.6	6.47%	1.0647	4	1.58%	As of January
2011	191.2	16	8.37%	1.0837	5	1.62%	As of January
2006	162.0	45.2	27.90%	1.2790	10	2.49%	As of January
2001	125.1	82.1	65.63%	1.6563	15	3.42%	As of January

R S Means Company maintains a construction cost database for North America that is updated quarterly (4 times per year). The current company was incorporated in 1984, but has existed in other forms previously. The company claims to have maintained cost data for over 70 years. In addition to current costs for both materials and labor, R S Means maintains a historical index of these costs, which they publish for a time period going back 20 years.

DMA uses these historical indexes as a logic base for projecting future construction cost escalation (inflation). In order to have a logical basis for the inflation rate used in this study, we offer this guide to selecting the rate that the association wants to use. Generally, the longer the look-back period (say 15 years vs. 5 years) the more conservative your future inflation projection will be.

In making a selection for future inflation, keep in mind that if your selected rate varies significantly from the current inflation rate, you should make a corresponding adjustment for the projected interest or earnings rate on your money kept in a savings or money market account, as those rates follow (but do not equal) inflation rates.



HOW OUR INTERACTIVE RESERVE ANALYSIS WORKS

AN EXPLANATION OF THE PHYSICAL PROPERTY ANALYSIS

COMPONENT COST AND USEFUL LIFE ESTIMATING

HISTORIC COST INDEX AND EXPLANATION

DMA ON-GOING RESERVE STUDY MANAGEMENT SERVICES

NATIONAL RESERVE STUDY STANDARDS – COMMUNITY ASSOCIATIONS
INSTITUTE

DMA Reserves, Inc.
2302 East Cary Street
Richmond, VA 23223
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HOW OUR INTERACTIVE RESERVE ANALYSIS WORKS

PURPOSE

Your community contains infrastructure and amenities (capital assets) that are owned in common by all property or unit owners. Your owners association is responsible for replacing these assets when they wear out or become unusable. A capital reserve account is a savings account designed specifically to accumulate funds for eventual replacement of your commonly owned assets when they reach the end of their useful lives. Funds in this dedicated account can be accumulated over a period of many years without being taxed, however they can only be used for the repair or replacement of capital assets. They cannot, for example, be returned to the operating account without the Association paying a penalty. Each capital asset is referred to in this study as a *component* of your Capital Reserves. All components eventually need to be replaced in full or in part, although they may normally function for 10, 20, 30 years, or longer. Regular operating and maintenance budgets do not cover the funding required for these needs. This Capital Reserve Analysis looks at various ways to adequately fund your reserves.

A FUNDING PLAN - NOT A MAINTENANCE SCHEDULE

This plan is a general predictor for replacement of components, however it is not a *required* maintenance or replacement schedule. Specific decisions about replacement of each component should be made by the Board of Directors based on this information *and* on a periodic assessment of the actual condition of each component.

...AND NOT AN ENGINEERING STUDY

A capital reserve analysis is geared toward evaluating when a component needs to be replaced and how much it will cost to replace. It is not an in-depth engineering assessment of the component's functional operation, defects or design. Our company is staffed with engineers and architects, and works with specialized consultants who can provide such assessments; however that work is outside the scope of the reserve analysis itself.

HOW MANY RESERVE ACCOUNTS?

It is possible to maintain separate accounts for individual components or groups of components, and some communities have requirements in their Declarations for dedicated reserve accounts, such as for private roads. Many Certified Public Accountants recommend that the number of reserve accounts be kept to a minimum. We normally recommend that you keep just one combined (pooled) account. Having one account gives you the spending flexibility to respond to an unexpected expense for one component without having to transfer funds from other dedicated accounts. Unless otherwise noted in our funding recommendation, our study will develop one account with one annual deposit amount that will meet the replacement needs of all components.

COMPONENT INVENTORY

The Component Inventory is divided into two sections. The first section identifies each component to be included in the capital reserve account(s) and provides quantity information, component age, and expected useful life of each. We also observe the condition of each component and recommended any maintenance or other corrective action that should be taken at this time.

The second part of the Component Inventory shows the projected replacement cycle, percentage of expected replacement at each cycle, and the current replacement cost of each component.

FINANCIAL ANALYSIS

We perform two analyses in this study. The first is the Current Funding Summary. This assesses the relative adequacy of your reserve account to fund your reserves at this point in time. The second is called the Interactive Cash Flow Analysis, where we look together with you at alternative methods of adequately funding your reserves from this point forward.

Current Funding Summary (Component Method)

In the report we perform a historic funding analysis that looks at both the current funding level and the current fund balance or your reserve account compared to the amount of annual funding that would have to have been set aside each year for each component to fund it at 100 percent of its replacement value. This is calculated by dividing the original cost of the component by the number of years in its estimated useful life. This is also commonly referred to as “component method funding” and represents the annual straight line depreciation value of each component.

By multiplying the annual depreciation value of each component by its present age, we arrive at the amount of money for each that should be in the capital reserve account as of the study date. The total amount for all components added together is the target “fully funded” level of the reserve account. We divide the actual reserve account balance by this amount, yielding the percentage that the account is fully funded. A 100 percent funding level means that the account is fully funded. A value less than 100 percent means that there may be a deficiency in the capital reserve account.

In our experience, many communities are not fully funded from their beginning date, and simple conversion to full funding using this method of analysis will often place the entire cost burden of a “correction” on the present owners. The full funding - component method must be recomputed every year. Gradually, the annual funding amount will be reduced over time as the Association “catches up”. It must be noted that this does not necessarily mean that the current annual contribution amount is insufficient to fund the reserve account from this point forward. The Association over the course of the years may have adjusted the annual contribution amount to where it is now adequate to fund the reserve account going forward if all funds are “pooled” into a single account.

Interactive Cash Flow Model

This report page shows the results of our Cash Flow analysis. In this analysis, each anticipated component replacement is plotted on a schedule over time. This schedule then calculates the annual total reserve account deposits required to fund all projected component expenses and maintain a minimum account balance over the entire

period. Using this method of analysis requires that we set several parameters first. These include:

Actual Reserve Balance at the End of the Prior Fiscal Year

This is the dollar amount provided on your association’s year-end financial statement. The number that we enter becomes the beginning balance of the reserve account in year one (1) of our study. If you do not have a reserve account, we will enter \$0.00 for this balance.

Anticipated Annual Inflation Rate

This is based on historical inflation data provided by R.S. Means Company based on their recorded historical cost indices. From these, we will recommend an inflation rate, expressed as a percentage (%), to use in the study.

Annual Income Rate on Reserve Account

We base this on your community’s current and/or anticipated returns on investments from savings accounts, Certificates of Deposit, Money Market accounts or other fund investments. If funds are deposited in several different accounts, we will take an average of the earnings rate on all of the accounts. This number, expressed as a percentage (%) is input into the study.

Account Threshold

The goal of the Cash Flow funding plan is to keep your account above a minimum balance over the life of the study while insuring that all components are fully funded when they are scheduled to be replaced. We can set that minimum balance at zero (\$0.00), which is called “baseline” funding. We can also set a minimum account balance, or “threshold”, at some amount above zero, in order to provide a buffer for the variations in actual expenditures that will inevitably occur over the life of the study. We typically use a percentage of your total expected reserve expenditures over a 20-year period to establish this amount. The amount is input into the study as a bottom limit for the cash flow in the account. This amount will increase every year at the rate of inflation.

Annual Contribution Escalation

As inflation decreases the value of the dollar over time, it is necessary to introduce an escalation factor so that the contribution

grows in relation to the growth in actual costs over time. If we did not do this - if we kept the contribution constant - owners today would have to contribute a much larger amount in order to offset the declining value of the same contributions made in the future. The escalation rate provides parity for present and future owners.

In communities that are significantly underfunded, it may be necessary to use an escalation factor that is greater than the inflation rate to gradually increase your contributions to an acceptable level. The annual contribution escalation is expressed as a percentage (%) and is initially input into the study to match the rate of inflation. We can adjust this rate as a constant over the entire study period, or manually adjust it from year to year, to help us design the appropriate funding plan.

The 30 Year Cash Flow Study

Having identified the above parameters, we conduct our cash flow study. This study can balance out contributions over the next 30 years, to distribute the responsibilities for reserve funding between present and future owners in various ways. It can also incorporate funding tools such as special assessments and bank loans into the overall calculations. Our spreadsheets are designed to allow us to conduct this analysis dynamically in a physical or online meeting format so that community leaders and management can have test alternate funding plans and decide on the plan best suited to the needs and priorities of the community.

The spreadsheets that show the mechanics of the plan are provided in the report.

In the report we provide a list of the expected reserve expenditures by component for each year of the study. Note: all costs shown in these schedules are presented in current dollars as of the report date. The total values of these annual expenditures are revised to reflect the input inflation rate, in the cash flow spreadsheets.

The results of this study are summarized in a five year funding schedule and a 30 year funding plan graph on the page titled "Interactive Cash Flow Model". These results comprise our recommended funding plan for your community as of the date of the study. The financial aspects of this plan can be updated annually (or

any time) upon request, and we recommend an update of the full study, including the physical analysis, every 3 to 5 years.

If you have additional questions about DMA reserve studies, please contact us at our office at 804-644-6404 or by e-mail at contact@dma-va.com.

DMA Reserves

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AN EXPLANATION OF THE PHYSICAL PROPERTY ANALYSIS

THE COMPONENT INVENTORY

The physical analysis of the community's capital assets includes the definition of reserve components, observation of the condition of each component or component group, establishment life expectancy and replacement frequency for each component or group, projected level of replacement (expressed as a percent of the component), and projected replacement cost per replacement occurrence. All of this information is contained in the Component Inventory. In addition to a standard component inventory, DMA expands this spreadsheet in three ways:

1. We add in-service dates for each component – identifying the date it was originally constructed or acquired, or the most recent date that it was replaced.
2. We break large components into smaller sub-components allowing for individual replacement of these smaller components to be tracked.
3. We group together smaller components that may be replaced at the same time such that they may be tracked as one larger replacement project.

This inventory can be updated by the client when major repair or replacement projects occur, providing the new in-service date and the actual project cost.

RESERVE COMPONENTS DEFINED

Components may include all types of property improvements which are owned by the owners Association, or for which the Association is required by the Declaration to provide maintenance. Examples would include any private roads, parking lots, sidewalks, paved trails, lakes, dams, swimming pools, tennis courts, playgrounds, clubhouses, etc. that make up the common area or shared amenities of the community. Other shared assets may include clubhouse or pool furniture, maintenance equipment and vehicles, or other miscellaneous assets like pumps, motors, generators, etc. Components may also include limited common elements of individual homes or lots, such as driveways, patios, decks, siding and roofing. In large condominium buildings components will include interior common areas – lobbies, halls, elevators, party rooms, etc., and common building equipment such as boilers, chillers, water pumps, generators, trash compactor and the like.

OBSERVATIONS AND ASSESSMENT OF COMPONENT CONDITION

We include a column in our Component Inventory and Project Log that allows comments to be added about components. These may be condition comments, special concerns, comments about how they were measured or comments about alternate replacement options. Over time, this area can be used by the client to add information about components that are replaced, deferred, accelerated or have some condition that needs to be noted.

A visual record of components is provided in a companion folder to this report. It contains photos and/or video documentation of our field observations.

The observations and opinions expressed in this report are based on our general professional knowledge of construction and our knowledge of the typical replacement experience of many communities and other entities with the same component types. Our projections are not architectural or engineering recommendations for specific projects. The Board of Directors should seek professional or industry assistance for each specific replacement project, based on the conditions in existence at the time of replacement and as the need for replacement or repair becomes imminent.

COMPONENT USEFUL LIFE

Several columns in the Schedule of Components provide a picture of the component useful life, including:

COMPONENT PLACED IN SERVICE: This column identifies either the factual year or our estimate of the year that each component was placed in service (built, installed, replaced, etc.).

ESTIMATED USEFUL LIFE (EUL) BEFORE FIRST REPLACEMENT: This is the expected minimum working life of the component in years, based on the actuarial or industry standard life, combined with our observation of the condition and use of the component in this setting. Our EUL for a component in one setting may be different for the same or similar component in another setting. The terminology “expected minimum” is important in that some components are subject to partial failures and replacements even though a portion or majority of the component may have a much longer service life. An example is concrete sidewalks. Concrete may last in good condition for 100 years, but outside conditions can affect sidewalks that will require

replacement of parts of them in a shorter time frame. In some cases the same portion may be replaced multiple times within the total life span. Some components may be a group of like entities such as doors. In this case some doors may be more susceptible to replacement than others based on use and exposure. The EUL sets a minimum estimated life before we expect some replacement activity even though many of the doors in the group may last much longer.

REPLACEMENT INTERVAL (YEARS): This is the number of years after the first replacement event that we expect to have another. For a component with a predictable estimated life, such as shingle roofs, the replacement interval may be the same as the estimated useful life (EUL). If the EUL is 30 years the subsequent replacement interval will also be 30 years. For our concrete sidewalk example in the previous section, however, you may replace 5% of it after an EUL of 15 years, and then another 5% every 5 years thereafter, as the entire walkway component gradually ages. These numbers are often affected by outside forces that impact the component, and can also be affected by the manner in which the association maintains the community. One association may elect to replace portions of a component every 5 years or more often, and another association may not elect to do any work for 15 years at a time. These are all decisions that can be made in DMA's working session with the Association.

NEXT REPLACEMENT YEAR: This number is computed by adding the ESTIMATED USEFUL LIFE (EUL) to the COMPONENT PLACED IN SERVICE YEAR.

REMAINING USEFUL LIFE: This number is computed by subtracting the STUDY YEAR (the year the analysis is being conducted) from the the NEXT REPLACEMENT YEAR.

In some cases where a community is still under development many components have been little used at the time of this study and thus could be in nearly new condition in spite of the age of the component. This might include interior finishes, fixtures, furniture and some appliances. Refrigerators, ice makers, water heaters and HVAC equipment that must run continuously would not necessarily be included in this group. The useful life of most of the exterior components is affected by weather and forces of nature rather than actual use. Examples of this would be roofing, siding, etc. However, the useful life of such items as asphalt pavement is affected by weather, forces of nature and usage. These conditions can be dealt with by assigning later in-service dates for those components that have been little used, have not been in operation and have not been subjected to weather and forces of nature.

Another significant factor in the useful life of a component is the routine maintenance and care for that component. An Association's willingness to

care for and maintain the components that can be cared for and maintained will contribute to a significant increase in the useful life of a component. Of course some components simply offer little opportunity for any special care or maintenance.

Finally, the useful life of a component is often dependent upon the aesthetic value that an Association places on a component. An Association might feel that worn or damaged components that are still functional should not be replaced. In some cases, Associations will simply decide to abandon, demolish or remove a component from use.

PERCENT OF COMPONENT TO BE REPLACED AT EACH INTERVAL: In its simplest form, this number tells the analysis to either fund for the full replacement amount or to fund for a partial replacement amount at each occasion. Again, with the sidewalk example, the analysis may be told to fund for 5% of the total component quantity replacement at each interval. For a shingle roof, it would likely be for 100% of the component at each replacement interval.

This number can also be used to assist in "what if" scenarios. If an association is trying to decide if they want to replace a component, remove it, or do something else; the percent of replacement could be set at zero (0%) in order to remove the component from the funding plan, while still recognizing its existence in the community.

COMPONENT QUANTITIES AND MEASUREMENT

Two columns in the Schedule of Components provide information on the quantity or measurement of each component. These are:

TOTAL QUANTITY: This is the amount, size, number or extent of each component based on a unit of measure.

UNIT: The units of measure used in this report are typically as follows:

cy = cubic yard	sy = square yard
ea = each	pr = pair
lf = linear foot	ln-ft = length in feet, per inch in diameter of pipe
sf = square foot	sq = square (100 square feet)
ls = lump sum	

All components are viewed on site, unless otherwise specified herein. The components are documented with a photo of the component or of a typical component or group of components where there are a large number of repetitive component elements. Quantities for each component are developed either by on-site measurement, measurement from scale engineering and architectural drawings when available, measurement on scaled photos or measurement by satellite mapping. In the case of on-site

measurements of building envelope components (i.e. roofs, siding, trim, doors, windows, gutters, etc.) it would take an extraordinary amount of time and money to identify and measure each and every component on each and every unit. In that case quantities were arrived at by measuring a single model or a single unit of similar character and multiplying those quantities by the number of similar units. This methodology has resulted in very accurate results as far as quantities are concerned for the reserve study budgeting analysis.

If this study is an update of a previous study performed by DMA or another consultant, the quantities used are as determined in that study, unless otherwise noted. In many cases where a recent historic estimate or bid exists the bid amount is used as a "lump sum" in lieu of a unit quantity estimate.

REPLACEMENT COST

Two columns in the Component Inventory and Project Log define the expected replacement cost of each component:

UNIT COST: This is our estimate of the replacement cost per unit of each component.

REPLACEMENT COST AT EACH INTERVAL: This number is derived from multiplying the estimated quantity x the unit cost x the percent replaced.

DMA uses three sources of costing for components in this study. Our standard source for computing component replacement costs is from cost data published by R. S. Means Company, a division of Reed Construction Data, including *Facility Construction, Facility Maintenance and Repair, Commercial Construction, and Residential Construction*. These are updated quarterly and indexed (cost weighted) by geographic area.

Our second source is actual recent replacement costs for specific components provided by the association from your General Ledger or from actual contracts or invoices.

Our third source is from local contractors and suppliers, and from manufacturers of specific products.

EXCLUDED COMPONENTS

Some improvements and assets related to the common areas are not included as capital replacement components. Components that you do not see in this report are generally related to one of the categories below or are not owned by the association:

Permanent Improvements

This group includes components that if properly maintained will have a useful life equal to the property as a whole. The end of the useful life of the property would occur when it would be necessary that all of the infrastructure would need to be demolished and cleared or the area and infrastructure completely evacuated and reconditioned to return the property to a safe and useful state.

Masonry, Stone, Concrete

Generally, masonry, stone and concrete building cladding and flatwork would be considered to have an unlimited useful life. However, repairs such as mortar tuck pointing, patching and replacing sections of broken or damaged masonry, stone and concrete is a reality and a component line item for this is often included in the reserve funding study.

Unit or Home Owner Modifications

On occasion unit or home owners will modify components that are considered common elements and the responsibility of the Association. These cost of these modifications should not be included as part of the capital reserves.

Incidental or Maintenance Items

Some components are small enough, or may require repair or replacement on a recurring short-term basis, that the association may elect to fund these entirely from the operating account as annual maintenance items.

Tax Exclusions, Minor Items and Capital Improvements

The interest earned on the account balance containing savings for certain components may not qualify for tax exemption under IRS rulings for Associations filing Form 1120 or 1120H. It is incumbent upon the Association to determine the tax implications of comingling exempt capital expenditure funds from excluded or nonexempt designated funds in their bank and investment accounts.

State statutory requirements may prohibit comingling of funds set aside for some items. The Association should consult their attorney or accountant on this matter.

Some of these items include:

- Painting, wall coverings and other cosmetic work.
- Landscape Improvements and replacement of any landscaping (trees, shrubbery, etc.).
- Irrigation systems generally need continual maintenance. Broken heads and pipes, and damaged controller systems need to be replaced immediately upon failure. Replacement costs are generally below the threshold for reserve funding, and longevity of system components varies widely. We generally recommend that this system be handled within your annual operating and

maintenance budget. However, we believe that the irrigation well pump systems and irrigation controllers should be included as capital reserve components.

- Asphalt pavement seal coating, painting, wall coverings and other activities that might be considered cosmetic work.
- Cleaning and power washing activities.
- Minor or low value exclusions. The Association may wish to set a lower limit on the replacement cost of components included in the reserve account. In that instance, items of lesser value would be replaced or repaired using funds from your operating account.
- Capital improvements would include development or purchase of a new component to be placed in service for the first time. After the component has been placed in service the money set aside for repair and replacement can then be included in the capital reserve component funding program accounts.

If you have additional questions about DMA reserve studies, please contact us at our office at 804-644-6404 or by e-mail at contact@dma-va.com.

DMAReserves

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COMPONENT COST AND USEFUL LIFE ESTIMATING

DMA COST ESTIMATING

DMA uses two types of costing in creating a replacement cost schedule for reserve components. If the component has been replaced in the past five (5) years or if the client has a current cost estimate or bid for a replacement, DMA will use that known cost. If the cost is 2 – 5 years old, DMA will adjust it for inflation to create a cost in “current dollars”, and use that cost in our replacement schedule.

In most cases, however, replacement costs need to be estimated. To do this DMA uses three (3) levels of estimating:

1. A respected national construction cost data base,
2. An experienced construction cost estimator who knows how to use this data base in actual construction,
3. Cost assembly by the Reserve Specialist in charge of the project.

RESPECTED NATIONAL CONSTRUCTION COST DATA BASE

DMA uses RSMeans Cost Data, the most complete national construction cost data available today, from The Gordian Group – a company that specializes in facility construction management solutions. This data base is updated quarterly and costs are indexed to cities throughout the USA and Canada. RSMeans has been providing this service for over 70 years. In addition to tracking current costs, this data base allows RSMeans to also track construction related inflation. DMA uses this tool to help forecast projected inflation rates for our reserve analyses based on past trends.

EXPERIENCED CONSTRUCTION COST ESTIMATOR

RSMeans is a tool for estimators – not a cost estimating solution in itself. DMA’s staff includes a knowledgeable cost estimator with over 40 years of design and construction estimating experience, to assemble and adjust costs from the RSMeans data base, as well as

other sources, to create and maintain DMA’s own proprietary cost data base. Replacement costs include several elements - the product or material cost, the labor cost to install the product and material, and related costs to remove the old component and complete the installation of the new – which may involve other trades and other related replacement work. DMA’s estimator has created a data base to address most typical reserve components, and he is continually adding to it as we come across new components. He also is able to develop custom replacement costs for unique or complex projects when they arise.

COST ASSEMBLY BY THE RESERVE SPECIALIST

The Reserve Specialist (RS) in charge of your project will select the most appropriate costs for the components that he sees on your property or in your facility. In some cases, the RS will need to additionally assemble costs from our data base to fully address the needs of a replacement project – such as equipment replacement that requires architectural alterations, complex roof replacement projects, or underground utility replacement projects. The RS will also determine the percentage of replacement per occurrence for each component. Replacement occurrences for long-life components or component groups may be better projected as partial replacements on a recurring basis.

YOUR ACTUAL COSTS WILL VARY

DMA’s cost estimating meets or exceeds industry standards for this work and we use the best information available to develop our cost data base. Many factors affect the actual cost of project at a point in time, however, and you should expect your cost experience to vary somewhat from the estimates. Factors to remember include:

- Actual cost growth for a particular product or labor market vs. projected inflation rates. Most costs grow in leaps and spurts, even though they average out over time to a

measurable rate. Your experience at a point in time may be on one side or the other of a cost increase.

- Competition and local market factors at the time of your replacement may put temporary upward or downward pressures on the cost of a particular item or labor rate.
- Your replacement project may include other work within the scope that is not identified or anticipated in the component replacement cost.
- Component replacement estimates are made for the most similar product, material or labor cost to what we observe on your property. It may not be an exact match for your component and there may be unique aspects to your component that the analyst cannot determine in a visual inspection.

Because DMA's analyses are interactive, you can track your actual costs on our Schedule of Components and report back changes at any time and request an updated analysis based on this information.

ESTIMATED USEFUL LIFE (EUL) FOR COMPONENTS

DMA's proprietary cost data base also includes estimated useful life projections for each component cost item. Our sources for these EUL's include RSMean cost data, Fannie Mae Property Condition Assessment tables, and American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Equipment Life Expectancy tables. These are industry averages based on nationwide experience in many different locations, conditions and building types. Since reserve studies are fund planning tools, these are reasonable approaches to guiding that planning, however, the RS performing your study may adjust some EUL's based on (a) what he/she observes about the component condition on site, (b) what your history has been with each component, if known, and (c) other potential impacts on the component due to location, exposure, usage, etc. Other factors will also affect the actual service life that you get from a component. Some components fail completely, i.e., they no longer work; others fail gradually through aging. For those components, the decision to replace may be guided by the amount of maintenance the component is requiring, obsolescence of the component, better technology and cost savings from new components, and relative appearance or operating condition that impacts the perception of your property or facility by owners / users.

You should also remember that reserve studies are not prescriptive maintenance plans for your property. The final decision to replace a component rests with the Board of Directors based on its actual condition, relative priorities, and other maintenance options.

ENHANCED LIFE CYCLE INFORMATION

All reserve studies provide the estimated useful life of the components. Only DMA analyses include the component's last "in-service" date, the component age and a projection of recurring replacement intervals after the initial replacement. These tools allow us to customize replacement planning, accommodate recurring partial replacements and adapt our life cycle projections to your actual experience.

THE VALUE OF DMA'S INTERACTIVE ANALYSIS

DMA's reserve analyses are designed to be management tools – not simple reports. They are designed for ease of modifying, updating and re-analyzing the reserve funding model for your property or facility based on your ongoing actual experience. Good facility management is the ability to respond intelligently to change as it occurs. Traditional reserve studies cannot do this, but DMA's Interactive Reserve Studies can keep you on top of these issues through the use of our reserve analysis tools and our professional assistance – available to you at any time after your initial study has been completed.

If you have additional questions about DMA reserve studies, please contact us at our office at 804-644-6404 or by e-mail at contact@dma-va.com.

DMA Reserves

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Year	Index	Difference	% Increase	Direct Cost Multiplier	Period in Years	Average Annual Escalation	Month
2015	206.7	0	0.00%	1.0000	0	n/a	As of January
2014	204.9	1.8	0.88%	1.0088	1	0.88%	July
2013	201.2	5.5	2.73%	1.0273	2	1.36%	July
2012	194.6	12.1	6.22%	1.0622	3	2.03%	July
2011	191.2	15.5	8.11%	1.0811	4	1.97%	July
2010	183.5	23.2	12.64%	1.1264	5	2.41%	July
2005	151.6	55.1	36.35%	1.3635	10	3.15%	July
2000	120.9	85.8	70.97%	1.7097	15	3.64%	July

Calculation of Cost from One Year to Another:

Index for Year A / Index for Year B * Cost in Year B = Cost in Year A

R S Means Company maintains a construction cost database for North America, that is updated quarterly (4 times per year). The current company was incorporated in 1984, but has existed in other forms previously. The company claims to have maintained cost data for over 70 years. In addition to current costs for both materials and labor, R S Means maintains a historical index of these costs, which they publish for a time period going back 20 years.

DMA uses these historical indexes as a logic base for projecting future construction cost escalation (inflation). In order to have a logical basis for the inflation rate used in this study, we offer this guide to selecting the rate that the association wants to use. Generally, the longer the look-back period (say 15 years vs. 5 years) the more conservative your future inflation projection will be.

In making a selection for future inflation, keep in mind that if your selected rate varies significantly from the current inflation rate, you should make a corresponding adjustment to the projected interest or earnings rate on your money kept in a savings or money market account, as those rates follow (but do not equal) inflation rates.



NATIONAL STANDARDS

The following has been summarized from the National Reserve Study Standards as set forth by the Community Association Institute (CAI).

General Information

Reserve Study

A Reserve Study is made up of two parts, 1) the information about the physical status and repair/replacement cost of the major common area components the association is obligated to maintain (Physical Analysis), and 2) the evaluation and analysis of the association's Reserve balance, income, and expenses (Financial Analysis). The Physical Analysis is comprised of the Component Inventory, Condition Assessment, and Life and Valuation Estimates. The Component Inventory should be relatively "stable" from year to year, while the Condition Assessment and Life and Valuation Estimates will necessarily change from year to year. The Financial Analysis is made up of a finding of the client's current Reserve Fund Status (measured in cash or as Percent Funded) and a recommendation for an appropriate Reserve contribution rate (Funding Plan).

Physical Analysis

- Component Inventory
- Condition Assessment
- Life and Valuation Estimates

Financial Analysis

- Fund Status
- Funding Plan

Levels of Service

The following three categories describe the various types of Reserve Studies, from exhaustive to minimal.

I. Full: A Reserve Study in which the following five Reserve Study tasks are performed:

- Component Inventory
- Condition Assessment (based upon on-site visual observations)
- Life and Valuation Estimates
- Fund Status
- Funding Plan

II. Update, With-Site-Visit/On-Site Review: A Reserve Study update in which the following five Reserve Study tasks are performed:

- Component Inventory (verification only, not quantification)
- Condition Assessment (based on on-site visual observations)
- Life and Valuation Estimates
- Fund Status
- Funding Plan

III. Update, No-Site-Visit/Off Site Review: A Reserve Study update with no on-site visual observations in which the following three Reserve Study tasks are performed:

- Life and Valuation Estimates
- Fund Status
- Funding Plan

For more information go to www.caionline.org or contact:



Interactive Reserve Analysis

ON-GOING MAINTENANCE SERVICES FOR DMA CAPITAL RESERVE WORKING PLANS

DMA offers several maintenance and updating services for your Capital Reserve Working Plan.

INITIAL PLAN CHANGES

Within 90 days after delivery of the post-work session reserve study to you, we will make any requested corrections or revisions to the plan and resend the spreadsheets to you at no additional charge.

PERIODIC REVIEWS

At any time after delivery of your Capital Reserve Working Plan, DMA can review it to address any of the issues below:

- Major projects, unexpected expenditures
- Actual bids or contracts that vary in price from the study estimate
- Addition of new components / deletion of components from reserve account
- Deferral or advancement of replacement projects from estimated dates in the study
- Material changes in your community's financial position
- Changes or updates to the projected inflation rate or interest percentage earned on funds
- Annual review of the study by the Board or Management for next year's budget

We will make any requested revisions to the plan for an *hourly* charge of \$150.00 (One Hundred and Fifty Dollars), and resend the spreadsheets to you. We also have DMA's *file share* site where we can upload the schedule of components and you can make proposed changes to the schedule yourself and upload it back to the site. We can then update the study from that information. Typically, the time involved in these updates is

one to two hours. On-line work sessions can be held also, at the same hourly rate. The maximum hourly cost for an annual update will not exceed the cost for a *Level III* study defined below. Our hourly fee for On-Going Working Plan Maintenance is charged in 30 minute increments.

LEVEL II RESERVE STUDY UPDATE (with site visit)

At any time after completion of a DMA prepared Level I or Level II capital reserve study we can perform a complete Level II Update. This includes revisiting your property and re-evaluating all components. We then re-price all reserve components, revise inflation and interest rates, update beginning year to current year, and include any changes in your reserve account status and status of components, actual replacement dates and costs, as provided by you. This service includes one on-line work session and one follow-up session. This service is priced by proposal only. Please visit our website to make a request for a proposal. We recommend that a Level II study be performed at least every 3 to 5 years.

LEVEL III RESERVE STUDY FINANCIAL UPDATE (without site visit)

At any time up to four years after completion of a DMA prepared Level I or Level II capital reserve study, we offer a reserve study financial update which will include re-pricing all reserve components, revisions to inflation and interest rates, update beginning year to current year, and include any changes in your reserve account status and status of components, actual replacement dates and costs, as provided by you. This service includes one on-line work session and one follow-up session if necessary.

If you have additional questions about DMA reserve studies, please contact us at our office at 804-644-6404 or by e-mail at contact@dma-va.com.