

Chapter 3 - Budgeting within the Budget

At the end of *Chapter 2* the first month's budget was completed with all the bills being paid. Within the budget is the task to transfer monies to specific categories in the Supplemental account. The Table below displays the applicable categories and when the bills come due.

Bill Name	Due Date	J	F	M	A	M	Balance
College Fund	N/A	\$100					\$100
Emergency	N/A	\$460					\$460
Miscellaneous	N/A	\$90					\$90
Oil Change	10/1	\$10					\$10
Rainy Day	N/A	\$115					\$115
Savings	N/A	\$200					\$200
Trash Service	10/1	\$15					\$15
Vitamins	9/1	\$10					\$10

Developing Every Budget Item into Fixed Amount

The additional massaging of the budget maintains the same goal which is to establish every bill as close as possible to a solid, *fixed amount* (*When the payment remains the same in each billing period*). Paying the same amount every month creates consistency making it known what is owed at the highest level meaning all bills are covered every month, no matter what time of year it is. Spending time upfront develops a *modicum* of work later and the comfort of knowing everything is taken care of. (*a small quantity of a particular thing*) While this practice of putting money aside for future bills promotes security it does not cover the entire spectrum of the Supplemental account. The items in the above Table cover known, fixed bills however, they do not account for bills that fluctuate in price throughout a given year. Examples of this are utilities, gasoline and grocery bills. Other bills are only due for a portion of the year such as seasonal lawn cutting in the summer or a bowling league that can last for two to six months. These types of scenarios require additional work to develop fixed payment schedules.

Varying Payment Schedules

Just as there are seasons for the weather there are seasons for some of the bills that are paid. Common examples are sending the kids to summer camp or cooking class. No matter the activity the amount of payment is significant enough to warrant a mini-budget to pay for them. Otherwise it takes away from Leftovers which should never be the goal. That money is reserved for free spending.

3.1 Paying Bills in Lump Sums

When choosing to pay for services rather than the necessities in the budget certain businesses may offer cheaper rates for the entire billing cycle rather than paying in month to month. The reason is that if a business can retain a full cycle of cash it alleviates them from having to collect each month and reduce the odds of customers not paying them.

When a business has more cash on hand it gives them increased flexibility to use that money to run their operations. As a consumer obtaining cheaper rates is always the goal, however it may come at price in the form of having to pay more money up front. Common examples of this are

from satellite radio, hosting fees for websites and yoga classes. The Gym membership is an example which can be found in the budget at \$26 each month.

See the following example to see how the rate is achieved and how much money needs to be saved to pay for it. The city art museum and science center is offering a yearly membership for \$504 per year at \$42 per month but is willing to offer the \$26 price at \$312 per year if that money is paid in a lump sum. This creates a \$16 savings per month and total savings of \$19.

Scenario	Payment	Total Year	Difference
Monthly	\$42	\$504	\$0
Lump Sum	\$312 (monthly avg. \$26)	\$312	\$192

When beginning the membership from a financial standpoint, the \$312 is the obvious choice. From a liquidity standpoint the \$42 per month may seem like the better option, however budgeting is always about spending less to increase cash position. When it comes to money it always more difficult to vision the lower payment when having to pay a lump sum upfront.

The other part of the equation is that after paying the \$312, every subsequent month \$26 needs to be saved in order to pay the lump sum next year. This is reflected in the Memberships line item in the budget. So, from the upfront payment of \$312, another \$312 is due in the 13th month again for second year equating to \$624 which will be found in Supplemental account. If the choice was to pay monthly at \$42 it would total \$1,008 after two years; and this is why paying in a lump sum is the clear choice as it nets a savings of \$384.

It is important to note with some memberships that they can be tied into a contract where cancelling before the period can involve penalty fees. As for the art museum, if it were contracted for a year and the decision was to quit after the 12th month, the \$312 saved for the second year is free to use in any capacity in the budget or to spend freely.

3.2 Extra Curricular Activities (12-month Expense Planning)

Let's say Jasper decided to join a bowling league that begins on September 8th to March 30th, which is 30 weeks. The cost for bowling is \$8 and raffles and snacks come to \$14 equating to \$22 each week. Taking this into account it totals \$660 for a year's period (30 x \$22).

-September through March → \$660 / 7 = \$94.28 per month

-April through August → \$0

-One year → 660 / 12 = \$55 per month

Month	Projected	Cost	To Supp	From Supp
January	\$55	\$88	--	\$33
February	\$55	\$88	--	\$33
March	\$55	\$110	--	\$55
April	\$55	\$0	\$55	\$0

Month	Projected	Cost	To Supp	From Supp
May	\$55	\$0	\$55	\$0
June	\$55	\$0	\$55	\$0
July	\$55	\$0	\$55	\$0
August	\$55	\$0	\$55	\$0
September	\$55	\$88	--	\$33
October	\$55	\$88	--	\$33
November	\$55	\$88	--	\$33
December	\$55	\$110	--	\$55
Total	\$660	\$660	\$275	\$275

3.3 Upfront Cash for Monthly Fluctuating Payments (12-month Expense Planning)

These types of payments are similar to the utilities in that each month a different amount is charged however in this scenario what the actual amounts will be charged each month can be pre-calculated. Common examples of this are sun tanning and yoga classes where many service days may be required each month. Typical payment schedules are weekly, or monthly, which is the simplest to configure. The Figure below displays a one-year calendar to determine a general schedule.

JANUARY							FEBRUARY							MARCH							APRIL						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7				1	2	3	4					1	2	3	1	2	3	4	5	6	7
8	9	10	11	12	13	14	5	6	7	8	9	10	11	4	5	6	7	8	9	10	8	9	10	11	12	13	14
15	16	17	18	19	20	21	12	13	14	15	16	17	18	11	12	13	14	15	16	17	15	16	17	18	19	20	21
22	23	24	25	26	27	28	19	20	21	22	23	24	25	18	19	20	21	22	23	24	22	23	24	25	26	27	28
29	30	31	26	27	28	29	25	26	27	28	29	30	31	29	30												
MAY							JUNE							JULY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5					1	2	1	2	3	4	5	6	7				1	2	3	4	
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25
27	28	29	30	31	24	25	26	27	28	29	30	29	30	31	26	27	28	29	30	31							
SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1		1	2	3	4	5	6					1	2	3							1
2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22
23	24	25	26	27	28	29	28	29	30	31	25	26	27	28	29	30	23	24	25	26	27	28	29				
30																			30	31							

For this exercise child care will be the targeted service. The schedule is every Monday and Wednesday with a daily cost of \$37 along with an \$85 yearly registration fee. Holidays and

vacations are highlighted in red. The next step is to determine how many days each month will be required.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	9	8	9	8	8	8	7	7	10	8	6

The total number of days for the year total 95 with many varying service days for each month.

$$\$95 \times \$37 = \$3,515 \rightarrow \$3,515 / 12 = \$292.91$$

$$\$85 / 12 = \$7.083 \rightarrow 292.91 + \$7.083 = \$299.993 \text{ rounded to } \$300 \text{ per month}$$

$$\$300 \times 12 = \$3,600 \text{ per year}$$

When establishing bill allocation plans it may take some upfront cash to pad the Supplemental account before the plan works successfully for the non-fixed bills. For example if the first three months in a cycle are projecting over budget the money to pay the bill has to come from somewhere.

As with paying bills either personally or in business startup money is required to get the program up and running. With personal budgeting the simple rule is do not pay anything that can't be afforded. That's the essence of having a budget and determining the scheduled payment frequencies and amounts. Start with the necessities such as rent or gasoline and add in the niceties such as a bowling league later; that payment may be better used to amass startup cash for fluctuating schedules in other areas of the budget.

As for day care, in the first month, money is sent to the Supplemental account but in the second month there is not enough money to cover the bill amount in February in light of money be transferred into the main account back from Supplemental. In order to prevent this there two key steps:

- 1) Use money from other sources to pay for months that have a shortfall
- 2) Find the breakeven point where there is enough cash to cover the current year and enough cash to supplement the next year cycle to prevent a shortage when bills come over projection.

The Table below provides a monthly breakdown for day care for what cash is going into and out from Supplement and what additional cash is required stay out of a negative balance.

Month	To Supp	From Supp	Balance	Added Cash	New Balance in Supp
Jan	\$33.92	--	\$33.92	--	\$33.92
Feb	--	\$40.08	(\$6.16)	--	(\$6.16)
Mar	--	\$3.08	(\$9.24)	--	(\$9.24)
Apr	--	\$40.08	(\$49.32)	--	(\$49.32)
May	--	\$3.08	(\$52.40)	--	(\$52.40)

Month	To Supp	From Supp	Balance	Added Cash	New Balance in Supp
Jun	--	\$3.08	(\$55.48)	--	(\$55.48)
Jul	--	\$3.08	(\$58.56)	\$58.56	\$0
Aug	\$33.92	--	\$33.92	--	\$33.92
Sep	\$33.92	--	\$67.84	--	\$67.84
Oct	--	\$77.08	(\$9.24)	--	(\$9.24)
Nov	--	\$3.08	(\$12.32)	\$12.32	\$0
Dec	\$70.92	--	\$70.92		\$70.88

For the year's projection it shows that a negative balance would occur in February and not until August is the actual payment below the projection. At that point adding up the months from February through July comes to \$58.56. In August and September cash is added back in but a negative balance of \$12.32 ensues in October through the rest of the year. Adding \$58.56 to \$12.32 comes to \$70.88, which is the breakeven point for what is needed upfront in order to have the cash to average the budgeted amount of \$300. In the instance where the last month in any bill cycle is scheduled to forward money to the Supplemental account, that amount will carry over and be the "new" Added Cash when the new billing cycle begins. With child care the \$70.92 infusion is enough to cover the entire years billing cycle. This exercise is only required once due to establishing a fixed amount. If the bill were to raise or lower typically a minor adjustment is needed to maintain a consistent billing schedule.

Month	Budget	Cost	To Supp	From Supp	Added Cash	Supp Bal
Jan	\$300	\$266.08	\$33.92	--	\$70.88	\$104.80
Feb	\$300	\$340.08	--	\$40.08	--	\$64.72
Mar	\$300	\$303.08	--	\$3.08	--	\$61.64
Apr	\$300	\$340.08	--	\$40.08	--	\$21.56
May	\$300	\$303.08	--	\$3.08	--	\$18.48
Jun	\$300	\$303.08	--	\$3.08	--	\$15.40
Jul	\$300	\$303.08	--	\$3.08	--	\$12.32
Aug	\$300	\$266.08	\$33.92	--	--	\$46.93
Sep	\$300	\$266.08	\$33.92	--	--	\$80.16
Oct	\$300	\$377.08	--	\$77.08	--	\$3.08
Nov	\$300	\$303.08	--	\$3.08	--	\$0
Dec	\$300	\$229.08	\$70.92			\$70.92
Totals	\$3,600	\$3,599.96	\$172.68	\$172.64	\$70.88	\$70.92

The .04 overage in the Budget reflects the .04 overage in the To Supp as well as the Supp Bal versus the Added Cash. Hence, the funds are balance for Child Care.

3.4 Seasonal Bill Schedules (12-month Expense Planning)

In climates with seasons that have huge swings in temperature, the usage of electricity and natural gas fluctuates. This applies more for those who own or rent a home. (Often times when renting an apartment or condo these bills may be included in the rental price) The pitfall depending on the region of dwelling is that bills can be higher in the colder months and lower in the warmer months or vice versa. In some climates air conditioning is ran all year and in some

climates there no air conditioning used at all. The key is to following the exercise in Table below to come to an average bill. To mitigate the swings in the bills, contact the utility company and ask them to mail a history of the last year or two (if they keep records). More than likely this information is available online through the company’s website. The Figure below is a sample of a natural gas bill for a typical Midwest climate.

Month	Cost	Condition
December	\$72	Fall/winter crossover - Increased furnace usage
January	\$81	Winter - Increased furnace usage
February	\$92	Winter - Increased furnace usage
March	\$81	Winter/Spring crossover - Furnace usage wanes .
April	\$34	Spring - No air conditioning
May	\$24	Spring - No air conditioning
June	\$22	Spring/summer crossover – Air conditioning may be needed
July	\$44	Beginning of summer – Air Conditioning Impact
August	\$53	Summer - Air Conditioning Impact
September	\$20	Summer/fall crossover - Air conditioning wanes
October	\$32	Fall - May not need heat or air conditioning
November	\$45	Fall - Beginning to use furnace

The total bill for the year is \$600. The average bill in the lower gas periods is \$29.5 and in the higher periods it is \$70.5 so there is a large dichotomy. Now that entire year has been calculated simply finding the average will determine what amount to project in the budget each month.

-April through June and September through November → \$177 / 6 = \$29.5

-December through March and July and August → \$423 / 6 = \$70.5

-Total → \$600 / 12 = \$50

Per the Jasper’s budget, \$50 is the amount projected each month. This same exercise can be performed with the water and electric bills or any item that follows this type cycle. Now that an average amount has been established, most of the months during the year will have the actual bill reflect differently than what was projected. Therefore, money will have to be transferred to the Supplemental account when the actual amount is lower than the projected amount and transferred to the main account when the actual amount is over the projected amount. The Table below displays the projected money exchanges for a year. To ensure the math is correct, what went to Supplement and came from Supplement will be the same the amount.

Month	Projected	Cost	To Supp	From Supp
January	\$50	\$81	--	\$31
February	\$50	\$92	--	\$42
March	\$50	\$81	--	\$31
April	\$50	\$34	\$16	--

Month	Projected	Cost	To Supp	From Supp
May	\$50	\$24	\$26	--
June	\$50	\$22	\$28	--
July	\$50	\$44	\$6	--
August	\$50	\$53	--	\$3
September	\$50	\$20	\$30	--
October	\$50	\$32	\$18	--
November	\$50	\$45	\$5	--
December	\$50	\$72	--	\$22
Total	\$600	\$600	\$129	\$129

The added cash analysis:

Month	To Supp	From Supp	Added Cash	New Balance in Supp
January	\$0	\$31	\$104	\$73
February	--	\$42	--	\$31
March	--	\$31	--	\$0
April	\$16		--	\$16
May	\$26		--	\$42
June	\$28		--	\$70
July	\$6		--	\$76
August		\$3	--	\$73
September	\$30	--	--	\$103
October	\$18		--	\$121
November	\$5		--	\$126
December	\$	\$22	--	\$104

Utility Budget Plans

Many utility companies will set up a budget plan where they take they check the prior year's total cost divide it by 12 and charge that amount for the next twelve. If the actual gas or electric used in is less than what was paid then they issue you a credit, however if the actuals are above the budgeted amount they will tack it on the bill. In any scenario the actual electric and gas used will have to be tracked to know how the year end budget will end up.

3.5 Estimating Payments (12-month Expense Planning)

There are bills that are paid on a regular basis yet the predictability of them can be difficult to measure. The most common example of this is gasoline. The price can fluctuate by five or ten cents in a given week and sometimes the price remains stable for weeks at a time. In the late 2000's gas trended upward due to the increased demand from countries such as India and China keeping prices toward the high end of the spectrum. However, the United States has become a large enough producer in recent times due to fracking to push supplies up and prices down.

With the constant fluctuation in prices estimating a monthly gasoline bill it begins with two things:

-Determining gas mileage on the vehicle and fuel tank size

-Determining the how many miles are driven each week

Finding out the fuel mileage and is a simple exercise. By way of an owner's manual or a web search, mileage will be displayed by city and highway. For example, say vehicle XYZ gets 15 city / 22 highway with a fuel tank of 17 gallons and gas costs \$2.32 per gallon.

$\$2.32 \times 17 = \39.44 (\$39 rounded)

The next step is to determine how much city and highway driving occurs in conjunction with how miles are driven each week round trip. Typically, errands and leisure activities vary week to week so they are estimated. (The miles in the table are doubled based on each destination being a round trip)

Destination	Miles (2x)	Trips	Total	City	Hwy
Work	12	4	96	32	64
Gym	5	2	20	10	10
Errands (est)	--	--	15	5	10
Family / Friends	4	2	16	2	14
Leisure Activities (est)	--	--	15	5	10

In reviewing the table the city miles driven totals 54 and highway 108 for a total 162. The next step is to calculate their use by percentage:

City $54 / 162 = 33.3\%$, Highway $108 / 162 = 66.6\%$

Being that the trip table does not have firm numbers the only way to tell how many miles each fill up is getting is to drive the vehicle through two or three cycles. In this scenario it is determined that it takes two weeks before having to fill up again bringing the total miles in the table to 334. To confirm the actual miles driven, comparing the odometer between the start and end of fill ups or by the vehicle's trip computer will determine the actual miles driven. For example, it is found that the vehicle is getting 350 miles per tank bring the math to:

$350 \text{ miles} / 17 \text{ gallons} = 20.58 \text{ per gallon}$

Being that two-thirds of the miles are highway, the 20.58 miles per gallon is plausible with a 15 city / 22 highway range. Furthermore, based on this calculation the estimated miles were 334 versus the actual of 350 rendering the trip table estimate to be highly accurate. This means that given the same driving pattern 26 fill ups will be required each year.

$26 \text{ weeks} \times \$39 = \$1,014$

$\$1,014 / 12 \text{ months} = \84.5 per month (\$85 rounded)

Using the calendar it tells Jasper that 10 months will require two fill ups and two months will require three fill ups. Beginning with the first Friday, January 4th, based on the 2013 calendar, March and August will incur the third payments. Based on an \$85 monthly average there is a \$7 surplus in regular months (\$85 - \$78) to go into supplement to pay for the two months with the additional fill up. In the three-fill up months there will be deficit of \$32. (\$117 - \$85) Therefore, a table needs to be made to see if any added cash is necessary to establish the one year cycle as in the previous section.

Month	To Supp	From Supp	Balance	Added Cash	New Balance in Supp
Jan	\$7	--	\$7	--	\$7
Feb	\$7	--	\$14	--	\$14
Mar	--	\$14	(\$18)	\$18	\$0
Apr	\$7	--	\$7	--	\$7
May	\$7	--	\$7	--	\$14
Jun	\$7	--	\$7	--	\$21
Jul	\$7	--	\$7	--	\$28
Aug	--	\$28	(\$4)	\$4	\$0
Sep	\$7	--	\$7	--	\$7
Oct	\$7	--	\$7	--	\$14
Nov	\$7	--	\$7	--	\$21
Dec	\$7	--	\$7	--	\$28

In above Table the ending Supplemental Balance at the end of the year is \$28 as a result of adding \$22. This extra money will be carried over into the next year without having the need for more Added Cash in the future. All things being equal the \$28 could be reduced to \$22 but with varying gas prices having extra cushion in case its needed is a good strategy.

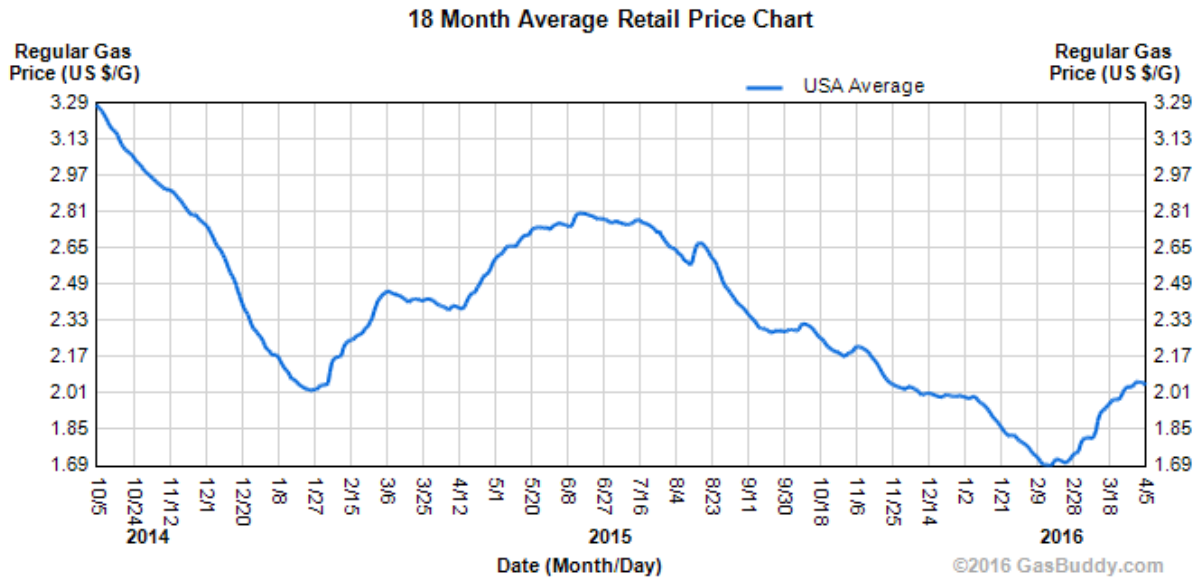
Month	Budget	Payment	To Supp	From Supp	Added Cash	Supp Bal
Jan	\$85	\$78	\$7	--	\$28	\$35
Feb	\$85	\$78	\$7	--		\$42
Mar (3)	\$85	\$117	--	\$32		\$10
Apr	\$85	\$78	\$7	--		\$17
May	\$85	\$78	\$7	--		\$24
Jun	\$85	\$78	\$7	--		\$31
Jul	\$85	\$78	\$7	--		\$38
Aug (3)	\$85	\$117	--	\$32		\$6
Sep	\$85	\$78	\$7	--		\$13
Oct	\$85	\$78	\$7	--		\$20
Nov	\$85	\$78	\$7	--		\$27
Dec	\$85	\$78	\$7	--		\$34
Totals	\$1,020	\$1,014	\$70	\$64	\$28	\$34

This exercise allows a good management of the budget however, the price for gas is unstable; it generally fluctuates widely in recent year where the price can be \$1 different from the prior

year. According to *Gas Buddy.com* the following table reflects the high points for gas prices from 2008 to 2012:

Month	Low Price	High Price	Fluctuation
2008	\$1.61	\$4.12	\$2.51
2009	\$1.80	\$2.70	\$.90
2010	\$2.61	\$2.90	\$.29
2011	\$3.20	\$3.92	\$.72

From the chart the fluctuation in the calendar year was as large as in 2008 at \$2.51 and on the inverse \$.29 in 2010 however, from the beginning of 2009 to the end of 2011 the change was a \$1.10 increase. Moreover, the price increase from the beginning of 2008 through 2011 was an increase of \$2.31.



When managing gas prices in the budget it is imperative watch the fluctuations in gas prices. Simply by keeping tabs in media outlets there is plenty of information regarding the trends of the prices. This will allow a good monthly projection each month. When they rise over the projected amount it will decrease money in the spending budget to pay for it and create more if the price comes under. A good rule of thumb is to project \$.25 over the current price at the beginning of each month to create a buffer. Additionally, websites such as Gas Buddy either online or through an app searches for the lowest gas prices by zip code.